

OER4Schools

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A professional learning programme for
interactive teaching and learning with and without ICT

Facilitator version

THE CENTRE FOR



COMMONWEALTH
EDUCATION

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The OER4Schools Professional Learning Resource

1 Introduction

"If we teach today's students as we taught yesterday's, we rob them of tomorrow."

John Dewey



This is the professional learning resource of the OER4Schools project at the Centre for Commonwealth Education. For more information about this project, visit the OER4Schools project page (<http://www.educ.cam.ac.uk/centres/cce/initiatives/projects/oer4schools/>). To learn more about the aims and content of the resource, see Overview. If you are planning to use this resource, then do contact us to see whether we can collaborate in some way.

The resource was collaboratively authored, primarily by Sara Hennessy (<http://www.educ.cam.ac.uk/people/staff/hennessy/>), Bjoern Hassler (<http://www.bjohas.de>), Nitu Duggal, Wei Shin Leong, and Janet Blair of the University of Cambridge Faculty of Education, and Abel Makonga and Agness Tembo of Chalimbana Basic School (Chalimbana, Zambia). Other contributors to specific pages are acknowledged there. A number of aspects of the OER4Schools programme at Chalimbana Basic School have been supported by <http://www.apivate.org>.



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2 A quick overview

The video below gives an overview of what the resource has to offer and how it has been used and developed:



VIDEO

Africa Colloquium

Introduction to the OER4Schools Programme

About this video, 12:49, link to YouTube (<http://www.youtube.com/watch?v=fP8OWjxQYok&list=PLF1037800CE0E3F9F>) (local play / download options)(Series: Talks, episode N/A)

VIDEO**Introduction to Chalimbana Basic School**

Introduction to Chalimbana Basic School

About this video, 1:57, link to YouTube (<http://www.youtube.com/watch?v=-dITjCrgqYY&list=PLF1037800CE0E3F9F>) (local play / download options)(Series: Talks, episode N/A)

3 Overview of the resource

Through our research in Zambia we developed a practical professional development (PD) programme for school-based teacher education, supporting teachers to embed interactive methods of teaching and learning into classroom practice through the exploitation of mobile technologies. It moves beyond technology and skills-focused initiatives by highlighting the crucial role of teacher support in promoting innovation and experimentation with teaching styles. Our overall goal is to focus on learning, meeting the challenge of moving away from superficial repetition of facts towards deeper learning and understanding. We aim to develop teachers' capability to use tablets, netbooks, e-book readers, Open Educational Resources (OER) and Open Source software effectively to support students' learning in mathematics and science through active participation, dialogue and collaborative enquiry. Our participatory approach especially values the 'voices' of everybody involved. The research is founded on principles of effective pedagogy in teacher education and classroom teaching in sub-Saharan Africa. The professional learning programme is suitable for low-resourced primary schools and colleges (combined with teaching practice), and freely available as an OER. The resource consists of 25 two-hour sessions, organised in five units, covering interactive teaching principles, group work, questioning, dialogue, Assessment for Learning, and enquiry-based learning. Each session is clearly structured and includes unique, professionally filmed video exemplars of interactive practices in Zambian and South African classrooms, accompanying texts co-authored with teachers, and facilitator notes. It builds on an established, sustained teacher-led process for sharing and trialling new practices and digital resources; peer observation; discussion and joint reflection.

4 Units in the professional learning resource

Overview of the resource:

- Unit 1: Introduction to interactive teaching and the use of ICT
- Unit 2: Whole class dialogue & effective questioning
- Unit 3: Group work
- Unit 4: Assessment for learning and lesson pacing
- Unit 5: Enquiry-based learning and project work
- Unit 6: Sharing the vision and action research

See the detailed outline for more information.

The content is developed collaboratively between our facilitators Abel Makonga and Agness Tembo at Chalimbana Basic School and our team at the Centre for Commonwealth Education. We currently only have English language versions. However, you can use Google Translate to view French (<http://translate.google.com/translate?hl=en&sl=auto&tl=fr&u=http%3A%2F%2Forbit.educ.cam.ac.uk%2Fwiki%2FOER4Schools>), Portuguese (<http://translate.google.com/translate?hl=en&sl=auto&tl=pt&u=http%3A%2F%2Forbit.educ.cam.ac.uk%2Fwiki%2FOER4Schools>), Swahili (<http://translate.google.com/translate?hl=en&sl=auto&tl=sw&u=http%3A%2F%2Forbit.educ.cam.ac.uk%2Fwiki%2FOER4Schools>) and other language versions.

You can also join us on facebook: <https://www.facebook.com/groups/oer4schools/>

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Introduction 0.1 - Overview

Introduction. This is a professional learning resource for teachers, focusing on interactive pedagogy for teaching with and without Information and Communication Technology (ICT). A key feature of this resource is the use of video as a stimulus for discussion. The video used has been produced mainly in the Zambian primary school context, but we anticipate other video materials to become available, and we hope the material will be useful in other contexts too.

Interactive teaching. The resource introduces and illustrates interactive teaching – using interactive teaching techniques itself! These include asking users to brainstorm, reflect, collaborate, discuss, make personal sense of new ideas and try out new classroom practices. "Interactive" in this context does not mean technically interactive (in the sense of interacting with a computer), but pedagogically interactive: learners are interacting with each other and the teacher rather than being passive consumers of content.

The programme draws on a number of techniques and ideas, include reflective practice (the cycle of "Plan-Teach-Reflect^(a)"), Leadership for Learning, the "Index for Inclusion", and the "most significant change" technique (a participatory way of identifying significant changes).

Modes of use. The resource can be used in different ways, depending on your circumstances. It supports different modes of learning, such as

- individual, self-paced learning,
- use by small, informal groups of colleagues,
- use with a class of students on a formally taught pre-service or in-service course,
- use by staff of a whole school, or for
- blended learning – as part of a distance learning course with some face-to-face workshops.



The section How to use this resource gives further information about using the material, for instance for individual, self-paced learning, or for use by small, informal groups of colleagues, while the page on how to facilitate workshops provides an introduction on how you might run workshop sessions.

Content. The resource consists of 6 units, including one introductory unit, 4 topic-based units, as well as a concluding unit called "Sharing the vision". The units are

- Unit 1: Introduction to interactive teaching and the use of ICT
- Unit 2: Whole class dialogue & effective questioning
- Unit 3: Group work
- Unit 4: Assessment for learning and lesson pacing
- Unit 5: Enquiry-based learning and project work
- Unit 6: Sharing the vision and action research

See the detailed outline for more information.

Format. Each unit includes an introduction to that unit (providing an overview of the topic itself), and a number of activities, including

- Personal reflections on textual material about interactive teaching,
- Workshop activities based on discussing video, audio and photographic stimuli,
- School-based classroom activities for teachers to try out during lessons,
- Guidance for teacher reflection (following their lessons),
- Educator reflections – for teacher educators who might be using this resource to run face-to-face,

blended, or distance learning programs.

Versions. The resource is available as a version for participants, as well as a version for facilitators with additional notes. General “teacher” text is for use in a workshop or by individuals or classes using the resource (“users”) to support their own professional learning. Users could have that text in front of them on a projector or printed out. It might effectively be used as a series of slides or a handout, that provide a thread through the resource or workshop.

Licence. This resource is openly accessible under a Creative Common licence so that it can be freely distributed, copied or adapted. To facilitate this in practice, it will be available in a number of formats (online and offline), appropriate to the varied sub-Saharan environments in which teachers find themselves. Please check our website <http://www.oer4schools.org> for available formats. In addition, our videos are available from our YouTube site, <http://www.youtube.com/user/OER4Schools>. If you do not have access to the internet, then do speak to the person who gave you these materials about how to find out more information.

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Introduction 0.2 - Detailed outline

In this chapter, we provide a brief overview of each unit in the programme. Each unit is preceded by an introductory page, which gives lesson objectives and success criteria for each session in that unit. A full table, giving lesson objectives and success criteria across all sessions for all units is available here.

Unit 1: Introduction to interactive teaching and the use of ICT. The unit offers an introduction to interactive teaching with and without ICT. It introduces the idea of “plan-teach-reflect”, as well as lesson planning to include interactive activity. The unit covers the following aspects:

- What is interactive teaching?
- ICTs in interactive teaching.
- Effective use of ICTs, including basic use of netbooks, browser, and images / slideshows (also in OpenOffice Impress).

The aims of Unit 1 are to

- understand principles of interactive teaching - with and without ICT,
- see illustrations and discuss issues involved in implementing it,
- think about changing one’s own practice, and
- develop ways of working with colleagues to reflect on practice, share ideas and trial new strategies.

The unit also introduces the most significant change technique, and at the end of this unit, we look at the Leadership for Learning principles.

Unit 2: Whole class dialogue & effective questioning. The unit’s focus is whole class dialogue and effective questioning. It covers:

- creating a supportive environment for dialogue,
- introducing cumulative talk – creating a story together,
- promoting and managing whole class discussion,
- types and examples of effective questions to ask in class, and
- how to engage students in activity at the blackboard.

At the end of this unit we consider how to communicate with other teachers at the school, with parents, head teachers, as well as officials who might seek to assess your new teaching practices. It also includes some material to support school leaders in providing a conducive learning environment for their staff.

In terms of ICTs, this unit introduces GeoGebra and collaborative writing. You should continue practising your other ICT skills, including typing, and making use of images.

Unit 3: Group work. This unit introduces group work, how to agree on ground rules, and what sort of resources support group work (such as “talking points” and digital resources). In detail, the unit covers

- exploratory talk,
- same task group work,
- different tasks group work,
- group composition and formation,
- ground rules for group work,
- carousel of activities for group work,
- mixed pace group work and differentiation, and
- talking points activity for promoting group interaction.

Unit 4: Assessment for learning and lesson pacing. The unit introduces how to find out what your pupils have learnt, and where they need more help, allowing you to use lesson time effectively whilst making sure that your pupils are making continued progress.

In detail the unit covers

- using an assessment inventory as a self-assessment measure,
- sharing learning objectives and success criteria,
- summative feedback,
- formative feedback, and
- peer assessment.

Unit 5: Enquiry-based learning and project work. The unit introduces how to work in an “enquiry-based” way, for instance learning through project work and in-depth, open-ended investigations. We explore a way of teaching and

Preface 2 - Detailed outline

learning that encourages students to take the initiative to pose questions and explore their curiosity about the world around them, through a process of enquiry.

Unit 6: Into the future. This unit reviews the programme, and continues to make connections between the various interactive practices introduced throughout the programme. It also offers an introduction to action research and communities of practice, through which teachers can continually evolve their teaching practice.

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Introduction 0.3 - How to use this resource

1 Important information about how to use this resource

The nature of our resource is a practical invitation to try out interactive teaching.

We envisage this resource to be used in a variety of circumstances, most likely by individual teachers, groups of teachers, or teacher educators. We also assume that in some sense you are a practising teacher, and are able to put what you have learnt into practice, for instance in the context of running a programme at your school, or during teaching practice.

The programme's main mode of delivery would be as weekly, or bi-weekly workshops, for all teachers at the school, over the course of one or two years. However, you can use the programme in other ways, such as running a few sessions, dipping in and out of the units or sessions.

The programme is intended to be used by teachers, and would typically be facilitated by one or two teachers at the school, working with a larger group of teachers. While you could use the programme individually, and would hopefully find some inspiration from it, we recommend that you use the programme at least in a pair of teachers, so that you are both able to give and receive feedback.

If you are facilitating the programme (working with a group of teachers) we recommend that you facilitate as a pair with another facilitator. This is advantageous as you can prepare sessions together, take turns in the workshop, as well as give and receive feedback on how the sessions went.

2 Being aware of the wider context and the overarching goals

Throughout the programme, try to bear in mind the wider context. This resource has been developed in a specific Zambian context, and while it is applicable to other contexts, you will probably make suitable modification and adaptations (potentially even for use in other Zambian schools). We do not see this programme as something that is set in stone, but as something that is flexible and adaptable.

To bring awareness to the wider context, you may want to consider the following questions:

- What are the issues with primary education in your country?
- Why have participants been invited to the OER4Schools programme?
- What are teachers' expectations?
- What are they expecting to learning?
- How will they attend?

Consider that some teachers attending will be concerned with the big picture, others with the detail.

You should also consider the overarching goals of the programme. For instance, what is the rationale for running workshops in the first place? One important element is that workshops model practices that teachers are supposed to implement in the school e.g. offering opportunities for dialogue.

If you are running this programme for all teachers at the school, then what is the best way of organising that? How do you do a whole-school process at your school? Who needs to be involved?

3 Being aware of the overarching educational

principles

We now turn to the overarching pedagogical principles.

Key interactive pedagogy for the workshop. We will soon look at some of the principles for interactive teaching in the context of the workshops. However, let us have a brief look now.

Background reading

The principles of interactive teaching include

- recognising children as individuals *actively* engaged in interacting with the world, rather than passive recipients of knowledge,
- assessing learning needs and tailoring teaching to the child's current level of knowledge and understanding ("scaffolding" or "child-centred" approach,
- "multimodal" interaction and expression – using different modes of presenting material and expressing ideas (drawing, video, audio as well as conventional texts) to engage learners,
- higher-order thinking – encouraging skills like analysis, synthesis, evaluation, sorting and categorising,
- improvable ideas – providing an environment where ideas can be critiqued and refined,
- diversity of ideas – exploring ideas and related/contrasting ideas, encouraging different ideas,
- building directly on others' ideas to create joint knowledge products,
- democracy in knowledge building – everybody participates and is a legitimate contributor to knowledge, and
- learner agency and peer support – encouraging students to take responsibility for their own and one another's learning.

The interactive pedagogy in the workshops making up our programme is closely aligned with this interactive pedagogy in the classroom. Read through the above principles again - and think about how these might be expressed in a workshop session (with a group of teachers).

Here are some of the key principles which the workshop sessions draw on:

Reflection as part of Planning-Doing-Reflecting. Often we just plan and then do something without reflecting on how the "doing" went. For instance, we plan a classroom activity, we teach this activity, but we don't reflect. In the context of this programme, we emphasise reflection, as a key part of learning. We often call this "Plan-Teach-Reflect": We plan, we teach, and then we reflect on how it went. We could even say that some degree of reflection should happen at each stage: we reflect during the planning, during the teaching, and then after the teaching.

Questioning as a tool for reflection. If we are not used to reflection, we often do not know how to reflect. Questions are a really important tool to help you reflect. For instance, when we develop an interactive activity, we should not just mechanically write down what we think makes an interactive activity. Instead, we may want to look at the interactive principles, as ask ourselves whether these are reflected in what we have planned.

A key principle is taking **responsibility** for your own teaching and learning. This means that as a facilitator, you take responsibility for providing a successful workshop, teachers take responsibility for their learning during the workshop and their teaching practice in schools, while school students take responsibility for learning, as well as supporting each other in that process.

Jointly building an understanding of interactive teaching: A key interactive principle is for the "students" to start from what they know, and then to extend that knowledge. In the workshops, this means taking teachers' previous experience seriously, and asking the teachers about their own experience of interactive teaching. For instance, at the end of Session 1, ask participants: What does interactive teaching offer you? You might return to the principles of interactive teaching as a group after a few sessions and classroom trials to see which ones are / are not being addressed.

Modelling: The workshop sessions are designed to be interactive and activities for use in the classroom that support interactive teaching will be introduced and modelled i.e. shown as an example for you to follow, during workshops. At the start of each session, making use of learning objectives and success criteria is modelled to encourage you to take ownership of your learning during the workshop. Teachers as well as facilitators should aim to model participation and interactivity at all levels during workshops, working cooperatively, sharing and building knowledge and developing new skills.

Taking a non-judgemental stance. The facilitator should make very clear that they will not judge the views put forward, but simply make notes of the views put forward.

Important: Make sure that you are clear about the difference between "interactive pedagogy", and "interactive computer

applications" (such as certain types of multi-media, e.g. interactive video). In this professional learning resource, "interactive" always means "interactive pedagogy", i.e. people interacting with each other, not one person interacting with a computer application.

4 Resources you will need (non-ICT)

A key aspect of the programme is **preparation**, which includes having the right resources to hand. The programme (and interactive teaching in general) does depend on having some resources - but many of these you can make or find.

Mini-blackboards (or "mini-whiteboards" or "showboards") are used throughout this programme. Have a look at some of the sessions, to see how these are used, and make sure that you have some available. The mini-blackboards used in the pilot schools for this programme were made locally at relatively low cost.

You should also collect useful things, such as plastic bottles, and other items that can be used for interactive teaching. You will also need items like measuring tapes, and you might need to make some if you do not have any available.

5 Resources you will need (ICT)

The programme can be used with and without ICT. Interactive pedagogy certainly does not depend on having ICT. If you do not have access to ICT resources, you could replace ICT-based sections with other activities (or run slightly shorter workshops).

However, if you have ICT resources, we suggest you draw on them in this programme. As ICT resources will be varied in different settings, you may need to adapt the ICT-based sections to what you have available. You might be able to use the ICT-tools required on netbooks, larger laptops, or tablets.

The following ICT-tools are used throughout this programme (with example activities given in brackets):

- Geogebra^(tool) (see e.g. introduction to GeoGebra)
- Spreadsheet^(tool)
- Word processors^(tool)
- Mind-mapping^(tool)
- Images^(tool) (see e.g. Using images, introduction to slideshows with OpenOffice)
- Typing tutor (see e.g. typing practice with students)
- Optionally, you may want to introduce email during this course, as it can help with communication between different schools. Aptivate (<http://www.aptivate.org>) has an open educational resource for a Basic Introduction to Using Email (<http://oer.aptivate.org/wiki/Email>), which you may want to have a look at.

Note that we look at a different tool for every session, e.g. slideshows in one session, then GeoGebra, then spreadsheets, then back to slideshows. This makes sense if the sessions are spaced out, i.e. if you do one session per week, or one every two weeks. This means that participants do not get bored by working with the same ICT every week for a whole one or two months. However, if you were running the sessions in rapid succession (several sessions per week), it may be better to stick with the same ICTs for a number of sessions, to give participants an adequate opportunity to get familiar and pick up the required skills. You can look at an overview of the ICT activities here.

Educator note

If you are running the programme as envisaged here, you need to become familiar with these tools. Whenever a tool is introduced, there are usually various exercises available. Look through the programme, and familiarise yourself as needed.

Note that at Chalimbana Basic School, we also used Google Apps for Education (<http://www.google.co.uk/enterprise/apps/education/>) in order to be able to easily set up email for everybody, and help with lost passwords, etc. We also used Google sites to put together a simple website for the school: <http://www.chalimbana.org/>

6 Different types of materials

There are also background notes, that are useful to teachers and educators for background reading. They are usually found on separate pages or at the end of units, and are meant to provide additional background information that workshop participants can read in their own time.

Background reading

There are also background notes!

In the facilitators' version, additional notes for facilitators appear (see below) and this is for an educator to use, for example when facilitating a workshop or working with a class of students. These notes are interspersed with the "teacher" text, to provide additional guidance on how to use the resource. He is an example of such a note:

Educator note

In the facilitators' version, additional notes for facilitators are available, which appear in blue boxes like this. They provide additional information for a facilitator.

If you are using this text in a self-guided way (or in a small group), you will want to work from the facilitator's version (i.e. including the facilitator notes), because they provide additional guidance.

7 Chalimbana Basic School

This programme was developed together with and at Chalimbana Basic School. It was run initially during 2012 with teachers in Grade 4 to 6, and in 2013/2014 is being run across Grades 1 to 9. Some of the programme is therefore specific to the setup and circumstances at Chalimbana Basic School (see e.g. the section on resources above).

The following aspects are also specific to Chalimbana Basic School, but you may want to consider to what extent you can include them in your programme too:

- **Audio diaries.** Participants are asked to keep audio diaries, in addition to their reflective journal. Participants would use the audio diary guidance to guide their recordings, which would then be listened to by the team producing the resource, to get a better insight into how effective the programme is. However, participants themselves found this process of reflection through speaking very useful, and you may want to consider a similar process for your circumstances.
- **Assessment portfolios and certification.** Participants were also asked to produce portfolios. These are primarily for formative assessment, and we would highly recommend that you do these, to have a record of your own work. Participants were also offered a certificate, and one of the conditions was to have completed the portfolio. However, even this is quite different from a traditional exam: portfolios should provide evidence of learning, and in particular evidence of having attempted to implement techniques in the classroom, rather than being able to (e.g.) recite the principles of interactive teaching.

If you are not drawing on those aspects, you can ignore references to these in the text of the resource.

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Introduction 0.4 - An introduction to facilitating the OER4Schools programme

1 Things to consider when facilitating workshops

In the previous chapter (How to use this resource) we introduced a number of important ideas around using this resource in general. In this chapter we look more specifically at facilitating a workshop, i.e. we are looking at a scenario where there may be one or two facilitators, working with a group of teachers (say about 10).

If you have previously facilitated this programme, and you would like to induct others in becoming facilitators, you could also look at the introductory facilitators' workshop.

2 Participation

Participation is a key concept in building communities, in decision making, and in international development. One concept in this is the "5 levels (or stances) of participation".

The "five stances of participation" are:

- Information
- Consultation
- Deciding together
- Acting together
- Supporting independent community interests

For further details, see Levels of Participation.

What do you think these might mean? How do these stances relate to interactive pedagogy? Clearly our programme is not just about information and consultation, but it is about deciding and acting together, and supporting teachers in their interests for professional development. And indeed, there is close alignment between the idea of "participation" and modern thinking in education, and with interactive pedagogy in particular.

It is therefore important, that you take a participatory and interactive approach to the workshops. A great resource for running participatory meetings (and making participatory decisions) is the "**Facilitator's Guide to Participatory Decision-Making**". The guide illustrates the following characteristics of participatory groups:

- Everyone participates, not just the vocal few.
- Participants give each other room to think.
- Opposing viewpoints are allowed to co-exist, and participants can accurately represent each other's points of view, even when they do not agree with them.
- Participants pay attention to each other, and the person speaking.
- Participants refrain from talking behind each other's back.

(Adapted from the "Facilitator's Guide to Participatory Decision-Making".)

3 Resources for learning about facilitation

Facilitating participatory workshops (just like interactive teaching) is a skill which you need to practise, and develop over time. To help with workshop facilitation, we are collecting resources for workshop facilitation on this page.

Further resources:

- The organisation Seeds for change (<http://www.seedsforchange.org.uk/>) has good resources (<http://www.seedsforchange.org.uk/resources#grp>) on facilitating workshops and meetings. If you are running this programme as a series of (bi-)weekly two-hour meetings, please have a look at the short guide for facilitating meetings (<http://www.seedsforchange.org.uk/shortfacilitation>), or the full guide for facilitating meetings (<http://www.seedsforchange.org.uk/facilitationmeeting>). If you are running whole day workshops, you might also want to look at the short guide for facilitating workshops (<http://www.seedsforchange.org.uk/shortfacilitatingworkshops>), or the full guide for facilitating workshops (<http://www.seedsforchange.org.uk/facilitatingworkshops>).
- David Wilcox, *The Guide to Effective Participation* (1994), <http://www.partnerships.org.uk/guide/index.htm>, CC-BY-NC-ND. Available here.
- **Facilitator's Guide to Participatory Decision-Making**, Sam Kaner, Lenny Lind, Catherine Toldi, Sarah Fisk, Duane Berger (Jossey Bass; 2nd Edition edition, 2007). If you have access to (or can get a copy of) "Facilitator's Guide to Participatory Decision-Making", make sure that you use it!

4 The structure of a workshop session

To help you guide through a workshop session, we now outline the overall structure of workshop sessions. Workshop sessions generally follow this structure:

- Review of follow up activities. At the beginning of each session, you should review the previous session (if you are running more than one session).
- Session activity 1: e.g. Brainstorm on interactive teaching (new topic)
- Session activity 2: Brainstorming in the classroom (new topic)
- Session activity 3: ICT-based activity
- Session activity 4: Planning
- Discussion of LfL or MSC
- Connecting with overarching goals of the programme
- Agreement of Follow-up activities


Review of follow up activities. The session starts with a review of follow up activities from the previous session. You do not necessarily need to "go round", but you can ask participants how it went, and solicit various inputs. Make sure that you stay on time, and do not use much more than what is allocated.

The **learning objectives and success criteria** for the current session can now be displayed/introduced. These should be referred to at various stages throughout the session to allow participants to see what progress has been made and how workshop activities relate to the overall goals (objectives) of the session as well as how sessions relate to one another.

Activities within sessions. Each session then has a number of activities, including an ICT-based activity (see below).

Planning activities during the workshop. Some of the session activities are about planning activities for the classroom. It is very important to plan such classroom activities within the session (especially initially) rather than having this just as a follow-up activity.

Connecting with overarching goals of the programme. Each session (from Unit 2 onwards) has got a section called "Connecting with overarching goals of the programme", which is an opportunity to review progress of the overarching goals, as well as to discuss any issues that have arisen. The following text appears towards the end of each session from Unit 2 onwards:

 **Open space** (10 min). It's now time for the "open space", that gives you an opportunity to discuss issues that have arisen, and to relate those to the broader context of the programme. Do not just gloss over this section, but make time to raise issues, and probe the progress that you are making. You could use this space to:

- Remind yourselves of the of the Most Significant Change Technique, and e.g. collect more of your stories.
- Discuss your assessment portfolios: Is there anything that you are unsure about? Is it going well? What could be done better?
- Check on the work with the classroom assistants: Is this going well? Are there any tensions? Any observations or tips you can share?
- Reviewing individual ICT practise (such as typing practise).
- If you are preparing a presentation for other teachers, you could work on the presentation (about what you have been learning, stories emerging from MSC).
- Remind those who are doing audio diaries, to upload them.

- You could discuss any other issues that have arisen.

You will find notes and summaries of various techniques and concepts on our reference page, and you might want to refer to those for clarification during this activity if needed.

Agreement of Follow-up activities. At the end of the session, there is a time allocated for agreement of follow-up activities. Note that this is not "setting of homework", but that you should agree with the participants what they are able to do. These follow-up activities are then reviewed at the start of the next session.

5 Procedural things

Timing. As a workshop facilitator, you should consider how to use the present material, and what form your workshop will take. The resource could be used:

- in weekly or bi-weekly sessions of say 2 hours each (e.g. teacher group meetings in a school or regular scheduled sessions in a teacher education college)
- for whole day workshops
- as a mixture of both

You should negotiate this with the participants. We provide guidance but as a facilitator running a course based on these materials you will need to make your own plan, and evaluate this plan as you progress.

ICT use in the classroom will be introduced in the workshops. Teachers need a basic level of ICT skills, for instance how to type, how to open a web browser and open applications, how to write documents and spreadsheets, etc. If your workshop participants have no prior ICT skills, you need to allow time for them to practise those skills.

As the workshop facilitator, clearly signpost what is happening at each stage in the workshop. E.g. you might say "We now look at interactive teaching."

Adapting the format of the resource to the specific context. Ideally, there would be at least the following contexts:

- paper only - possibly only the facilitator has a copy of the materials but ideally users do too
- semi-digital - there is one computer/projector
- fully digital - there are several computers with sound, and participants are able to watch various videos in groups

6 ICT practice: Different-tasks group work with ICT and activity planning

Each session has got a space reserved for doing ICT practice, many of these (especially in later units) are just called "ICT practice: Different-tasks group work with ICT and activity planning".

While participants learn about their own use of ICT, it is really important that participants are aware of their own learning process. While they are learning about ICT, participants should think about how they could engage their students in the same learning process.

This of course could apply to learning anything new, but in the context of the OER4Schools programme, ICT is likely to be a completely new skill, so it's particularly important to bring awareness to the process. Depending on the ICT availability and the number of participating teachers, it may be a good idea to draw up a timetable as to when which teachers (and classes) use the available netbooks. This ensures that

- there are no clashes, but also
- that the netbooks are used as much as possible.

It may be helpful to have this timetable on public display, and teacher "tick" their slot when they have actually used the ICT. If there is little or no use of the ICT by teachers in class, then this should be discussed, for instance in the session slot named "Connecting with overarching goals of the programme" (see above).

7 Classroom assistants

An idea used in this programme is to use students from higher grades as classroom assistants in lower grades. Many schools operate a shift system, which means that students normally attending school in the morning are free to help out in afternoon, and vice versa. However, this is something that needs to be negotiated with your school well in advance of running the programme. It depends on whether you are running the programme between a few interested teachers (in which case you can make more contained arrangements with other grades), or whether you are running the programme across the whole school (in which case you will need very systematic arrangements). Have a look at our page on classroom assistants. However, in other contexts, schools just run a single shift, which means that you cannot use this idea directly. However, you could still use ideas around cross-grade teaching, see our page on classroom assistants.

8 Portfolios

Participants would produce "portfolios" showcasing their work. These portfolios could also be used for formative assessment. They are introduced in this session, and further information is available here. If you are facilitating this programme, you should familiarise yourself with this now.

9 Programme agreement

In the first workshop, you will make a programme agreement with the participants, that is about turning up on time, turning up regularly (or reporting being ill), implementing the programme. More details are given in the first session.

10 Running the first workshop

As a facilitator, consider:

- What are the issues with primary education in your country? Why are people invited to the OER4schools programme?
- What are teachers' expectations (attend for the whole year - starting off weekly)? Some people will be concerned with big picture, others with detail. Agree the day of the week for face to face meetings.
- Some expectations about what a workshop should be like. Modelling activities in the workshop on activities planned for the classroom. (Modelling participation and interactivity at all levels.)

Introduce this resource and the topics within it -

- Introduce strategies to incorporate interactive elements (things you might say, things you might do).
- Thinking about your own practice; do you think you'd like to try one of these new approaches?
- Do you want a buddy system (pairs of teachers matched by grade/class^K or subject)?
- Negotiate whether participants will use first names.
- Consider whether there is a hierarchy among the participants? What do you need to do so that participants can talk to each other freely?

Before the first workshop:

- Set up the room, so that it allows good communication. For instance, remove tables, or push tables to one side. Arrange chairs in circle.
- Think about what props are needed. Do you need sheets of paper and pens?

11 Ice breakers

To start the session, welcome everybody to the workshop. You might then want to do an “ice breaker”.

Ice breaker 1 (for a group of colleagues): Stand up and sing a song together.

Ice breaker 2 (for group of participants who don't know each other well): People say one or two words that describe themselves (such as “funny”, “sociable”, “shy”). Alternatively, chat in pairs, and then introduce your neighbour to the group.

Ice breaker 3 (for either colleagues or strangers): You could do this ice breaker if participants are less familiar with each other:

1. People form groups of three.
2. They have a conversation for no more than 3 min, 1 min each, on a specified topic, e.g. their favourite foods, what activity they are glad to be rid of and don't have to tackle today, their worst fantasy about what could go wrong as a consequence of the workshop.
3. Facilitator claps their hands after each minute to signal changeover; after 3 min, groups dissolve and form new groups; facilitator changes the topic at this point and after every 3 min until everyone has spoken to everyone else.
4. People have to stand up the whole time and move around - it is very energising, normally beginning quite quietly and ending up very loud!
5. The next activity might connect with this icebreaker, for example asking volunteers to report back on their worst fantasy about what could go wrong in their classroom as a consequence of the professional development programme

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Introduction 0.5 - Further links and pointers

1 Related programmes and further resources

The programme draws on ideas from *Leadership for Learning* and the *Index for Inclusion*.

You may also be interested in exploring the resources of the ORBIT project, hosted on this wiki, as well as our resource on Interactive pedagogy in literacy teaching. Further links to OER sites and search engines can be found here: OER teacher education resources.

The Teacher Education in Sub-Saharan Africa (TESSA) (<http://www.tessafrica.net/>) programme provides OER classroom resources and guidance materials for use by teachers and teacher educators with the aim of improving the quality of teaching and learning at primary school level across Sub-Saharan Africa. Where appropriate we have drawn on these materials to enhance elements of this course e.g in Unit 2, questioning and concept mapping.

The Commonwealth of Learning (COL), is helping developing nations improve access to quality education and training. The COL gender microsite (<http://www.col.org/resources/micrositeGender/Pages/default.aspx/>) contains useful information, in line with our values, to ensure women's and men's views, interests and needs shape its programmes. In particular there are resources to run a half-day gender training workshop addressing issues such as gender bias; gender equality and its importance; and gender mainstreaming and how it can be carried out.

The UNESCO ICT Competency Framework for Teachers (<http://www.unesco.org/new/en/communication-and-information/access-to-knowledge/unesco-ict-competency-framework-for-teachers/>) is aimed at helping countries to develop comprehensive national teacher ICT competency policies and standards, and should be seen as an important component of an overall ICT in Education Master Plan. The OER4Schools programme has been mapped to this framework for your convenience here: OER4Schools mapped onto UNESCO CFT.

2 Key texts

There are a number of key texts, often given in references in the OER4Schools units. These include:

- Primarily about UK education, but inspiring in the global context none the less:
 - Maddock, M., Peacock, A., Hart, S. & Drummond, M.-J. (2012). **Creating Learning Without Limits**. Maidenhead: Open University Press.
 - Alexander, R. (ed) (2010), **Children, Their World, Their Education: Final Report and Recommendations of the Cambridge Primary Review**. London: Routledge.
- The CCE literature review on uses of ICT in primary and secondary schools and teacher education institutions in African Commonwealth countries, with a particular focus on East Africa, in order to inform our research and professional development work, available here [1] (<http://www.educ.cam.ac.uk/centres/cce/initiatives/projects/ict/index.html>). The review is available in
 - full version (121 pp): CCE_Report1_LitRevJune0210.pdf (http://www.educ.cam.ac.uk/centres/cce/publications/CCE_Report1_LitRevJune0210.pdf)
 - overview 2008-2009 (2 pp): Lit_review_overview_2008_09.pdf (http://www.educ.cam.ac.uk/centres/cce/projects/ict/Lit_review_overview_2008_09.pdf)
 - longer paper (10 pp): Lit_review_longer_paper.pdf (http://www.educ.cam.ac.uk/centres/cce/projects/ict/Lit_review_longer_paper.pdf)
- The DfID ANTSIT project [2] (<http://www.educ.cam.ac.uk/centres/cce/initiatives/projects/antsit/index.html>). The project report is available here:
 - DfIDANTSITReport_FINAL_2Mb-2.pdf (http://www.educ.cam.ac.uk/centres/cce/initiatives/projects/antsit/DfIDANTSITReport_FINAL_2Mb-2.pdf)

3 Using parts of OER4Schools

If you are not following the OER4Schools programme as a programme, but you prefer to use individual parts, you may find the following useful.

Many of our classroom activities and suggestions for workshop activities, as well as other supporting materials are available here, such as

- OER4Schools lesson plan (blank)
- OER4Schools activity template (blank)
- OER4Schools/Netbook familiarisation
- OER4Schools/Collaborative writing with EtherPad

Much of our resource draws on video specifically produced for this programme, and video is embedded throughout our resource. However, you can also access the video clips directly, for instance:

- Video clips from a lesson on rectangles
- Video clips from a lesson on classifying vertebrates
- Video clips from a lesson on the power of two / Exponentials
- Video clips on 3D shapes

The videos often come with explanatory text, and questions for reflection. Our videos are also available from our YouTube site, see <http://www.youtube.com/user/OER4Schools>.

VIDEO

Introduction to Chalimbana Basic School

Introduction to Chalimbana Basic School

About this video, 1:57, link to YouTube (<http://www.youtube.com/watch?v=-dITjCrgqYY&list=PLF1037800CE0E3F9F>) (local play / download options)(Series: Talks, episode N/A)

4 Other materials

4.1 Taster sessions

- OER4Schools/ChaUni Effective use of ICT
- Taster activities for UNISA
- Resource for taster workshop at KCE
- Resource for taster workshop at NISTCOL
- Resource for taster workshop at UNZA

4.2 Conference presentations

- BERA 2012: <http://tinyurl.com/BERA2012>
- Information about ICT Forum 2012
- e-Learning Africa 2013

4.3 Alternative page versions

- OER4Schools/1.4 Effective use of ICT and collaborative writing v2

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Unit 1 - Introduction to interactive teaching and the use of ICT

“Tell me and I’ll forget; show me and I may remember; involve me and I’ll understand.” (Chinese proverb)



This is the first unit in our programme. The unit offers an introduction to interactive teaching with and without ICT. It introduces the idea of “plan-teach-reflect”, as well as lesson planning to include interactive activity. The unit covers the following aspects:

- What is interactive teaching?
- ICTs in interactive teaching.
- Effective use of ICTs, including basic use of netbooks, browser, and images / slideshows (also in OpenOffice Impress).

The aims of Unit 1 are to

- understand principles of interactive teaching - with and without ICT,
- see illustrations and discuss issues involved in implementing it,
- think about changing one’s own practice, and
- develop ways of working with colleagues to reflect on practice, share ideas and trial new strategies.

The unit also introduces the most significant change technique, and at the end of this unit, we look at the Leadership for Learning principles.

The unit is presented here in five "sessions", each approximately two hours long (when used in a workshop setting), but you may want to divide the material to suit your own setting (see "how to use this resource" for more details).

1.1 - What is interactive teaching? An introduction to the interactive Zambian classroom		
<p>In this session you will learn about:</p> <ul style="list-style-type: none"> ▪ the interactive teaching technique of brainstorming and how and when to use it in the classroom, ▪ activity templates for interactive teaching techniques and how these can be introduced alongside current lesson plans, ▪ the cycle of ongoing reflective practice (plan - teach - reflect) and how this can be used to improve planned interactive teaching activities, and ▪ an activity on how to use a netbook to open a web browser. 	<p>To meet the learning intentions you will:</p> <ul style="list-style-type: none"> ▪ plan a brainstorm activity that has the potential to generate lots of ideas, ▪ complete an activity template for the brainstorm activity that has a clear learning objective, ▪ do this activity in the classroom, ▪ reflect on this activity (and revise, if necessary) to ensure maximum interaction from students, and ▪ use a netbook to open a web browser and induct students in the process before the next session. 	<p>In this session there are no ICT components yet, this will start in the next session.</p>
1.2 - Introduction to interactive teaching with ICT		
<p>In this session you will learn about:</p> <ul style="list-style-type: none"> ▪ the interactive teaching technique of brainstorming and how and when to use it in the classroom, ▪ activity templates for interactive teaching techniques and how these can be introduced alongside current lesson plans, ▪ the cycle of ongoing reflective practice (plan - teach - reflect) and how this can be used to improve planned interactive teaching activities, and ▪ an activity on how to use a netbook to open a web browser. 	<p>To meet the learning intentions you will:</p> <ul style="list-style-type: none"> ▪ plan a brainstorm activity that has the potential to generate lots of ideas, ▪ complete an activity template for the brainstorm activity that has a clear learning objective, ▪ do this activity in the classroom, ▪ reflect on this activity (and revise, if necessary) to ensure maximum interaction from students, and ▪ use a netbook to open a web browser and induct students 	<p>The ICT components you will focus on are</p> <ul style="list-style-type: none"> ▪ <i>Netbook familiarisation:</i> Switching on, logging in, opening a web browser. <p>Classroom based activities (with your students, after this session):</p> <ul style="list-style-type: none"> ▪ You will try the same activity in the classroom, introducing your students to the netbooks.

	in the process before the next session.	
1.3 - Activity planning and reflection		
<p>In this session you will learn about:</p> <ul style="list-style-type: none"> ▪ keeping a reflective journal as part of the process of ongoing reflective practice and using reflective questions to aid this process, ▪ differences between an interactive teaching classroom and a traditional classroom, ▪ using mini blackboards and digital images as tools in an interactive teaching activity, and ▪ using the Think-Pair-Share technique to encourage cooperative learning. 	<p>To meet the learning intentions you will:</p> <ul style="list-style-type: none"> ▪ record reflections on trialled activities in a learning journal soon after the activities have been carried out and use reflective questions to help structure journal entries, ▪ accept that during interactive teaching the classroom may be more noisy and children may move around independently, ▪ plan an activity that makes use of mini blackboards and digital images and trial it in the classroom, and ▪ plan an activity using the Think-Pair-Share technique that allows students to interact with each other and trial it in the classroom. 	<p>The ICT components you will focus on are</p> <ul style="list-style-type: none"> ▪ learning about the web browser, navigating to specific urls, and ▪ viewing slideshows using the browser and open office. <p>Classroom based activities (with your students, after this session):</p> <ul style="list-style-type: none"> ▪ You will repeat the netbook familiarisation activity from last session, and ▪ you will try the same activity with your students: viewing a slideshow.
1.4 - ICTs in interactive teaching		
<p>In this session you will learn about:</p> <ul style="list-style-type: none"> ▪ ICT and how it can be used to support interactive teaching, ▪ the principles of interactive teaching as a reminder of what we are trying to achieve with this programme, ▪ the kinds of resources (ICT and non ICT) needed for interactive teaching, ▪ what seating arrangements work best when using ICT, and ▪ making effective use of non ICT resources during groupwork with computers. 	<p>To meet the learning intentions you will:</p> <ul style="list-style-type: none"> ▪ identify collaborative and independent ICT use both inside and outside the classroom from videos and photos, ▪ be mindful of the principles of interactive teaching when designing activities, 	<p>The ICT components you will focus on are</p> <ul style="list-style-type: none"> ▪ Slideshows: browser and OpenOffice ▪ Typing practice. ▪ Email (optional) <p>Classroom based activities (with your students, after this session):</p> <ul style="list-style-type: none"> ▪ you will repeat an image classification activity with

	<ul style="list-style-type: none"> ▪ consider using a wide range of materials ranging from sticks to sophisticated software to support interactive teaching, ▪ arrange students/desks into groups when doing ICT activities, and ▪ plan and teach a second digital image/slideshow activity focusing on effective use of mini blackboards by groups of students. 	<p>using with your students.</p>
1.5 - Effective use of ICT		
<p>In this session you will learn about:</p> <ul style="list-style-type: none"> ▪ Leadership for Learning as a framework that creates the opportunity for change in schools to promote the activity of learning, ▪ Most Significant Change (MSC) as a technique for monitoring and evaluating this professional development programme by collecting stories of significant changes in areas of practice, and ▪ sharing resources effectively across groups and within groups when doing activities that make use of ICT taking into account the number of students per computer and the need for all students to spend time on the computer. 	<p>To meet the learning intentions you will:</p> <ul style="list-style-type: none"> ▪ recognise the potential for leadership capacity to expand as a result of the professional development of staff on programmes like this, ▪ contribute MSC stories on a regular basis either by writing them down or making an audio recording, ▪ plan ICT activities that allow all students to see the computer well (no more than 6 per computer) being prepared to provide alternative activities for the rest of the class to work on at the same time, and ▪ plan activities that allow all students equal access to a computer by e.g. 	<p>The ICT components you will focus on are</p> <ul style="list-style-type: none"> ▪ Searching for images and downloading images ▪ OpenOffice Impress for making your own photo stories ▪ Continuation of typing practice <p>Classroom based activities (with your students, after this session):</p> <ul style="list-style-type: none"> ▪ you will do group work around images (using OO Impress), ▪ you will do typing practice in the classroom

	giving them roles within groups and encouraging them to monitor use.	
1.6 - Leadership for Learning		
<p>In this session you will learn about:</p> <ul style="list-style-type: none"> ▪ the lens metaphor for exploring the 5 LfL principles, <ol style="list-style-type: none"> 1. Focus on learning 2. Conditions for learning 3. Learning Dialogue 4. Shared Leadership 5. Shared Accountability ▪ leadership practices that support learning and which can be organized within the 5 LfL principles, and ▪ LfL in the classroom. 	<p>To meet the learning intentions you will:</p> <ul style="list-style-type: none"> ▪ use the lens metaphor to identify LfL in the classroom and record your observations and reflections on a table mat, ▪ identify the LfL practices employed in the OER4schools programme, ▪ develop a personal and professional understanding of leadership practices that support learning and which can be organized within the 5 LfL principles, and ▪ watch a video of teachers in action to see if some or all of the 5 LfL principles can be identified. 	<p>The ICT components you will focus on are</p> <ul style="list-style-type: none"> ▪ consolidate your skills with concept mapping, geogebra, images, and typing. <p>Classroom based activities (with your students, after this session):</p> <ul style="list-style-type: none"> ▪ you will continue with Geogebra, images, and typing.

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Session 1.1 - What is interactive teaching? An introduction to the interactive Zambian classroom

1.1 - What is interactive teaching? An introduction to the interactive Zambian classroom

Learning intentions and objectives.

In this session you will learn about:

- the interactive teaching technique of **brainstorming** and how and when to use it in the classroom,
- **activity templates** for interactive teaching techniques and how these can be introduced alongside current lesson plans,
- the **cycle of ongoing reflective practice** (plan - teach - reflect) and how this can be used to improve planned interactive teaching activities, and
- an activity on how to use a **netbook** to open a web browser.

Success criteria.


To meet the learning intentions you will:

- plan a brainstorm activity that has the potential to generate lots of ideas,
- complete an activity template for the brainstorm activity that has a clear learning objective,
- do this activity in the classroom,
- reflect on this activity (and revise, if necessary) to ensure maximum interaction from students, and
- use a netbook to open a web browser and induct students in the process before the next session.

ICT components.

In this session there are no ICT components yet, this will start in the next session.

1 Introduction and ice breakers

 **Whole class dialogue** (30 min): *Introduction to the programme*

Educator note

It is imperative that you read the text of this session, and the following sessions very carefully, and clarify any issues. You should make the learning intentions and the success criteria for the sessions explicit to the participants perhaps by writing them on the board or printing them out separately. These should be referred to when appropriate as you proceed through the session/s.

Welcome to the first workshop of the OER4Schools programme. The facilitator will now guide you through some introductory activities.

Educator note

As a facilitator, you should have read the introductory material to the programme very carefully, including "how to use this resource" and "how to run workshops".

You now start the session with an ice breaker, and then make essential arrangements.



As part of this, you have the opportunity to discuss

1.1 - What is interactive teaching

- a weekly time for the workshops,
- whether you are going to use first or second names,
- your expectations,
- whether participants need to come on time, or report in if they are ill,
- keeping of a register,
- the use of the ICT equipment, and
- any other suggestions, ideas, and concerns you may have.

Educator note

At this point, you should make a programme agreement, as a set of "ground rules" if you like.

Record some of the outcomes from the discussion above, for instance recording ground rules like this:

- We keep a register of attendance, that will be shared with the head teacher.
- Because we respect each others time, we pledge to arrive on time, and stay for the duration of each workshop.
- We implement activities in our classroom.
- When you discuss ICT-use later in this session, you should also devise a rota for ICT equipment use.

You can revisit these rules as the programme continues, but for now it is important to make them.

Write the rules down on paper, and keep them available. Perhaps put them up in the room where the workshops take place. You could get participants to sign the sheet as well, to firm up the commitment.

2 Brainstorm on interactive teaching

Educator note

You are now starting the first activity. Make sure that participants are alert and excited. If necessary, do another quick ice breaker, and then launch into the first activity.

Record the brainstorm. The facilitator writes on a board or a large sheet of paper, or makes notes for everybody to see on the overhead projector. Alternatively, participants write on small pieces of paper which are placed on a table. If there are no facilities, then it is ok to not make a record. There should be no evaluation of responses when using the brainstorming technique.

 **Whole class brainstorm** (10 min) *on interactive teaching*. Consider the following questions:

- What is interactive teaching?
- What interactive techniques do you know?
- How often have you used such techniques?

Educator note

What is a "whole group brainstorm"?

Make it clear to the participants that you want to hear from everyone and that they shouldn't worry if they're not sure but should have a go at making a suggestion... we will develop our collective understanding as time goes on (what are teachers' expectations?). There are no wrong answers, just ideas. Here we have used a number of questions to give participants an idea of how wide ranging their responses can be. The aim of this brainstorm is to find out what participants know, think and feel about interactive teaching.


If participants are not very forthcoming, probe them with additional questions, e.g. 'What do you think interactive teaching might be? Is it the same as learner-centred teaching?'


If you are part of our "facilitators program", use the tools provided to capture the discussion.

3 Brainstorming in the classroom

Educator note

The following activity is same-task group work, done in pairs. So for this part of the session you are doing group work, where the groups are pairs. Just ask participants to turn to each other.


 **Same-task group work** (5 min): *Discussion in pairs of what brainstorming^(a) looks like in the classroom.* Now that we have done a brainstorm in the workshop, what does a brainstorm in the classroom look like? Do you think your students would like this activity? How could you make sure that all students get actively involved? Discuss this with your neighbour.

 **Whole class dialogue** (5 min): *Reporting back from the discussion* Participants briefly report back from the group work.

Educator note

Make sure that participants get the idea of what a brainstorm is.

You do not need to go round all the groups. You can just ask whether people have more to add.

 **Observing, thinking, reflecting** (5 min): *Watch video of a brainstorm.* Watch the following video clip together. As you watch, think about the following:

- What are you noticing?
- At what point(s) in the lesson could this be used?
- What do you think the students are learning from this?
- How are they learning?
- Can brainstorming be used with large classes too, where there isn't time for everyone to contribute each time? How would you adapt it for this?
- What are the benefits of brainstorming?
- What makes a brainstorm successful?
- What do you think about the teacher's comment **"since I want all of you to participate, no hands up, OK"**?

VIDEO

A brainstorm naming animals

A brainstorm naming animals. Start of lesson: brainstorm with unique contributions, time to think first, no hands up technique.

About this video, 2:43, link to YouTube (<http://www.youtube.com/watch?v=SQEOYVAC78&list=PLF0530A6FEF00D354>) (local play / download options)(Series: Eness Vertebrates, episode 01)(Transcript available here or via YouTube captions.)

This clip from a Grade 3 classroom illustrates how the teacher solicits (and records) different students' views without evaluating them.

Educator note

Note that the clip shows the start of a session but it can be done at any point in a lesson. It shows a brainstorm – with unique contributions, allowing time to think first, 'no hands up'^(a) technique.

Workshop participants continue with the discussion.

 **Whole class dialogue** (15 min): *Discussion on the brainstorm video.* Let's now discuss this. We asked some

1.1 - What is interactive teaching

questions above, which you should now discuss.


Educator note

During the discussion, record what participants are contributing. You could do this on a piece of paper, or on the board. You could also appoint a scribe, who does this for you, leaving you free to manage the discussion.

Benefits of brainstorming include:

- giving everybody an opportunity to speak,
- encouraging students to contribute a large range of ideas,
- reduces the fear of risk taking, and
- shows respect for all participants (making sure that students do not laugh at each other).

At the end of the discussion, summarise the outcomes of the discussion, including any key points the participants have made.


 **Observing, thinking, reflecting** (5 min): *Summary.* Summarise, and discuss the proper meaning of what a brainstorm is. You can refer to [OER4Schools/activities/brainstorming](https://oer4schools.org/activities/brainstorming) to find out more.

Educator note

Make sure that all participants understand what a brainstorm is.

What is the purpose of a brainstorm? It can have many purposes, but one purpose is that a brainstorm is a good way of finding out what they already know. So to go from the "known to the unknown".


4 Planning an activity - “activity template”

 **Whole class dialogue** (10 min): *Discussion on activity plans.* Have a brief discussion about current practice on lesson planning. Consider such things as: Where do the lesson plans themselves come from? What do you think about the activities that are being done? Can you see a way that new activities could be introduced alongside your current lesson plans? Do you foresee any difficulties in doing this?


Educator note

Discuss with the participants how they plan their lessons and how the new interactive activities that they are being introduced to can work within their current plans.


In designing 'activities' we do not aim to replace whole lesson plans. We simply try to make some activities in the lessons more interactive.

 **Introduction** (10 min) *to activity templates.* In this section, we consider strategies to incorporate new interactive elements in your lessons, including things you might say, and things you might do. To help you structure your planning, we provide an activity template. The template includes details of

- what the activity is (a technique such as a brainstorm, group work, mini blackboard use plus an activity in which it is used, e.g. “a brainstorm on what animals are found in your environment”),
- the grade,
- the subject & lesson topic,
- what the (learning) objective of the activity is (e.g. to find out what students already know about topic X),
- resources to be used (such as blackboard, mini blackboards, paper, objects, etc), and
- how the activity is carried out.


 **Same-task group work** (10 min): *Planning in pairs for activity templates.* Break into pairs, and capture the activity shown in the video above in the activity template. Remember to include the 'no hands up^(a)' technique - this works very well with brainstorming but can also be used for general questioning.

5 Planning a brainstorm activity

 **Same-task group work** (5 min): *Planning in pairs of a brainstorm activity.* Break into pairs, and plan a brainstorm together. The pairs should be arranged, so that it will be possible to do this brainstorm with your class (e.g. pair by grade, or pair by subject). As you plan, share your ideas with your partner as much as possible, and listen attentively to their ideas and feedback.


Here are some questions, you could consider to help you plan:


- What do you need to know about students' knowledge or understanding of the topic? What will you ask them to brainstorm?
- What will you do with the results? How will you build on that in the rest of the lesson?
- What are you teaching next week?
- What is the topic of your brainstorm?
- What makes for a good topic?

 **Whole class brainstorm** (5 min) *of participant's suggestions.* Pick one or two of the brainstorms that were just planned and try them on the rest of the group.

Educator note

The topic of the brainstorm needs to generate lots of ideas. Look out for topics that have correct responses and/or are narrow in scope e.g. name the parts of a flower. This would not be a suitable topic to brainstorm, instead the topic could be 'what do we know about flowers?'. (Further questions could be asked by the teacher as the brainstorm proceeds in order to find out the depth of the students' knowledge). Encourage participants to accept all responses without evaluation and if possible, to make a note of them for all to see.

 **Whole class dialogue** (5 min): *Discussion of the trialled brainstorm activity.* Did this work? How do you know? Did everyone participate?

 **Same-task group work** (5 min): *Planning in pairs to revise the planned brainstorm activity.* Based on what you have learned from the brainstorm trialling activity, revise your brainstorm, making sure that you have phrased your topic in a way that will generate lots of ideas. You can do this activity in pairs but each one of you should plan an individual brainstorm activity that you will use with your class before the next session.

6 Follow-up activities

 **Agreeing follow-up activities** (5 min).

Part A: *Practical classroom activities and reflection.* Complete an activity template for the brainstorm activity that you planned and revised in this session. Do the activity with your class and be prepared to reflect on how it went.

Part B: Don't forget to bring your activity plans again, and your recorded reflections. (Use your dictaphone if you have one, or make notes on paper or electronically)

Educator note

Remind participants to do their activities. They may want to review the notes that have been handed out, as well as read the background text available below.

As the facilitator, you should also do a reflection on how this first workshop went - please see facilitator reflection for Unit 1!

Educator note

1.1 - What is interactive teaching

In the next session, these follow-up activities will be reviewed. If you are using this session on its own, you can have a look at the review of follow-up activities here.

7 Activity template

The activity template is available on this page for printing: [OER4Schools/activity template](#):

Downloadable version: [Activity template.pdf](http://oer.educ.cam.ac.uk/w/images/9/92/Activity_template.pdf) ([http://oer.educ.cam.ac.uk/w/images/9/92/Activity_template.pdf](#)) ^(info)
(http://oer.educ.cam.ac.uk/wiki/File:Activity_template.pdf)

What is the activity?
Grade
Subject
Lesson topic
What is the (learning) objective of the activity?
Resources used
How is the activity carried out? Write out all the steps in detail.

Here is a photograph of a completed activity template for a lesson on conduction. Note that one template can be used for multiple activities:

1.1 - What is interactive teaching

Activity template

What is the activity?
Grade 5c.
Subject SCIENCE.
Lesson topic HEAT. Bad and Good Conductors of heat.
What is the (learning) objective of the activity? PSBAT. - List the sources of heat. - Identify the good and bad conductors of heat. - discuss on heat conduction with the help of talking points.
Resources used paper, ruler, wire, rubbers, nails, chalk, strings, leaves, stone.
How is the activity carried out? Write all the steps in detail.
<p><u>ACTIVITY 1</u> - Brainstorm: PMI for heat. Explain to the children what PMI means what you expect them to do. Each group to discuss and write the PMI for heat.</p> <p><u>ACTIVITY 2</u>. (use traffic lights). - What happens to a nail in a flame? pupils to discuss in their groups. - what happens to a stick in a flame? Let pupils in their group make prediction.</p>

Educator note

At the end of each session, we provide an overview of the activities in this session, together with their suggested timings. Although this appears at the end of the session (for technical reasons), you should keep an eye on this throughout the session, to make sure that you are pacing the workshop session appropriately!

Total time: 130 (min)

Activities in this session:

- **Whole class dialogue** (30 min): *Introduction to the programme*
- **Whole class brainstorm** (10 min) *on interactive teaching.*
- **Same-task group work** (5 min): *Discussion in pairs of what brainstorming^(a) looks like in the classroom.*

1.1 - What is interactive teaching

- **Whole class dialogue** (5 min): *Reporting back from the discussion*
- **Observing, thinking, reflecting** (5 min): *Watch video of a brainstorm.*
- **Whole class dialogue** (15 min): *Discussion on the brainstorm video.*
- **Observing, thinking, reflecting** (5 min): *Summary*
- **Whole class dialogue** (10 min): *Discussion on activity plans.*
- **Introduction** (10 min) *to activity templates.*
- **Same-task group work** (10 min): *Planning in pairs for activity templates.*
- **Same-task group work** (5 min): *Planning in pairs of a brainstorm activity.*
- **Whole class brainstorm** (5 min) *of participant's suggestions.*
- **Whole class dialogue** (5 min): *Discussion of the trialled brainstorm activity.*
- **Same-task group work** (5 min): *Planning in pairs to revise the planned brainstorm activity.*
- **Agreeing follow-up activities**(5 min).

If you have printed this session for offline use, you may also need to download the following assets:

- Video/Eness vertebrates 1.mp4 (local play / download options)
- Activity template.pdf (http://oer.educ.cam.ac.uk/w/images/9/92/Activity_template.pdf)

Retrieved from "http://oer.educ.cam.ac.uk/w/index.php?title=OER4Schools/What_is_interactive_teaching&oldid=21348"

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Session 1.2 - Introduction to interactive teaching with ICT

1.2 - Introduction to interactive teaching with ICT

Learning intentions and objectives.

In this session you will learn about:

- the interactive teaching technique of **brainstorming** and how and when to use it in the classroom,
- **activity templates** for interactive teaching techniques and how these can be introduced alongside current lesson plans,
- the **cycle of ongoing reflective practice** (plan - teach - reflect) and how this can be used to improve planned interactive teaching activities, and
- an activity on how to use a **netbook** to open a web browser.

Success criteria.

To meet the learning intentions you will:

- plan a brainstorm activity that has the potential to generate lots of ideas,
- complete an activity template for the brainstorm activity that has a clear learning objective,
- do this activity in the classroom,
- reflect on this activity (and revise, if necessary) to ensure maximum interaction from students, and
- use a netbook to open a web browser and induct students in the process before the next session.

ICT components.

The ICT components you will focus on are

- *Netbook familiarisation*: Switching on, logging in, opening a web browser.

Classroom based activities (with your students, after this session):

- You will try the same activity in the classroom, introducing your students to the netbooks.

1 Review of follow-up activities from last session


Edit this review section (http://oer.educ.cam.ac.uk/w/index.php?title=OER4Schools/What_is_interactive_teaching/review_of_follow_up&action=edit)

Educator note

If you are running a professional learning programme which follows these sessions in sequence, then you should do the review of follow-up activities relating to the previous session (What is interactive teaching). The 'review of follow-up activities' for that session is available here, and also shown below in the session text. However, if you are following selected sessions in a different order, then you should use the reflection appropriate to the previous session you did.

The review of the follow-up activities for this session (to be done at the start of the next session) is available here.

Sharing your reflections through:

 **Whole group reflection** (10 min) *on brainstorm in the classroom*. As a group discuss the following:

- What was the objective of the new activity?
- How was the activity interactive?
- How do you think the activity went? In particular, how did learners respond?

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- How did you integrate the activity with the rest of the lesson?
- What would you change if you taught this again?

2 The cycle of Plan-Teach-Reflect

Educator note

In this section, we introduce a key tool for this programme, which we call “The cycle of plan - teach - reflect” (Plan-Teach-Reflect^(a)). What this means is that in our professional learning, we progress by planning (e.g.) an activity. We then do this activity in the classroom, and then reflect on the activity (either on our own, with a colleague, or in a group). You can read more about the idea of “Plan-Teach-Reflect^(a)”.

Sometimes we capture these reflections. The simplest way to capture reflections is on paper. These can easily be shared. Because this involves extra work (e.g. done after a lesson), teachers can be reluctant to do so, and if you ask them to make notes, you may not actually get anything back. It can be helpful to give teachers some prompts, that will remind them to reflect.


It is important to make very concrete plans with the teachers as to when they will be using their activities, and we would strongly recommend that teachers decide on a particular day / lesson / class, when they will trial an activity.

Also arrange with the teachers when they will reflect, for instance agree that the teachers will reflect immediately after the lesson. It is a common pattern for teachers to set the class quiet work. While we do not necessarily encourage this as a good use of lesson time, it is an opportunity for a teacher to quickly write down some reflections. So if a series of interactive activities is followed by some individual work, the teacher could use that time to make some notes using the reflective questions provided.

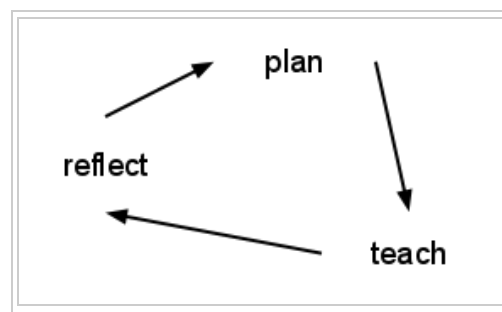
The participants will plan an activity in pairs. Explore whether it is possible for these two teachers to observe each other doing the brainstorm with their class. That is to say, is it possible for one teacher to set their class some work, to be able to observe the other teacher. In principle, this should only take about 15 minutes, so do explore whether this can be done. We will come back to this in the next session.

As a facilitator, discuss these ideas with the participants, and make concrete plans for when the activities take place (together with peer observation), and when the associated reflection takes place.

We suggest that rather than reading the text below to (or with) the participants, you just draw attention to the diagram, and explain the contents to the participants. Make sure that they understand the reflective questions provided. How do you know, whether they have understood these questions? For instance, you could check whether participants can give concrete examples.

 **Introduction** (10 min) *to the cycle of ongoing reflective practice.* Here we introduce the cycle of **ongoing reflective practice** in the context of doing a brainstorm activity. By following this cycle you will gradually refine your classroom activities, so that over time they become more interactive activities, providing better opportunities for students to learn more deeply.

- Part 1: Plan an interactive activity such as brainstorming
- Part 2: Teach using the activity, bearing in mind the learning objective
- Part 3: Reflect on how the activity went, first on your own and then with a colleague and perhaps a wider group
- Revise plan and repeat cycle

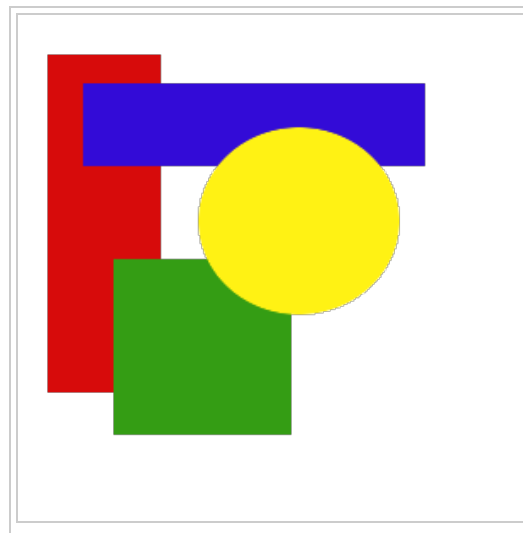


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For reflecting on an activity, it is useful to have questions to guide the reflection. For example, the following questions could be used to guide reflection:

- What did the children get out of the activity? How can you tell?
- How did you (as the teacher) find out what the children learned / thought about the activities / got out of them?
- What did you (as the teacher) get out of it?
- Did you find it difficult?
- What would you do differently next time?
- Did the activity allow students to meet the learning objective that it was designed to address?

We will use this cycle in the following section to refine a brainstorm activity.



3 Classroom assistants

Educator note


The notion of classroom assistants needs to be discussed at school level, and you may encounter resistance. However, especially if the programme has already been running in a previous year (in some grades, but not the whole school, and some students are thus familiar with netbooks), it will be very beneficial to the smooth running of activities if some arrangement with classroom assistants can be made.

If this is the first year that you are running the programme, you may want to consider running a computer club, which helps some students to learn about netbooks quickly, with a view to them helping out in lessons.

How do you think an older child (e.g. grade 8 or 9) could help in a grade 5 class? In some innovative European schools, cross- or multi-grade teaching takes place, not because of necessity, but because it makes pedagogical sense. Older students can benefit from having to explain things to younger students, while younger students may surprise older students with how they think about things.

Sometimes a student may even be able to explain something better to peers than the teacher can! In Unit 3, Session 1 (video: new Abel clip 4) we saw how Abel solicited the help of two older boys in his mixed age (11-16) class when he himself had had difficulty in helping a group of students to understand how to find area and perimeter of a rectangle using GeoGebra software.

In an African context, many schools operate in two (or more) shifts. This might mean that (e.g.) Grade 5 is taught in the morning, while Grade 7 is taught in the afternoon. This situation, born out of necessity, could be turned around to really benefit teaching and learning at your school. This week, we are asking you to conduct an experiment, to see whether this can work at your school. In your homework today, we suggest that you each try to recruit two or three “classroom assistants” from a higher grade, to help you with teaching in your grade.

 **Whole class dialogue** (10 min): *Discussion about classroom assistants.* Here are some points that you need to discuss:

- What is the benefit of this to your class?
- What do you need to discuss with the head teacher before you can recruit some students from a higher grade to help? How often is it reasonable for the older students to come?
- What is the benefit for the higher grade students? What incentive is needed for those students to want to come and help in your class? How can you make sure that those students stay engaged in the programme? For instance, you might want to set up a “computer club” for those Grade 8 and 9 students who help out in the lower grades.
- How will the parents of those students react to this? What do you (or the headteacher) need to say to those parents? Do you need to write a letter, that can be given to the parents?

4 ICT practice: Netbook familiarisation

Educator note

The following activity, as with other activities in later sessions, assumes that you have some netbooks available. If you have other forms of ICT available you could use those instead. In future sessions, we will use internet browsing, spreadsheets and GeoGebra among other applications, so it would be useful if you have access to these.

If you do not have any ICT at all, you can spend longer on the other activities in this session.

Same-task group work (20 min): *Practical activity exploring netbooks.* Here is a netbook familiarisation activity that you can use with your students, spend some time working through the activity yourself now and think about how your students will respond to it. Make sure that you can answer all of the questions.

Netbook familiarisation activity

Take the school netbooks to your class - making sure that they are carried and used according to the rules set by the school.

The pupils work in mixed ability groups (with computers distributed evenly). Groups do not need to progress at the same speed: There will be faster groups and slower groups. However, the faster groups should be helping the slower groups. If a fast group has managed to do something, their task is to split up and help others to reach the same stage!

Activity:

1. **Exploration of turning on a computer.** Allow pupils to figure out how to turn them on (find the power button). The pupils should be discussing in the groups. Encourage them e.g. by making analogies with other electrical devices. If they are stuck, show one group, and ask that group to show others. When they have managed to turn on the computers, they should observe what happens: the login screen comes up. Remember that faster groups should help slower groups.
2. **Exploration of the login screen.** Ask groups: What do you need to do next? What do the parts of the netbook do? Can you give names to the parts? Give them plenty of time to discover and press things on the netbook (with the password screen up), without telling them. They can't really break anything if they are careful. Let them help each other and discuss with each other what they are finding out.
3. **Logging in.** When groups have figured out how to type text, tell one group about the username and password, and see whether they can enter them. When they have managed to do so, they should immediately help other groups to reach the same stage.
 1. username: *classroom*
 2. password: *student*
4. **Exploration of the desktop.** They now need to apply their new knowledge: "click" on "username" *classroom*, and "enter" the "password" *student*. They now see the desktop. When a group is ready to move to the next stage, the teacher demonstrates how to open a web browser (to that group). Ask the students to do the same. Again, the students find out what happens. Don't worry if they can't open the web browser - let them try to open whatever applications they like. Then after a while repeat the instructions about opening a web browser to the same group. Again, get the groups to help each other find how to open the browser. They should immediately share anything they find out with the whole class.



This activity is an example of enquiry-based learning, which we will cover in much greater detail later in the OER4Schools programme.

You can print this content on a separate sheet here: [OER4Schools/Netbook familiarisation](#).

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Here is a Zambian teacher's experience of introducing the netbooks to her class:

The netbook familiarisation was impressive. Each and every pupil participated fully. What was more impressive was the fact that some of the pupils were very much acquainted with the computers. They can open, they can play games, they are also able to type, they are able to close. So they were able to help others. Of course this no go without challenges. Some pupils had never seen computers before. Nor touch them. So it was difficult for them. However, after being helped, they found it so interesting that they did not want to stop. Just look forward to working with them once again.


While participants learn about their own use of ICT, it is really important that participants are aware of their own learning process. While they are learning about ICT, participants should think about how they could engage their students in the same learning process.

This of course could apply to learning anything new, but in the context of the OER4Schools programme, ICT is likely to be a completely new skill, so it's particularly important to bring awareness to the process.

Educator note

Each participant should log in and out several times. If they just do it once (or even just watch once), they will not remember. How difficult do they find typing at this stage? How difficult will your students find it? Encourage discussion about this during this part of the session.

5 Netbook use at Chalimbana

 **Whole class dialogue** (10 min): *On netbook use at Chalimbana*. Discuss issues of using the netbooks in class. You should also discuss a procedure for using the netbooks, such given below. Discuss: Why do we get students to collect the netbooks? What is the role of the hand washing station?


Please remember to get about 8 students to collect:

- the netbooks (18)
- the box of mice
- the hand washing station
- the watering cans

Note:

- The chargers are to remain in the lab, and the netbooks should be used on battery.
- The students who return the equipment at the end of the day should put the netbooks on charge. It should always be the same students who return the equipment, so that it is handled properly.
- Strictly no use of the student netbooks outside these times.

6 ICT-use agreement

 **Whole class dialogue** (30 min): *On ICT-use agreement*. Discuss and develop a fair use policy.

Educator note

A example for teacher lab notices is available here. You do not have to arrive at exactly the same agreement - but

your own agreement might contain some of the same items.

7 Follow-up activities

 **Agreeing follow-up activities** (5 min).

Part A: Netbook familiarisation. Introduce the class to the netbooks during one of your lessons. Netbooks should be run on battery. The activity is described in a separate classroom worksheet at the end of the unit, that you should have in front of you when you run the activity.

Part B: Classroom assistants. In another lesson this week, we would like you to try to recruit two or more “classroom assistants” to help the younger children with a specific activity, either ICT-based or not. Reflect (using your dictaphone) on whether/how that was useful from your perspective and what the students’ own reactions were?

Educator note

In the next session, these follow-up activities will be reviewed. If you are using this session on its own, you can have a look at the review of follow-up activities here.

Educator note

At the end of each session, we provide an overview of the activities in this session, together with their suggested timings. Although this appears at the end of the session (for technical reasons), you should keep an eye on this throughout the session, to make sure that you are pacing the workshop session appropriately!

Total time: 95 (min)

Activities in this session:

- **Whole group reflection** (10 min) *on brainstorm in the classroom.*
- **Introduction** (10 min) *to the cycle of ongoing reflective practice.*
- **Whole class dialogue** (10 min): *Discussion about classroom assistants.*
- **Same-task group work** (20 min): *Practical activity exploring netbooks.*
- **Whole class dialogue** (10 min): *On netbook use at Chalimbana.*
- **Whole class dialogue** (30 min): *On ICT-use agreement.*
- **Agreeing follow-up activities**(5 min).

If you have printed this session for offline use, you may also need to download the following assets:

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Session 1.3 - Activity planning and reflection

1.3 - Activity planning and reflection

Learning intentions and objectives.

In this session you will learn about:

- keeping a **reflective journal** as part of the process of ongoing reflective practice and using **reflective questions** to aid this process,
- differences between an interactive teaching classroom and a traditional classroom,
- using **mini blackboards** and **digital images** as tools in an interactive teaching activity, and
- using the **Think-Pair-Share** technique to encourage cooperative learning.

Success criteria.

To meet the learning intentions you will:

- record reflections on trialled activities in a learning journal soon after the activities have been carried out and use reflective questions to help structure journal entries,
- accept that during interactive teaching the classroom may be more noisy and children may move around independently,
- plan an activity that makes use of mini blackboards and digital images and trial it in the classroom, and
- plan an activity using the Think-Pair-Share technique that allows students to interact with each other and trial it in the classroom.

ICT components.

The ICT components you will focus on are

- learning about the web browser, navigating to specific urls, and
- viewing slideshows using the browser and open office.

Classroom based activities (with your students, after this session):

- You will repeat the netbook familiarisation activity from last session, and
- you will try the same activity with your students: viewing a slideshow.


1 Review of follow-up activities from last session

Edit this review section (http://oer.educ.cam.ac.uk/w/index.php?title=OER4Schools/Introduction_to_interactive_teaching_with_ICT/review_of_follow_up&action=edit)


Educator note

If you are running a professional learning programme which follows these sessions in sequence, then you should do the review of follow-up activities relating to the previous session (Introduction to interactive teaching with ICT). The 'review of follow-up activities' for that session is available here, and also shown below in the session text. However, if you are following selected sessions in a different order, then you should use the reflection appropriate to the previous session you did.

The review of the follow-up activities for this session (to be done at the start of the next session) is available here.

 **Whole group reflection** (10 min) *on netbook familiarisation activities.*

- How did the netbook familiarisation go?
- What issues and challenges came up?

 **Whole group reflection** (5 min) *on classroom assistants.*

Did you recruit any older students as **Classroom Assistants** this week? For which teaching activity were they recruited? Did you use any criteria for choosing them? What is your assessment of their usefulness for achieving lesson objectives? What is the impact on the learning of the classroom assistants by carrying out this role? Discuss any issues

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that you faced in recruiting or by recruiting classroom assistants. Remember: it is very important that classroom assistants are recruited with full cooperation of the students, their parents, teachers and the school administration. It needs to be a voluntary activity.

2 Reflective journal



Educator note

In this section, we introduce the notion of a reflective journal to support the process of ongoing reflective practice and the Plan-Teach-Reflect^(a) cycle. The teachers have already heard about doing reflections in the last session, but now we formalise this slightly.

Emphasise concrete planning of time for doing reflections.

Introduction (5 min) *to keeping a reflective journal.* Ideally teachers would keep a booklet and also keep a copy of the following questions handy to guide reflections. This journal can be brought along to workshop sessions and any pertinent reflections made during the activities in the session can also be written in it. You can refer back to the previous session for guidance on reflection.

Educator note

As a facilitator, how will you know whether these questions have been understood? In the classroom, we often ask students: "Have you understood? Are we clear?", to which the students always answer: "YES!". An important part of becoming an interactive workshop facilitator or an interactive teacher is to know how to ask the right questions, to actually probe whether participants have understood.

One important question for this is: "Can you give an example?" So as you go through the reflective questions below, ask participants to give/record examples to back up their observations. This might mean that they write about what a particular student said or how a particular student responded.

Whole class dialogue (10 min): *Whole group discussion on reflective questions.* As a group, read through the following questions, making sure that everybody understands how to use them.

For each reflection, first note down the day of the week and the date today, so that you can keep track of your reflections and how your teaching practice evolves over time.

Questions to help you:

1. What subject was the lesson (e.g. maths / science / other) and what was the lesson about (i.e. the topic, e.g. long division)?
2. What interactive technique did you choose to use (ICT-based or not ICT-based)?
3. What resources were used (both ICT and non-ICT)?
4. What did you expect to achieve with the strategy adopted?
5. What were the outcomes? (e.g. What do you think pupils learned about the topic? How can you tell? Any unexpected occurrences?)
6. If ICT was used, do you think the use of ICT in this particular lesson contributed to pupil understanding of subject concepts? How?
7. What difficulties did you encounter?
8. What were the positive aspects of this experience?
9. What did the children get out of the activity? How can you tell?

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10. How did you (as the teacher) find out what the children learnt / thought about the activities / got out of them?
11. What did you (as the teacher) get out of it?
12. Did you find it difficult?
13. Did the activity allow students to meet the learning objective that it was designed to address?
14. What would you do differently next time?

Space for your own questions:

1. _____
2. _____
3. _____
4. _____
5. _____

You can print this content on a separate sheet here: [OER4Schools/reflective journal questions](https://www.oer4schools.org/reflective-journal-questions).

Educator note


In some schools, teachers have recorded reflections on a dictaphone. A separate sheet with questions is available here: [audio diary guidance](#).

For the trial, also use dictaphones. How are the teachers finding that? See more expanded list of questions in the [audio diary guidelines](#).

3 Examples of interactive teaching in Zambia

Many African teachers aspire to be interactive teachers. Yet, interactive teaching is not common in the African classroom. However, it can work in this context!

The following clip shows Eness, a teacher in a community school near Lusaka interacting with a Grade 3 class. Watch the clip of her class discussion about *Is a bat a bird?*

 **Observing, thinking, reflecting** (5 min): Watch a video of a whole class discussion. Read the following questions for reflection, and then watch the video.


- What have you noticed?
- How are the learners taught?
- How do you think they will react to the homework task?
- Is this classroom different from yours?
- What is interactive teaching?

VIDEO

Whole class discussion

Whole class discussion of 'Is a bat a bird?' Teacher sets unresolved problem as homework

About this video, 4:19, link to YouTube (<http://www.youtube.com/watch?v=kY2Ow7Pusel&list=PLF0530A6FEF00D354>) (local play / download options)(Series: Eness Vertebrates, episode 12)(Transcript available here or via YouTube captions.)

 **Whole class dialogue** (10 min): Whole group discussion on the whole class discussion video. We asked you look at the following questions:

- What have you noticed?
- How are the learners taught?
- How do you think they will react to the homework task?
- Is this classroom different from yours?
- What is interactive teaching?

Now discuss these questions as a group.

Educator note

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Issues to discuss

- Noisy but productive - A classroom can be noisy and productive at the same time
- **interactive = inter-action (with view to sense making; i.e. purpose of inter-action is to make sense)**
- Children making sense of ideas for themselves, developing their own classifications, relating to what they already know...
- Teacher not telling answer, asking students to investigate for themselves

Facilitator needs to know how to deal with criticisms (such as too noisy, too much chaos, not productive)

The road is long. But it can be done!

4 Practitioner reflection on interactive teaching

Observing, thinking, reflecting (5 min): Practitioner reflection on interactive teaching. The key to interactive teaching is teachers shifting “from telling to listening” and learners shifting from receiving information to making sense of it for themselves.

How can we “listen” to learners? What does that mean in practice?

Educator note

Facilitator describes own experience of shifting to interactive teaching and how it is different in his/her classroom now...

Evidence for impact of interactive teaching (optional)

Generally we have experienced that teachers welcome interactive ways of teaching. However, it is possible that teachers may object or have major concerns to the interactive teaching shown in the videos as well as what has emerged from this discussion. For instance, they may say that this just will not work in their classroom, that it may not work with large classes, or perhaps that such styles of teaching would not be welcome by parents or head teachers for various reasons.

At this stage, you could introduce interactive teaching as an international trend. Research evidence from different countries shows that this kind of active learning is both motivating and far more effective for learning than direct instruction (“chalk-and-talk” or lecturing). In particular independent, collaborative or oral work, as well as questioning and whole-class discussion that encourage pupils to grapple with ideas are effective. They lead to long-term and deeper learning rather than memorising facts (resulting in short-term, superficial learning).

The following video clip may help to reinforce the point.



Observing, thinking, reflecting (5 min): Watch a video on one Zambian teacher’s experience of interactive teaching.

VIDEO


Agness Tembo speaking at eLearning Africa 2012 in Lusaka, Zambia

Agness Tembo speaking at eLearning Africa 2012 in Lusaka, Zambia

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About this video, 12:34, link to YouTube (<http://www.youtube.com/watch?v=5K2Hh6MajCU&list=PLF1037800CE0E3F9F>) (local play / download options)(Series: Talks, episode N/A)

This two minute clip features Agness Tembo, a Grade 2 teacher from Chalimbana Basic School located in a rural area of Zambia. She is presenting at the e-Learning Africa Conference 2010 her own experiences of participating in Phase 1 of the OER4Schools research project. She talks animatedly about the challenges she faced in introducing both ICT and interactive pedagogy into her (mathematics) teaching for the first time, the benefits to students, and the qualities she needed as a teacher to make the shift successful.

 **Introduction** (5 min) of *Think Pair Share*. This is a technique that encourages cooperative learning by peer interactivity. Here are the steps:

1. **Think** - Students listen to a question (this may be an open-ended question to which there are many answers) or a presentation and are given 'think time' to formulate their responses.
2. **Pair** - Following the 'think time', students work together with a partner, sharing ideas, discussing, clarifying and challenging.
3. **Share** - The pair then share their ideas with another pair, or with the whole class. Students should be prepared to share their partner's ideas as well as their own.

Tips for using the techniques successfully:

- Allowing students time to think, sometimes referred to as 'wait time' has been shown by researchers to improve the quality of their responses. Talking through ideas with a partner first before sharing them with a wider audience allows for those ideas to be elaborated on and refined.
- When using this activity in the classroom it is not necessary to take feedback from all groups every time. This would be quite time consuming and may not be particularly edifying. Teachers can walk around and listen to the students talking in their pairs and perhaps call on those that they know will have something interesting to contribute. Whilst all students should be given the opportunity to contribute during lessons it is not necessary to give everyone that opportunity in every activity.

Strategy for keeping track of who has contributed during activities/lessons:

By putting a little dot next to the names of the students in the class list for a particular lesson (or the register) you can easily keep track of those students that have been called on during that lesson and incorporate that into your planning.

You will now use this technique to help you to formulate your ideas on interactive teaching.

Educator note

Think-Pair-Share^(a):

Teachers should cue the progress from one step to the next. In the primary classroom, hand signals for each step can be developed with the students and these can be used along with verbal cues.

Allowing students time to think, sometimes referred to as 'wait time' has been shown by researchers to improve the quality of their responses. Talking through ideas with a partner first before sharing them with a wider audience allows for those ideas to be elaborated on and refined.

Model the think pair share technique in the following activity, remembering to tell the participants what step they are on, what they should be doing and for how long.

 **Think-Pair-Share** (10 min) *your ideas on the differences between interactive teaching and traditional teaching.*

We mentioned that interactive teaching involves moving from "telling" to "listening." What other words do you feel might describe the difference between traditional approaches and interactive teaching? What are the two kinds of classroom like? Think on your own for a minute and then pair up and discuss your ideas with a partner. Write your ideas on the board for all to see. Aim for each person to write a word or phrase for each approach perhaps under the headings 'traditional classroom' vs 'interactive classroom'.

Educator note

Some contrasts people might make (let them suggest their own terms):

- passive - active
- quiet - noisy
- individual - collaborative

Note: these are not value judgments - they can be positive or negative in different circumstances!

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Related resources

The **Zedupad** resource *Taking care of the environment* (see link below) could be used as an engaging context through which to introduce your students to the *think-pair-share* technique. It offers a bird's eye view of a village both before and after its inhabitants decided to take care of it.

Slide 3 asks the following question:

- Whose responsibility is it to care for the environment?

And slide 4 asks students to look at a picture and identify the ways in which the village is being badly cared for. You could try using the *think-pair-share* technique with either or both of these questions.



http://www.zedupad.com/zambian_school_lessons.php

5 ICT practice: Practical activity

Same-task group work (20 min): *Practical activity in small groups on the exploration of a slideshow using the a web browser.* In the last session, we looked at a basic netbook familiarisation. Make sure that you are happy with that activity so far. Discuss any issues with your partner.

We now use the browser to display images, and do a learning activity. Take a netbook per pair, start the netbook, open the browser, and navigate to this page:

- Classifying and organising living things using images/slideshow

Consider the following questions:

- What are the technical difficulties and challenges to you running this activity now?
- What do you think will the challenges be when you run this activity with your students in class? (Make notes on this in your reflective journal - we will refer back to these when you have done this activity in class.)
- What can you say about how you might classify the images?

Note that in the 'follow-up' you will try the same activity with your students in the classroom, so it is very important to anticipate any issues that may arise.

Note: You can download the slideshow for local use here: [File:Images of living things slideshow.zip](#)

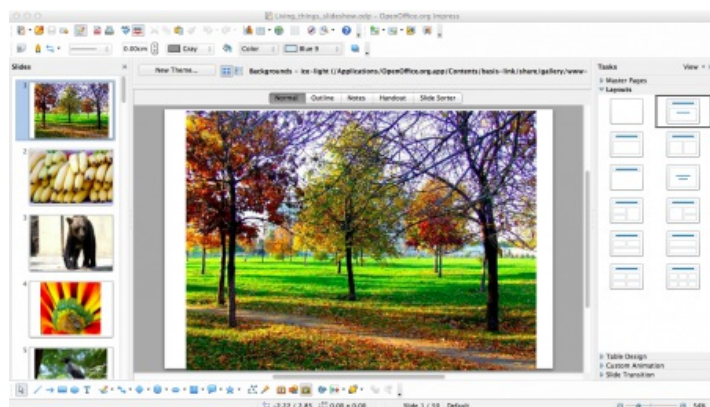
Same-task group work (10 min): *Pair work on viewing a slideshow in Open Office.* You can download an Open Office slideshow of images of living things by clicking on this link here: [living things slideshow.odp](#)

(http://oer.educ.cam.ac.uk/w/images/d/d0/Living_things_slideshow.odp) ^(info)

(http://oer.educ.cam.ac.uk/wiki/File:Living_things_slideshow.odp). This slideshow contains mostly the same images as the browser based slideshow but it has some advantages and perhaps some disadvantages over the browser based one. Discuss these advantages and disadvantages with a partner after you have experimented with opening the slideshow and hiding slides.

Here is a screenshot of what you will see when you open the slideshow using Open Office Impress.


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As you click on the thumbnails on the left hand side they appear in the workspace. If you hover your mouse over a thumbnail on the left hand side you will get the option to **Start Slide Show/Hide Slide/Duplicate Slide**.

- Experiment by hiding all the slides of animals, by clicking **Hide Slide** on each thumbnail of the slide that you want to hide.
- Start the slide show by hovering over the thumbnail of the first slide and clicking the **Start Slide Show** option.
- Proceed through your slideshow of plants/trees/vegetables/fruit by right clicking the mouse or using the **forward arrow** on the keyboard.
- Unhide slides by clicking the **Show Slide** option that appears when you hover your mouse over hidden thumbnails.
- If you accidentally duplicate a slide you can reverse this by clicking **Edit** (next to **File**) and choosing **Undo** from the drop down menu.
- To close the slideshow, click **File** on the bar at the top of the screen and choose **Close** from the drop down menu.

6 Classifying animals using digital images

 **Observing, thinking, reflecting** (15 min): Watch the following video sequence of a Zambian teacher's interactive lesson on classifying animals using digital images. Pause after each clip for a brief discussion with a partner: What would you record on an activity template to capture this activity? (There is no need to actually write on it.)

Eness_vertebrales_clips 2,4,6: (1 min. 40, 2 mins. 43, 3 mins. 43 = 8 mins. 06 total)

VIDEO

Students hand out blackboards

Students hand out blackboards themselves (active)

About this video, 1:40, link to YouTube (<http://www.youtube.com/watch?v=Pm3S-VcwhYg&list=PLF0530A6FEF00D354>) (local play / download options)(Series: Eness Vertebrates, episode 02)(Transcript available here or via YouTube captions.)

VIDEO

Teacher repeats and clarifies

Teacher repeats and clarifies instructions; she illustrates them with nonsense classifications so students do not copy hers

About this video, 2:43, link to YouTube (<http://www.youtube.com/watch?v=9wDCg4w04JE&list=PLF0530A6FEF00D354>) (local play / download options)(Series: Eness Vertebrates, episode 04)(Transcript available here or via YouTube captions.)

VIDEO

Mini-blackboards group work

Groupwork using mini-blackboards: group of 5 recording under their own category of 'animals with no legs' and

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interacting as a group

About this video, 3:43, link to YouTube (<http://www.youtube.com/watch?v=9h5vrt-C0V0&list=PLF0530A6FEF00D354>) (local play / download options)(Series: Eness Vertebrates, episode 06)(Transcript available here or via YouTube captions.)

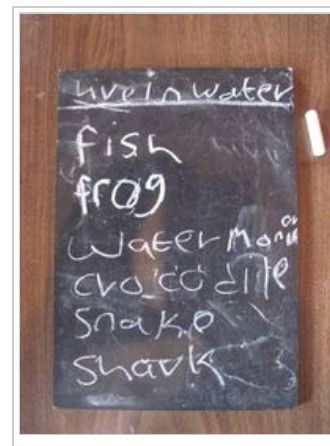
TOTAL: 8:06

This video sequence contains **three consecutive clips** from the same lesson you saw earlier, showing:

- Clip 2: Students hands out blackboards themselves (active),
- Clip 4: Teacher repeats and clarifies instructions; she illustrates them with nonsense classifications so students do not copy hers, and
- Clip 6: Groupwork using mini-blackboards: group of 5 recording under their own category of 'animals with no legs' and interacting as a group.

Whole class dialogue (10 min): *Whole group discussion on a Zambian teacher's interactive lesson on classification using digital images.* When you have discussed these clips one by one in pairs, come together as a whole group and continue to discuss the clips, using the following questions to help guide the discussion:

- What **new techniques** was Eness using this time?
- How did she ensure that children were **active**?
- What role did the **mini blackboards** play?
- How can teachers create a good **relationship with their class** so that children can learn?
- What kind of **classroom atmosphere** supports learning?



Same-task group work (5 min): *Pair work on planning a classification activity.* In a pair, plan your own classification activity using the browser based slideshow that you have been exploring. The classification activity that you choose should be appropriate for the age of your students and be for use in a lesson that you are teaching imminently.

You may want to pair up with a teacher of the same grade if this is possible. Plan to make use of the mini blackboards during the activity. For younger groups of students you may want to choose a few images to use at the front of the class to stimulate discussion.

Record the planned activity in an activity template.

Questions to help you complete the template for this specific kind of activity - Classification activity using digital images for the students to look at and mini blackboards for them to record their ideas:

- How will you use the digital images?
- What is the learning objective for the activity? How will using digital images help the students to achieve this?
- Will individuals or pairs have a blackboard?
- What is the purpose of recording on a blackboard? For example, will all learners hold them up to show me their ideas? Will they discuss with peers? Will they record the results of a learning activity? Will they write or draw on the blackboards?

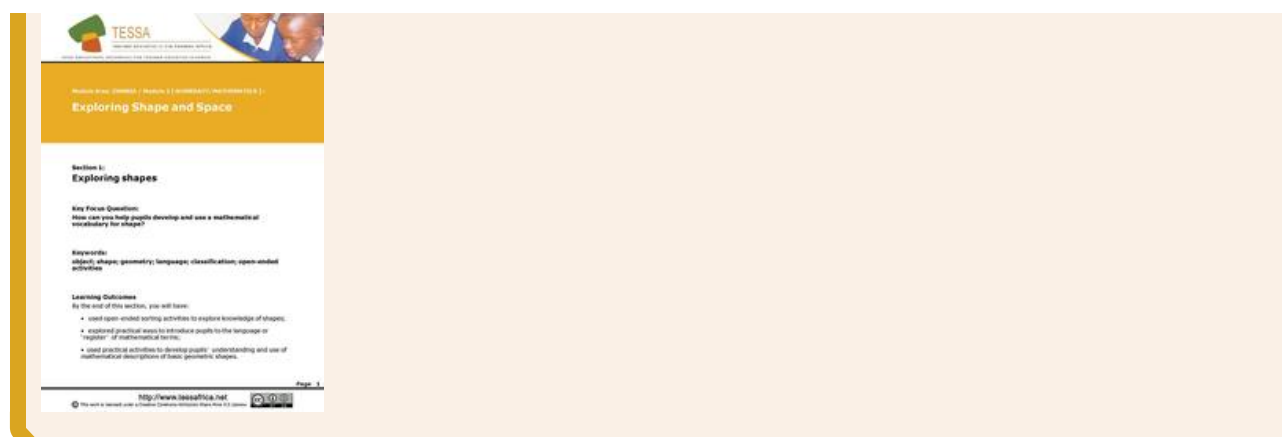
Related resources

This **TESSA** resource on exploring shapes provides an additional context for classification (mathematics) and does not require the use of ICT. Activity 1: Helping pupils sort real objects (on page 4 of the resource) includes useful ideas on how you can set the scene for an open-ended task encouraging students to come up with different ways of classifying everyday objects. The rest of the resource goes on to introduce the mathematical vocabulary needed to describe and classify shapes effectively and introduces a fun 'feely bag' idea.

This related ORBIT resource:

http://orbit.educ.cam.ac.uk/wiki/Exploring_shape_and_its_mathematical_language_through_sorting_activities/Resource allows you to see at a glance the material that is included in the resource below.

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Educator note

Draw participants attention to the TESSA resource.

7 Typing practice

Educator note

Although typing is a fairly mechanical skill, it is really important that all participants learn to type reasonably well. They do not need to be able to type very fast, but they do need to learn how to type reliably, and without searching for keys.

It is best to address this by using a "typing tutor" programme, and for the participants to do regular individual practice. We would recommend that they do about 15 minutes every few days (ideally three times a week).

Same-task group work (10 min): *Pair work on familiarisation with typing tutor* Familiarise yourself with a typing tutor programme. From now on, you should spend a little bit of time practising typing, ideally a few times a week. This will really help you speed up your interaction with the netbooks.

Record your typing speed in your reflective journal.

8 Follow-up activities

Agreeing follow-up activities (5 min).

Part A: Practical classroom ICT-based activities. Repeat the netbook familiarisation, leading into the classification activity that you have planned in this session, making use of digital images and mini-blackboards.

Part C: Reflections. Also, plan and do a Think-Pair-Share activity in one of your lessons.

Part C: Reflections. Reflect on both of these activities soon after you do them, making a note of your reflections in your journal. Use the reflective questions from this session and the last session to guide you.

Part D: Next time. Don't forget to bring your activity plans again, and your recorded reflections.

In a future session, you will learn how to make your own slideshows. If you are ambitious, you might want to explore how to do this yourself.

Educator note

Remember the brainstorm from last week? Depending on how long you have between sessions, participants should also repeat the brainstorm. There's no need to reflect on that specifically, as the main focus is on digital images and mini-blackboards.

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Educator note

In the next session, these follow-up activities will be reviewed. If you are using this session on its own, you can have a look at the review of follow-up activities here.

Educator note

At the end of each session, we provide an overview of the activities in this session, together with their suggested timings. Although this appears at the end of the session (for technical reasons), you should keep an eye on this throughout the session, to make sure that you are pacing the workshop session appropriately!

Total time: 145 (min)

Activities in this session:

- **Whole group reflection** (10 min) *on netbook familiarisation activities.*
- **Whole group reflection** (5 min) *on classroom assistants.*
- **Introduction** (5 min) *to keeping a reflective journal.*
- **Whole class dialogue** (10 min): *Whole group discussion on reflective questions.*
- **Observing, thinking, reflecting** (5 min): *Watch a video of a whole class discussion.*
- **Whole class dialogue** (10 min): *Whole group discussion on the whole class discussion video.*
- **Observing, thinking, reflecting** (5 min): *Practitioner reflection on interactive teaching.*
- **Observing, thinking, reflecting** (5 min): *Watch a video on one Zambian teacher's experience of interactive teaching.*
- **Introduction** (5 min) *of Think Pair Share.*
- **Think-Pair-Share** (10 min) *your ideas on the differences between interactive teaching and traditional teaching.*
- **Same-task group work** (20 min): *Practical activity in small groups on the exploration of a slideshow using the a web browser.*
- **Same-task group work** (10 min): *Pair work on viewing a slideshow in Open Office*
- **Observing, thinking, reflecting** (15 min): *Watch the following video sequence of a Zambian teacher's interactive lesson on classifying animals using digital images*
- **Whole class dialogue** (10 min): *Whole group discussion on a Zambian teacher's interactive lesson on classification using digital images*
- **Same-task group work** (5 min): *Pair work on planning a classification activity*
- **Same-task group work** (10 min): *Pair work on familiarisation with typing tutor*
- **Agreeing follow-up activities**(5 min).

If you have printed this session for offline use, you may also need to download the following assets:

- Video/Eness vertebrates 12.mp4 (local play / download options)
- Video/Agness Tembo at eLA 2010 Zambia.mp4 (local play / download options)
- living things slideshow.odp
(http://oer.educ.cam.ac.uk/w/images/d/d0/Living_things_slideshow.odp)
- Video/Eness vertebrates 2.mp4 (local play / download options)
- Video/Eness vertebrates 4.mp4 (local play / download options)
- Video/Eness vertebrates 6.mp4 (local play / download options)

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Categories: OER4S CPDCCEPrimaryTeacher Education

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Session 1.4 - ICTs in interactive teaching

1.4 - ICTs in interactive teaching

Learning intentions and objectives.

In this session you will learn about:

- ICT and how it can be used to support interactive teaching,
- the **principles of interactive teaching** as a reminder of what we are trying to achieve with this programme,
- the kinds of resources (ICT and non ICT) needed for interactive teaching,
- what **seating arrangements** work best when using ICT, and
- making effective use of non ICT resources during groupwork with computers.

Success criteria.

To meet the learning intentions you will:

- identify collaborative and independent ICT use both inside and outside the classroom from videos and photos,
- be mindful of the principles of interactive teaching when designing activities,
- consider using a wide range of materials ranging from sticks to sophisticated software to support interactive teaching,
- arrange students/desks into groups when doing ICT activities, and
- plan and teach a second digital image/slideshow activity focusing on effective use of mini blackboards by groups of students.

ICT components.

The ICT components you will focus on are

- Slideshows: browser and OpenOffice
- Typing practice.
- Email (optional)

Classroom based activities (with your students, after this session):

- you will repeat an image classification activity with your students.


1 Review of follow-up activities from last session

Edit this review section (http://oer.educ.cam.ac.uk/w/index.php?title=OER4Schools/Activity_planning_and_reflection/review_of_follow_up&action=edit)

Educator note

If you are running a professional learning programme which follows these sessions in sequence, then you should do the review of follow-up activities relating to the previous session (Activity planning and reflection). The 'review of follow-up activities' for that session is available here, and also shown below in the session text. However, if you are following selected sessions in a different order, then you should use the reflection appropriate to the previous session you did.

The review of the follow-up activities for this session (to be done at the start of the next session) is available here.

 **Whole group reflection** (15 min) on *trialled digital image/mini blackboard activity and Think-Pair-Share activity*. Share the reflections that you made on your trialled activities with the rest of the group:

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- What was the objective of the new activity?
- How was the activity interactive?
- How do you think the activity went? In particular, how did learners respond?
- What would you change if you did the activity again?

Spend a few minutes looking at each other's reflections and then discuss the following:

- Did participants use the lists of reflective questions to help them? How did they do this?
- Did participants write their reflections straight after the activity or later? Which was easier?
- Are the reflections detailed enough to be used as a portfolio submission at a later date?
- Can you pick up any hints from each other on how to write meaningful reflections that illustrate the learning (yours and the students') that has taken place?

2 Brainstorm on ICT

 **Whole class brainstorm** (5 min) *on ICT* Consider the following questions:


- What does ICT mean to you?
- What different types of ICTs have you heard of?
- What ICTs have you used?
- Which ICTs would you like to use in the classroom?

Educator note

ICT = Information and Communication Technology

Remember to record the brainstorm on the board or a large sheet of paper. Things that may feature are: PCs, laptops, netbooks, tablets, mp3 players, mobile phones, games consoles, web content (images/maps/), software applications etc.

3 Using ICT to support interactive teaching

 **Whole class dialogue** (15 min): *Whole group discussion on the role of ICT in the kinds of teaching this programme has been introducing.* Think about the role that ICT plays in the following video clips and be prepared to discuss your ideas with the rest of the group. What is similar and what is different about the ICT use in each clip?

VIDEO

Teacher gives detailed help

Teacher gives detailed help to group: shows ICT use. ("I've never seen a Zebra.")

About this video, 4:04, link to YouTube (<http://www.youtube.com/watch?v=Q2jnT6w2ub0&list=PLF0530A6FEF00D354>) (local play / download options)(Series: Eness Vertebrates, episode 05)

VIDEO

Geogebra group work

A group of students jointly progress on their task to investigate the relationship between area and perimeter of rectangles.

About this video, 2:03, link to YouTube (<http://www.youtube.com/watch?v=qHDLHzBo1U&list=PL827432C8560941C6>) (local play / download options)(Series: Abel rectangles, episode 06)

1.4 - ICTs in interactive teaching

Educator note

The first clip shows the teacher interacting with a group of students making use of ICT (digital images on a tablet) and the second clip shows a group of students (no teacher) interacting using a netbook with the GeoGebra software installed.

Illustrations of ICT use:

Look at these photographs from other lessons to see more examples of interactive teaching and ICT use and think about the discussion questions that follow:



Whole class dialogue (5 min): *Discussion on images of ICT use.* Share your thoughts with the rest of the group :

- **When is it appropriate to use ICT?**
- **What uses can you think of that promote and enhance interactive teaching and learning?**

Educator note

Discussion around appropriate use and purpose: ICT engages learners but may have novelty value. How can we keep its use motivating over time?

Thinking back to the images classification.

- Activity is easily updated with new images
- ICT use: Helps students? Helps teachers? E.g. teacher doesn't need to print, which saves time and resources, but doesn't make much difference to students whether they learn from netbook or from paper. In some ways it's easier for the students to do this from paper.

Another consideration: At the moment, we are only making very basic use of ICT, where the ICT use is not essential, and the same results could be achieved by other means. However, through this ICT use, the ICT skills of both teachers and students increase, allowing the design and use of more complex activities.

4 Background text: Principles of interactive teaching

Educator note

This section summarises some principles of interactive teaching. They are here for information and reference for the workshop participants. Ask them to look through the list now and see if they have any comments? Print the list and ask them to file it in their folders.

 **Individual activity** (5 min): *Reading the principles of interactive teaching.*

Background reading

What is interactive teaching?

The principles of interactive teaching include

- recognising children as individuals *actively* engaged in interacting with the world, rather than passive recipients of knowledge,
- assessing learning needs and tailoring teaching to the child's current level of knowledge and understanding ("scaffolding" or "child-centred" approach),
- "multimodal" interaction and expression – using different modes of presenting material and expressing ideas (drawing, video, audio as well as conventional texts) to engage learners,
- higher-order thinking – encouraging skills like analysis, synthesis, evaluation, sorting and categorising,
- improvable ideas – providing an environment where ideas can be critiqued and refined,
- diversity of ideas – exploring ideas and related/contrasting ideas, encouraging different ideas,
- building directly on others' ideas to create joint knowledge products,
- democracy in knowledge building – everybody participates and is a legitimate contributor to knowledge, and
- learner agency and peer support – encouraging students to take responsibility for their own and one another's learning.

You can print this content on a separate sheet here: [OER4Schools/Principles of interactive teaching](#).

5 Resources

What resources are needed for interactive teaching – in general? Where do they come from?



1.4 - ICTs in interactive teaching



ICTs are one resource but non-digital tools can be powerful too. Examples of resources include:

- mini-blackboards,
- measuring tapes or sticks,
- counters or stones,
- calculators,
- digital camera,
- class set of netbooks (there are logistical issues to be resolved here including charging, security, rota for use etc.),
- digital learning resources;
 - this includes media (such as images, audio, and video, as well as animations), and using these requires searching for appropriate resources, saving them for re-use with students;
 - this also includes files (such as text files, spreadsheets, presentations);
 - this also includes applications themselves (such as OpenOffice, GeoGebra).
- e-book readers (Kindle, Wikireader), and
- etc.

👤 Same-task group work (5 min): *Pair work on using resources to support interactive teaching.* Think about some of the resources you might like to use in your forthcoming lessons and discuss them – with teachers of the same grade if possible – or with a small group of other participants. It may be that you need to start gathering resources in advance. What things might you begin collecting? Where will you store them? How might you use them?

Let's move the discussion on to thinking about what resources lend themselves well to working alongside ICT. You can either stay in your pairs or join another pair to continue the discussion.

👤 Same-task group work (5 min): *Small group discussion on the role of mini blackboards in groupwork with and without computers.* Drawing on your previous experience of using mini-blackboards, how can they be used to support interactive teaching? How can mini-blackboards support groupwork with computers? What other non-ICT resources can you think of, which can be used with computers? How?

Educator note

If you need to provide further input, remind them of Eness' lesson on vertebrates. In this lesson the pupils were using the tablets to look at pictures of animals, while they were using mini-blackboards to write down their observations.

You could also do a short brainstorm about what resources you can think of, that might support group work? E.g. books, newspapers, other technology (like radio), things found in the natural environment, etc. Get participants to think creatively about what might be available in the local environment.

👤 Whole class dialogue (10 min): *Whole group discussion on the role of non-ICT resources during groupwork with computers.* Share your ideas on resources with the rest of the group and keep a note of any suggestions that other participants make that may be useful to you in the future.

6 Reflection

👤 Whole class dialogue (5 min): *Whole group reflection on what these interactive teaching methods can contribute to*

1.4 - ICTs in interactive teaching

your teaching. Talk to the person next to you and/or collectively brainstorm - what can these interactive methods contribute to your teaching, especially over the next few weeks?


Educator note

Remember to reflect **yourself** on how this workshop went, and to audio record:

- How did the workshop go?
- Which parts did participants respond to best? Why?
- Were there any parts of the material that didn't work very well? Why?
- Did you deviate from the plan at any point? How?
- How long did the workshop take?
- Were there any logistical issues? (eg latecomers/absentees, technical difficulties, etc)

7 ICT practice

GeoGebra is a free and multi-platform dynamic mathematics software for all levels of education that integrates geometry, algebra, tables, graphing, statistics and calculus in one powerful yet easy-to-use package. It has received several educational software awards in Europe and the USA and is used all over the world. The software is being downloaded more than 500,000 times a month, globally.

 **Practical activity** (30 min) *using GeoGebra to draw polygons.* Working in small groups of three to four participants, complete the following activity: Draw 10 different shaped polygons using GeoGebra. As you draw, think about what is the same and what is different between those polygons, and how you could classify them into different groups.

You may like to refer to this YouTube clip if you are not certain about how to make use of GeoGebra:

VIDEO

Simple Polygons in GeoGebra

Simple Polygons in GeoGebra

About this video, 03:12, link to YouTube (<http://www.youtube.com/watch?v=tyFsAykHkTU&list=PLtf3oOebE-EXgP2iN30V3UhCd8x54FGyO>) (local play / download options)(Series: Video from other organisations, episode N/A)

Take some time to look at the different polygons you have drawn and try to find similar characteristics in some or all of the polygons. Try to group these polygons together and classify them with some sort of descriptor. For instance, some of them may look symmetrical, some may look like regular polygons, or some may have right angles. Be prepared to discuss with your group participants how you have classified them.

Educator note

Note that GeoGebra is quite a complex application, and we're not immediately asking participants to trial this in the classroom. We'll do more GeoGebra-based activities throughout the sessions, and will then trial it in the classroom too. If there is time, introduce and/or demonstrate the web based GeoGebra activities below.

This activity will orientate you to make use of GeoGebra to create basic polygons. You will need to access a computer/laptop/netbook and internet. Access a web-browser and navigate to this page:
<http://mathandmultimedia.com/geogebra/>

We will suggest that you go through the exercises in the page in this order:

1. GeoGebra Basic Construction 1 – Constructing an Equilateral Triangle
(<http://mathandmultimedia.com/2009/11/09/geogebra-tutorial-2-constructing-an-equilateral-triangle/>)
2. GeoGebra Basic Construction 2 – Constructing an Isosceles Triangle
(<http://mathandmultimedia.com/2010/03/12/geogebra-construction2-isosceles-triangle/>)

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3. GeoGebra Basic Construction 3 – Constructing a Right Triangle
(<http://mathandmultimedia.com/2010/03/26/geogebra-construction3-right-triangle/>)
4. GeoGebra Basic Construction 4 – Constructing a Square
(<http://mathandmultimedia.com/2009/11/10/tutorial-3-constructing-a-square/>)
5. GeoGebra Basic Construction 5 – Constructing a Rectangle
(<http://mathandmultimedia.com/2010/05/28/geogebra-basic-construction-5-rectangle/>)
6. GeoGebra Basic Construction 6 - Constructing a Parallelogram
(<http://mathandmultimedia.com/2010/07/23/geogebra-tutorial-parallelogram/>)
7. GeoGebra Basic Construction 7 – Constructing a Rhombus
(<http://mathandmultimedia.com/2011/01/09/geogebra-construction-7-rhombus/>)
8. GeoGebra Basic Construction 9 – Constructing a Kite
(<http://mathandmultimedia.com/2011/09/08/geogebra-basic-construction-9-kite/>)

You can print this content on a separate sheet here: [OER4Schools/Geogebra exercises](http://OER4Schools/Geogebra%20exercises).

8 Groupwork with computers: Seating arrangements




Educator note

By this stage the participants have trialled and reflected on a number of activities, with and without ICT. We now think more about the practicalities of doing ICT activities and come up with some strategies for their effective use.

After participants have read the background text and looked at the photos, discuss some of the following statements and questions:

- How would you interact with learners in these various setups? For instance, if computers are arranged in rows, what would the interaction be like? If they were sitting in groups, what would the interaction be like? What is the interaction like in the picture that shows the booths in the computer room?
- With mobile technologies, what are good ways to configure group seating? **Refer to the picture of our lab!**

During the discussion you may want to sketch on the board or a large piece of paper, the preferred island arrangement of desks for one or more of the teaching rooms and show how you would arrange computers among groups.

 **Whole class dialogue** (10 min): *Group discussion on computer lab layout.* Read the following background text, look at the photos and discuss any issues that arise.

Background reading


Mobile computing technologies (such as netbooks or tablets) are very versatile and can be used as and when needed. By contrast, computer labs are now becoming outdated in schools as they remove technology from subject teaching and learning and from the normal classroom environment and teaching aids. Many do not even have a blackboard. Some of the issues are:

- Moving a class into the computer room is disruptive to teaching (especially in primary).
- Computer labs can enforce a rigid seating pattern if benches are fixed.
 - If you have a computer lab with desktop machines, can it be re-arranged to support groupwork?
 - If machines are located around the perimeter (learners have backs to each other and teacher), or in rows, this is not conducive to collaborative learning.
- Some computer rooms even partition off machines so learners cannot interact.

The seating arrangement. Sometimes labs are arranged in a certain way, because of certain concerns. For instance, if the school administration is worried about off-task behaviour, computers are arranged in rows. However, this isn't a good solution, as it interferes with groupwork. Instead, if a teacher is worried about off-task behaviour, they can cruise around the room!

Experience shows that an island arrangement works best, ideally large hexagonal tables, but large round or square tables are fine too.

9 Typing practice

 **Same-task group work** (10 min) *on typical practice*. Split into two groups. One group will first do some typing practice, while the other discusses typing practice in the classroom. After 5 minutes swap round.

Typing practice in the classroom. Last time we did some typing practice. We now want to implement this in the classroom. You only have a limited number of computers. When you start typing practice, you can do this in pairs, so that both students understand how the typing tutor program works, but once students get this, it makes sense to do it as an individual activity. However, students only need to practice for 10 minutes. So if you have, say, 12 netbooks, then take a group of 12 students to do typing practice, while your remaining students (perhaps 20-30 or so) do other tasks (also in group work). After a while, you rotate: Some of the students who were doing other tasks now use the typing tutor, while the students previously using the typing tutor now join in with other group tasks. We will introduce carousel^(a)-style group work properly in session 3.2. (For more information, see OER4Schools/Typing practice with students.)

10 Follow-up activities

 **Agreeing follow-up activities** (5 min).

Part A: Homework in class. Plan and do in one of your classes another digital image slideshow activity. Read through your reflections from the last time you did this activity and try to address any issues that arose in this new trial. Think about how you will arrange the students and how you will manage the resources bearing in mind what you have been learning in this session.

Part B: Homework outside teaching. **Plan a simple activity using digital resources** in some way to support learning in a lesson you will be teaching after one week's time; you can either plan to use the netbooks with the pupils, or just use one connected to the projector.

Don't actually carry out the activity, just plan it using an activity template. Use the teacher lab to search for resources before you come to the next workshop. Bring with you the plan and the link to the resource(s) you have chosen.

Part C: ICT task. In addition to the activity planning, all teachers should do an ICT task, to advance their ICT knowledge. This week you should:

- Log into your email and send an email to the mailing list. You can just say hi, and how you are finding the workshop, or post any question that you have.

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- Make sure that you are able to transfer your audio recordings.
- Save a page into the "lessons_resources".

Educator note

Make sure that the participants know the email address of the mailing list you are using! For the OER4Schools programme, we are using a mailing list at google groups: oer4schools (at) googlegroups.com. Facilitators should also log in and send an email to set an example.

Educator note

In the next session, these follow-up activities will be reviewed. If you are using this session on its own, you can have a look at the review of follow-up activities here.

Educator note

At the end of each session, we provide an overview of the activities in this session, together with their suggested timings. Although this appears at the end of the session (for technical reasons), you should keep an eye on this throughout the session, to make sure that you are pacing the workshop session appropriately!

Total time: 125 (min)

Activities in this session:

- **Whole group reflection** (15 min) *on trialled digital image/mini blackboard activity and Think-Pair-Share activity*
- **Whole class brainstorm** (5 min) *on ICT*
- **Whole class dialogue** (15 min): *Whole group discussion on the role of ICT in the kinds of teaching this programme has been introducing*
- **Whole class dialogue** (5 min): *Discussion on images of ICT use*
- **Individual activity** (5 min): *Reading the principles of interactive teaching*
- **Same-task group work** (5 min): *Pair work on using resources to support interactive teaching*
- **Same-task group work** (5 min): *Small group discussion on the role of mini blackboards in groupwork with and without computers*
- **Whole class dialogue** (10 min): *Whole group discussion on the role of non-ICT resources during groupwork with computers*
- **Whole class dialogue** (5 min): *Whole group reflection on what these interactive teaching methods can contribute to your teaching*
- **Practical activity** (30 min) *using GeoGebra to draw polygons*
- **Whole class dialogue** (10 min): *Group discussion on computer lab layout.*
- **Same-task group work** (10 min) *on typical practice.*
- **Agreeing follow-up activities**(5 min).

If you have printed this session for offline use, you may also need to download the following assets:

- Video/Eness vertebrates 5.mp4 (local play / download options)
- Video/Geogebra-group-interaction.m4v (local play / download options)
- Video/Simple Polygons in Geogebra.mp4 (local play / download options)

Retrieved from "http://oer.educ.cam.ac.uk/w/index.php?title=OER4Schools/ICTs_in_interactive_teaching&oldid=20857"
Categories: OER4S CPDCCEPrimaryTeacher Education

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Session 1.5 - Effective use of ICT

1.5 - Effective use of ICT

Learning intentions and objectives.

In this session you will learn about:

- **Leadership for Learning** as a framework that creates the opportunity for change in schools to promote the activity of learning,
- **Most Significant Change (MSC)** as a technique for monitoring and evaluating this professional development programme by collecting stories of significant changes in areas of practice, and
- **sharing resources** effectively across groups and within groups when doing activities that make use of ICT taking into account the number of students per computer and the need for all students to spend time on the computer.

Success criteria.

To meet the learning intentions you will:

- recognise the potential for leadership capacity to expand as a result of the professional development of staff on programmes like this,
- contribute MSC stories on a regular basis either by writing them down or making an audio recording,
- plan ICT activities that allow all students to see the computer well (no more than 6 per computer) being prepared to provide alternative activities for the rest of the class to work on at the same time, and
- plan activities that allow all students equal access to a computer by e.g. giving them roles within groups and encouraging them to monitor use.

ICT components.

The ICT components you will focus on are

- Searching for images and downloading images
- OpenOffice Impress for making your own photo stories
- Continuation of typing practice

Classroom based activities (with your students, after this session):

- you will do group work around images (using OO Impress),
- you will do typing practice in the classroom

Resources needed.

You'll need to make a "pin board", so you might need some pins or bluetack, and some space.

1 Review of follow-up activities from last session


Edit this review section (http://oer.educ.cam.ac.uk/w/index.php?title=OER4Schools/ICTs_in_interactive_teaching/review_of_follow_up&action=edit)

Educator note


If you are running a professional learning programme which follows these sessions in sequence, then you should do the review of follow-up activities relating to the previous session (ICTs in interactive teaching). The 'review of follow-up activities' for that session is available here, and also shown below in the session text. However, if you are following selected sessions in a different order, then you should use the reflection appropriate to the previous session you did.

The review of the follow-up activities for this session (to be done at the start of the next session) is available here.

2 Review of follow-up activities

 **Whole group reflection** (5 min) on *digital image slideshow activity*.

Part A: Homework in class. Spend a few minutes reading through your reflections (on the digital image slideshow activity that you did with your class) before discussing these questions as a whole group: How did the digital image slideshow activity go? Was it more or less successful than last time? Why do you think that? How did you choose to arrange the students for the activity? Did you manage your resources well?

 **Small group discussion** (10 min) on *planned digital activity*.

Part B: Homework outside teaching. You have planned a simple activity using digital resources in some way to support learning in a lesson you will be teaching some time in the near future. Share your completed activity template with a partner from the same year group if possible. Last time you were asked to come to the lab to find resources. What resources did you manage to find for your ICT-based activity? How did you find them? Was it easy? What do you think can be done with them? Show each other any resources you have uploaded and make a note in your reflective journal of any useful feedback you receive from your partner.

Part C: ICT task. Spend a few minutes discussing as a whole group, any issues you had with the ICT task.

Educator note

Discuss the use of ICT with groups of participants as they are sharing their activity plans with each other. Does it support interactive teaching? How?

Make sure that participants

- have all recorded their audio reflections (make sure they can all use the upload script),
- have all come into the lab to practise their ICT skills, and
- are able to save whatever resources they have found into the “lesson_resources” folder, and then to transfer the contents onto the server.

Also, make sure that the participants know the email address of the mailing list you are using! For the OER4Schools programme, we are using a mailing list at google groups: oer4schools (at) googlegroups.com.

If you need additional ideas for creating ICT-based activities, here are some examples, all to do with photos.

3 Why are we doing this? An introduction to Leadership for Learning

 **Individual activity** (5 min): *Reading about the five principles of Leadership for Learning.* Read the following text.

Background reading

Leadership for Learning (Lfl)

Leadership for Learning (LFL)



(<http://www.educ.cam.ac.uk/centres/cce/initiatives/projects/leadership/index.html>) is a framework of ideas and principles originating in the international Carpe Vitam Leadership for Learning project co-ordinated at the University of Cambridge. The framework has been used for 10 years in different contexts, particularly as a programme for school leadership professional development.

Leadership for Learning is a way of thinking, doing, communicating, working, and reflecting about educational leadership in schools for the singular purpose of promoting the activity of learning.

Five principles of Leadership for Learning are as follows:

1. Focus on learning
2. Conditions for learning
3. Learning Dialogue
4. Shared Leadership
5. Shared Accountability

Throughout this programme we will explore the five LfL principles in practice with a view to you **contributing your own ideas** about Leadership for Learning through interactive learning opportunities.

LfL is not something that can be implemented, 'done-to' a school or imposed on a person. LfL provides a framework that creates an opportunity for change; for expanding leadership capacity in schools and improving the quality of learning. The OER4schools programme adopts an approach similar to the one in LfL in how it defines **professional learning**. You will have an opportunity in this unit to reflect further on the application of LfL in every aspect of your own professional learning.

Same-task group work (10 min): *Small group discussion on LfL in school.* Form a different small group of three to four teachers and discuss these questions:

- What is your initial impression of the terms 'leadership' and 'learning'?
- Who are the leaders and learners in your school?
- Who are the leaders in your school who are responsible for learning within the school?
- Can you be a leader who promotes learning in your school? Why?

Educator note

Make sure that the participants think about this broadly. For instance, "Who are the leaders and learners in your school?" should include the head teacher, both as a leader and a learner. There may also be others (such as cleaners) who may not seem to play an important teaching or administrative role in the school but there is certainly plenty we could learn from them. (e.g. their stories of the school, their observations, and of course, how they have kept the school clean and tidy in an efficient manner to create a conducive environment of learning for all)

This is only an introduction to Leadership for Learning, but we will use those principles throughout the programme, and return to it in more depth shortly.

VIDEO

Ghana Leadership for Learning

Ghana Leadership for Learning - The Context

About this video, 06:58, link to YouTube (<http://www.youtube.com/watch?v=vmyTcgl-4Cc&list=PLtf3oOEbE-EXgP2iN30V3UhCd8x54FGyO>) (local play / download options) dudfilms (<http://www.youtube.com/user/dudfilms>)(Series: Video from other organisations, episode N/A)

4 Where are we going? Overview of the resource topics

The present resource intends to cover a number of units. You have now come to the end of Unit 1.

Unit 1: Introduction to interactive teaching and the use of ICT. The unit offers an introduction to interactive teaching with and without ICT. It introduces the idea of “plan-teach-reflect”, as well as lesson planning to include interactive activity. The unit covers the following aspects:

- What is interactive teaching?
- ICTs in interactive teaching.
- Effective use of ICTs, including basic use of netbooks, browser, and images / slideshows (also in OpenOffice Impress).

The aims of Unit 1 are to

- understand principles of interactive teaching - with and without ICT,
- see illustrations and discuss issues involved in implementing it,
- think about changing one's own practice, and
- develop ways of working with colleagues to reflect on practice, share ideas and trial new strategies.

The unit also introduces the most significant change technique, and at the end of this unit, we look at the Leadership for Learning principles.

Unit 2: Whole class dialogue & effective questioning. The unit's focus is whole class dialogue and effective questioning. It covers:

- creating a supportive environment for dialogue,
- introducing cumulative talk – creating a story together,
- promoting and managing whole class discussion,
- types and examples of effective questions to ask in class, and
- how to engage students in activity at the blackboard.

At the end of this unit we consider how to communicate with other teachers at the school, with parents, head teachers, as well as officials who might seek to assess your new teaching practices. It also includes some material to support school leaders in providing a conducive learning environment for their staff.

In terms of ICTs, this unit introduces GeoGebra and collaborative writing. You should continue practising your other ICT skills, including typing, and making use of images.

Unit 3: Group work. This unit introduces group work, how to agree on ground rules, and what sort of resources support group work (such as “talking points” and digital resources). In detail, the unit covers

- exploratory talk,
- same task group work,
- different tasks group work,
- group composition and formation,
- ground rules for group work,
- carousel of activities for group work,
- mixed pace group work and differentiation, and
- talking points activity for promoting group interaction.

Unit 4: Assessment for learning and lesson pacing. The unit introduces how to find out what your pupils have learnt, and where they need more help, allowing you to use lesson time effectively whilst making sure that your pupils are making continued progress.

In detail the unit covers

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- using an assessment inventory as a self-assessment measure,
- sharing learning objectives and success criteria,
- summative feedback,
- formative feedback, and
- peer assessment.

Unit 5: Enquiry-based learning and project work. The unit introduces how to work in an “enquiry-based” way, for instance learning through project work and in-depth, open-ended investigations. We explore a way of teaching and learning that encourages students to take the initiative to pose questions and explore their curiosity about the world around them, through a process of enquiry.

Unit 6: Into the future. This unit reviews the programme, and continues to make connections between the various interactive practices introduced throughout the programme. It also offers an introduction to action research and communities of practice, through which teachers can continually evolve their teaching practice.

You can print this content on a separate sheet here: [OER4Schools/Unit overview](#).

Educator note

Go through the above text (not spending too much time), making sure that everybody understands.

5 What is the most significant change?

Educator note

In this section, we introduce participants to the “Most Significant Change technique”. We would like participants to formulate their own goals, and to identify what change(s) they might like to make.

A useful addition to a SC story is a headline or title similar to what might be used in a newspaper article. This can be a convenient handle for participants to use to refer to the story when comparing it to others. It can also help the writer distil and communicate the essence of what happened.

Background reading

The most significant change (MSC) technique

MSC is a form of participatory monitoring and evaluation. It is participatory because many project stakeholders are involved both in deciding the sorts of change to be recorded and in analysing the data. It is a form of monitoring because it occurs throughout the program cycle and provides information to help people manage the program. It contributes to evaluation because it provides data on impact and outcomes that can be used to help assess the performance of the program as a whole.

Essentially, the process involves ‘searching’ for project impact through:

- collection of significant change (SC) stories emanating from the field level
- systematic selection of the most significant of these stories by panels of designated stakeholders or staff
- collective reading of the stories aloud and regular and often in-depth discussions about the value of reported changes

When the technique is implemented successfully, whole teams of people begin to focus their attention on programme impact. You can find out more about the MSC technique here:
<http://www.mande.co.uk/docs/MSCGuide.pdf>

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We now consider what the biggest changes might be as a consequence of being involved in this programme - for yourselves, for your teaching, for your students, for the school, or in whatever other area.

👤 Whole class brainstorm (5 min) *on newspaper analogy for recording MSC.* Think about how a newspaper works. A newspaper presents news stories about interesting events. Newspapers are structured into different sections (subject areas, such as foreign news, domestic news, financial news, sport, leisure). The most important stories go on the front page and the most important of these is usually at the top of the front page.

Information to be documented should include:

1. Information about who collected the story and when the events occurred
2. Description of the story itself – what happened
3. Significance (to the storyteller) of events described in the story.

Documenting who collected the story and when helps the reader put the story in context and enables any follow-up inquiries to be made about the story, if needed. The SC story itself should be documented as it is told. The description of the change identified as the most significant should include factual information that makes it clear who was involved, what happened, where and when.

👤 Whole class dialogue (10 min): *Whole group discussion on MSC stories.* Now imagine that later on you will be putting together a whole newspaper issue about how this whole programme affects your thinking and classroom practice: What kinds of stories will be the most important? Who and what will the stories be about? Who will be affected by those stories, who would listen, and who will be they of interest to? What different sections would the newspaper have? What kind of change would you like to make?

The storyteller is also asked to explain the significance of the story from their point of view. This is a key part of MSC. Some storytellers will naturally end their stories this way, but others will need to be prompted. Without this section, people reading and discussing the story may not understand why the story was significant to the storyteller. For example, a woman may tell a story about going to a community meeting and sitting at the back and asking a question. 'So what?' you may think. She then tells you that this story was significant because she had not previously had the confidence to go to a community meeting, and that the program helped her gain the confidence to express her views in front of the village elders for the first time.

Where possible, a story should be written as a simple narrative describing the sequence of events that took place.

Educator note

Do the participants agree on how things might be different as a result of the programme? How will we know when these significant changes have happened? What kinds of evidence do our stories need to refer to? They can also be revised as time goes on. If participants mention ICT use and skills, ask them to focus on changes in pedagogy too.

Record what participants say in a permanent form - in writing or electronically so we can refer to them later on. Make sure it is recorded on video / audio.

6 Groupwork with computers: Sharing resources across groups

1.5 - Effective use of ICT



Individual activity (5 min): *Reading.* Read the following.

Background reading

Access to computers: "We need more computers." Many schools don't have access to computers at all, but where schools do have access, it is often felt that there are not enough computers. How many computers would a school need? While some might say that one computer per child, or perhaps one computer per two children would be ideal, for many schools (and classrooms) this is unrealistic. In general, when you have access to computers, you should therefore make sure that the computers are used in the best way possible in your context. We now consider how to make best use of whatever computers are available during group work.

Same-task group work (5 min): *Pair work on sharing computers.* Spend 5 minutes as pairs, considering the following scenario: You have 60 children in your class, and 10 computers. How would you arrange the groups, how would you distribute the computers, how would you structure the lesson?

To help with this, consider the following questions:

- In devising groupings consider how many children can see the screen and get hands-on experience.
- If you only have a few computers, it is better to operate a carousel so everyone gets a chance?

Whole class dialogue (10 min): *Presentation and discussion* Go round all the pairs, who very briefly present their suggestions. Discuss the various outcomes. What different proposals are there?

Educator note

Often the computers would be distributed equally (in this case one computer per group of 6), and all groups would do that same task. This distribution may well be seen as equitable. However, in practice, more than 3-4 children per computer does not work well.

Another way is to do different tasks groupwork, where some groups do computer-based work, while others do non-computer-based work. After a period of time, you can swap around the tasks, so that the groups which were not using a computer can now use one.

Refer to the two pictures above: In the picture with many children behind one netbook, do you think the children are using the netbook effectively? In the picture with the tablet, are the children interacting?

Here are two more pictures you can consider, regarding how children are sitting around a computer: In one picture, the screen is upright, and all the pupils are squeezing in behind. In the other picture, the screen is flat, allowing the children to sit around the screen.



7 Groupwork with computers: Sharing resources within groups

Having considered how computers are distributed among groups, we now consider how the computer can be shared equally within groups.

Same-task group work (5 min): *Pair work*. In pairs, consider the following questions:

- What would you do if there are some students who always control the computer, while other group members never get to use it?
- Would you say that it is sensible to mix computer-literate pupils with novices?
- How will you ensure they help rather than dominate their peers?

Whole class dialogue (10 min): *Discussion* Discuss the outcomes of your reflection as a whole class.

Educator note

You should discuss strategies for access to computers within the group, i.e. rotating access to the trackpad. You could also discuss the benefits of using tablets or putting the computer screen flat (where this is possible).

It's important to create an environment where all pupils can participate. It's very important to make this explicit as the goal for group work: Everybody should have a go on the computer, not just the students who can type fast.

Come up with strategies for how you can achieve this. For example, in a group of 4, the students need to change over: For example, after a set period of time, access to the computer is rotated. This could be facilitated by giving each student a bottle top when they use the computer (but only on first use). At the end of the task, part of the evaluation is how many bottle tops your group got.

8 ICT practice: Planning an activity using groupwork and ICT

Educator note

Ensure that you have plenty of time for this task to be planned!

You should allow at least half an hour to 45 min.

This activity requires one of the following files

- File:Monarch Life Cycle.odp for OpenOffice Impress or
- File:Monarch Life Cycle.ppt for MS PowerPoint.
- Alternatively, you can view the pictures here: [life cycle of a butterfly](#) and use your own software for arranging them.

Pair work (10 min) *to download the files*. Start by downloading the presentation files above (or the pictures individually), and have a look at them. With a grade buddy, use presentation software to arrange and present them in the right sequence. If you have difficulty arranging the slides, read the background note below.

Background reading

Arranging slides in OpenOffice Impress

When you open a presentation, you see the first slide displayed in a larger window in the middle of the screen. To the left, you see small pictures of all of the slides in the presentation, like a "film strip". To rearrange the

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slides, you can simply click on a slide with the mouse, and (while holding down the mouse button), drag it to a different position.

Same-task group work (30 min): *Plan an activity with ICT in year groups.* In year groups plan an activity together (i.e. all grade 4 teachers plan a lesson for grade 4 together; grade 5 teachers together for grade 5; etc). Whilst in your group:

- discuss with your colleagues (from the same grade) which topics you have coming up next week, and whether some of these topics would work particularly well with groupwork and ICT
- choose a topic that you will be teaching for which this type of activity is useful
- find some appropriate images for your chosen topic and plan a presentation for your students to re-order (you can find pictures that are open resources (Creative Commons licensed) at <http://www.flickr.com/search/advanced/>)
- make active use of the computers to identify useful images together and download them

Read the following background text if you need help with downloading Flickr images.

Background reading

Downloading images from Flickr

1. Click on the photo from the Flickr search results that you want to use (the screen will refresh and a larger version of the image will be shown).
2. Select the "Actions" tab directly above the image (a drop down menu will appear).
3. Click on "view all sizes" from the drop down menu (the screen will refresh).
4. Select the "download a large version of this file" option.

Your chosen image will now be downloaded to your computer for use in OpenOffice Impress - introduction to slideshows with OpenOffice.

Think about the following when planning your activity (keep a note in your activity template):

- What instructions will you give to your students to enable them to carry out this ICT activity effectively?
- How will you ensure everyone participates and everyone learns? How will you stretch all learners?
- What will you say to the groups to ensure this?
- Consider how the computers will be swapped between groups, and between pupils within a group, to ensure that there is effective access for everybody.

This week for homework you will try:

- an image-based task in the classroom (as prepared above) and
- typing practise in the classroom which students would do individually, recording their scores, perhaps for a league table.

Further tips on how to do the typing practice activity are available here (typing practice with students), and included below. Use this information to come up with some ideas for typing practise.

This activity would follow on from the basic netbook familiarisation.

Key points:

- Some computer use relies on conceptual understanding (such as understanding the terms "application", "window" etc). Student need practical experience, but the main concepts are understood conceptually.
- There are other skills in computer use, which are motor skills (http://en.wikipedia.org/wiki/Motor_skill) (such as using the mouse and typing) that are need to be learned through repetition.

Activity:

- Students do typing practise (individually).
- If there are not enough keyboards for each student to have one, you do carousel-style group work. You can combine developing typing skills with any other activity that requires individual or small group work.
- Make sure you plan your lesson so that every student has got a chance to practise
- Use a typing tutor
- Students can record their scores to see how they improve over time, or to form a league table.


Typing practice in the classroom. You only have a limited number of computers. When you start typing, you can do this in pairs, so that both students understand how the typing tutor program works. However, once students get this, it

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makes sense to do it as an individual activity. However, students only needs to practise for 10 minutes. Say if you have 12 netbooks, then take a group of 12 students to do typing practise, while your remaining students (perhaps 20-30 or so) do other tasks (also in group work). After a while, you rotate: Some of the students who were doing other tasks now use the typing tutor, while the students previously doing the typing tutor now join in with other group tasks. We will introduce carousel^(a)-style group work properly in session 3.2.

You can print this content on a separate sheet here: [OER4Schools/Typing_practice_with_students](#).

9 Connecting with overarching goals of the programme

 **Open space** (10 min). It's now time for the "open space", that gives you an opportunity to discuss issues that have arisen, and to relate those to the broader context of the programme. Do not just gloss over this section, but make time to raise issues, and probe the progress that you are making. You could use this space to:

- Remind yourselves of the of the Most Significant Change Technique, and e.g. collect more of your stories.
- Discuss your assessment portfolios: Is there anything that you are unsure about? Is it going well? What could be done better?
- Check on the work with the classroom assistants: Is this going well? Are there any tensions? Any observations or tips you can share?
- Reviewing individual ICT practise (such as typing practise).
- If you are preparing a presentation for other teachers, you could work on the presentation (about what you have been learning, stories emerging from MSC).
- Remind those who are doing audio diaries, to upload them.
- You could discuss any other issues that have arisen.

You will find notes and summaries of various techniques and concepts on our reference page, and you might want to refer to those for clarification during this activity if needed.

10 Follow-up activities

 **Agreeing follow-up activities** (5 min).

Part A: Come to the teacher lab at least once each week to learn more ICT skills.

1. In preparation for developing some image-based lesson activities, you should search suitable images.
2. Do some typing practice to improve your typing skills.
3. Send an email to the oer4schools list (optional)

The following items are specific to the programme at CBS, and may need to be adapted to local circumstances:

Searching for images:

- If there is internet, you can use the "search images on flickr" link from your school homepage (<http://192.168.128.1>).
- Alternatively, if connectivity is poor, you can do this by browsing the schools edition of Wikipedia, also linked from the school homepage.

Part B: Try out your groupwork with ICT. As the week progresses, the teachers within each grade should share the experiences. That is to say, if you are the first teacher to teach this lesson, meet your colleagues afterwards, and discuss

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with them how it went, and what improvements could be made. Remember to keep a note of your reflections and of peer feedback in your reflective journal.

As you teach the lesson remember to think about your own role in the classroom; it is not just to monitor progress but also to interact with pupils, assess their understanding, offer support and help move their thinking forward. Sometimes a group will even need you to sit with them and offer intensive support to progress. Think about how you can identify this need?

During the lessons, remember to encourage groups to let everybody within the group have a go at using the ICT!

Video some of the groupwork if you can (ideally a colleague can do this for you so they can capture you as well as the pupils) and upload it to the server.

Educator note

In the next session, these follow-up activities will be reviewed. If you are using this session on its own, you can have a look at the review of follow-up activities here.

Educator note

At the end of each session, we provide an overview of the activities in this session, together with their suggested timings. Although this appears at the end of the session (for technical reasons), you should keep an eye on this throughout the session, to make sure that you are pacing the workshop session appropriately!

Total time: 135 (min)

Activities in this session:

- **Whole group reflection** (5 min) *on digital image slideshow activity*
- **Small group discussion** (10 min) *on planned digital activity*
- **Individual activity** (5 min): *Reading about the five principles of Leadership for Learning*
- **Same-task group work** (10 min): *Small group discussion on LfL in school*
- **Whole class brainstorm** (5 min) *on newspaper analogy for recording MSC*
- **Whole class dialogue** (10 min): *Whole group discussion on MSC stories*
- **Individual activity** (5 min): *Reading*
- **Same-task group work** (5 min): *Pair work on sharing computers.*
- **Whole class dialogue** (10 min): *Presentation and discussion*
- **Same-task group work** (5 min): *Pair work*
- **Whole class dialogue** (10 min): *Discussion*
- **Pair work** (10 min) *to download the files.*
- **Same-task group work** (30 min): *Plan an activity with ICT in year groups*
- **Open space**(10 min).
- **Agreeing follow-up activities**(5 min).

If you have printed this session for offline use, you may also need to download the following assets:

- Video/Ghana Leadership for Learning - The Context.mp4 (local play / download options)

Retrieved from "http://oer.educ.cam.ac.uk/w/index.php?title=OER4Schools/Effective_use_of_ICT&oldid=20595"

Categories: OER4S CPDCCEPrimaryTeacher Education

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Session 1.6 - Leadership for Learning

1.6 - Leadership for Learning

Learning intentions and objectives.

In this session you will learn about:

- the lens metaphor for exploring the 5 LfL principles,
 1. Focus on learning
 2. Conditions for learning
 3. Learning Dialogue
 4. Shared Leadership
 5. Shared Accountability
- leadership practices that support learning and which can be organized within the 5 LfL principles, and
- LfL in the classroom.

Success criteria.

To meet the learning intentions you will:

- use the lens metaphor to identify LfL in the classroom and record your observations and reflections on a table mat,
- identify the LfL practices employed in the OER4schools programme,
- develop a personal and professional understanding of leadership practices that support learning and which can be organized within the 5 LfL principles, and
- watch a video of teachers in action to see if some or all of the 5 LfL principles can be identified.

ICT components.

The ICT components you will focus on are

- consolidate your skills with concept mapping, geogebra, images, and typing.

Classroom based activities (with your students, after this session):

- you will continue with Geogebra, images, and typing.

Resources needed.

You'll need large pieces of paper (one per group of two or three) to use as table mats for recording observations.

1 Review of follow-up activities from last session

Edit this review section (http://oer.educ.cam.ac.uk/w/index.php?title=OER4Schools/Effective_use_of_ICT/review_of_follow_up&action=edit)

Educator note

If you are running a professional learning programme which follows these sessions in sequence, then you should do the review of follow-up activities relating to the previous session (Effective use of ICT). The 'review of follow-up activities' for that session is available here, and also shown below in the session text. However, if you are following selected sessions in a different order, then you should use the reflection appropriate to the previous session you did.

The review of the follow-up activities for this session (to be done at the start of the next session) is available here.

Educator note

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Please make a note of any challenges that arise! In particular, see what goals participants want to achieve.

 **Review of follow-up and classroom activities** (15 min).

Part A Improvement of ICT skills

1. Did you search for resources on the internet (including images)? How did that go? Did you find the resources that you wanted?
2. Did you practise typing to improve your typing skills. Are you keeping track of your typing speed in your reflective journal? Is your speed improving?
3. You were asked to send an email to the oer4schools mailing list. Who did this? What were the challenges?

Part B Classroom based activities. Discuss with other members of the group how you feel these went. Were you able to observe a colleague/be observed? Did anyone manage to take some video? Write the salient points from the discussion in your reflective journals.

“Most significant change”. Last time we talked about the most significant change technique, and looked at identifying stories through "newspaper headlines". Create a "pin board" in the room where you are meeting, and stick up some headlines.

Educator note

Let's revisit this so you can set some concrete goals for yourselves. What do you think might be the biggest changes as a consequence of being involved in this programme - for yourselves, for your teaching, for your students, for the school, or in whatever other area?! (If you need to remind yourself of the MSC technique, have a look at the previous unit.)

Do the participants agree on how things might be different as a result of the programme? How will we know when these significant changes have happened? What kinds of evidence do our stories need to refer to? They can also be revised as time goes on.

Record what participants say in a permanent form - in writing or electronically so we can refer to them later on. Make sure it is recorded on video / audio.

2 Leadership for Learning

Leadership for Learning is a way of thinking, doing, communicating, working, and reflecting about educational leadership in schools for the singular purpose of promoting the activity of learning.

In a previous session you identified the leaders and learners in your school and considered your own potential as a leader. We will now examine each of the five LfL principles more closely.

Here are the five principles of Leadership for Learning:

1. Focus on learning
2. Conditions for learning
3. Learning Dialogue
4. Shared Leadership
5. Shared Accountability

In this session and throughout the programme you will reflect further on the five principles of LfL ***with a view to contributing your own ideas*** about Leadership for Learning through interactive learning opportunities.

Leadership for learning is happening all around you

If you know what to look for you will see elements of LfL in classrooms and schools, in your own community, and even in the setting in which you might be working through this unit!

You may be wondering, 'If Leadership for Learning is all around me already, why am I doing this unit?' Well ... the short answer is that even though the LfL principles describe common attributes of many classrooms and whole schools, they are not present, coordinated or sustained at levels that support consistently positive learning effects.

3 LfL: Seeing is believing



Let's start by considering a few ideas about LfL, its 5 principles, and how we might observe and identify these in classrooms and schools.

We like to think about 'seeing' the LfL principles by using what we have come to call an 'LfL Lens' or set of 'LfL Lenses'. What do we mean by lens? We use a familiar image of spectacles or glasses to depict or serve as a useful metaphor for clarifying what we mean by an LfL Lens.

Think-Pair-Share (10 min) *your ideas on what an LfL lens means.* What do **you** think we mean by an LfL lens as illustrated by the spectacles or glasses metaphor?

Educator note

Pedagogy: Think-Pair-Share^(a)

THINK: Suggest each person works independently for 1 minute and identifies/thinks of 1 - 3 responses/contributions. Participants make a note of each (mentally, or preferably, written down to support recall and reference).

PAIR: In pairs, participants discuss and compare ideas.

SHARE: The whole group comes together, with each pair contributing one or two ideas from their discussion.

Sample responses: "It helps you see things differently", "An LfL lens makes you focus on LfL", "It's a way of describing how we look at the world differently depending on our attention or interests."

4 LfL: The five lenses




Let's take our metaphor of the LfL lens a step further, and suggest that there are 5 different LfL lenses (spectacles) needed in order to 'see' all 5 LfL principles:

1. Focus on learning
2. Conditions for learning
3. Learning Dialogue
4. Shared Leadership
5. Shared Accountability

You can print this content on a separate sheet here: [OER4Schools/LfL/5 principles](#) .

Consider the 5 LfL Lenses and their usefulness for focusing on learning practices.

- What are the kinds of things you might see in a classroom if you were looking through the LfL lens '**Focus on Learning**'?
- What are the kinds of things you might see in a classroom if you were looking through the LfL lens '**Conditions for Learning**'?
- What are the kinds of things you might see in a classroom if you were looking through the LfL lens '**Learning Dialogue**'?
- What are the kinds of things you might see in a classroom if you were looking through the LfL lens '**Shared Leadership**'?
- What are the kinds of things you might see in a classroom if you were looking through the LfL lens '**Shared Accountability**'?

 **Small group activity** (25 min) on what to look out for in the classroom as evidence of LfL.

Your facilitator will explain to you how to go about this group activity. Before that, you may like to take some time to refer to the background reading to help you understand all the 5 LfL principles.

Educator note

Pedagogy: Plenary session or Jigsaw

Extending the use of the lens metaphor from the previous think-pair-share exercise, the facilitator can suggest one of the following group activities to help the participants make further use of the LfL lenses.


Plenary Activity

1. Ensure that the participants are in five different groups.
2. Assign each group to one particular lens to discuss what are the kind of things they may look out for in the classrooms using that one particular lens. This should take at least 10 minutes.
3. One member from each group will share with everyone in a plenary format. (ie. each person to take a turn to share what they have discussed in the group)
4. The rest of the participants can ask questions for clarification or raise comments on the overlaps and links across the 5 LfL principles. This should take another 15 minutes.
5. Remind the participants that this is a purely exploratory exercise, with no incorrect answers.

Jigsaw Activity

1. Ensure that the participants are in at least two groups of 5 participants each.
2. Assign each member in each group to one particular lens to think about what kind of things he/she may look out for in the classroom using that one particular lens. This should take at least 5 minutes.
3. The members who are assigned to the same lens from the different groups will meet together as a temporary 'expert' group to exchange ideas. This should take another 5 minutes or so.
4. The participants return to their original groups and share their findings with the rest of the members. Each person will have about 2 minutes to share their findings.
5. Remind the participants that this is a purely exploratory exercise, with no incorrect answers.

Use the following background reading to explain the terms. There is another educator note below this background reading, that gives further details for each point in turn. Make sure that you have spent time reading and thinking about this before the session as the participants may need your prompting to help them 'see' through each lens.

 **Reading:** (10 min) *expanded LfL principles*

Background reading

Focus on Learning

1. Everyone is a learner
2. Learning relies on the effective *interplay* of social, emotional and cognitive processes
3. The efficacy of learning is highly sensitive to context and to the differing ways in which people learn

4. The capacity for leadership arises out of powerful learning experiences
5. Opportunities for leadership enhance learning

Conditions for Learning

1. Cultures nurture the learning of everyone
2. Everyone has opportunities to reflect on the nature, skills and processes of learning
3. Physical and social spaces stimulate and celebrate learning
4. Safe and secure environments enable everyone to take risks, cope with failure and respond positively to challenges
5. Tools and strategies are used to enhance thinking about learning and the practice of teaching

Learning Dialogue

1. Practice made explicit, discussable and transferable
2. Active, collegial inquiry focussing on the link between learning and leadership
3. Coherence through sharing of values, understandings and practices
4. Factors that inhibit and promote learning are examined and addressed
5. Link between leadership and learning is a concern for everyone
6. Different perspectives explored through networking with researchers and practitioners

Shared Leadership

1. Structures support participation in developing learning communities
2. Shared leadership symbolised in day-to-day flow of activities
3. Everyone encouraged to take a lead as appropriate to task and context
4. Everyone's experience and expertise is valued and drawn upon as resources
5. Collaborative activity across boundaries of subject, role and status are valued and promoted

Mutual Accountability

1. Systematic approach to self-evaluation embedded at every level
2. Focus on evidence and its congruence with core values
3. Shared approach to internal accountability is a precondition of external accountability
4. National policies recast in accordance with school's core values
5. Choosing how to tell own story while taking account of political realities
6. Continuing focus on sustainability, succession and leaving a legacy

Educator note

This educator note is meant to be read in conjunction with the above background reading. It provides additional prompts for each of the points above.

1. Focus on Learning

1. **Everyone is a learner.** Are students the only learners in our school? How about the teachers? Parents? Headteachers?
2. **Learning relies on the effective interplay of social, emotional and cognitive processes.** Do we think about what learning is about? Is it about memorising and applying certain facts? Managing emotions? Being able to make friends with one another? Making good decisions?
3. **The efficacy of learning is highly sensitive to context and to the differing ways in which people learn.** Are we aware about the differences in ways which people learn and to what extent their background (e.g. family, age, interests) will influence the way they learn?
4. **The capacity for leadership arises out of powerful learning experiences.** Who are some of the most influential teachers in our lives? When did we encounter such teachers and why did they create such powerful learning experiences for ourselves? How can we do the same for others?
5. **Opportunities for leadership enhance learning.** Are we given the opportunities to make decisions on our learning?

2. Conditions for Learning

1. **Cultures nurture the learning of everyone.** What kind of background (e.g. families, age, interests) would be most helpful to support learning?
2. **Everyone has opportunities to reflect on the nature, skills and processes of learning.** Are there opportunities for everyone to reflect on the nature, skills and processes involved in learning? What are they?
3. **Physical and social spaces stimulate and celebrate learning.** Are the physical facilities and other forms of support (e.g. community and family support) able to support learning? What are

these facilities and forms of support?

4. **Safe and secure environments enable everyone to take risks, cope with failure and respond positively to challenges.** Are we providing a safe environment for learners to take risks, cope with failure and respond positively to challenges? How are we doing that?
5. **Tools and strategies are used to enhance thinking about learning and the practice of teaching.** Are we updating ourselves and reflecting on the various tools and strategies to enhance the way we teach and learn? How are we doing that?

3. Learning Dialogue

1. **Practice made explicit, discussable and transferable.** Do we have the language to talk about learning so that we can discuss and reflect on it more fruitfully? How do we do that?
2. **Active, collegial inquiry focussing on the link between learning and leadership.** Do we discuss and find out how we can take the lead to decide what learning should be like in our school (and not just be directed by the authority)? How can we go about doing that?
3. **Coherence through sharing of values, understandings and practices.** Do we discuss and share the values and understanding of the ways we learn and teach? What are they?
4. **Factors that inhibit and promote learning are examined and addressed.** Do we examine and address the factors that inhibit and promote learning? What are they?
5. **Link between leadership and learning is a concern for everyone.** Do we prioritise the link between leadership and learning? What kind of concerns about learning do we raise and act upon?
6. **Different perspectives explored through networking with researchers and practitioners.** Do we network with researchers and other practitioners to explore different perspectives of learning and leadership? How do we do that?

4. Shared Leadership

1. **Structures support participation in developing learning communities.** Are there ways we can participate in learning or be involved in starting learning communities within the school?
2. **Shared leadership symbolised in day-to-day flow of activities.** Can we see leadership being shared by various colleagues and students in the day-to-day flow of activities in the school? What is that like?
3. **Everyone encouraged to take a lead as appropriate to task and context.** Do we take the initiative to take a lead in various learning or research projects in accordance with what we are interested in and capable of? What kind of projects or research can we embark on?
4. **Everyone's experience and expertise is valued and drawn upon as resources.** Do we draw on everyone's experience and expertise and value all of them as important resources to support learning? How do we do that?
5. **Collaborative activity across boundaries of subject, role and status are valued and promoted.** Do we value and promote collaborative activities across subject, levels and roles within the school?

5. Mutual Accountability

1. **Systematic approach to self-evaluation embedded at every level.** Is there a systematic approach to self-evaluation that is evident in all aspects of our work?
2. **Focus on evidence and its congruence with core values.** Is there a focus on documentation of teaching and learning that would be consistent with our beliefs on the values of education?
3. **Shared approach to internal accountability is a precondition of external accountability.** Do we take the initiative to be accountable to ourselves in ensuring the quality of teaching and learning, rather than be dependent on an external authority?
4. **National policies recast in accordance with school's core values.** Do we critically examine the national policies and how they are relevant with the school's core values?
5. **Choosing how to tell own story while taking account of political realities.** Do we maintain an individual stance of our own views of teaching and learning, while being very cognisant of the political realities that we are living in?
6. **Continuing focus on sustainability, succession and leaving a legacy.** Do we try to look forward towards the future, on how we can sustain our current efforts and be able to leave a legacy for our future generations?

5 Application of LfL lenses to a classroom situation

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putting this idea of looking at classroom teaching and learning through an LfL lens into practice.

We are going to watch a short teaching/classroom video.

Before we do, **choose only 1 LfL lens that you will use** as your 'critical lens' to 'see' the practices in this classroom. By choosing your 1 LfL lens, you should only 'see' and note down those things that your lens helps you to focus on. Decide as a group, what exactly you want to look out for based on the lens that you have chosen.

For example, if you choose, 'Conditions for Learning', then try looking only for those things that you believe contribute to promoting conditions for learning in the video.

Educator note

It is helpful if different participants choose different lenses so at least two, ideally more, are represented.

Pedagogy: 'Table mats' to record observation and reflection

Invite participants to work in pairs or groups of three, and prepare a 'table mat' for recording. Each group has a large piece of paper, in the middle of which they draw a quadrant (if pairs) or a triangle (if threes) big enough to record the outcomes of the group discussion. Divide the outside area of the paper into half or third (to match the group size).

Agree which LfL principle each group will adopt as their critical lens for watching the video.

As they watch the video, participants make notes in their outside area of the table mat.

After watching, participants share their observations and reflections, and together agree the salient points of the lesson from the perspective of their chosen LfL principle to record in the central area of the table mat.

Emphasise that there are no wrong answers, and groups should try their best to focus their attention using their chosen LfL lens.

Extension: The table mats could be collected and displayed for the whole group, firstly comparing any that focused on the same LfL principle, then comparing those that used differing lenses. Exploration of the similarities and differences is likely to reinforce the understanding that using a single lens brings specific aspects of a lesson into sharper focus, and that the five principles are interrelated and overlap.

OK, watch the video now, wearing your chosen LfL spectacles!

This video clip shows the highlights of a lesson study (also known as research study) going on in an American primary school classroom. Lesson study is another form of ongoing professional development activity whereby teachers come together to decide on an area of teaching or learning that they would like to understand and improve on, in order to help students learn better. The teachers observe learners in a class being taught by one of their colleagues and collect specific, detailed data for discussion with the lesson study group later. In this video clip, the teachers want to find out whether the students are able to recall and retell the sequence of a story read to them by their teacher.

VIDEO

Research lesson debrief

Lesson Study: Research Lesson and Debrief

About this video, 3:15,

⚠️ (<http://www.youtube.com/watch?v=nDksU13FZtc&list=>)

(<http://www.youtube.com/watch?v=nDksU13FZtc&list=>)

- Some part "<nowiki> (<http://www.youtube.com/watch?v=nDksU13FZtc&list=>)...</nowiki>" of the query was not understood.
- Some use of "<nowiki>[[</nowiki>" in your query was not closed by a matching "]".
- Some subquery has no valid condition.

link to YouTube]

(local play / download options)(Series: Video from other organisations, episode N/A)

Educator note

The facilitator could suggest these following prompts if the participants appear to be uncertain of what to look out for (but do not give them straight away!). Each should address only one lens and set of prompts of course, not all of them.

- Focus on learning - what aspect of teaching and learning did the teacher want to focus on understanding and improving? How did they go about collecting data on it? What did they learn from the data?
- Conditions for learning - did all the teachers have an opportunity to share what they have learnt? Did the teacher who was observed, appear to be nervous? Did all the teachers feel 'safe' to share their opinions and to listen to one another? How much time did they have to set aside for meeting together? Would it be easy to set aside time to observe their colleague teaching?

(NB: Please highlight to the participants that the purpose of peer lesson observation is NOT to find faults, judge or criticise the teacher's teaching. Rather, it is an opportunity to discuss what is the learning that has taken place by observing the students' responses. Based on the observations and discussions, teachers can suggest what they may like to try out differently or similarly in the next lesson study. It is not unusual to re-teach the same topic in another class, if the teachers feel that will be a helpful follow-up.)


- Learning Dialogue - did all the teachers have the language to discuss the particular aspect of teaching and learning they had chosen to focus on? Were they able to come to any conclusions about what were some of the problems they had identified and how they could be improved on? Was the dialogue between the teachers a helpful one in advancing their professional learning? Why?
- Shared leadership - did it appear that there was one leader who 'directed' the teachers on what to do? Did every teacher have a part in contributing to the research lesson? Why do you think the teachers were committed to coming together for this research lesson?
- Shared accountability - did it appear that all the teachers had a stake in trying to find out how they could all learn from this research study? (Or did they leave it to just one teacher to do all the work?) How did they ensure that every teacher could learn by being an active participant in this research study? How did they substantiate their comments by drawing from evidence of their observations?

6 LfL across the OER4schools programme

LfL is not only an effective framework for exploring others' teaching and learning, it is also very useful for reflecting upon your own learning pathways. Teachers, student teachers and other participants are autonomous thinkers and learners, doing their own learning both individually and collectively. We hope that the new (and familiar) ideas presented in the OER4schools programme and the supporting resources will feed into your understanding of learning, classroom conditions and your leadership role, impact on student learning and what you can do to enrich and enhance learning opportunities.

There are no "right ways" but lots of possibilities to explore; in this sense you always a "leader" – leading learning in your classroom. Hopefully you can also share the responsibility for leading learning within your school or institution. We will explore this in 6.2 and 6.3.


Adapted from "Creating Learning Without Limits", by Maddock, Peacock, Hart & Drummond, p.108-9. OUP, Maidenhead."

 **Think-Pair-Share:** (10 min) *Does the OER4schools programme support LfL?*

Consider what you have learned in the sessions leading up to this point in the programme. Did your workshop facilitator and/or the materials 'focus on learning', create the 'conditions for learning', promote and enable 'learning dialogue', provide opportunities for 'shared leadership' and 'mutual accountability'? Also, using the 5 principles, why not consider evaluating yourself, your own involvement and contribution to increasing the learning capacity in the programme thus far for you and your colleagues? LfL is an effective way of thinking about your learning, the learning around you, and how you can go about improving learning capacity.

Think about these questions and pair up with one other colleague to share your ideas before feeding back any salient points to the rest of the group.

7 ICT practice

 **ICT practice** (20 min): *consolidating what you have learnt so far.* Review the previous sessions in this unit. You have learnt about netbook use, about slideshows (in a browser and in OpenOffice), as well as about finding images, and GeoGebra. These applications are all open ended, in the sense that there are many more things to explore and do. You should continue to explore these applications.


In this current session, you can use this ICT practice slowly to consolidate your skills learnt so far. Work in pairs, on a topic of your choice. Make sure that you work towards activities that you can try in the classroom.

Educator note

You will need to judge how many new things you can introduce. If the group you are working with have so far mastered the ICT tasks easily, you could get them to explore additional features of OpenOffice Impress. If they have a lot of experience with OpenOffice already, you could just move on to Geogebra or do some mind mapping. However, if the group you are working with has been struggling, make sure that they understand the basics. You could pair teachers who are more advanced in their ICT use with teachers who are less advanced.

At the end of the ICT practice, spend a few minutes recapping what you have covered in the ICT practice so far: netbook use, slideshows, finding images online.

8 Connecting with overarching goals of the programme

 **Open space** (10 min). It's now time for the "open space", that gives you an opportunity to discuss issues that have arisen, and to relate those to the broader context of the programme. Do not just gloss over this section, but make time to raise issues, and probe the progress that you are making. You could use this space to:

- Remind yourselves of the of the Most Significant Change Technique, and e.g. collect more of your stories.
- Discuss your assessment portfolios: Is there anything that you are unsure about? Is it going well? What could be done better?
- Check on the work with the classroom assistants: Is this going well? Are there any tensions? Any observations or tips you can share?
- Reviewing individual ICT practise (such as typing practise).
- If you are preparing a presentation for other teachers, you could work on the presentation (about what you have been learning, stories emerging from MSC).
- Remind those who are doing audio diaries, to upload them.
- You could discuss any other issues that have arisen.

You will find notes and summaries of various techniques and concepts on our reference page, and you might want to refer to those for clarification during this activity if needed.

9 Follow-up activities

 **Agreeing follow-up activities** (5 min).

We would like you to practice using the LfL lenses when you are back in your own classroom settings, or even when you are watching others in the act of teaching and learning.

1. Take time to think about the course, your own learning and how you contributed to and were supported in your

1.6 - Leadership for Learning

learning. Use the LfL framework to organize your mental and audio reflections, enabling you to return to our next session ready to discuss your own teaching, teaching you have witnessed, and ideas about learning through the framework of the 5 LfL lenses. This will help us to focus our discussions and thinking about teaching and learning in a way that will help you develop your discussions with your peers.

2. Please undertake a 30-minute peer observation, where you observe student learning in a colleague's classroom using the LfL lenses. You can choose to use just one lens, or more than one – whichever you feel is most appropriate for the exercise. It will be helpful to have a pre-lesson discussion prior to the peer observation lesson, to agree on what the lens means, what the observer could potentially be looking for and other ground rules of etiquette. (e.g. the observer should not unnecessarily interfere with the classroom activities, remain quiet etc.) The teacher may like to brief the observer on the profile of his/her class. There may be particular students the observer would need to pay more attention to due to various reasons (e.g. learning difficulties).

We suggest that if both of you agree to use more than one lens, then the observer can configure his/her notes in sections – perhaps even dividing your note taking paper into labelled, headed sections prior to the observation. That way he/she can jot down elements he/she observes under each heading in the prepared framework. It is important for the observer to remember that he/she is observing **practices**, not people.

If possible, conduct a quick post-lesson discussion as soon as possible. Try to ensure that the discussion focuses on observations about practices and contextualise comments by framing the observations as 'I noticed pupils...' or 'When you supported pupils to... I noticed...'. Remember, the observer is not reporting what he/she THINKS he/she should have seen in a lesson, but what he/she DID see. By doing this, the discussion can avoid problems of possibly unhelpful critique of peer professional practices.

We would not be surprised if both of you report back that certain LfL principles are observed more often than others. If you find this to be true, consider proposing an explanation for this to your colleagues at our next session and what you might suggest we can learn from your findings.

Educator note

In the next session, these follow-up activities will be reviewed. If you are using this session on its own, you can have a look at the review of follow-up activities here.

10 Acknowledgement

This page was authored primarily by Stephen Jull, drawing on collaborative work with Sue Swaffield and John MacBeath of the Centre for Commonwealth Education, University of Cambridge.

<http://www.educ.cam.ac.uk/centres/cce/ccepeople/staff.html>

Educator note

At the end of each session, we provide an overview of the activities in this session, together with their suggested timings. Although this appears at the end of the session (for technical reasons), you should keep an eye on this throughout the session, to make sure that you are pacing the workshop session appropriately!

Total time: 135 (min)

Activities in this session:

- **Review of follow-up and classroom activities**(15 min).
- **Think-Pair-Share** (10 min) *your ideas on what an LfL lens means.*
- **Small group activity** (25 min) *on what to look out for in the classroom as evidence of LfL.*
- **Reading:** (10 min) *expanded LfL principles*
- **Small group activity:** (30 min) *Use 'table mats' to record observations and reflections on LfL in the classroom.*
- **Think-Pair-Share:** (10 min) *Does the OER4schools programme support LfL?*
- **ICT practice** (20 min): *consolidating what you have learnt so far.*
- **Open space**(10 min).

- **Agreeing follow-up activities**(5 min).

If you have printed this session for offline use, you may also need to download the following assets:

- Video/Lesson Study - Research Lesson and Debrief.mp4 (local play / download options)

Retrieved from "http://oer.educ.cam.ac.uk/w/index.php?title=OER4Schools/Leadership_for_Learning&oldid=20473"

Categories: OER4S CPDCCEPrimaryTeacher EducationLeadership

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Unit 2 - Whole class dialogue and effective questioning



We are now starting a new unit. The unit's focus is whole class dialogue and effective questioning. It covers:

- creating a supportive environment for dialogue,
- introducing cumulative talk – creating a story together,
- promoting and managing whole class discussion,
- types and examples of effective questions to ask in class, and
- how to engage students in activity at the blackboard.

At the end of this unit we consider how to communicate with other teachers at the school, with parents, head teachers, as well as officials who might seek to assess your new teaching practices. It also includes some material to support school leaders in providing a conducive learning environment for their staff.

In terms of ICTs, this unit introduces GeoGebra and collaborative writing. You should continue practising your other ICT skills, including typing, and making use of images.

1.7 - Whole class dialogue and effective questioning

2.1 - Introduction to whole class dialogue and effective questioning		
<p>In this session you will learn about:</p> <ul style="list-style-type: none"> creating a supportive learning environment for dialogue through body language, emotional support and enthusiasm for pupil learning, one aspect of whole class dialogue cumulative talk, classroom management techniques for whole class dialogue such as forming classroom rules in consultation with pupils, and the idea of an assessment portfolio. 	<p>To meet the learning intentions you will:</p> <ul style="list-style-type: none"> role play a cumulative talk activity using the magic microphone technique to generate enthusiasm, plan a cumulative talk activity for use in the classroom and consider using a horseshoe seating arrangement to encourage peer co-operatively, and identify features that illustrate 'a supportive classroom environment' whilst watching videos of whole class dialogue in action. 	<p>The ICT components you will focus on are</p> <ul style="list-style-type: none"> continuation of Geogebra practice planning another slideshow with OpenOffice Impress <p>Classroom based activities (with your students, after this session):</p> <ul style="list-style-type: none"> another image sequencing activity typing practice in the classroom
2.2 - Questioning		
<p>In this session you will learn about:</p> <ul style="list-style-type: none"> differentiating between types of questions (closed questions versus open questions and surface questions versus deep questions), generating open and deep questions, other types of questions that you can ask students (e.g. questions for remembering / understanding / applying / analysing / evaluating / creating), and handling multiple responses. 	<p>To meet the learning intentions you will:</p> <ul style="list-style-type: none"> play a game to classify questions as open or closed, further classify questions during discussion using an information sheet for reference, and watch a video and identify techniques for handling multiple responses. 	<p>The ICT components you will focus on are</p> <ul style="list-style-type: none"> planning a lesson with Geogebra using Etherpad to make shared notes <p>Classroom based activities (with your students, after this session):</p> <ul style="list-style-type: none"> do a lesson with Geogebra
2.3 - More on questioning		
<p>In this session you will learn about:</p> <ul style="list-style-type: none"> further techniques for questioning and handling responses common mistakes made when asking 	<p>To meet the learning intentions you will:</p> <ul style="list-style-type: none"> practise effective questioning and handling responses role-play a question and answer session 	<p>The ICT components you will focus on are</p> <ul style="list-style-type: none"> Using Etherpad to make shared notes Planning a lesson with Geogebra

1.7 - Whole class dialogue and effective questioning

<p>made when asking questions in the classroom</p> <ul style="list-style-type: none"> ▪ how to increase pupil participation for answering questions 	<p>and answer session with common questioning mistakes to highlight how ineffective some commonly employed questioning strategies can be</p> <ul style="list-style-type: none"> ▪ recognise and plan to use a range of effective strategies to increase pupil participation for answering questions 	<p>Classroom based activities (with your students, after this session):</p> <ul style="list-style-type: none"> ▪ try another lesson with Geogebra.
2.4 - Concept mapping		
<p>In this session you will learn about:</p> <ul style="list-style-type: none"> ▪ concept mapping as a technique to promote interactive teaching ▪ developing ideas for concept maps ▪ encouraging talk that involves reasoning and building on others' ideas 	<p>To meet the learning intentions you will:</p> <ul style="list-style-type: none"> ▪ take part in a whole group brainstorm activity and record the results as a concept map ▪ plan, present/listen to others present a concept map and use supportive dialogue ▪ plan a concept mapping activity for use in the classroom 	<p>The ICT components you will focus on are</p> <ul style="list-style-type: none"> ▪ Consolidate your skills with Geogebra, images, and typing. ▪ Learn about using OO Impress (e.g. adding titles to images) ▪ (optional) Concept mapping software. <p>Classroom based activities (with your students, after this session):</p> <ul style="list-style-type: none"> ▪ you will continue with Geogebra, images, and typing.
2.5 - Engaging the community		
<p>In this session you will learn about:</p> <ul style="list-style-type: none"> ▪ using a 'combined' Leadership for Learning lens to evaluate student learning ▪ using the Leadership for Learning framework to structure discussion with a parent, colleague, head teacher or inspector ▪ involving students 	<p>To meet the learning intentions you will:</p> <ul style="list-style-type: none"> ▪ make observations on student learning using a 'combined' Leadership for Learning lens and evaluate these during discussions with peers ▪ role play a discussion with a parent, colleague, head teacher or inspector 	<p>In this session, you will learn how to communicate with parents about your use of ICTs in the classroom. Unlike the other sessions, there is no time set aside for specific ICT activities.</p>

Retrieved from "http://oer.educ.cam.ac.uk/w/index.php?title=OER4Schools/Whole_class_dialogue_and_effective_questioning&oldid=19393"

Categories: **OER4S CPDCCEPrimaryTeacher Education**

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Session 2.1 - Introduction to whole class dialogue and effective questioning

2.1 - Introduction to whole class dialogue and effective questioning

Learning intentions and objectives.

In this session you will learn about:

- creating a supportive learning environment for dialogue through body language, emotional support and enthusiasm for pupil learning,
- one aspect of whole class dialogue **cumulative talk**,
- **classroom management techniques** for whole class dialogue such as forming classroom rules in consultation with pupils, and
- the idea of an **assessment portfolio**.

Success criteria.

To meet the learning intentions you will:

- role play a cumulative talk activity using the **magic microphone** technique to generate enthusiasm,
- plan a cumulative talk activity for use in the classroom and consider using a **horseshoe seating arrangement** to encourage peer co-operatively, and
- identify features that illustrate 'a supportive classroom environment' whilst watching videos of whole class dialogue in action.

ICT components.

The ICT components you will focus on are

- continuation of Geogebra practice
- planning another slideshow with OpenOffice Impress

Classroom based activities (with your students, after this session):

- another image sequencing activity
- typing practice in the classroom

1 Review of follow-up activities from last session

Edit this review section ([http://oer.educ.cam.ac.uk/w/index.php?](http://oer.educ.cam.ac.uk/w/index.php?title=OER4Schools/Leadership_for_Learning/review_of_follow_up&action=edit)





[title=OER4Schools/Leadership_for_Learning/review_of_follow_up&action=edit\)](http://oer.educ.cam.ac.uk/w/index.php?title=OER4Schools/Leadership_for_Learning/review_of_follow_up&action=edit)

If you are running a professional learning programme which follows these sessions in sequence, then you should do the review of follow-up activities relating to the previous session (Leadership for Learning). The 'review of follow-up activities' for that session is available here, and also shown below in the session text. However, if you are following selected sessions in a different order, then you should use the reflection appropriate to the previous session you did.

The review of the follow-up activities for this session (to be done at the start of the next session) is available here.

Last time, we asked you to practice using the LfL lenses when you are back in your own classroom settings, or even when you are watching others in the act of teaching and learning.

 **Whole class dialogue** (10 min) *about the LfL framework.* We asked you to take time to use the LfL framework to think about the OER4Schools programme, your own learning and how you contributed to and were supported in your learning. Go round the group, and give an example of your own teaching, or teaching you have witnessed, or other ideas about learning through the framework of the 5 LfL lenses. Once everybody has contributed something, spend some time discussing your observations.

 **Whole class dialogue** (10 min): *Reflection on peer observation.* We asked you to undertake a 30-minute observation of student learning in a colleague's classroom using the LfL lenses. Using the notes you made, go round, saying in turn how it went, and which lens you chose to observe. Remember to try and report what you saw, through the particular lens chosen. As an example of how the reporting can take place, you may like to quickly report in this format:

1. I have chosen to look at student learning through the 'conditions of learning' lens.
2. We agreed that I will look out for whether the students have opportunities to pose questions (or whether they feel safe to ask questions) in the lesson.
3. I notice that students are generally quite quiet throughout the lesson. Teacher X did ask several times whether they have any questions they want to ask. Students did not respond.
4. My inference from this is that students are not used to posing questions. Perhaps they feel embarrassed to ask questions? Or perhaps they don't know what to ask?

By reporting what was seen and heard, and then making an inference based on the practice observed, the discussion can avoid problems of possible unhelpful critique of peer professional practices.

Educator note


As we continue to discuss LfL in this session, it may be helpful to have a large sheet of paper with the five LfL principles in front of everybody, or perhaps get participants to have the LfL principles in front of them. You could also draw on the expanded list of LfL principles (with questions) from the last session.

2 Creating a supportive environment for dialogue

We are now moving on to the topic of this unit, and we start with introducing whole class dialogue. We initially focus on

- creating a supportive environment for dialogue, and
- cumulative talk - creating a story together.

We start this process by exploring the magic microphone^(a) and then exploring cumulative talk^(a).

 **Magic microphone** (10 min) *on the last workshop.* Use a prop, for example a stick or a long pencil as a magic microphone or a ball. Whoever gets the prop answers an open-ended question such as, 'One thing from the last workshop that I could use effectively in my classroom was...' or 'What I did not find useful from the last workshop was...'

Educator note


If there is time, ask the participants to answer two questions. It will also give the facilitator some feedback about the previous workshop as well as introduce a method that can be used in classroom with pupils.

Facilitator models creating a supportive environment through

- encouraging body language, by smiling and looking at the person who is talking and showing that you are attentively listening (maybe nodding);
- encouraging emotional support, by being non-judgemental (accept all answers) and allowing whoever is ready to talk instead of talking it in turns (but everybody has to talk); and
- showing enthusiasm, if you agree with something that the participant says, by saying something like 'I also thought of that' or 'I did not think about it, it's something new and I agree'.

After all participants have answered, role-play how you would carry out the activity in the classroom with pupils. One participant (not the facilitator) can play the role of teacher, others are the pupils. Facilitator should support the "teacher" by suggesting questions for "pupils". Some examples are: I like the colour... or My favourite food is... The idea is to get all (or most) pupils talking by asking a question that everybody can answer easily.

Using a magic microphone can slow down the pace of a lesson, and decrease spontaneity, especially if it takes a long time to carry the magic microphone through the classroom. You might want to consider using something that is easy to pass (such as a ball, rather than a pen). You could also consider having two magic microphones, so that one can be passed while the first one is "active".


 **Magic microphone** (10 min) *in the classroom: roleplay* Repeat the above activity, but this time role-playing how you would carry out the activity in the classroom with pupils. Think of your own questions to use in the classroom. Make a note of these questions, so that you can try out the activity in the classroom. As you are planning, consider these questions:

- How easily will the children be able to answer the questions?
- Will the microphone get stuck because a child cannot answer?
- How do you know that the questions are at the right level?
- Will this activity be fun? (Relates to: LfL, 2)

3 Introducing cumulative talk - creating a story together

Educator note

Cumulative talk is talk in which all participants agree and add to the previous talk (or sentence).

 **Cumulative talk** (10 min): *Creating a story together* All the participants get up to rearrange the seating. Arrange the group in a horseshoe seating arrangement^(a) if there is room. If not choose another arrangement allowing participants to see each other. Facilitator starts a story by saying one sentence. All participants then contribute to the story by adding sentences.

A good story would:


- be contextually appropriate: for example, use common names of characters and a setting familiar to participants.
- have a theme relevant for participants such as education (girl-child receiving schooling later supports family), importance of forests and wild-life (saving a snake later becomes useful for invention of new medicine), treatment of diseases (steps taken by a family to treat an ill person) etc.,
- be short and have few characters, and
- have a problem which is collectively resolved in the end.

For instance, you could create a story about welcoming a new child to the school, perhaps a child with an impairment or some kind. The facilitator starts by saying: "The other day, I heard my neighbours talking about whether their child should be starting school, because their child has difficulty walking, and they were not sure whether children like that should go to school." (Relates to Index for Inclusion, A1.1 Everyone is welcomed.)

Educator note

Facilitator can introduce the notion of Talk Rules during this activity if needed. Some examples are: “everybody listens when one person talks” because they have to add to that sentence, “respect others’ ideas” by adding to rather than changing their idea, “make sure everyone in the group understands”, “try to reach consensus in the end” – participants don’t need to actually come to agreement but the process of trying gets people to listen to each other. You may want to ask participants to generate their own examples of Talk Rules.

The activity we just did is example of “cumulative talk” where participants build on what the previous person has said (“cumulative talk” is one way of moving towards whole class dialogue).


 **Same-task group work** (10 min) *in pairs: Planning cumulative talk in the classroom* Now pair up, and come up with ideas for cumulative talk in the classroom.

- Consider that when this activity is done in the classroom with pupils, themes should be chosen from the curriculum.
- Also consider that the seating arrangement can be modified according to teachers’ classrooms such that pupils see each other. Pupils can leave their tables and just move their chairs (or sit outside if the grounds are suitable).

As you are planning this activity, ask yourself the following questions:

- Do your students find it easy to talk?
- How can you encourage students to talk?
- Are some students likely to laugh at other students contributions? How can you create safe environments that enable students to take risks?(Relates to: LfL, 2.4)

4 Whole class discussion: Creating a supportive environment

 **Observing, thinking, reflecting** (10 min) *Video on classification of vertebrates.* Video clips Eness vertebrates 10 (“Is a boy a mammal?”) and 11 (“Is a whale a fish or a mammal?”); lively class discussion about classifying these animals, deliberately chosen to create controversy and to challenge the pupils

VIDEO

Is a boy a mammal?

Eness leads a discussion on 'Is a boy a mammal?'

About this video, 3:51, link to YouTube (<http://www.youtube.com/watch?v=p96CArgf0gY&list=PLF0530A6FEF00D354>) (local play / download options)(Series: Eness Vertebrates, episode 10)

VIDEO

Fish or mammal?

Class explores the question 'Is a whale a fish or a mammal?'

About this video, 4:31, link to YouTube (<http://www.youtube.com/watch?v=NWV0X9aMYxM&list=PLF0530A6FEF00D354>) (local play / download options)(Series: Eness Vertebrates, episode 11)

 **Whole class dialogue** (10 min) *on the learning environment and classroom management.*


- Was there a supportive environment for pupil participation and dialogue in this lesson?(Relates to: LfL, 2) If so, how did the teacher achieve this?

- How did she help students to work out whether the boy and the whale were mammals? Did this discussion move their thinking forward?(Relates to: LfL, 1)
- What did you think about teacher control and pupil learning in these video clips? How would a horseshoe seating arrangement have impacted on this?
- How would you manage something similar in your classroom? How would you encourage pupil talk without losing too much control?

Educator note


Did participants notice the “wait time” after asking a question before teacher made a further contribution or question? Increasing wait time a little increases thinking time and in turn leads to an improvement in the quality of students' responses.


5 Reflection on what we have learned

 **Whole class dialogue** (10 min): *Reflection on what you have learnt.* Reflection on what you have learned from this session about

- body language for encouraging dialogue,
- cumulative talk,
- encouraging most pupils to talk,
- withholding feedback sometimes to motivate pupils without fear of “wrong” answers: not evaluating pupil responses, just accepting them,* forming rules for dialogue, and
- managing the tension between control and learners' freedom to contribute.

6 ICT practice: Different-task group work with ICT and activity planning

 **Whole class dialogue** (5 min) *on ICT use.* To use ICT in an investigative way requires that both teachers and learners are sufficiently familiar with the technology and software, or the teacher spends the whole time troubleshooting problems of using the technology and software instead of addressing the more important enquiry skills and learning objectives. Developing this familiarity through progressively more complex use of ICT needs careful thought. It is important to develop good strategies for using ICT in the classroom. For instance, addressing the whole class to demonstrate features/procedures of using ICT can be most efficient rather than speaking to groups in turn. However, where groups have got specific problems, it can be useful to support that group first, so that they can later help other groups. Take a few minutes to discuss what issues have arisen so far.

 **Different-tasks group work** (15 min) *on spreadsheets.* In this session, we suggest that you familiarise yourself with the use of the spreadsheet function in OpenOffice and/or with GeoGebra. It is likely that you may need to continue with this as homework.

Educator note

You may want to limit the time spent on these tasks within the workshop. You could interrupt, say after 15 minutes, to discuss the homework. However, if there is time after the workshop, participants could always return to these activities. It is essential to allow time to introduce the homework before the session ends.

1. Basic Calculations

- Add (<http://inpics.net/tutorials/calc2/basics13.html>)
- Subtract (<http://inpics.net/tutorials/calc2/basics21.html>)
- Multiply (<http://inpics.net/tutorials/calc2/basics24.html>)
- Divide (<http://inpics.net/tutorials/calc2/basics28.html>)


Unit 2 Introduction to whole class dialogue and effective questioning

- Calculate averages (<http://inpics.net/tutorials/calc2/basics31.html>)
- Find the maximum value (<http://inpics.net/tutorials/calc2/basics35.html>)

You can print this content on a separate sheet here: [OER4Schools/Spreadsheet exercises/1](#).

As with the other applications, we will return to spreadsheets in a later session. If you find the activities very easy, because you have used spreadsheets before, then help others! As you are doing the exercises yourself, consider for which grade and for which lessons they might be useful. For instance, in the Zambian context, would these exercises be suitable for Grade 5 upwards?

7 Assessment portfolios

 **Whole class dialogue** (10 min): Read about assessment portfolios together and discuss any issues arising. In Unit 1 we learned about the cycle of plan-teach-reflect and the idea of keeping a reflective journal. We would like to extend the idea of a reflective journal further now by asking you to select material from it for submission to an assessment portfolio. We would like you to select material for your assessment portfolio that best illustrates how you have made use of the interactive teaching techniques that you have learned about in the workshop sessions. An ideal submission for your portfolio should include

- an explanation of why you have chosen to do a particular activity with your students,
- a completed activity template showing how the activity fits into the rest of the lesson,
- a description of how the students responded to the activity,
- a reflection on what you would do differently if you did the activity again,
- any other important notes,
- samples of students' work if possible e.g. a concept map, and
- 'snapshots' of the activity to show how it went eg a copy of the results of a brainstorm or a copy of the images you used.

Submission of an assessment portfolio containing at least one piece of material (with notes) from each unit is a key part of completing the OER4Schools programme. Further assessment portfolio guidance for use during discussion .

Do you have recording equipment available? This could just be your phone, or if you have a laptop or tablet, you could use that for recording. If you have something you can record audio with, then for each piece of work that you submit, do an audio reflection. To do this, think about how you would show a teacher in another school what you have been learning through the OER4S programme. What concrete examples would you share with them? How would you show them the range of things you have covered? Suppose then this teacher asked you some questions, e.g. What worked well? What didn't work so well? What would you say to them?

Ideally you would make a link between the workshop session and your classroom trial. Tell us where the idea came from, and how you applied it. We don't want or need evidence - we just want to know, in your own words, what you have learned.

Here is a short example of the sort of reflection we would like you to record: "I learned about _____ in session _____. I thought that it could be really useful for my pupils during a lesson on _____, I tried it out with my students. The work I have submitted is an example of _____. I have also submitted an example of what the students did. I had initially written this _____ [for the students], and the students then added _____. Students responded differently. Mary had difficulty with it because _____. (E.g. some computer did not work - why did it not work?!) I concluded the lesson with a plenary, and they told me these answers. If I was to do this again, I would do it like this: _____. I would also apply this tool to another lesson on _____ topic, because _____".

You can also do a short audio reflection right after a lesson where you tried out a new approach or technology, so you record your immediate reactions and thoughts. These files can then help to inform your portfolio later on, or even be submitted as part of it.

The following items are specific to the programme at CBS, and may need to be adapted to local circumstances:

At Chalimbana Basic School there is a set of the dictaphones available, that you can use for the reflections.

8 Connecting with overarching goals of the programme

Open space (10 min). It's now time for the "open space", that gives you an opportunity to discuss issues that have arisen, and to relate those to the broader context of the programme. Do not just gloss over this section, but make time to raise issues, and probe the progress that you are making. You could use this space to:

- Remind yourselves of the of the Most Significant Change Technique, and e.g. collect more of your stories.
- Discuss your assessment portfolios: Is there anything that you are unsure about? Is it going well? What could be done better?
- Check on the work with the classroom assistants: Is this going well? Are there any tensions? Any observations or tips you can share?
- Reviewing individual ICT practise (such as typing practise).
- If you are preparing a presentation for other teachers, you could work on the presentation (about what you have been learning, stories emerging from MSC).
- Remind those who are doing audio diaries, to upload them.
- You could discuss any other issues that have arisen.

You will find notes and summaries of various techniques and concepts on our reference page, and you might want to refer to those for clarification during this activity if needed.

9 Follow-up activities

Agreeing follow-up activities (5 min).

Part A: Try out the 'magic microphone' technique with an easy question for pupils to answer (eg "what's your favourite food?"); every child should say something but keep the pace rapid so it doesn't take too long – if someone isn't ready, come back to them.

Part B: Try out cumulative talk by asking pupils to create a class story, contributing one line each whenever they are handed the magic microphone by their peers. Use some of the techniques discussed in this session to create a supportive environment, for example: positive body language, enthusiastic tone, listening to each other before speaking and building on what the previous person has said. Encourage any shy children to have a go, and repeat the activity with another topic on other occasion so they get more used to public speaking.

Part C: Your own ICT practice:

- Practise your typing skills.
- Continue practising finding resources and downloading images for a lesson that you can do. When you download images, put them into your lesson_resources folder, and use the slideshow function using a web browser on the netbooks or teacher computers.

The following items are specific to the programme at CBS, and may need to be adapted to local circumstances:

Write an email to the mailing list

Part D: ICT use in the classroom:

- Do another image-based activity
- Do typing practice (carousel)

In the next session, these follow-up activities will be reviewed. If you are using this session on its own, you can have a look at the review of follow-up activities here.

Educator note

At the end of each session, we provide an overview of the activities in this session, together with their suggested timings. Although this appears at the end of the session (for technical reasons), you should keep an eye on this throughout the session, to make sure that you are pacing the workshop session appropriately!

Total time: 135 (min)

Activities in this session:

- **Whole class dialogue** (10 min) *about the LfL framework.*
- **Whole class dialogue** (10 min): *Reflection on peer observation.*
- **Magic microphone** (10 min) *on the last workshop.*
- **Magic microphone** (10 min) *in the classroom: roleplay*
- **Cumulative talk** (10 min): *Creating a story together*
- **Same-task group work** (10 min) *in pairs: Planning cumulative talk in the classroom*
- **Observing, thinking, reflecting** (10 min) *Video on classification of vertebrates.*
- **Whole class dialogue** (10 min) *on the learning environment and classroom management.*
- **Whole class dialogue** (10 min): *Reflection on what you have learnt.*
- **Whole class dialogue** (5 min) *on ICT use.*
- **Different-tasks group work** (15 min) *on spreadsheets.*
- **Whole class dialogue** (10 min): *Read about assessment portfolios together and discuss any issues arising*
- **Open space**(10 min).
- **Agreeing follow-up activities**(5 min).

If you have printed this session for offline use, you may also need to download the following assets:

- Video/19 Eness 3 vertebrates 10.mp4 (local play / download options)
- Video/19 Eness 3 vertebrates 11.mp4 (local play / download options)

Retrieved from "http://oer.educ.cam.ac.uk/w/index.php?title=OER4Schools/Introduction_to_whole_class_dialogue_and_effective_questioning&oldid=21141"

Categories: OER4S CPDCCEPrimaryTeacher EducationDialogueQuestioning

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Session 2.2 - Questioning

2.2 - Questioning

Learning intentions and objectives.

In this session you will learn about:

- differentiating between types of questions (**closed questions** versus **open questions** and **surface questions** versus **deep questions**),
- generating open and deep questions,
- other types of questions that you can ask students (e.g. **questions for remembering / understanding / applying / analysing / evaluating / creating**), and
- handling multiple responses.

Success criteria.

To meet the learning intentions you will:

- play a game to classify questions as open or closed,
- further classify questions during discussion using an information sheet for reference, and
- watch a video and identify techniques for **handling multiple responses**.

ICT components.

The ICT components you will focus on are

- planning a lesson with Geogebra
- using Etherpad to make shared notes

Classroom based activities (with your students, after this session):

- do a lesson with Geogebra

Resources needed.

You will need to have Etherpad or another collaborative writing application available and some red/yellow/green cards for **robots/traffic lights** resource.

1 Review of follow-up activities from last session

Edit this review section (http://oer.educ.cam.ac.uk/w/index.php?title=OER4Schools/Introduction_to_whole_class_dialogue_and_effective_questioning/review_of_follow_up&action=edit)

Educator note

If you are running a professional learning programme which follows these sessions in sequence, then you should do the review of follow-up activities relating to the previous session (Introduction to whole class dialogue and effective questioning). The 'review of follow-up activities' for that session is available here, and also shown below in the session text. However, if you are following selected sessions in a different order, then you should use the reflection appropriate to the previous session you did.

The review of the follow-up activities for this session (to be done at the start of the next session) is available here.

1. Did you try the magic microphone activity? How did the pupils respond to the activity? Share examples of easy questions that you asked with the other participants.
2. Did you try creating a story with the pupils? What were the challenges?
3. Which features of creating a supportive learning environment did you try during the week? Did you notice any changes in pupils' responses as a result of the new features? Remember that creating a

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supportive environment is not a one-off activity. It should be the norm in an interactive classroom.

4. Using ICT: How did the search for resources go? Were you able to download images?

2 Introduction

Questioning, offering opportunities for classroom talk, and listening to learner responses are an essential part of interactive teaching. They help teachers to determine

- what learners understand,
- what they misunderstand, and
- what they are actually learning.

3 Reflecting on current questioning practice

Educator note

The idea behind this activity is to make the need for this session explicit.

You will need mini-blackboards and something for display (blackboard/flipchart).

Choose some topics that participants are teaching this week (from the curriculum), and display the topics (on blackboard or flipchart). Some examples are:

- the importance of water^(Relates to Index for Inclusion, C1.2),
- living together^(Relates to Index for Inclusion, C1.13),
- transport^(Relates to Index for Inclusion, C1.5),
- types of fertilizers (organic and inorganic) and their advantages or disadvantages^(Relates to Index for Inclusion, C1.1), e.g.
- uses of different parts of a plant^(Relates to Index for Inclusion, C1.8), and
- health^(Relates to Index for Inclusion, C1.6).



Same-task group work (5 min) *in pairs*: *Coming up with some questions*. Choose a topic from the board. Write a list of up to five questions on mini-blackboards or paper that you normally ask/would ask the pupils in class?

Educator note

Allow only about 3-5 minutes for this activity so that spontaneous questions are recorded.

After 3-5 minutes, explain what open and closed questions are (see background reading below) and ask the whole group for a couple of example questions of each type for illustration. Write these examples (no more than two of each question type) on the blackboard or flipchart for reference during the game, or ask a volunteer participant to do so. When you are sure that participants have got the idea of the differences between the question types proceed with the game.

During the game, ensure that participants do not feel less motivated if their questions are more closed or surface type. To ensure this:


- Refrain from judging questions. Record/discuss questions factually without expressing any emotion.
- Mention that all types of questions have value and can be used for different purposes. Closed and surface questions are also important to some extent.
- Maintain positive body language by listening attentively.


Before the session, prepare the workshop room by marking OPEN on one side of the room and CLOSED on the other side. To keep it simple, draw a line on the floor with chalk and write OPEN and CLOSED!

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To start the game, ask participants to look at the first question (on their respective lists), work out whether it is open or closed and move to the corresponding side of the room. When participants have categorised their first question, take a few examples from each side of the room for clarification that they have been correctly categorised. Participants move on to the second question on their list and categorise it in the same way.


Continue to play the game for five minutes, clarifying that questions have been correctly categorised after each new move, taking examples from different participants each time.

 **Observing, thinking, reflecting** (5 min) *Facilitator talk on open and close questions.*


 **Game** (5 min) *on open and closed questions.* The facilitator will ask you to categorise the questions on your list, one at a time, as open or closed and to move to the corresponding side of the room. Work through your questions one at a time and categorise them as closed or open when asked to do so. For each question, move to the side of the room marked OPEN if that question is open or to the side marked CLOSED if that question is closed. Be prepared to explain your rationale to the rest of the group.

Educator note

Make this activity interesting by asking participants to run to the appropriate side of the room (OPEN or CLOSED) at the sound of a clap and ask the participant who gets there first to clap when it is time to move again after considering the second question, and so on.

 **Whole class dialogue** (5 min): *Reflecting on current practice.* Where do you stand? Is your current practice of generating questions more open or more closed?

4 Reading about open and closed questions

 **Observing, thinking, reflecting** (5 min): *Reading about open and closed questions.*

Background reading

Closed versus Open questions:

- Closed questions are factual and focus on a correct response. *Some examples are: Name the different parts of a plant? What are the five nutrients that must be present in a balanced diet? How many sides does a triangle have? What is the formula for calculating the perimeter of a square? How many planets are there in the solar system? Name two sources of renewable energy.*
- Open questions have many answers. *Some examples are: What could be the consequences of water contamination? How does a balanced diet help us? How could we use flowers of plants? Suggest ways to prevent the spread of malaria in your community?*

Surface versus Deep questions:

- Surface questions elicit one idea or some ideas. *For example, What is the difference between organic and inorganic fertilizers? What is the use of carbohydrates in a balanced diet? Which part of the sugar cane plant is used for eating? Which features of a cactus plant are useful for its survival in desert regions?*
- Deep questions elicit relations between ideas and extended ideas. *For example, What would happen if only inorganic fertilizers are used for growing plants? What connections do you see between the climate of a region and its vegetation? Why is the water in the nearby pond not safe for drinking?*

'What if' and 'Why'... questions can help you delve deeper into pupils' thinking.

5 Collecting open questions with Etherpad

ICT activity (15 min): *Introduction to Etherpad.* You have been doing your typing practice for a while, and this will help you now. We are going to use a collaborative writing activity to make note of the open questions defined in the previous activity. The facilitator will now introduce you to Etherpad. Work in small groups (one group per computer), and enter your open questions only (from your mini whiteboard/black board) into Etherpad.

Educator note

Introduce participants to Etherpad (or another collaborative writing application), and get participants to write open questions from the previous activity.

Throughout this session, make a note of open questions: We will use those later when planning an activity.

To introduce Etherpad, you can use ideas from here: Group chat with messenger or collaborative writing. Let participants observe how words appear on all screens simultaneously. Perhaps you have some participants writing, while others go round and observe. Then swap who writes and who observes. Make sure that all participants get the idea.

6 Questioning our questions

Whole class dialogue (10 min): *Discussion of the questions collected on Etherpad.* Now look at the questions we have collected. What makes these questions open rather than closed? What other ways can we classify them?

Educator note

Draw attention to or hand out questions you can ask and incorporate these into the discussion (see end of this session).

Encourage participants to use this resource for planning their activity (see below) and as ready reference during teaching (by printing them on cards).



Refer to open and closed questions if you get stuck.

Reading (20 min) *questioning the questions.* Read pages 2 and 3 of the "Questioning the Questions" handout (Questioning the Questions (http://oer.educ.cam.ac.uk/w/images/7/71/VVOB_-_Questioning_the_Questions.pdf) (info) (http://oer.educ.cam.ac.uk/wiki/File:VVOB_-_Questioning_the_Questions.pdf)).

Discuss:

1. What was your most important learning from the handout?
2. Which points from page 3 are you already practising during your lessons?
3. Which points can you immediately carry out?
4. Which points might need some more preparation?
5. What other points would you like to include in this document?

Educator note

Allow at least 15-20 minutes for the reading. Proceed from reading to discussion only if most participants are ready. This will show that you are respecting the participants' pace, something that they could follow in their classroom. Participants who have read sooner than others can be asked to think of other points about "questioning and handling responses" that they would want to include in this handout.

Reinforce some learning from previous sessions during the discussion, such as use of props and use of rules. What about 'no hands up' (point 8 on p.3); is it a useful technique?

Discuss points 1 and 3 only if you think there is less time. It is important that participants cover the material on

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pages 2 and 3 of the document during the workshop. You may wish to use the following activity as an alternative to individual reading:

Alternative activity for covering the information on page 3:

There are 12 (not 14 as it appears) short points for participants to get their head around. These could be divided up amongst the group, so one point each or one between two depending on the group size. Participants should read and understand their point, perhaps coming up with an example to help clarify it to the rest of the group. After allowing participants a few minutes to understand their point, ask them in turn to stand up and explain it to the rest of the group. They should present their point in their own words and not just read from the document. By the end of this activity the participants will have verbally presented the contents of page 3 of the document in a way that makes the material easily accessible and may make it easier to remember.

7 Video on crime writing

Observing, thinking, reflecting (10 min): *Video on crime writing.* Watch the video in which an English teacher is introducing the crime-writing genre to 12- to 13-year-old pupils in a UK classroom. The lesson prepares them for writing their own crime story. The situation mentioned on the board is “An abandoned briefcase has been handed in to police. What could the content reveal about the owner?”. The clip illustrates teacher questioning and handling responses for encouraging pupils to consider alternatives.

Suggested questions for reflection:

- What did you notice about the teacher’s questions in this clip?
- Which questions elicited multiple responses or could have done?
- How did the teacher handle multiple responses?
- How would you improve the teacher’s questions?
- What would you do differently while handling multiple responses?

VIDEO

Caroline briefcase clip

Unit 2, session 2 - Caroline briefcase clip

About this video, 1:47, link to YouTube (<http://www.youtube.com/watch?v=bX7wBu9Pjto&list=PLtf3oOEBE-EXgP2iN30V3UhCd8x54FGyO>) (local play / download options)(Series: Video from other organisations, episode N/A)



8 Planning a questioning activity

Different-tasks group work (15 min): *Planning in pairs for an activity with open ended questions.* In the activity template, plan for questioning as part of a lesson that you will teach in the coming week. Find some relevant images that you can use to base your questions around and list some open and deep questions to ask in the class in order to challenge students and get them thinking. Try out some of the points mentioned in page 3 of the handout. **Record specific questions on the template.**

Educator note

Ask participants to focus on the questioning part of the activity. Therefore ask participants to record on the template:


- What images they will use - What will they be used for? What is/are the purpose(s)?
- Questions to start the lesson?
- Questions while pupils are looking at the pictures? Clear explanation of task.
- Questions after looking at the pictures?
- Questions about pupils' thoughts that relate to objectives of the lesson?
- Questions that summarize pupils' learning?

For example, if the topic is clean water, participants can record:

- Images that they will use e.g. sources of water that show clean and unclean water.
- Questions to start such as, look at the pictures and identify sources that are safe for drinking.
- Questions while pupils are looking at pictures such as, why is water from this source safe? How does the water get contaminated?
- Questions at the end such as, what can we do in our homes to ensure that the water we drink is clean? What are the effects of drinking unclean water?


They can complete the remaining plan later.

9 ICT practice: Different-tasks group work with ICT and activity planning

 **Different-tasks group work** (20 min) *using images for questioning.* In this part of the session, work in small groups to discuss how you can use images for questioning. Find and download Creative Commons images from the internet (c.f. earlier session), either to use individually, or as part of the slideshow in OpenOffice Impress. You can also look at the introduction to slideshows with Open Office to remind yourself.

Plan how to use images in the classroom with your students, in a questioning activity using images (e.g. images in a slideshow, e.g. a sequencing activity or using/rearranging images to tell a story around which your questions are formed). Also remember to develop your typing practice, see typing practice with students.

10 Connecting with overarching goals of the programme

 **Open space** (10 min). It's now time for the "open space", that gives you an opportunity to discuss issues that have arisen, and to relate those to the broader context of the programme. Do not just gloss over this section, but make time to raise issues, and probe the progress that you are making. You could use this space to:

- Remind yourselves of the of the Most Significant Change Technique, and e.g. collect more of your stories.
- Discuss your assessment portfolios: Is there anything that you are unsure about? Is it going well? What could be done better?
- Check on the work with the classroom assistants: Is this going well? Are there any tensions? Any observations or tips you can share?
- Reviewing individual ICT practise (such as typing practise).
- If you are preparing a presentation for other teachers, you could work on the presentation (about what you have been learning, stories emerging from MSC).
- Remind those who are doing audio diaries, to upload them.
- You could discuss any other issues that have arisen.

You will find notes and summaries of various techniques and concepts on our reference page, and you might want to refer to those for clarification during this activity if needed.

11 Follow-up activities

 **Agreeing follow-up activities** (5 min).

Part A: Use your questioning activity. Teach a lesson with this activity and try out the questions that you have planned. Record any questions that you generated without planning (as best you can!)

Part B: Try out Geogebra with your class. Also see whether you can continue carousel-style groupwork for typing practice.

Part C: Reading. Read p. 6 of the VVOB handout, section on “handling answers”. Think about how you will handle/respond to the multiple answers to your questions (that you just planned). Record your ideas on the activity template sheet.

Educator note

Remind participants to bring the VVOB handout for the next session.

Educator note

In the next session, these follow-up activities will be reviewed. If you are using this session on its own, you can have a look at the review of follow-up activities here.

12 Handouts

Questions you can ask in class

- Can you guess what will happen?
- Can you give me an example? Can you find an (another) example?
- How does (cause) relate to (event)? or How does this explain ...?
- Is this the same as ...? Is this different from ...?
- Tell me something that is true about ...
- What connections can you see between ...?
- What always seems to happen?
- What other ways are there to ...?
- What do you think is happening?
- What would happen if ...?
- What could be changed if we want...? What would you change so that ...?
- What is wrong with ...?
- What happens when ...?
- What did you observe?
- What do you think about ...?
- What do you think about what X said? Why?
- Why do you think that ...?
- Can you explain that to your partner?
- Can you group these?

Here are some questions classified using Bloom's taxonomy, in order of increasing demand:

Remembering

- What do you remember about ...?

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- How would you define ...?
- How would you recognise ...?
- What would you choose ...?
- Describe what happens when ...?
- How is ...?
- Which one ...?
- Why did ...?

Understanding

- How would you clarify the meaning ...?
- How would you differentiate between ...?
- What did you observe ...? □
- How would you identify ...?
- What would happen if ...? □
- Can you give an example of ...?

Applying

- How would you develop... to present ...?
- What would be the result if ...? □
- How would you present ...?
- □ How would you change ...?
- Why does ... work?
- □ Can you develop a set of instructions about ...?
- What factors would you change if ...?

Analysing

- How can you classify ... according to ...?
- How can you compare the different parts ...?
- What explanation do you have for ...?
- Discuss the pros and cons of ...? □
- What is the analysis of ...? □
- How is ... similar to ...?

Evaluating

- What criteria could you use to assess ...?
- What data was used to evaluate ...?
- What choice would you have made ...?
- What is the most important...?
- How could you verify ...?
- □ Is there a better solution to ...?
- □ What do you think about ...? □
- Do you think this is a bad or a good thing?

Creating

- What alternative would you suggest for ...?
- What changes would you make to revise ...?
- Predict the outcome if ...? □
- What could you invent ...?
- How would you compile the facts for ...?
- □ If you had access to all resources how would you deal with ...? □
- Compose a song about ... □
- Design a ... to ...

You can print this content on a separate sheet here: [OER4Schools/Questions you can ask](#).

How do you find out whether your question is open or closed? How do you find out whether your question is surface or deep? Let's first look at some examples:

Background reading

Closed versus Open questions:

2.1 - Questioning

- Closed questions are factual and focus on a correct response. *Some examples are: Name the different parts of a plant? What are the five nutrients that must be present in a balanced diet? How many sides does a triangle have? What is the formula for calculating perimeter of a square? How many planets are there in the solar system? Name two sources of renewable energy.*
- Open questions have many answers. *Some examples are: What could be the consequences of water contamination? How does a balanced diet help us? How could we use flowers from plants? Suggest ways to prevent the spread of malaria in your community?*

Surface versus Deep questions:

- Surface questions elicit one idea or some ideas. *For example, What is the difference between organic and inorganic fertilizers? What is the use of carbohydrates in a balanced diet? Which part of the sugar cane plant is used for eating? Which features of a cactus plant are useful for its survival in desert regions?*
- Deep questions elicit relations between ideas and extended ideas. *For example: What would happen if only inorganic fertilizers are used for growing plants? What connections do you see between the climate of a region and its vegetation? Why is the water in the nearby pond not safe for drinking?*

'What if' and 'Why'... questions can help you delve deeper into pupils' thinking.

Here are some questions you can use about your questions!

- Does this question have one correct answer?
- Is there more than one answer to this question?
- Are you using this question to get a student to give you a particular answer?
- Could a student come up with the answer through their own thinking, or is it something that they either know or don't know?
- If the question is answered by somebody, would it be possible for somebody to object to the answer, and come up with a different answer (that can be justified, or one that at least isn't easy to dismiss).

Also try to answer the question yourself: Is it a productive question? You could also test your question on a colleague: Again, how do they answer the question?

Also see OER4Schools/Questions you can ask, and also see Starting the enquiry based learning process regarding "productive questions".

You can print this content on a separate sheet here: [OER4Schools/Open and closed questions](#).

Educator note

At the end of each session, we provide an overview of the activities in this session, together with their suggested timings. Although this appears at the end of the session (for technical reasons), you should keep an eye on this throughout the session, to make sure that you are pacing the workshop session appropriately!

Total time: 130 (min)

Activities in this session:

- **Same-task group work** (5 min) *in pairs: Coming up with some questions.*
- **Observing, thinking, reflecting** (5 min) *Facilitator talk on open and close questions.*
- **Game** (5 min) *on open and closed questions.*
- **Whole class dialogue** (5 min): *Reflecting on current practice.*
- **Observing, thinking, reflecting** (5 min): *Reading about open and closed questions.*
- **ICT activity** (15 min): *Introduction to Etherpad.*
- **Whole class dialogue** (10 min): *Discussion of the questions collected on Etherpad.*
- **Reading** (20 min) *questioning the questions.*
- **Observing, thinking, reflecting** (10 min): *Video on crime writing.*
- **Different-tasks group work** (15 min): *Planning in pairs for an activity with open ended questions.*
- **Different-tasks group work** (20 min) *using images for questioning.*
- **Open space**(10 min).
- **Agreeing follow-up activities**(5 min).

2.1 - Questioning

If you have printed this session for offline use, you may also need to download the following assets:

- Questioning the Questions (http://oer.educ.cam.ac.uk/w/images/7/71/VVOB_-_Questioning_the_Questions.pdf)
- Video/Unit 2 session 2---Caroline briefcase clip.m4v (local play / download options)

Retrieved from "<http://oer.educ.cam.ac.uk/w/index.php?title=OER4Schools/Questioning&oldid=20476>"

Categories: OER4S CPDCCEPrimaryTeacher EducationDialogueQuestioning

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Session 2.3 - More on questioning

2.3 - More on questioning

Learning intentions and objectives.

In this session you will learn about:

- further techniques for questioning and **handling responses**
- common mistakes made when asking questions in the classroom
- how to increase pupil participation for answering questions

Success criteria.

To meet the learning intentions you will:

- practise effective questioning and handling responses
- role-play a question and answer session with **common questioning mistakes** to highlight how ineffective some commonly employed questioning strategies can be
- recognise and plan to use a range of **effective strategies to increase pupil participation for answering questions**

ICT components.

The ICT components you will focus on are

- Using Etherpad to make shared notes
- Planning a lesson with Geogebra

Classroom based activities (with your students, after this session):

- try another lesson with Geogebra.

Resources needed.

Prepare for this activity by printing out from the file the list of Strategies for increasing participation and cut it up so each strategy is on a separate small piece of paper. You can also write them if printing is not possible. Fold each piece separately and keep them in a basket, box, tray or plastic bag.

1 Making notes with Etherpad

Appoint two scribes, who make notes where appropriate in Etherpad. Occasionally change who the scribes are.

2 Review of follow-up activities from last session

Edit this review section (http://oer.educ.cam.ac.uk/w/index.php?title=OER4Schools/Questioning/review_of_follow_up&action=edit)

Educator note

If you are running a professional learning programme which follows these sessions in sequence, then you should do the review of follow-up activities relating to the previous session (Questioning). The 'review of follow-up activities' for that session is available here, and also shown below in the session text. However, if you are following selected sessions in a different order, then you should use the reflection appropriate to the previous session you did.

2.2 - More on questioning

The review of the follow-up activities for this session (to be done at the start of the next session) is available here.

- Did you complete the activity plan with a focus on questioning (and ICT images activity if applicable)? Please save it in your folder for future reference.
- Did you do the activity with your students? How did the ICT images activity go? How did learners respond? What issues arose?
- Which questions did you find useful for interactive teaching? Did you generate any questions that were not previously planned? How were they helpful? Share examples of questions that you would encourage others to use.
- How did the pupils respond to your questions for interactive teaching? How did you handle their responses? Share specific examples of the techniques that you used related to handling open and deep questions. What were the benefits of the techniques? What were the challenges?

3 Last week, what was your practice like?


Educator note

Dialogue involves building on pupils' responses so that chains of thinking lead to effective learning.


Ask participants to refer to page 7 in the VVOB handout from last week; it is available at Questioning the questions. Also distribute the TESSA handout entitled Using questioning to promote thinking. The document can be found at File:TESSA Using questioning to promote thinking.doc.

Participants can briefly read through the rest of the VVOB handout (we will do an activity on Blooms' Taxonomy in a later session in preparation for the enquiry unit) and then proceed to the TESSA handout work. Ask them to be swift yet thorough in reading.


Present yourself as available if they need to clarify something from the handouts.

 **Writing** (5 min): *Self assessment of questioning techniques using a checklist.* Look at the OER4Schools/Questioning checklist (taken from the green box on page 7 of last week's VVOB handout on questioning) and see how the statements might have applied to your practice during the past week (i.e. since the last session on questioning). Tick Yes or No.

4 Reading for further questioning and handling responses

 **Reading** (10 min) *for further questioning and handling responses* Read pages 2 and 3 of the TESSA handout with the headings 'Improving the quality of responses' and 'Common mistakes in questioning'. Which 2 of these 5 strategies for effective questioning and handling responses would you like to try out in the next week?

1. Prompting
2. Probing
3. Refocusing
4. Sequencing
5. Listening

 **Role play in pairs** (5 min) *common questioning mistakes.* Have fun role-playing a teacher-student question and answer session where the teacher tries to include as many of the common questioning mistakes as possible. You'll need to be creative to get the most from this activity.

Educator note

Ask participants to keep these answers safely. They will be required for further activities.

2.2 - More on questioning

The role play activity is supposed to be light-hearted and fun allowing the participants to laugh at themselves. We are all guilty of making questioning mistakes from time to time.

Before proceeding to the next activity, confirm that everything mentioned in the handouts is clear to the participants. If anything is not clear, have a discussion about it and involve everybody.

5 Increasing participation in answering questions

Educator note

Prepare for this activity by printing out from the file the list of Strategies for increasing participation and cut it up so each strategy is on a separate small piece of paper. You can also write them if printing is not possible. Fold each piece separately and keep them in a basket, box, tray or plastic bag.



Here is a list of **strategies for increasing participation in answering questions**, also available as a separate file.

- **Selecting volunteers** – a common method. Ask pupils who know the answer to raise their hands and select one of them to answer.
- **Random selection** – Write name of every pupil on a piece of paper or an ice lolly stick and put them into a container. Pull out a name (without looking) to select a pupil to answer.
- **Teacher nominations - or “no hands up”**. Choose specific pupils to answer your question. Select pupils who generally volunteer as well as pupils who avoid volunteering.
- **Pupil nominations** – Ask the pupil who has just answered to nominate the next speaker (change strategy if same pupils are getting the chance to speak).
- **Talking tokens** – Cut tokens out of thick paper. Give 2-5 tokens per child depending on the duration of the lesson. Every pupil has to use their tokens by answering questions. (Define use of tokens depending on your lesson, for example, pupils can use tokens by asking questions, volunteering to write on blackboard etc).
- **Mini-blackboard display** – Every pupil should write their answer on a mini-blackboard and hold up to show the answer. Then select five pupils who have different answers to stand in the front and further question them about their answer.
- **Advance selection** – Tell pupils who are shy and have fear of giving wrong answers some of the questions that you intend to ask, before the lesson. Ask them to think of an answer and select them for answering.
- **Eye contact** – Avoid eye contact with dominant speakers. Have a deliberate eye contact with shy pupils indicating that you are expecting them to answer.
- **Talk about participation** – Plan a lesson that explains usefulness of participation and eliminates fear of wrong answers. Ask pupils to suggest ideas that will help them to participate yet be responsible for discipline.
- **Criteria based** – If the topic for the day is not serious, set a criterion to select pupils for answering. For example, come forward to answer this question if, ‘you have red shoes, or ‘your name ends with s’, or ‘you are the first child in the family’, or ‘you have one younger sister’, etc

You can print this content on a separate sheet here: [OER4Schools/Strategies for increasing participation in answering questions](https://www.oer4schools.org/Strategies-for-increasing-participation-in-answering-questions).

2.2 - More on questioning

Game and discussion (10 min) *on strategies for increasing participation in answering questions.* Ten volunteers each pick up one folded paper from the basket. They read the strategy on it and then they explain it to other participants through demonstration and/or thinking of practical examples.

Educator note

Encourage volunteers to suggest practical examples. Ask other participants to ask the volunteers questions if any strategy is not clear.

Alternative activity: ask groups to discuss the different possibilities listed – which ones they think would work, and why?

Same-task group work (10 min) *in pairs on using these strategies.* Working in pairs, start a new activity template, and make some notes on which strategies you want to try.

6 Video: Questioning Styles and Strategies

In this activity, we will watch two videos. Here are some **suggested questions for reflection on both videos:**

- What were the different types of questions you identified in the clips? Which types do you think were more effective?
- Which questions or statements seemed effective in extending pupils' responses and getting them to build on each others' ideas? Give examples.
- How can you adopt or adapt the strategies for increasing pupil participation in your classroom? What would you like to add or change about the practice in the clips?

Observing, thinking, reflecting (10 min): *Watching a video on questioning styles and strategies.*

VIDEO

Questioning Styles and Strategies

Questioning Styles and Strategies

About this video, , link to YouTube (<http://www.youtube.com/watch?v=5uKqs3D0Z0M&list=PLtf3oOEbE-EXgP2iN30V3UhCd8x54FGyO>) (local play / download options)(Series: Video from other organisations, episode N/A)

In this 8-min. sequence, Dr. Harvey Silver guides you through a learning session that may help you develop a wider repertoire of effective questioning practices for your classroom. A larger variety can help you engage learners working at different levels.

Observing, thinking, reflecting (10 min): *Watching a video on choosing, annotating and discussing images related to personal safety*

VIDEO

Diane Lesson 2 D2.5

Diane Lesson 2 D2.5

About this video, 12:34, link to YouTube (<http://www.youtube.com/watch?>



2.2 - More on questioning


v=Pg2DiwM9EAM&list=PLtf3oOEbE-EXgP2iN30V3UhCd8x54FGyO) (local play / download options)(Series: Video from other organisations, episode N/A)

This 10-min. clip illustrates how groups of children aged 10 revisited a collection of images that Diane, a UK primary teacher, had collated during the previous lesson, pertaining to personal safety issues.

Educator note

In the second video, a student from each group comes up in turn to the whiteboard to annotate their chosen images, sharing with the class the advice they had previously generated during group discussions (“as a team working for Childline”, the child abuse phoneline) and recorded on large sheets of paper, or in one case, on the board. Note that an interactive whiteboard was used but a data projector could have been used alone.

The teacher prompted students with open-ended, probing questions such as “What do you think about that?” “Why did Mehmet write “be assertive”? “Why are you [suggesting she calls the] police?” She thereby helped children to be responsive and build on each other’s ideas, make reasoned arguments and develop insights into the characters’ mindsets. Children drew on their own experiences in exploring some complex issues and ethical dilemmas (e.g. the worry that a family would be split up if a domestic violence situation was reported).


 **Whole class dialogue** (10 min) *on these videos, and adding useful question types to your activity template. We asked you to reflect on the following:*

- What were the different types of questions you identified in the clips? Which types do you think were more effective?
- Which questions or statements seemed effective in extending pupils’ responses and getting them to build on each others’ ideas? Give examples.
- How can you adopt or adapt the strategies for increasing pupil participation in your classroom? What would you like to add or change about the practice in the clips?

Share and discuss your observations. Add notes to your activity template as to what you can try in class.

7 Planning your questioning activity

Write down any further points emerging about questioning and handling responses in the table that you filled in during the first activity in this session.

 **Same-task group work** (10 min): *Planning in pairs for a questioning activity.* Prepare a 10-minute activity for an impending lesson that focuses specifically on questioning and handling responses related to the lesson topic. Work with a same-grade buddy if available. Use the same activity template that you have already started. Include some of the new ideas that have emerged in this session; be sure to include

- one of the strategies for improving the quality of responses (TESSA)
- one of the strategies for increasing participation in answering questions

In your pair, discuss which other points about questioning and handling responses should be included in the Questioning checklist? Edit the table using the copy in the checklist file and add your own statements at the bottom.

Notes:

- You may or may not want to trial the same activity: This is up to you. Both of you can plan the same activity, or a different activity.
- Think whether you can include ICT in some way: Can you support the questioning activity with some images? You could use your previously made slideshows. If you run your questioning activity before the Geogebra activity (see below) then you can use the netbooks for both!

Educator note


Note answers to these points on the flipchart or blackboard. Remember to demonstrate good questioning and handling responses yourself.

2.2 - More on questioning

Remind participants to think about their own practice and to suggest specific points that can be observed by anybody. Some questions that you can raise which will encourage participants to think are:

- What do your questions generally start with – What, Who, When, Why, Where, Did, Can etc? Does this need any improvement?
- Do you tend to answer your own questions?
- Do you look for specific answers after posing a question?
- How long do you wait for before asking the next question or making the next statement?
- How do you encourage shy pupils to answer?
- How do you manage the same pupils answering most questions?
- When a pupil responds to your question, do you give feedback immediately or follow it up with another question?

Ideally these activities will result in a modified observation checklist related to questioning and handling responses. Encourage participants to include as many points in this table or 'observation checklist' as possible.

 **Agreeing** (5 min) *a time for peer observation.* At the end of this activity, briefly agree with your partner, when you can observe each other. When you do this observation, make sure you take your (amended) Questioning checklist along.


Educator note

Make sure that everybody agrees when they will observe each other.

8 ICT practice: Different-tasks group work with ICT and activity planning


Educator note

Facilitator distributes "traffic lights". In Zambia, and part of southern Africa, these are known as "robots".^K In Kenya these are known as traffic lights and that is what we are going to refer to.^K This is the first time we mention traffic lights and it would be a good idea to know what they mean in this context. This information can be found on the two pages: Traffic lights, How to make traffic lights. Make sure that before you get to this session you familiarise yourself with traffic lights and that you have some traffic lights ready with you.

 **Introduction** (5 min) *to Traffic lights^(a).* (Or, "robots", if you prefer.)^K Traffic lights (robots)^K have three lights - red, orange and green. These lights signal to drivers what action they should take on the road with each coloured light having a different meaning associated with it: Red means STOP; Orange means GET READY TO GO and Green means GO. Their meanings for classroom application are:

- RED means "I'm stuck. I need some extra help. I don't feel I have progressed."
- ORANGE means "I'm not quite sure. I need a little help. I feel I have made some progress."
- GREEN means "I understand fully. I'm okay without help. I feel I have progressed a lot."

While you do practical work in groups, make a stack of your three cards near your groups. Place the colour on top which shows how you are progressing as a group. The facilitator will see the colour and help you appropriately.

 **Different-tasks group work** (15 min) *with ICT on various topics.* You now have 15 minutes to do ICT practice, and we return to working with spreadsheets. Below are the two sets of exercises with spreadsheets: one you have already encountered in a previous session, and the other is new. Revisit what you have done, and then work on some new things. Remember, that many of the applications you are using are pretty open ended, so explore additional things that interest you.

1. Basic Calculations

- Add (<http://inpics.net/tutorials/calc2/basics13.html>)
- Subtract (<http://inpics.net/tutorials/calc2/basics21.html>)

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- Multiply (<http://inpics.net/tutorials/calc2/basics24.html>)
- Divide (<http://inpics.net/tutorials/calc2/basics28.html>)
- Calculate averages (<http://inpics.net/tutorials/calc2/basics31.html>)
- Find the maximum value (<http://inpics.net/tutorials/calc2/basics35.html>)


You can print this content on a separate sheet here: [OER4Schools/Spreadsheet exercises/1](#).

2. Formatting Worksheets

- Format text (<http://inpics.net/tutorials/calc2/format2.html>)
- Format cells (<http://inpics.net/tutorials/calc2/format11.html>)
- Adjust columns and rows (<http://inpics.net/tutorials/calc2/format23.html>)
- Print worksheets (<http://inpics.net/tutorials/calc2/format28.html>)

You can print this content on a separate sheet here: [OER4Schools/Spreadsheet exercises/2](#).

9 Connecting with overarching goals of the programme

 **Open space** (10 min). It's now time for the "open space", that gives you an opportunity to discuss issues that have arisen, and to relate those to the broader context of the programme. Do not just gloss over this section, but make time to raise issues, and probe the progress that you are making. You could use this space to:

- Remind yourselves of the of the Most Significant Change Technique, and e.g. collect more of your stories.
- Discuss your assessment portfolios: Is there anything that you are unsure about? Is it going well? What could be done better?
- Check on the work with the classroom assistants: Is this going well? Are there any tensions? Any observations or tips you can share?
- Reviewing individual ICT practise (such as typing practise).
- If you are preparing a presentation for other teachers, you could work on the presentation (about what you have been learning, stories emerging from MSC).
- Remind those who are doing audio diaries, to upload them.
- You could discuss any other issues that have arisen.

You will find notes and summaries of various techniques and concepts on our reference page, and you might want to refer to those for clarification during this activity if needed.

10 Follow-up activities

 **Agreeing follow-up activities** (5 min).

Part A: Trialling of your activity and peer observation. Try out your new questioning activity in a lesson and ask your buddy to observe you for just that section of the lesson. They should use your modified observation checklist to see if your questioning meets your own goals but can also add their own comments below the table. In turn, observe your buddy using their checklist.

Part B: Trying our different strategies. You might like to try out other strategies in other lessons, for example those you ticked No to or added your own ideas to in the questioning checklist, or other strategies for improving the quality of responses or participation in answering questions.

Part C: Geogebra and netbooks. Do the Geogebra-based activity. As you do the activity in the classroom, try to see

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how familiar your students are with using the netbooks.

Educator note

In the next session, these follow-up activities will be reviewed. If you are using this session on its own, you can have a look at the review of follow-up activities here.

Educator note

At the end of each session, we provide an overview of the activities in this session, together with their suggested timings. Although this appears at the end of the session (for technical reasons), you should keep an eye on this throughout the session, to make sure that you are pacing the workshop session appropriately!

Total time: 120 (min)

Activities in this session:

- **Writing** (5 min): *Self assessment of questioning techniques using a checklist.*
- **Reading** (10 min) *for further questioning and handling responses*
- **Role play in pairs** (5 min) *common questioning mistakes.*
- **Game and discussion** (10 min) *on strategies for increasing participation in answering questions.*
- **Same-task group work** (10 min) *in pairs on using these strategies.*
- **Observing, thinking, reflecting** (10 min): *Watching a video on questioning styles and strategies.*
- **Observing, thinking, reflecting** (10 min): *Watching a video on choosing, annotating and discussing images related to personal safety*
- **Whole class dialogue** (10 min) *on these videos, and adding useful question types to your activity template.*
- **Same-task group work** (10 min): *Planning in pairs for a questioning activity.*
- **Agreeing** (5 min) *a time for peer observation.*
- **Introduction** (5 min) *to Traffic lights^(a).*
- **Different-tasks group work** (15 min) *with ICT on various topics.*
- **Open space**(10 min).
- **Agreeing follow-up activities**(5 min).

If you have printed this session for offline use, you may also need to download the following assets:

- Video/Questioning Styles and Strategies.mp4 (local play / download options)
- Video/Unit 2 session 3--Diane Lesson 2 D2.5.m4v (local play / download options)

Retrieved from "http://oer.educ.cam.ac.uk/w/index.php?title=OER4Schools/More_on_questioning&oldid=20431"

Categories: **OER4S CPDCCEPrimaryTeacher EducationDialogueQuestioningPages with To Dos**
OER4Schools ZambiaOER4Schools Kenya

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Session 2.4 - Concept mapping

2.4 - Concept mapping

Learning intentions and objectives.

In this session you will learn about:

- concept mapping as a technique to promote interactive teaching
- developing ideas for concept maps
- encouraging talk that involves reasoning and building on others' ideas

Success criteria.

To meet the learning intentions you will:

- take part in a whole group brainstorm activity and record the results as a concept map
- plan, present/listen to others present a concept map and use supportive dialogue
- plan a concept mapping activity for use in the classroom

ICT components.

The ICT components you will focus on are

- Consolidate your skills with Geogebra, images, and typing.
- Learn about using OO Impress (e.g. adding titles to images)
- (optional) Concept mapping software.

Classroom based activities (with your students, after this session):

- you will continue with Geogebra, images, and typing.

Resources needed.

If available, large pieces of paper to draw concept maps.


1 Review of follow-up activities from last session

Edit this review section (http://oer.educ.cam.ac.uk/w/index.php?title=OER4Schools/More_on_questioning/review_of_follow_up&action=edit)

Educator note

If you are running a professional learning programme which follows these sessions in sequence, then you should do the review of follow-up activities relating to the previous session (More on questioning). The 'review of follow-up activities' for that session is available here, and also shown below in the session text. However, if you are following selected sessions in a different order, then you should use the reflection appropriate to the previous session you did.


The review of the follow-up activities for this session (to be done at the start of the next session) is available here.

 **Review** (10 min) *of the planned activity, other strategies, and peer observation.*

- Did you observe a buddy practising questioning in their classroom? Did your observation help your buddy? If yes, elaborate with specific examples about the changes in your buddy's questioning after the activity. (You might want to continue the observation activity for a few more weeks)
- What did you learn by observing your buddy? Were there any questioning and handling responses strategies that you learned from your buddy?
- Did you notice any changes in pupils' participation due to your new questioning and handling responses strategies? Share one strategy that you found most effective in your classroom. Explain reasons for why you think that the strategy was effective.

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- Did you try any strategies for improving the quality of pupils' responses? Which strategy or strategies led to chains of thinking about the content that you were teaching?

 **Review** (10 min) of netbook based activities in the classroom.

- ICT activity – did you use the netbooks during the last week for the geogebra activity?
- Did you try anything else?
- How familiar are your students with using the netbooks?
- How familiar are you with using the netbooks?

2 Introduction to concept mapping

Educator note

You will need a projector linked to your computer for this session.

Display the concept map of water (TESSA resource) (Concept map of water (TESSA).pdf (http://oer.educ.cam.ac.uk/w/images/7/7b/Concept_map_of_water_%28TESSA%29.pdf) (info) ([http://oer.educ.cam.ac.uk/wiki/File:Concept_map_of_water_\(TESSA\).pdf](http://oer.educ.cam.ac.uk/wiki/File:Concept_map_of_water_(TESSA).pdf))) on the projector.

Note that you can do this session in the following ways:

- If the participants are quite confident in their use of ICT, then you could use concept maps on the netbooks.
- However, if the participants are not that fluent yet in their use of ICT, it is better to just focus on the idea of a concept map (on paper), and to introduce concept mapping software in the ICT practice session for those who would like to explore this.

Background reading

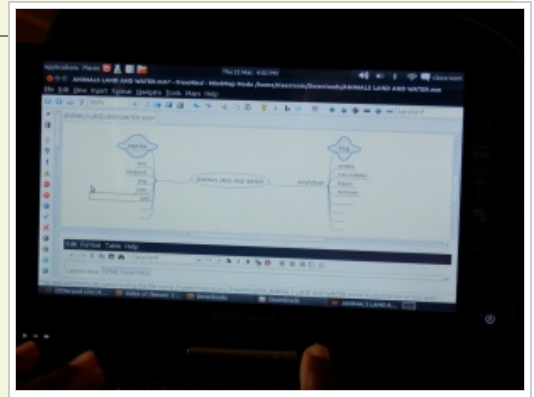
A concept map is a visual way of representing pupils' ideas around a main topic.


Some examples of what concept maps might show are:

- relationships - different types of vegetation and climate
- tasks – designing an electric circuit
- hierarchies - food pyramid
- causes of events - effects of human activities on forests
- flow of processes - water cycle

How is concept mapping used in the classroom?

1. A teacher might solicit ideas from the class and draw a **single class concept map** on the board or on a computer using special concept mapping software, and project it for the class.
2. Pupils draw their own **personal maps** on paper or on a computer; they work individually or in a pair or group.



 **Same-task group work** (5 min) on developing ideas for concept maps. See an example of a concept map on the screen. Tell the person next to you a topic from the curriculum that can be concept-mapped; mention advantages of mapping this topic and how mapping this topic can promote interactive teaching. Don't actually create a map, just think of a topic and at what stage of teaching it the mapping might be useful.

Decide whether you would start with a few given sub-topics or ask pupils to suggest these – this is optional, depending on the subject material. (All the further ideas on branches from sub-topics come from pupils.)

Educator note

Set a time limit for the pair work, say 5 minutes, and follow it strictly. Display the blank concept map 'Learning

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concept maps' (Learning Concept Maps.mm

(http://oer.educ.cam.ac.uk/w/images/9/97/Learning_Concept_Maps.mm) ^(info)

(http://oer.educ.cam.ac.uk/wiki/File:Learning_Concept_Maps.mm) on the screen after 5 minutes. Also open the file on the individual computers – one machine per person.

Whole class brainstorm (10 min) *on constructing a concept map.* Brainstorm to help construct/complete the concept map displayed. Read the background information below before starting the brainstorm.

Individual activity (10 min): *Creating your own concept map during the brainstorm.* Enter the suggestions as they are made, on your own concept map (either on paper, or on a digital concept map on a netbook). Add any further ideas of your own.

Background reading

The main concept that you are mapping is: *Learning about concept maps.* Suggest any ideas that you can think of related to the topics given below, or suggest new topics.

- Topics that can be explored through concept mapping?
- Advantages of concept mapping during teaching?
- Ways of using concept mapping to make teaching interactive (with or without using ICT)?

When contributing ideas to the concept map under construction, remember to:

- support your ideas with reasons
- add to existing ideas if you agree (as in cumulative talk)
- question/challenge new ideas if you disagree

Educator note

If you are using concept maps on a computer, use the document Learning Concept Maps.mm

(http://oer.educ.cam.ac.uk/w/images/9/97/Learning_Concept_Maps.mm) ^(info)

(http://oer.educ.cam.ac.uk/wiki/File:Learning_Concept_Maps.mm) for reference to fill up this concept map. Otherwise draw a similar concept map on the board or a large piece of paper (ideally stuck to a wall, so that everybody can see).

During the brainstorm:

- Respect all ideas
- Note only keywords rather than complete sentences (as shown in the 'water' example)
- Be as quick as possible in typing the idea so that the activity is swift and ideas are not lost. You can choose between the two options depending on your comfort with typing: typing responses to all questions simultaneously OR considering responses one question at a time. Suggest that the participants make a note of their ideas as they come.
- Stop the brainstorm activity after 20 minutes. Exceeding the time limit can tire the participants.

Save the filled concept map. It will be used later.

3 Creating and presenting a concept map

Educator note

Use sheets of paper (at least A4 size) and coloured pens for this activity. This will help to save the concept maps for future reference. If paper is not available, use mini-blackboards.

Individual or small group activity: (10 min) *Creating a concept map on a topic of your choice* Choose a topic from the topics listed on the map you have created together, i.e. from the box 'topics that can be explored through concept mapping' or 'examples' given above. It can be a topic you will use in your classroom soon. Draw a concept map on your

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sheet of paper.

As you draw the concept map, think about different ways in which this concept mapping activity can be used in the classroom? *TIP: Think of its uses at the beginning, middle and end of a lesson.* Your ideas will be discussed during the activity on progress in concept mapping.

Educator note

If two or three participants choose the same topic or teach the same subject, suggest that they can work as a group.

You should move around to provide support / ideas to participants while they are drawing their maps. Give suggestions such as “How about including...” or “Do you think... can also be included?”.

Question the participants - how can you use this concept mapping activity in the classroom?

If some participants finish sooner than the others ask them to read the Teaching and Learning section on pages 34 - 35 plus page 40 of the VVOB toolkit (VVOB toolkit pp 35 36 40.pdf

(http://oer.educ.cam.ac.uk/w/images/8/81/VVOB_toolkit_pp_35_36_40.pdf) (info)

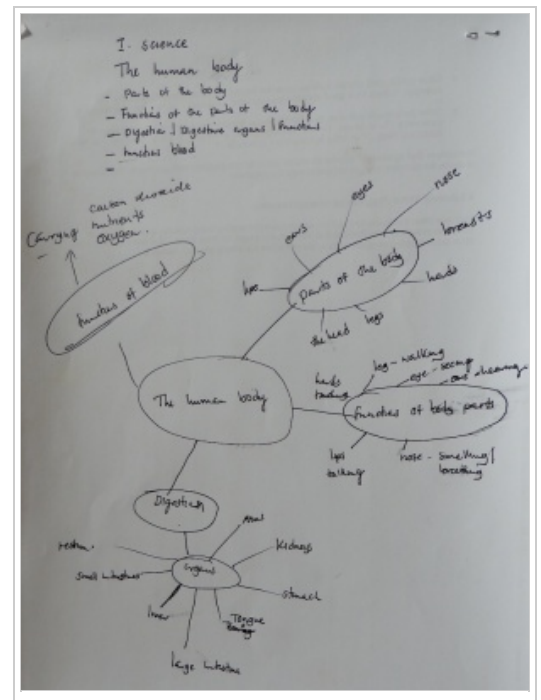
(http://oer.educ.cam.ac.uk/wiki/File:VVOB_toolkit_pp_35_36_40.pdf).

Presentation (15 min) *of concept maps.* At the end of the activity, 2-3 participants present their concept map for the whole group (each group has 5 minutes). You are role playing as pupils at this time.

During the presentation all participants are actively involved:

- The presenters should explain reasons for their ideas.
- Other participants should build on presenter ideas through agreement comments. For example, ‘I think it’s a good idea that you included... because...’ or ‘Another idea related to... is...’.
- Other participants can also question / challenge presenters’ ideas through disagreement comments. For example, ‘I think... could be moved under the sub topic... because...’ or ‘How about including...?’ or ‘Why is it important to include...?’

Remember that agreement comments should come before disagreement comments. The idea is to improve the concept map yet not discourage the presenter.



Educator note

Use one of the ‘increasing participation’ strategies discussed in the previous session for selecting the presenters. You should choose volunteers or participants with good examples of concept maps. Therefore, use the strategy ‘selecting volunteers’, ‘mini-blackboard display’ or ‘teacher nominations’. Inform the participants about your selection strategy in advance.

Model agreement comments and disagreement comments.

Refrain from interjecting if two participants are talking about the concept map. This will demonstrate one way of encouraging pupil-pupil talk.

Distribute VVOB toolkit pages 34, 35 and 40 to participants who have not yet collected it. (See VVOB toolkit pp 35 36 40.pdf (http://oer.educ.cam.ac.uk/w/images/8/81/VVOB_toolkit_pp_35_36_40.pdf) (info) (http://oer.educ.cam.ac.uk/wiki/File:VVOB_toolkit_pp_35_36_40.pdf).

2.3 - Concept mapping

Record (5 min) *your progress on concept mapping.* Have you learned anything more about concept mapping as a result of the previous activity? Perhaps some of your colleagues gave you ideas when they presented their maps. Add new ideas that you have learned about concept mapping to your **Learning about concept maps** map, created from the whole group brainstorm activity. Refer to the VVOB toolkit pages for more ideas. Your own ideas about the other ways of using concept maps in an interactive classroom are very valuable.

Related resources

The **Zedupad** resources *Subsistence farmers* and *Growing Maize* (see link below) provide an interesting topic for a concept mapping activity. Ideas to be linked include the hazards of using fertilisers and traditional versus modern farming methods. Slide 15 of the *Growing Maize* resource shows the beginning of a flowchart *from seed to nshima*. Flowcharts, like concept maps, are a useful method for organising material and finding relationships and connections between ideas. Completing the *seed to nshima* flowchart is a useful activity that will help students to focus on the main ideas to include in their concept map.

Other ideas for using the Growing Maize resource

You may wish to bookmark this resource and use it later when you have completed more of the OER4Schools course. Other ways that it could be used include:

- Students could work collaboratively in groups to construct a flowchart (either manually or using software) of the traditional process for growing maize.
- They could also complete an enquiry task (before watching slides 17-27) on how the process might be modernised. This could be a short task that harnesses students ideas either as a whole class activity or working in small groups and feeding back to the class. (There is more information on enquiry based learning in Unit 5.)
- An interactive lesson with a combination of these activities could be designed. (There is more information on designing interactive lesson plans at the end of Unit 3.)



http://www.zedupad.com/zambian_school_lessons.php

4 Video: Whole class dialogue on living in the trenches

Observing, thinking, reflecting (10 min): *Video with whole class dialogue on living in the trenches* In this video, Lloyd, a UK secondary school teacher is facilitating a whole class dialogue during a secondary school history lesson (the all boys class are 12-13 years old). Pupils are discussing if it is possible to imagine living in trenches during the war from historical evidence, which they have discussed earlier in pairs.

See the transcript of this clip below – it may be useful to look at this during the video as the pupils' voices are sometimes quiet.

Questions for reflection:

- What did you notice about pupil talk in these clips? Is it different from general pupil talk in classrooms? Explain your answer with reasons.
- How does the teacher encourage pupils to make contributions? Give examples from your observations.

More questions for reflection (on this and the next video):

- Which learning objectives other than the teaching topic are achieved in these video clips?
- What would you do in your classroom to facilitate pupils building on each other's responses? Are there any phrases that Lloyd used in the first video clip that could support this?
- How can you get children to justify and provide reasons for their responses?
- What would you not do in your classroom if you want to facilitate whole class dialogue?

2.3 - Concept mapping

Educator note

Tell the participants that the video illustrates pupils (a) giving reasons for their ideas, and (b) building on previous speaker's ideas. Also (c) it shows how the teacher has heard Robert's ideas during pair activity and deliberately invites his ideas into the whole class discussion. Mention these points as your observations if the participants do not notice them.

Participants may refer to transcript during or after the video if they want.

VIDEO**LB Can we understand clip**

LB Lesson 3 can we understand clip

About this video, , link to YouTube (<http://www.youtube.com/watch?v=Ds6j4BqbIFk&list=PLtf3oOEbE-EXgP2iN30V3UhCd8x54FGyO>) (local play / download options)(Series: Video from other organisations, episode N/A)

Background reading**Transcript**

T: Can we actually really imagine what it would have been like (to be in the trenches during the war)? Is it possible for us to do it? Jonathan, any thoughts on that?

Jonathan: We can't do it, not really.

T: What do you think Felix, about that, because you've sectioned that out there? Marcel is actually challenging the notion that it's actually possible to imagine it. What do you think?

Felix: Yes, well it probably is, but there's people who lived then, and there's so much information about it. Because there's propaganda. But there's what actually happened and we have quite a lot of sources and, back then when the DVD was made there must have been quite a lot of people that were there.

T: Very good. Robert is going to make a point in a minute that I'm going to ask him. Ricky, what do you think? Actually imagining that?

Ricky: I don't think you could imagine being there unless you've been there and done it.

T: So is it one of those things that's just too hard for us to imagine?

Ricky: Yes, it's like when you imagine winning the lottery. You can imagine what it would be like, but it wouldn't necessarily be like what you think.

T: Very good. I think that's quite a nice analogy. I mean it's different, but it's almost beyond our experience. Alex?

Alex: I think there are probably bits we can imagine and bits we can't imagine. So we might be able to imagine bits of it.

T: We might be able to imagine certain bits of it. All right. Robert, can I take the point that you made? It links in with what Alex said. Listen to this. This is Robert's view.

Robert: You can imagine what it would look like, but you can't imagine what it would feel like or how you would be feeling.

T: Ok. What do you think about that Owen? You could imagine what it would look like, but not actually what it would feel like. I quite like that.

Owen: Yes, because on the DVDs or on the films and the poems and stuff, it explains and you can see what it looks like, in wasteland, and you're both in trenches, but you wouldn't know what it was like to go ages without food or water.

T: Ok. Go on Ricky.

Ricky: That's partially true, but you wouldn't know what it would be like to be shot by a bullet or be bombed or

2.3 - Concept mapping

something. You wouldn't see what it looked like either.

T: Owen is nodding his head there in agreement with what you were saying. It's true isn't it? I like that idea. You know, this notion about it's something completely outside of our experience. Can we really imagine something? I tell you what then, why not add in, let me try, or someone else help me out here. Is it possible for us to imagine, well, yes, what it would look like? I like that Robert and it wasn't what I'd thought of. I thought I was going to write something else on here. Yes 'what it looked like' [*writing on board*], not 'what it felt like'. You were then able to bring in all the things that Felix and Adill or Joe or whoever it was who came up with this idea (*indicates the first three categories listed on the board*). So yes there are some things we can describe about it, but the actual feelings are rather difficult.

T: Any other points to make here? Felix?


Felix: Well, about the feelings, every single person's experience with it would be different. Can't really say that... Everybody's got different feelings towards the war, and that.

T: Ricky would you agree with that in view of what you said? I suppose different people would react in different ways to winning the lottery or imagine winning the lottery in different ways. Felix?

Felix: You can't really say... You wouldn't know what anyone would have felt like, even if we were there, you would only know what you felt like.

T: Yes, can we ever achieve a common understanding of anything?

5 Video: Whole class dialogue

 **Observing, thinking, reflecting** (10 min): *Video with whole class dialogue on renewable resources.* This 3.5 minute video illustrates a Grade 7 Zambian teacher, Brian, facilitating a whole class dialogue on renewable sources. (The background noise is a heavy rainstorm!)

Questions for reflection are:

- Notice that the teacher asked the pupils to explain their reasoning in selecting renewable and non-renewable materials. How successful was he in doing this?
- What did you think about the horseshoe seating arrangement for this activity? Would this be feasible or effective in your classroom?

Question on both videos:

- Which learning objectives other than the teaching topic are achieved in these video clips?
- What would you do in your classroom to facilitate pupils building on each other's responses? Are there any phrases that Lloyd used in the first video clip that could support this?
- How can you get children to justify and provide reasons for their responses?
- What would you not do in your classroom if you want to facilitate whole class dialogue?

VIDEO

Brian renewables


Students are seated in a horseshoe arrangement, categorising materials as renewable/non renewable.

About this video, 4.03, link to YouTube (http://www.youtube.com/watch?v=KIMugG1dgbY&list=PLtf3oOEBE-EXFh6G8V_vKUqMcE2mWU029) (local play / download options)(Series: Brian renewables, episode 01)


6 ICT practice: Different-tasks group work with ICT and activity planning

2.3 - Concept mapping

As in the last session, use the robot/traffic lights resource to assess your progress as a group whilst doing the ICT activities. This will alert the facilitator to which groups need assistance. Enabling participants to ask for help without fear of judgment helps with the creation of a supportive workshop environment.

 **Different-tasks group work** (20 min) *on mind mapping*. Use the concept mapping software to create a concept map. If you find it helpful, draw the concept map on paper first. How would you use the concept mapping software in the classroom? Plan an activity that you can do in the classroom.

7 Connecting with overarching goals of the programme

 **Open space** (10 min). It's now time for the "open space", that gives you an opportunity to discuss issues that have arisen, and to relate those to the broader context of the programme. Do not just gloss over this section, but make time to raise issues, and probe the progress that you are making. You could use this space to:

- Remind yourselves of the of the Most Significant Change Technique, and e.g. collect more of your stories.
- Discuss your assessment portfolios: Is there anything that you are unsure about? Is it going well? What could be done better?
- Check on the work with the classroom assistants: Is this going well? Are there any tensions? Any observations or tips you can share?
- Reviewing individual ICT practise (such as typing practise).
- If you are preparing a presentation for other teachers, you could work on the presentation (about what you have been learning, stories emerging from MSC).
- Remind those who are doing audio diaries, to upload them.
- You could discuss any other issues that have arisen.

You will find notes and summaries of various techniques and concepts on our reference page, and you might want to refer to those for clarification during this activity if needed.

8 Follow-up activities for you to try in class

 **Agreeing follow-up activities** (5 min).

Part A: Try concept maps. Choose a topic that you can teach in your class using concept maps; it could be the one you tried out earlier on paper. Think of some sub-topics for which you will ask your pupils to brainstorm.

Draw this concept map using freemind software on the netbooks. Create a template concept map that you can use in the classroom (just like the facilitator had for this session). Fill it in during classroom activity. You will need a projector linked to your computer for this activity.

Ask your pupils to give reasons for their ideas. Encourage all pupils to be active by agreeing and disagreeing with the idea.

Instructions to access freemind:

Ubuntu: Applications – Office – Freemind. If an old concept map file opens, go to File menu and choose New to get a blank document. To add sibling bubbles to the original, select it and choose ENTER. To make a child node, INSERT.

Part B: Try out the horseshoe seating arrangement or another new arrangement in your class during a lesson in the coming week.

Educator note

In the next session, these follow-up activities will be reviewed. If you are using this session on its own, you can have a look at the review of follow-up activities here.

Educator note

At the end of each session, we provide an overview of the activities in this session, together with their suggested timings. Although this appears at the end of the session (for technical reasons), you should keep an eye on this throughout the session, to make sure that you are pacing the workshop session appropriately!

Total time: 130 (min)

Activities in this session:

- **Review** (10 min) *of the planned activity, other strategies, and peer observation.*
- **Review** (10 min) *of netbook based activities in the classroom.*
- **Same-task group work** (5 min) *on developing ideas for concept maps.*
- **Whole class brainstorm** (10 min) *on constructing a concept map.*
- **Individual activity** (10 min): *Creating your own concept map during the brainstorm.*
- **Individual or small group activity:** (10 min) *Creating a concept map on a topic of your choice*
- **Presentation** (15 min) *of concept maps.*
- **Record** (5 min) *your progress on concept mapping.*
- **Observing, thinking, reflecting** (10 min): *Video with whole class dialogue on living in the trenches*
- **Observing, thinking, reflecting** (10 min): *Video with whole class dialogue on renewable resources.*
- **Different-tasks group work** (20 min) *on mind mapping.*
- **Open space**(10 min).
- **Agreeing follow-up activities**(5 min).

If you have printed this session for offline use, you may also need to download the following assets:

- Concept map of water (TESSA).pdf
(http://oer.educ.cam.ac.uk/w/images/7/7b/Concept_map_of_water_%28TESSA%29.pdf)
- Learning Concept Maps.mm
(http://oer.educ.cam.ac.uk/w/images/9/97/Learning_Concept_Maps.mm)
- Learning Concept Maps.mm
(http://oer.educ.cam.ac.uk/w/images/9/97/Learning_Concept_Maps.mm)
- VVOB toolkit pp 35 36 40.pdf
(http://oer.educ.cam.ac.uk/w/images/8/81/VVOB_toolkit_pp_35_36_40.pdf)
- VVOB toolkit pp 35 36 40.pdf
(http://oer.educ.cam.ac.uk/w/images/8/81/VVOB_toolkit_pp_35_36_40.pdf)
- Video/LB Lesson 3 can we understand clip.m4v (local play / download options)
- Video/11 Brian 4 renewables 11 10 2011 Clip 1.m4v (local play / download options)

Retrieved from "http://oer.educ.cam.ac.uk/w/index.php?title=OER4Schools/Concept_mapping&oldid=21344"

Categories: OER4S CPDCCEPrimaryTeacher EducationDialogueQuestioning

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Session 2.5 - Engaging the community

2.5 - Engaging the community

Learning intentions and objectives.

In this session you will learn about:

- using a 'combined' Leadership for Learning lens to evaluate student learning
- using the **Leadership for Learning** framework to structure discussion with a parent, colleague, head teacher or inspector
- involving students

Success criteria.

To meet the learning intentions you will:

- make observations on student learning using a 'combined' Leadership for Learning lens and evaluate these during discussions with peers
- role play a discussion with a parent, colleague, head teacher or inspector

ICT components.

In this session, you will learn how to communicate with parents about your use of ICTs in the classroom. Unlike the other sessions, there is no time set aside for specific ICT activities.

1 Review of follow-up activities from last session

Edit this review section (http://oer.educ.cam.ac.uk/w/index.php?title=OER4Schools/Concept_mapping/review_of_follow_up&action=edit)

Educator note

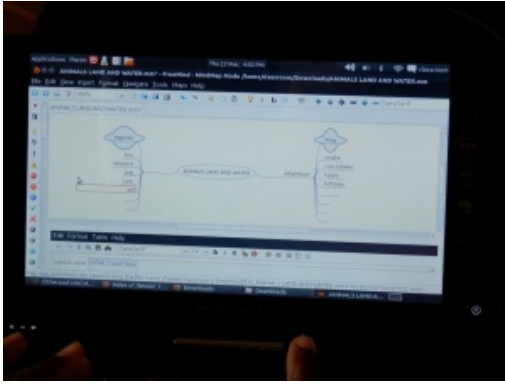
If you are running a professional learning programme which follows these sessions in sequence, then you should do the review of follow-up activities relating to the previous session (Concept mapping). The 'review of follow-up activities' for that session is available here, and also shown below in the session text. However, if you are following selected sessions in a different order, then you should use the reflection appropriate to the previous session you did.

The review of the follow-up activities for this session (to be done at the start of the next session) is available here.

Whole group discussion (10 min): *Concept mapping*

- Did you try drawing concept maps on the netbooks? Were you able to use coloured boxes? Briefly share issues that you were able to resolve. Discuss issues that are still not resolved.
- Did you try the concept mapping activity with pupils in your class? How did the pupils respond to the activity, especially reasoning and building on each other's responses? If they did this, how were you able to achieve it? Share specific examples of pupil talk and teacher talk.
- Did you use a digital projector in the class? Was it useful for the concept mapping activity? Why?
- What would you change when you carry out the concept mapping activity again? Make a note for yourself about any changes so you can remember for next time.

2.4 - Engaging the community



Horseshoe seating arrangement: How did the horseshoe seating arrangement go? Did you move chairs only, or desks and chairs? Do any of you have any tips for getting the students to help and for setting it up efficiently?

2 Introduction to this session



You can listen to the introduction to this session here and/or read it as 'background reading' below:

AUDIO

Introduction to "Engaging the Community"

Introduction to "Engaging the Community"

Introduction to 2.5.mp3, 02:26,(Series: OER4Schools narration, episode 01)

Background reading

You have seen and heard many different ways of teaching and learning that challenge your previous views of classroom teaching. The challenge now for you is to be able to communicate some of these ideas about learning to a wider community of stakeholders. The objective for this session is to explore ways of talking with parents, other teachers, other schools, headteachers, school/college leadership team, inspectors, Ministry of Education officials, and other education stakeholders about new and exciting teaching and learning in your classroom and school. As a result, you will be able to have more confident and effective discussions and deliberations with these stakeholders. In this session, we also consider the role of students. They are often forgotten although they are the most important stakeholders in and outside the classroom!

Interactive pedagogy and innovations in leadership and learning practices will be unfamiliar to many. A large part of being an effective change-maker, or simply a 'master' or 'leading' teacher is ensuring that new ways of thinking and doing are coupled with opportunities for discussing and reflecting upon change and what affects this change.

The OER4Schools resource and participating teachers themselves will almost certainly be introducing some ideas that are new to school and college leaders and community stakeholders. The ideas may even challenge national or regional educational policy, although they will be grounded in solid research evidence and classroom experience. It will take courage to explore new ideas that might not always be consistent with conventional wisdom. But, innovation and change are part of growth and development in schools and at the centre of all learning experiences.

In this session we consider how to introduce, discuss and listen to feedback from the key partners in children's learning, namely, their parents and family, school colleagues and administrators, and the wider education bureaucracy. With change comes challenges and opportunities for cooperation and developing new ways of thinking, knowing, and learning.

3 Preparing for a discussion with a parent, colleague, head teacher or inspector

Leadership for Learning provides an excellent framework for structuring discussions about learning with parents, colleagues, headteachers and school inspectors. Before preparing for such a conversation with the community stakeholders, let's revise what we have learnt about LfL.

Let's consider once again the 5 principles:


1. Focus on learning
2. Conditions for learning
3. Learning dialogue
4. Shared leadership
5. Mutual accountability

You might recall the expanded list of LfL principles which were introduced in a previous session. This list is repeated below for your reference and includes questions for reflection.

Do you remember the lens metaphor? Using a LfL 'lens' enables you to focus on a specific LfL principle and think about how it is applied. In this session you will be encouraged to view situations through a combined LfL lens so that you can reflect upon and share your current learning and teaching experiences with your colleagues, school leaders and parents to greatest effect.

How might you structure a discussion about a student's learning e.g. with a parent, another teacher, or a government inspector using all 5 LfL principles?

In this section we are going to watch two videos, to practice applying the principles in a combined way. In the next section, we will then draw on these observations to role play a discussion with someone in the community.

 **Small group activity:** (15 min) Use 'table mats' to record observations and reflections on LfL in the classroom. Let's try putting this idea of looking at students' learning through a combined LfL lens into practice.

Before we do, plan in pairs or groups of three how you will record your observations on your table mats, remember, this time your 'critical lens' is a combined one through which you will 'see' all the student leadership and learning opportunities in the classroom. Decide as a group the best way to prepare your table mats so that you can each record observations on all 5 LfL principles for both videos.

Watch the following videos in which we can look out for and then discuss the five LfL principles. Pay particular attention to how children engage in learning, and how the teacher interacts with the children. Use your prepared table mat divided into five sections, each labeled with an LfL principle. As you watch the video, make notes in each respective section of your observation sheet. These will be your guide for discussing the child's learning strengths and areas that might benefit from additional attention. Look for those things that you believe contribute to promoting conditions for learning in the video, for each of the 5 principles.

Educator note

Pedagogy: 'Table mats' to record observation and reflection

Allow about 5 minutes for each group to agree on and prepare their large sheet of paper (table mat). As they watch the videos, participants make notes on their table mat. Encourage participants to include an area for reflection on their table mats that they can record salient points on after a brief discussion with other group members.

The table mat should ideally be divided into five sections, each labeled with an LfL principle. Notes should be made in each respective section by members of the group. All members should use a combined lens rather than dividing up the 5 principles between them. There is enough information in the videos for participants to discover different things simultaneously. For ease of discussion afterwards there should be a way of differentiating which observations come from which video, perhaps by ruling a line under those for the first video before proceeding. Participants may come up with their own way of doing this and that should be encouraged as a way of them taking responsibility for their own learning.

"Mutual" or "Shared" accountability can be thought of as everyone (in for example a group) taking responsibility for tasks etc with all being held equally responsible for the outcomes.

2.4 - Engaging the community

These videos show group work in Eness' Grade 3 class. We are revisiting these videos you saw in Unit 1.1. Clip 6 depicts group work using animal pictures on tablets and mini-blackboards: a group of 5 is recording under their own category of 'animals with no legs' and interacting as a group. Clip 8 shows a group presentation where the teacher detects an error and asks for input from the children.

VIDEO

Mini-blackboards group work

Groupwork using mini-blackboards: group of 5 recording under their own category of 'animals with no legs' and interacting as a group


About this video, 3:43, link to YouTube (<http://www.youtube.com/watch?v=9h5vrt-C0V0&list=PLF0530A6FEF00D354>) (local play / download options)(Series: Eness Vertebrates, episode 06)(Transcript available here or via YouTube captions.)

VIDEO

Group presentation


Group presentation: teacher detects error and asks for input from children to verify (rather than 'telling'); she corrects error with input from class.

About this video, 7:03, link to YouTube (<http://www.youtube.com/watch?v=RnN3bd1rt3g&list=PLF0530A6FEF00D354>) (local play / download options)(Series: Eness Vertebrates, episode 08)

 **Small group discussion: on recorded observations** (5 min). Now turn to the other members of your group and discuss your joint notes, being careful to structure your discussion using the five LfL principles, and avoiding talking about global issues regarding a child's learning behaviours. Make any additional notes on your table mats that you will need to engage with a whole group discussion on the videos.

Note: You might find that you can also discuss the absence of learning behaviours within the five LfL principles on your observation sheet. Again, noting that your discussion is about the absence of the specific type of learning behaviour, not the child him/herself.

Example: You might notice that a child was not engaged in what might be identified as learning behaviours that indicate LfL Principle 4, Shared Leadership. If this is the case, try articulating this in the following way: "While a child has demonstrated a consistent focus on his/her learning and contributes to creating positive **conditions for learning** through sharing resources and cooperating as discussed, there is room for her to increase her role in promoting shared leadership with her peers in class."

 **Whole class dialogue** (5 min): *Whole group discussion of the LfL principles identified in the videos and how these contribute to students' learning.* What did you find in your discussion of the clips? Was it difficult to limit your discussion to only those issues that were identified by the LfL principles? If so, why do you think this might be? Notice that you are having this conversation with your colleagues here who are familiar and know the language of LfL. Consider also how you might communicate some of your observations to someone else in the community? We will come back to this in the next section.

4 For reference - the 5 principles with questions for reflection

2.4 - Engaging the community

1. Focus on Learning

1. **Everyone is a learner.** Are students the only learners in our school? How about the teachers? Parents? Headteachers?
2. **Learning relies on the effective interplay of social, emotional and cognitive processes.** Do we think about what learning is about? Is it about memorising and applying certain facts? Managing emotions? Being able to make friends with one another? Making good decisions?
3. **The efficacy of learning is highly sensitive to context and to the differing ways in which people learn.** Are we aware about the differences in ways which people learn and to what extent their background (e.g. family, age, interests) will influence the way they learn?
4. **The capacity for leadership arises out of powerful learning experiences.** Who are some of the most influential teachers in our lives? When did we encounter such teachers and why did they create such powerful learning experiences for ourselves? How can we do the same for others?
5. **Opportunities for leadership enhance learning.** Are we given the opportunities to make decisions on our learning?



2. Conditions for Learning

1. **Cultures nurture the learning of everyone.** What kind of background (e.g. families, age, interests) would be most helpful to support learning?
2. **Everyone has opportunities to reflect on the nature, skills and processes of learning.** Are there opportunities for everyone to reflect on the nature, skills and processes involved in learning? What are they?
3. **Physical and social spaces stimulate and celebrate learning.** Are the physical facilities and other forms of support (e.g. community and family support) able to support learning? What are these facilities and forms of support?
4. **Safe and secure environments enable everyone to take risks, cope with failure and respond positively to challenges.** Are we providing a safe environment for learners to take risks, cope with failure and respond positively to challenges? How are we doing that?
5. **Tools and strategies are used to enhance thinking about learning and the practice of teaching.** Are we updating ourselves and reflecting on the various tools and strategies to enhance the way we teach and learn? How are we doing that?

3. Learning Dialogue

1. **Practice made explicit, discussable and transferable.** Do we have the language to talk about learning so that we can discuss and reflect on it more fruitfully? How do we do that?
2. **Active, collegial inquiry focussing on the link between learning and leadership.** Do we discuss and find out how we can take the lead to decide what learning should be like in our school (and not just be directed by the authority)? How can we go about doing that?
3. **Coherence through sharing of values, understandings and practices.** Do we discuss and share the values and understanding of the ways we learn and teach? What are they?
4. **Factors that inhibit and promote learning are examined and addressed.** Do we examine and address the factors that inhibit and promote learning? What are they?
5. **Link between leadership and learning is a concern for everyone.** Do we prioritise the link between leadership and learning? What kind of concerns about learning do we raise and act upon?
6. **Different perspectives explored through networking with researchers and practitioners.** Do we network with researchers and other practitioners to explore different perspectives of learning and leadership? How do we do that?

4. Shared Leadership

1. **Structures support participation in developing learning communities.** Are there ways we can participate in learning or be involved in starting learning communities within the school?
2. **Shared leadership symbolised in day-to-day flow of activities.** Can we see leadership being shared by various colleagues and students in the day-to-day flow of activities in the school? What is that like?
3. **Everyone encouraged to take a lead as appropriate to task and context.** Do we take the initiative to take a lead in various learning or research projects in accordance with what we are interested in and capable of? What kind of projects or research can we embark on?
4. **Everyone's experience and expertise is valued and drawn upon as resources.** Do we draw on everyone's experience and expertise and value all of them as important resources to support learning? How do we do that?
5. **Collaborative activity across boundaries of subject, role and status are valued and promoted.** Do we value and promote collaborative activities across subject, levels and roles within the school?


2.4 - Engaging the community

5. Mutual Accountability

1. **Systematic approach to self-evaluation embedded at every level.** Is there a systematic approach to self-evaluation that is evident in all aspects of our work?
2. **Focus on evidence and its congruence with core values.** Is there a focus on documentation of teaching and learning that would be consistent with our beliefs on the values of education?
3. **Shared approach to internal accountability is a precondition of external accountability.** Do we take the initiative to be accountable to ourselves in ensuring the quality of teaching and learning, rather than be dependent on an external authority?
4. **National policies recast in accordance with school's core values.** Do we critically examine the national policies and how they are relevant with the school's core values?
5. **Choosing how to tell own story while taking account of political realities.** Do we maintain an individual stance of our own views of teaching and learning, while being very cognisant of the political realities that we are living in?
6. **Continuing focus on sustainability, succession and leaving a legacy.** Do we try to look forward towards the future, on how we can sustain our current efforts and be able to leave a legacy for our future generations?

5 Involving parents: The issues

In this part of the session, we are going to use the LfL framework to help with talking to and involving parents in their children's education.

 **Reading and whole group discussion** (10 min) *on roles for parents in schools.* Read the following text, and then have a brief discussion as to how you see possible roles for parents. Here are some discussion questions to start you off:

1. What opportunities are there currently for having a conversation with parents on student learning?
2. What do parents understand by student learning?
3. Have you considered the roles of parents in supporting children's learning, in supporting the school, or in supporting interactive methods of teaching?

Educator note

Make sure that you have read this text in advance of the session. In the discussion that follows reading the text, make sure that participants understand how important parents are in their children's education. What happens at school is only one factor in a child's education, and whatever support parents give (or don't give) is of key importance!

You can listen to the following background text here:

AUDIO

Introduction to "Engaging the Community"

Introduction to "Engaging the Community"

Involving parents Unit 2.5.mp3, 01.47,(Series: OER4Schools narration, episode 01)

Background reading

Parents at the heart of children's learning.

Parental involvement in their child's education at school is a known predictor of future academic success. Developments in pedagogies such as those we are exploring over the course of this professional learning resource are second only in importance to consistent, positive parental involvement in a child's education. With this in mind, engaging parents in the school community and their own child's daily education is a top priority of any leading teacher.

Convincing parents to come to the school and take an active interest in the everyday goings-on in the school

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and the learning of their child is not easy. It is important to remember that many parents might not have had a positive school experience, or might be intimidated by the school environment – particularly if they believe they might be asked to contribute to school and the learning process in a way that is outside of their comfort zone.

The first priority is to ensure parents and other key education stakeholders feel welcome and that their presence is valued in its own right. Navigating ways of expanding participation by individual parents is something we will think about in this session. We will explore the utility of the Leadership for Learning framework as an instrument for organising our thoughts, and we will also explore ways of communicating to parents the learning process and their child's individual learning in an understandable and meaningful way.

Getting parents involved is easier said than done!

Leadership for Learning applied to talking to parents.


We are now going to explore meaningful ways of interacting with parents, so that we begin to promote:

- increased presence of parents in school
- a willingness to move towards increased support for their child's learning in and out of school hours.

One of the barriers to effective parents' meetings, is the **teacher's ability to communicate effectively**, ensuring both an **open and honest conversation** about their child's learning that includes both positive and negative issues arising. A good way of ensuring that we professionalise these often very personal conversations is to discuss the process and content of the learning, and not the child him/herself. How can we do this? We can use the LfL framework as a starting point.

6 Involving parents: Role play

You have now reminded yourself of the five LfL principles, and also started to discuss how you might relate some of your observations to a parent. Now let us try putting some of this theory into practice through the following role plays. In this role play, one person is the teacher, one person is the parent (the other teachers watch and listen). The parent asks the teacher about "interactive teaching" and "use of ICT", and why the children are no longer writing as much in their books.

 **Whole group brainstorm** (5 min) *on what parents might have to say about school when asked. As a group, do a brainstorm about what parents might say to a teacher, what they might want to know, what they might complain about, or what they might praise.*


Educator note

Some things that could be mentioned here:

- A parent is concerned about exams.
- A parent complains that their child does not write enough in their book.
- A parent says that sometimes their child is no longer following what the parent suggests, but often starts a discussion (e.g. what clothes to wear to school).

If possible, relate some issues back to the videos watched in the previous section. Maybe you can draw something out of the videos, that contributes to this brainstorm.


With each of these items (and any other items raised), see whether you can draw out one or more LfL principle that relates to the question.

 **Role play** (5 min) *teacher-parent conversation in pairs. Break into pairs, assign roles ("teacher", "parent"), and do a role play for 5 minutes. The person playing the parent asks questions or raises concerns (based on the brainstorm you have just done), and the teacher tries to answer those question, or discuss the issue. Then swap roles and role play again.*

Educator note


Limit the time to 5 minutes.

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 **Whole group dialogue** (10 min): *Whole group discussion on teacher-parent role plays.* Come back together as a group. Discuss the role plays. How did it go? How did you address the parents' suggestions and concerns? How did this relate to Leadership for Learning? Make a note of any particular points that you could use in the future when discussing with parents.

7 Government and head teachers: Role play

There are other opportunities for discussion in school, for instance other colleagues might be curious about interactive teaching. You may also be talking with senior teachers, headteachers, or government inspectors who may be unaware or unconvinced about interactive teaching. As in the discussion with parents, the Leadership for Learning principles can provide a good framework for discussion with other teachers, headteachers, and inspectors.

 **Whole group brainstorm** (10 min) *on what another teacher/headteacher/government official might question about your class* As a group, do a brainstorm about what another teacher, headteacher, or government inspector might notice about your class? What might they be concerned about? What is their understanding of student learning? See whether you can come up with a broad range of questions or issues another teacher, headteacher, or government inspector might raise. As these issues are brought up, see whether you can relate them to the LfL principles. How can you diplomatically challenge their assumptions about what teaching and learning should be like, if these are counter to your own views of interactive teaching? How would you defend what you have been doing in your classroom as a result of the OER4Schools programme?

Educator note


Here are some possible scenarios to illustrate what we hope the participants would come up with:

- A teacher goes to a different school - how do they convince the headteacher to try interactive teaching? (OR: A new teacher comes to your school - what do you tell them about interactive teaching?)
- The inspector says "You need to do pace groups – in Zambia Kenya, we do pace groups!" - what do you say? Perhaps you can remind the participants of the "banana group" in Agness' class who kept going off to sit in other groups (Unit 3.3.2), and of the incident of some of Judith's students laughing at the group who got all wrong answers in a maths lesson (3.3.3). Agness and Judith use mixed pace groups now because they found that more students participate.

[It may not be the inspector who says this as there is now a move towards wider acceptance of mixed pace groups - it may be a parent who was taught themselves in pace groups who is questioning your rationale.] Note: Since the time of writing this, mixed ability groupings have become a requirement of the Zambian education policy and are not solely something advocated by the OER4Schools programme.

- Headteacher says to you that "writing on the board is better, because children then remember", so you should not do so much interactive teaching. How do you respond?

With each of these items (and any other items raised), see whether you can draw out one or more LfL principle(s) that relate to the question.


 **Role play in pairs** (5 min) *a conversation between a teacher and another teacher/headteacher/inspector.* Break into pairs, do another set of role plays, as above, but now with one person being the teacher, the other one being another teacher, a headteacher, or an "inspector". The person playing the other teacher/headteacher/inspector asks questions or raises concerns (based on the brainstorm you have just done), and you try and answer those question, or discuss the issue. Do a role play for 5 minutes. Then swap roles and do the role play again.

Educator note

Limit the time to 5 minutes and ensure that there are enough of each different type of role play going on:

- teacher-teacher
- teacher-headteacher
- teacher-inspector

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 **Whole group dialogue** (10 min): *Whole group discussion on role plays.* Come back together as a group. Discuss the role play. How did it go? How did you address the concerns that came up? What were the suggestions and concerns? How did this relate to Leadership for Learning? Be explicit about which LfL principle a particular point relates to.

Educator note


In the discussion, issues around payment and transparency might come up. Often we dwell so much on money and not work, e.g. trying to attend workshops just to gain money, but putting work as a second priority. This could apply to people at all levels, and indeed corruption is a big disease in many countries.

As a facilitator, you may want to steer the discussion towards what this means for the participants. How does it affect their lives, and the life of the school? Transparency is related to “inclusion”, which in turn means involving parents (PTA) and students (students’ association). More “transparency” for instance means that those groups have insight into finances, and can therefore flag up problems. You could discuss with the participants where they see issues, and what could be done to increase transparency and inclusion.

However, as usual, **set a time limit for discussion, say 10 mins in this case.**

8 Discussion on using ICT with parent and inspector

Throughout this programme, we have talked about the role of ICT in interactive teaching. We now look at how you can communicate to others the role of ICT in interactive teaching.

 **Role play performance** (5 min) *on the role of ICT in interactive teaching.* Choose three people to perform a role play in front of everybody. The theme for the role play is the use of ICT at the school. One of you is the teacher, and the others are a parent and an inspector. Here are two ideas that you can explore in the role play:

- The parent asks: “I hear you have ICT at this school. Does that mean that your students learn the parts of the computer and how to operate a computer? That sounds very useful for their future life.”
- The inspector asks: “Can you show me an activity that you have done with the students, using a computer?” (You might want to both sit down in front of a computer, where the teacher explains the recently used Geogebra activity on polygons to the parent.)


In your role play, remember to draw on LfL principles to help structure the discussion; in particular, the focus on learning!

Educator note

Once three people have performed this role play, see whether the important issues have been raised. If not, then repeat the role play again, picking two different people.

Important elements that you should look out for:

- Are your participants clear that ICT is for promoting interactive teaching and learning – the LfL lens “focus on learning”, not to learn about computers, or the parts of the computer?
- Make the role play concrete. It would be good if an actual application like Geogebra was used in explaining points to the parent.
- Where the teacher explains the Geogebra activity on polygons to the parent, be careful that this does not turn into a description of Geogebra and what it can do. Instead, the discussion should be about **how Geogebra is used to promote learning**, group work, etc. Again, see whether you can encourage reference to the LfL principles. (For instance, linking group work to shared accountability.)

 **Whole group discussion** (5 min) *on role play.* Discuss the role play. How differently would the discussion be between the teacher-parent and teacher-inspector? What does that suggest to you about the role of the teacher in communicating student learning? Discuss in particular whether the parent and inspector were convinced about the use of ICT, and what sort of message they have taken away from this. Do you think there will be value in having a discussion whereby the parents, teachers, head teacher and inspector are **ALL** present? Why do you think so?

Educator note

It may be very tempting to make use of the LfL framework as some kind of ‘repository’ to find solutions to answer

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parents or inspector's queries (perhaps eventually as some kind of 'FAQ') **We are not trying to give you 'stock' answers to reply to your stakeholders.** It is important to note that using the LfL lens provides opportunities for all the stakeholders to come together to deliberate on the many issues of student learning from different perspectives. The teacher should not feel that he/she has to have an answer to all the questions that are asked by the other stakeholders. In fact, it may be better in the first few discussions, to LISTEN closely to the views of the different stakeholders before stating your own. It is easy to become very defensive of all the 'new things' that the participants have learnt so far. The conversation and discussion should be seen as a reflective and developmental one. This will eventually help the community as a whole to come together to support each other in your endeavours to provide quality teaching and learning experiences for your students.


9 Involving students

The Leadership for Learning principles apply to everybody, including the students. For instance, students taking responsibility for their own learning does not just mean that they learn a piece of information in a lesson. **It means students taking responsibility for ensuring that they really understand, and that peers have understood.** You may remember we introduced this as a criterion for successful groupwork in Unit 3, emerging from Slavin's research. Moreover it also includes students taking appropriate responsibility for the learning environment and for the school as a whole (and in particular for learning at the school).

Here are some Zambian teachers' experiences of introducing Leadership for Learning to their students:

When I was doing the leadership for learning, so I say if you find that your friend hasn't done well, create a situation whereby that person will have work to do at home, then you check the following morning. So it has continued just like that in class, yes, so they are used to doing it.

Leadership for Learning, it was very nice. To me, I discovered that three quarters of my class they are able to be leaders, yes. So it's things that, even somebody that say "she is young, she cannot do it", they have that capacity and they showed it when we were doing those topics, yes. Like for one of my students, she looks babyish, sometimes she cries, sometimes.. so, give them an expression, you say "find a leader", and do one or two things, then she'll be in the forefront, doing it. So when I gave them an assignment on Leadership for Learning, she came out the best, I was really amazed! So now, what is the connection? Her crying, her babyish she is, and now she is able to lead the whole class, it was very impressive for me, I thought God!

 **Group discussion** (5 min) on the LfL principles Discuss the five LfL principles in relation to the students. What might the LfL principles mean for students?

Educator note

Here are two ideas that might come up.

Older students helping in lower grades. One idea is to involve students (from higher grades) in teaching and learning activities in lower grades. For instance a grade 8 student might help in a grade 5 class. Can you look at this from an LfL perspective? Consider the five LfL principles - how can they be related to this activity?

Students' school council. Is there a "students' council", which represents the students?

- Is this student organisation involved in discussing teaching and learning? Or do they have a role more like "prefects" who help in controlling and maintaining order in school?
- Students sometimes do approach teachers, e.g. to raise the issue of there being too few books. As a teacher (and as a school), how do you deal with that?
- There are other issues where students may not be involved, and perhaps should not be involved. How do we decide what those are?

Another important way to involve students, is for teachers to see them as a "resource" for developing their own practice, e.g. by asking students for feedback.

Students need to "be sensitised" (need to learn and practice) how to handle matters that concern them. ... thus protocol needs to be observed ... Students need to be told that it's their right to be heard and that therefore they need not to fear to make themselves heard. There is a background reading below, which gives details of UN

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Convention on Rights of the Child, article 12.


Some participants may question whether there is a minimum age for children to get involved in these sorts of activities. However, children's voices should always be heard (in an age-appropriate way). The idea is that you have to start practicing all of this at any age, so that you can improve your ability to contribute and make your voice heard as you progress through basic school and from basic school to high school to university, and then to your work life.

Background reading

UN Convention on Rights of the Child, Article 12, child-friendly version: "Children have the right to say what they think should happen, when adults are making decisions that affect them, and to have their opinions taken into account."

UN Convention on Rights of the Child, Article 12, full version: "Parties shall assure to the child who is capable of forming his or her own views the right to express those views freely in all matters affecting the child, the views of the child being given due weight in accordance with the age and maturity of the child."

With regard to primary education, one of the Cambridge Primary Review signpost recommendations (p. 510) is to "respect children's experience, voices and rights, and accept the UN Convention on Rights of the Child (UNCRC) as the framework for policy".

 **Reading and discussion in pairs** (5 min) *on using LfL principles with students* In the homework, we will ask you to discuss the LfL principles with the students in your class. Discuss in pairs: How would you do this? Can you draw on material from the previous and this session to draw something together? The following text has some suggestions! Read through it together, and discuss. Make a plan for a session with your students.

Consider what you have learnt about interactive pedagogy - so instead of just telling your students about it, create a session on LfL, where students explore the ideas of Leadership for Learning (the "metaphor" of the LfL lenses) and then apply their new knowledge and critical framework to their own learning in their own class, with a view to generating a shared dialogue about leadership for learning.

You can do this any any number of ways. But just to help get you thinking about a possible direction, consider the following as potential elements of a session on LfL in your class. Bear in mind the questions for reflection (which were used in the previous session, and which we have included above). See whether you can use some of those reflective questions with your students.

Background reading

Ideas for introducing your students to Leadership for Learning

Introduce the metaphor of LfL lenses. Provide the materials and guidance for students to cut out and make LfL spectacles. Recycled paper, card, and other paper scraps from magazines workbooks are perfect for this exercise. Guide your students in demonstrating how to make a pair of LfL spectacles - designed to reflect their specialist powers of observation - and with each child personalizing their own spectacles based upon one of the five principles (i.e., students trace, cut, fold, colour/draw, and glue elements to personalize their spectacles). When this phase of the activity is complete, each student will have made a pair of LfL spectacle. Students group, share and discuss their LfL spectacles and what they help them 'see' in their class related to leadership for learning.


Introduce students the LfL observation sheet concept, where each student folds a piece of paper to create 5 sections for noting observations. Invite students to keep this observations sheet with them for one whole day, making notes as they see leadership for learning around them.

Wrap up the session with sharing session at the end of the day, where students share their findings from their LfL observations sheet in small groups, with one representative from each group (the presenter) providing a succinct summary to the whole class round. Collect the LfL observation sheets and summarize on a large poster, for students to see when they return to class the next morning.

Create opportunities to practice those LfL observations daily, and to expanding the observations over time.

Extension: Consider appointing a pair of students (boy and girl) as Directors of Leadership for Learning, responsible for monitoring and guiding future (daily) discussions regarding leadership and learning in their class. Each Friday appoint a new pair of Directors of LfL for the following week.

10 Connecting with overarching goals of the programme

 **Open space** (10 min). It's now time for the "open space", that gives you an opportunity to discuss issues that have arisen, and to relate those to the broader context of the programme. Do not just gloss over this section, but make time to raise issues, and probe the progress that you are making. You could use this space to:

- Remind yourselves of the of the Most Significant Change Technique, and e.g. collect more of your stories.
- Discuss your assessment portfolios: Is there anything that you are unsure about? Is it going well? What could be done better?
- Check on the work with the classroom assistants: Is this going well? Are there any tensions? Any observations or tips you can share?
- Reviewing individual ICT practise (such as typing practise).
- If you are preparing a presentation for other teachers, you could work on the presentation (about what you have been learning, stories emerging from MSC).
- Remind those who are doing audio diaries, to upload them.
- You could discuss any other issues that have arisen.

You will find notes and summaries of various techniques and concepts on our reference page, and you might want to refer to those for clarification during this activity if needed.

11 Follow-up activities

 **Agreeing follow-up activities** (5 min).

Part 1: Pick a set of questions from the following table, e.g.

- Do all the children feel that they are looked upon by others as equal members of the classroom community? Do they feel that their contributions are recognised and valued by their peers, as well as by their teacher?

When you next teach, bear this question in mind, and after the lesson, reflect on it in your audio diary. (When you do the recording in your audio diary, state the questions first, and then your observations.)

You can use the rest of the questions in future to audit your practices in the classroom and in the school as a whole.

Building confidence and emotional security	Do all the children feel emotionally safe, comfortable and positive about their participation in learning activities?
Strengthening feelings of competence and control	Do their classroom experiences strengthen or restore all children's feelings of competence and control?
Increasing enjoyment and purposefulness	Are classroom activities experienced by all children as interesting, enjoyable and purposeful?
Enhancing children's identities as learners	Do all the children experience sustained success and achievement in their learning, and recognition of that achievement?
Increasing hope and confidence in the future	Do all the children recognize their own power to make a difference to their own future development? Do they develop constantly expanding conceptions of what is possible? Are they hopeful and confident for the future?
Increasing children's sense of	Do all the children feel that they are looked upon by others as an equal

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acceptance and belonging	member of the classroom community? Do they feel that their contributions are recognized and valued by their peers, as well as by their teacher?
Increasing children's capacity to work as a learning community	Have all the children developed the skills they needed to work together constructively as a team? Do they accept responsibility for working effectively as a learning community?
Providing successful access by all children to whatever knowledge, understanding and skills are intended to be the focus of a lesson	Have all the children understood and engaged with the content and learning intentions of the lesson? Have they engaged in worthwhile learning in relation to these intentions?
Increasing relevance, enhancing meaning	Have all the children found the content and tasks of the lesson relevant to their lives and concerns? Has it created intellectual connections for them? Has it opened up new horizons and led to recognition of new meanings and relevances?
Enhancing thinking, reasoning, explaining	Have all the children been helped to think, to talk about their thinking, to reflect on their learning and what helps them to learn?

You can print this content on a separate sheet here:

[OER4Schools/Using_questions_as_a_starting_point_for_monitoring_and_accountability](#).

(Maddock et al., 2012, p. 111)

Part 2: LfL discussion with students. Run a session on LfL with your own students (as discussed above).

Part 3: Bring your folders (as always) to the next session.

Educator note

In the next session, these follow-up activities will be reviewed. If you are using this session on its own, you can have a look at the review of follow-up activities here.

12 References

Alexander, R. (ed) (2010) Children, Their World, Their Education: Final Report and Recommendations of the Cambridge Primary Review. London: Routledge.

Maddock, M., Peacock, A., Hart, S. & Drummond, M.-J. (2012). Creating Learning Without Limits. Maidenhead: Open University Press.

13 Additional resources

This paper [InForm_4_Headteachers.pdf] provides some **information for school leaders** about supporting leadership for learning in their school. Further information from "Creating Learning Without Limits" will be forthcoming in future.

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Educator note

At the end of each session, we provide an overview of the activities in this session, together with their suggested timings. Although this appears at the end of the session (for technical reasons), you should keep an eye on this throughout the session, to make sure that you are pacing the workshop session appropriately!

Total time: 125 (min)

Activities in this session:

- **Whole group discussion** (10 min): *Concept mapping*
- **Small group activity:** (15 min) *Use 'table mats' to record observations and reflections on LfL in the classroom.*
- **Small group discussion: on recorded observations**(5 min).
- **Whole class dialogue** (5 min): *Whole group discussion of the LfL principles identified in the videos and how these contribute to students' learning.*
- **Reading and whole group discussion** (10 min) *on roles for parents in schools.*
- **Whole group brainstorm** (5 min) *on what parents might have to say about school when asked.*
- **Role play** (5 min) *teacher-parent conversation in pairs.*
- **Whole group dialogue** (10 min): *Whole group discussion on teacher-parent role plays.*
- **Whole group brainstorm** (10 min) *on what another teacher/headteacher/government official might question about your class*
- **Role play in pairs** (5 min) *a conversation between a teacher and another teacher/headteacher/inspector.*
- **Whole group dialogue** (10 min): *Whole group discussion on role plays.*
- **Role play performance** (5 min) *on the role of ICT in interactive teaching.*
- **Whole group discussion** (5 min) *on role play.*
- **Group discussion** (5 min) *on the LfL principles*
- **Reading and discussion in pairs** (5 min) *on using LfL principles with students*
- **Open space**(10 min).
- **Agreeing follow-up activities**(5 min).

If you have printed this session for offline use, you may also need to download the following assets:

- Video/Eness vertebrates 6.mp4 (local play / download options)
- Video/Eness vertebrates 8.mp4 (local play / download options)

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Unit 3 - Group work



This unit introduces group work, how to agree on ground rules, and what sort of resources support group work (such as “talking points” and digital resources). In detail, the unit covers

- exploratory talk,
- same task group work,
- different tasks group work,
- group composition and formation,
- ground rules for group work,
- carousel of activities for group work,
- mixed pace group work and differentiation, and
- talking points activity for promoting group interaction.

Unit 3 Group work

3.1 - Group work: Same task and different tasks group work		
<p>In this session you will learn about:</p> <ul style="list-style-type: none"> ▪ group work in interactive teaching as a way of encouraging participation and collaborative learning ▪ different types of talk in groups, including exploratory talk ▪ genuine group work (not just sitting in a groups) ▪ how and when to use same task group work or different tasks group work ▪ group composition and randomising roles to encourage participation 	<p>To meet the learning intentions you will:</p> <ul style="list-style-type: none"> ▪ watch a slideshow and draw out new knowledge of the importance of group work ▪ devise same task/different tasks questions for use during group work ▪ create groups by numbering and number group members for the purpose of randomising who reports back 	<p>The ICT components you will focus on are</p> <p>You will plan a lesson for classroom use of</p> <ul style="list-style-type: none"> ▪ Geogebra, ▪ Slideshows, ▪ (optional) concept mapping software. <p>Classroom based activities (with your students, after this session):</p> <ul style="list-style-type: none"> ▪ You will do a lesson with your students that involves Geogebra, slideshows, or (optionally) concept mapping software.
3.2 - When to use group work and how to manage it		
<p>In this session you will learn about:</p> <ul style="list-style-type: none"> ▪ when and why to use group work in the classroom ▪ three different aspects of managing group work: <ul style="list-style-type: none"> ▪ group composition and formation ▪ ground rules during group work ▪ group size and seating arrangement ▪ "carousel" group work (sometimes called a circus of activities) where different groups do the same activities but in a different order 	<p>To meet the learning intentions you will:</p> <ul style="list-style-type: none"> ▪ participate in a magic microphone reasoning activity, suggesting a specific example of when group work could be used in the classroom with reasons ▪ work as part of a small group on one aspect of managing group work and prepare and deliver a presentation on it to the whole group ▪ actively listen to other groups presentations on two other aspects of managing group work ▪ watch a video and discuss 'carousel' group work, thinking particularly about its use in a limited resource environment 	<p>The ICT components you will focus on are</p> <p>Classroom use of</p> <ul style="list-style-type: none"> ▪ Geogebra, ▪ slideshows, ▪ (optional) concept mapping software. <p>Classroom based activities (with your students, after this session):</p> <ul style="list-style-type: none"> ▪ You will do a lesson with your students that involves Geogebra, slideshows, or (optionally) concept mapping software.
3.3 - Mixed pace group work with and without ICT		

Unit 3 Group work

<p>In this session you will learn about:</p> <ul style="list-style-type: none"> ▪ pace grouping and its effect on students ▪ strategies to discourage copying during mixed pace group work ▪ differentiation by <ul style="list-style-type: none"> ▪ task ▪ support ▪ outcome <p>as ways of allowing students to access work at their level and ensuring that all students produce results and progress in their learning</p>	<p>To meet the learning intentions you will:</p> <ul style="list-style-type: none"> ▪ listen to teachers talking about their experiences of using pace groups and discuss ▪ discuss strategies to discourage copying by students during mixed pace group work ▪ read some background text on differentiation and consider if its use might enable teachers to set high expectations of all students ▪ plan to teach a mixed pace group work activity with ICT 	<p>The ICT components you will focus on are</p> <ul style="list-style-type: none"> ▪ Planning of another lesson with ICT (Geogebra / Slideshow / Concept mapping) <p>Classroom based activities (with your students, after this session):</p> <ul style="list-style-type: none"> ▪ you will ...
3.4 - Talking points and effective group work		
<p>In this session you will learn about:</p> <ul style="list-style-type: none"> ▪ using talking points to support productive, open-ended discussion ▪ effective group work practices including team-building ▪ reflective practices and being critical to get the most from activities 	<p>To meet the learning intentions you will:</p> <ul style="list-style-type: none"> ▪ discuss group work using talking points ▪ devise some talking points for a classroom activity ▪ plan the activity to included team building ▪ do the activity and prepare to feedback reflections next session ▪ analyse another teacher's reflective practice and look at ways of improving how we reflect 	<p>The ICT components you will focus on are</p> <ul style="list-style-type: none"> ▪ Planning of another lesson with ICT (Geogebra / slideshow / concept mapping / spreadsheets), for open-ended tasks <p>Classroom based activities (with your students, after this session):</p> <ul style="list-style-type: none"> ▪ you will ...
3.5 - Review of group work		
<p>In this session you will learn about:</p> <ul style="list-style-type: none"> ▪ ways of consolidating learning about group work ▪ strategies for dealing with group work issues i.e making sure that all students participate, how best to arrange groups to make good use of resources etc ▪ reflecting in a way that makes learning explicit by giving specific examples of where learning has taken place (or not) 	<p>To meet the learning intentions you will:</p> <ul style="list-style-type: none"> ▪ complete a questionnaire on group work practices/strategies and plan an agenda to use these in the classroom ▪ take part in a brainstorm to come up with strategies for dealing with group work issues ▪ listen to a Zambian 	<p>The ICT components you will focus on are</p> <ul style="list-style-type: none"> ▪ Introduction of EtherPad in the classroom <p>Classroom based activities (with your students, after this session):</p> <ul style="list-style-type: none"> ▪ you will ...

Unit 3 Group work

	teacher's portfolio reflection and work on making portfolio reflections more meaningful	
3.6 - Designing interactive lesson plans		
<p>In this session you will learn about:</p> <ul style="list-style-type: none"> ▪ using lesson templates as a tool when planning interactive lessons ▪ designing interactive lesson plans to include a range of interactive techniques ▪ planning to use effective questions by referring to Bloom's Taxonomy 	<p>To meet the learning intentions you will:</p> <ul style="list-style-type: none"> ▪ watch a sequence of videos and map them on to an interactive lesson plan ▪ plan an interactive lesson using a lesson template ▪ complete a range of activities to become familiar with Bloom's hierarchy of question types 	<p>The ICT components you will focus on are</p> <p>Classroom based activities (with your students, after this session):</p> <ul style="list-style-type: none"> ▪ you will ...

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Session 3.1 - Group work: Same task and different tasks group work

3.1 - Group work: Same task and different tasks group work

Learning intentions and objectives.

In this session you will learn about:

- group work in interactive teaching as a way of encouraging participation and collaborative learning
- different types of talk in groups, including **exploratory talk**
- genuine group work (not just sitting in a groups)
- how and when to use **same task group work** or **different tasks group work**
- group composition and randomising roles to encourage participation

Success criteria.

To meet the learning intentions you will:

- watch a slideshow and draw out new knowledge of the importance of group work
- devise same task/different tasks questions for use during group work
- **create groups by numbering** and number group members for the purpose of **randomising who reports back**

ICT components.

The ICT components you will focus on are You will plan a lesson for classroom use of

- Geogebra,
- Slideshows,
- (optional) concept mapping software.

Classroom based activities (with your students, after this session):

- You will do a lesson with your students that involves Geogebra, slideshows, or (optionally) concept mapping software.

Resources needed.

Presentation files, projector, paper.



1 Review of follow-up activities from last session

Edit this review section (http://oer.educ.cam.ac.uk/w/index.php?title=OER4Schools/Concept_mapping/review_of_follow_up&action=edit)

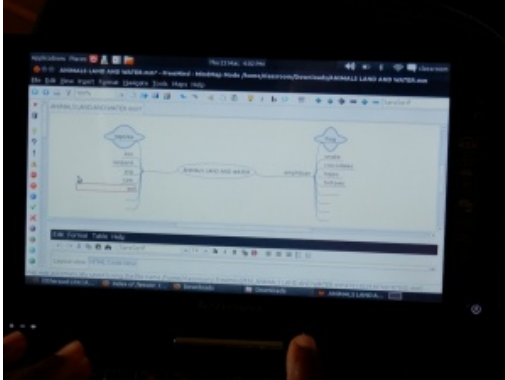
Educator note

If you are running a professional learning programme which follows these sessions in sequence, then you should do the review of follow-up activities relating to the previous session (Concept mapping). The 'review of follow-up activities' for that session is available here, and also shown below in the session text. However, if you are following selected sessions in a different order, then you should use the reflection appropriate to the previous session you did.

The review of the follow-up activities for this session (to be done at the start of the next session) is available here.

3.1 - Group work Same task and different tasks group work

- Did you try drawing concept maps on the netbooks? Were you able to use coloured boxes? Briefly share issues that you were able to resolve. Discuss issues that are still not resolved.
- Did you try the concept mapping activity with pupils in your class? How did the pupils respond to the activity, especially reasoning and building on each other's responses? If they did this, how were you able to achieve it? Share specific examples of pupil talk and teacher talk.
- Did you use a digital projector in the class? Was it useful for the concept mapping activity? Why?
- What would you change when you carry out the concept mapping activity again? Make a note for yourself about any changes so you can remember for next time.



Horseshoe seating arrangement: How did the horseshoe seating arrangement go? Did you move chairs only, or desks and chairs? Do any of you have any tips for getting the students to help and for setting it up efficiently?

2 Presentation

Educator note

For this activity, you will need:

- the OpenOffice Impress or PowerPoint presentation
 - Unit 3.1 Group Work for Interactive Teaching.ppt
(http://oer.educ.cam.ac.uk/w/images/a/a6/Unit_3.1_Group_Work_for_Interactive_Teaching.ppt
(info) (http://oer.educ.cam.ac.uk/wiki/File:Unit_3.1_Group_Work_for_Interactive_Teaching.ppt))
 - Unit 3.1 Group Work for Interactive Teaching.odp
(http://oer.educ.cam.ac.uk/w/images/5/55/Unit_3.1_Group_Work_for_Interactive_Teaching.odp
(info) (http://oer.educ.cam.ac.uk/wiki/File:Unit_3.1_Group_Work_for_Interactive_Teaching.odp))
- the projector linked to your computer,
- a flip chart or blackboard with the heading 'A significant aspect about group work that I have just learned is...'

When most participants have read one slide press any key to move to the next slide. You can read the slides aloud if you think it will benefit the participants. Slides 3 and 4 outline the three different types of talk identified during group work. We met cumulative talk in Unit 2 and we will do some more work on exploratory talk in a future session.

Observing, thinking, reflecting (10 min): *Watching a slideshow on group work.* Watch the slideshow about group work. Write one significant aspect about group work that you have learned from this slideshow on a piece of paper. Stick them up on a board/wall with sticky tape or lay them out on a table for everyone to see.

Educator note

Participants need not write their names on the sheets. Allow participants to read other people's contributions. Read out a few notes that you think are important to be highlighted for the whole group.

3 Same task group work and different tasks group work



Individual activity (5 min): Read the background text on same task group work and different tasks group work.

Background reading

'Same task group work' and 'different task group work' are important concepts in interactive teaching.

Same task group work involves assigning the same problem to each group. Each group's presentation provides a different perspective/way of solving the problem. For example,

- "A farmer has a plot of land of size 30 metres x 20 metres. He has to plant 60 trees and 20 shrubs. Which pattern of planting would you suggest to the farmer? Why? Consider that the shrubs should not be shadowed by the trees so that they get light."
- "New classrooms are being built for grades one and two in another rural area. Tables and chairs are needed for these classrooms. Give suggestions about the size and shape of the tables and chairs to the headmaster. Each group can give one suggestion for a table and a chair. Explain your suggestions with reasons."

Different tasks group work involves assigning different aspects of the same problem to each group. Each group's presentation is like a piece of the jigsaw that completes the whole picture. For example,

- "The Zambian health minister has asked you to make handouts/pamphlets about diseases. The pamphlets will be distributed in hospitals to inform people about prevention of diseases. The diseases for which handouts are needed are: (a) Tuberculosis; (b) Malaria and (c) HIV/AIDS. Three groups will work on the different diseases. In your group, consider which information you want to include and why."
- "The local environment committee has observed that pollution is increasing in your area. They have asked you to find out the reasons for increasing pollution and suggest ways to decrease it. Prepare a presentation for different types of pollution: (a) air pollution, (b) water pollution, (c) noise pollution and (d) soil pollution."

Whole class dialogue (10 min): Discussion on group work. Discuss:

- What are your general observations about questions for group work?
- How are the questions for same task group work different from different tasks group work? What is the advantage of setting different tasks to groups?
- Suggest a topic that you could teach through same task group work.
- Suggest topics that you could teach through different tasks group work.

Educator note

Reinforce that questions for group work are more motivating when presented as real life problems. Also presentations are more interesting to hear when they are all focused on a different question.

3.1 - Group work Same task and different tasks group work

Then highlight the important aspects of the problem that groups should consider. This increases the challenge for the group work. Carry out the last two bullet points (about topics) like a brainstorm. Record the answers on a flip chart or blackboard so that participants can see them during the 3rd Activity. You could ask a volunteer to write them.

4 Brief reflection on modelling

Same-task group work (5 min) *on identifying group work activities used in the programme so far and thinking about why same task/different tasks.* You may have already noticed that some activities in our programme were labelled "same task group work", and other activities were labelled as "different tasks group work". Can you recall what they were? Check through your workshop handouts and see what they were. Why do you think they were designed as same task/different tasks?

Observing, thinking, reflecting (5 min): *Facilitator talk on modelling activities in workshop sessions.* You see that we are using very similar approaches in this workshop (such as same task and different tasks group work) as we would use in the classroom. We call this "modelling of classroom practice during professional learning activities".

Educator note

Try to be really clear with the participants about the idea of "modelling", i.e. that classroom practices are also modelled here in the teacher group sessions. Depending on how much time you have and how the session is going, you could make this idea explicit again in the following activity. Over the course of the following sessions, try to make this idea explicit for the participants in other activities as well.

5 Forming random groups by numbering

Educator note

Prepare labels (G1, G2 and G3) for group work in advance and place them on tables before this activity.

Group formation (5 min) *by assigning numbers, and numbering group members.* All participants get up and stand in a queue. Each person says a number from '1' to '3' at their turn. So, the first person says '1', second says '2' and third says '3'. Then the fourth says '1', fifth says '2' and sixth says '3' and so on. Everybody who said '1' should form group one (G1). Similarly, everybody who said '2' and '3' should form group two (G2) and group three (G3) respectively. Sit on the tables marked with your group number. In the classroom, this is an effective way of randomly allocating pupils to groups and it avoids friendship or ability groupings.

The following video shows Pindi, a teacher in South Africa, numbering her students for the purpose of grouping them. Watch the video together as a whole group and discuss your observations afterwards within your groups. Think about the following:

- What forward planning would Pindi have had to do prior to assigning students to groups?
- Was the process a smooth one?
- What other ways might the process have been improved?

VIDEO

Teacher allocates group numbers

Teacher allocating group numbers to learners as they enter class

About this video, 1:42, link to YouTube (<http://www.youtube.com/watch?v=u5hANwLeXSM&list=PLtf3oOEbE-EXzbYerRxYC4SZI9EnR6hLJ>) (local play / download options)(Series: Graphs, episode 1)


3.1 - Group work Same task and different tasks group work

After spending a few minutes discussing the video, allocate a number (1, 2, 3, and so forth up to the number of members) for each group member. Keep it a secret from your facilitator i.e. do not tell who has which number to your facilitator. All group members should know this information - it will be required for the following activity. (If you did this in a class with young children, assign them a number so they don't waste time deciding which number to be.)

Educator note

Allow 15-20 minutes for group activity. Indicate the time remaining 5 minutes before the allotted time. Other things that might be drawn out from the video include: working out the group size, ensuring that it is appropriate for the task; arranging the desks to accommodate groups; putting a plan on the board of where in the classroom the different groups are, etc.


6 Devising questions for group work

 **Same-task group work** (10 min): *Formulate open-ended questions.* Formulate open-ended questions that can be assigned to groups during a forthcoming group work activity in your classroom. Each group (G1, G2 and G3) should formulate at least one same task group work question and one different tasks group work question. You can devise more questions if there is time. Be prepared to feedback your suggestions to the whole class if asked.

Educator note

Visit each group at least once during the activity. Remind group members to:

- Encourage participation/suggestions from all members.
- Accept suggestions only if they agree, otherwise ask questions.
- Negotiate the topic, scope and language of the questions that they are forming.
- Keep an eye on the time.

 **Same-task group work** (10 min): *Reporting back from group.* After the activity, the facilitator calls out a number (1 to number of members). For example, if maximum number of group members is 4; facilitator can say any number from 1 to 4. The group member with this number will present the questions on behalf of the group. Similar procedure is followed for groups G2 and G3.


This procedure means no-one knows in advance who will have to present, so everyone gets involved in case it is them!

Discuss:

- How well did your group work together? Did everyone participate equally? How would you rate your group work on a scale of 1 to 5 (5 is most effective)? Why? Use the ideas in the Powerpoint presentation as criteria for judging effectiveness (see Unit 3.1 Group Work for Interactive Teaching.ppt (http://oer.educ.cam.ac.uk/w/images/a/a6/Unit_3.1_Group_Work_for_Interactive_Teaching.ppt) ^(info) (http://oer.educ.cam.ac.uk/wiki/File:Unit_3.1_Group_Work_for_Interactive_Teaching.ppt)).
- Choose one or more questions that you could use in your class this week
- Are there any aspects of group work that you foresee as potential problems? How will you solve them?

7 Video: Group discussion on vertebrates and rectangles

We now watch three videos: First a pair of clips on group discussion about the classification of vertebrates, then one video on rectangles.

 **Observing, thinking, reflecting** (10 min): *Video on group discussion.* These two video clips show Eness, a teacher in a community school near Lusaka, interacting with a Grade 3 class. The children are devising their own classifications of

3.1 - Group work Same task and different tasks group work

animals depicted in photographs on tablet computers, and recording their ideas on mini-blackboards. There is one clip of pupils working alone, then one with the teacher present. Watch the following two videos. As you watch the videos, reflect on these questions:

- What was the teacher able to achieve in this small group work that would be difficult in the whole class?
- What is the role of the teacher during group work in these clips?
- How did the teacher involve all pupils in the discussion?

Questions for reflection on these two as well as the next video:

- What would you do in your classroom while your pupils are engaged in group work?
- How would you encourage all pupils to be involved in the group work?
- How would you ensure that all pupils have contributed to the final output of group work?

VIDEO

Mini-blackboards group work

Groupwork using mini-blackboards: group of 5 recording under their own category of 'animals with no legs' and interacting as a group


About this video, 3:43, link to YouTube (<http://www.youtube.com/watch?v=9h5vrt-C0V0&list=PLF0530A6FEF00D354>) (local play / download options)(Series: Eness Vertebrates, episode 06)(Transcript available here or via YouTube captions.)

VIDEO

Teacher interaction

Teacher interacts with group

About this video, 3:46, link to YouTube (<http://www.youtube.com/watch?v=lqB0s7gf3AA&list=PLF0530A6FEF00D354>) (local play / download options)(Series: Eness Vertebrates, episode 07)

 **Observing, thinking, reflecting** (10 min): *Video on group discussion.* In this lesson Grade 7 pupils in a semi-rural government school near Chongwe were exploring the relationship between area and perimeter. They worked in groups, using Geogebra software on netbook computers.

Suggested questions for reflection are:

- What is the role of the teacher during group work in this clip?
- How does a teacher know when to intervene?
- How can a teacher encourage peer support during group work? Would Abel's technique of bringing in older pupils or faster learners to help their peers aid a teacher with a large class?
- How did the use of ICT help the learners' enquiry?

Suggested questions for reflections for this and the previous video:

- What would you do in your classroom while your pupils are engaged in group work?
- How would you encourage all pupils to be involved in the group work?
- How would you ensure that all pupils have contributed to the final output of group work?


VIDEO

Students collaborate on GeoGebra investigation on area and perimeter

Introduction to group work, then students doing group work. The teacher supports students in group work, but the students find it difficult to follow the teacher's explanations. Towards the end of the clip, the teacher then asks some students to come over, to explain the issue to the group in their own words.

About this video, 6:56, link to YouTube (<http://www.youtube.com/watch?v=JeCjZW370CQ&list=PL827432C8560941C6>) (local play / download options)(Series: Abel rectangles, episode 05)

8 Whole group discussion on the role of the teacher


 **Whole class dialogue** (10 min) *on teacher participation in group work*. Now discuss the questions for reflection that went with the previous two videos.


Educator note

Research shows that teachers intervene in group work too much/too soon, however the Abel clip shows the importance of picking up on misunderstandings before they completely obstruct progress. It's also important to know when groups are finished and need another challenge.

It's not easy to make a decision about when to intervene – it's a fine balance. Try to circulate and eavesdrop on groups before deciding where to intervene.


9 ICT practice: Different-tasks group work with ICT and activity planning

 **Whole class dialogue** (5 min) *on Etherpad*. We have already used Etherpad for making collaborative notes about the sessions. Review the notes made in Etherpad so far. Does everybody understand how Etherpad works?

 **Different-tasks group work** (15 min) *with Etherpad*. It's now time for everybody to try out how Etherpad works. Work in pairs: One person who has more experience, and one person who has got less experience of Etherpad. Think of some good exercises to do, that benefit from collaborative editing in Etherpad. In designing these exercises, think about two questions:

1. How could you use Etherpad for interactive teaching in the classroom? What kind of activities would lend themselves to Etherpad? How would the use of Etherpad be different from using a text editor (without collaborative features)?
2. How could you use Etherpad to support the present programme? For instance, some participants may want to edit and tidy up the notes from this or other sessions. Some participants could plan a lesson together.

10 Connecting with overarching goals of the programme

 **Open space** (10 min). It's now time for the "open space", that gives you an opportunity to discuss issues that have arisen, and to relate those to the broader context of the programme. Do not just gloss over this section, but make time to raise issues, and probe the progress that you are making. You could use this space to:

- Remind yourselves of the of the Most Significant Change Technique, and e.g. collect more of your stories.
- Discuss your assessment portfolios: Is there anything that you are unsure about? Is it going well? What could be done better?
- Check on the work with the classroom assistants: Is this going well? Are there any tensions? Any observations or tips you can share?
- Reviewing individual ICT practise (such as typing practise).
- If you are preparing a presentation for other teachers, you could work on the presentation (about what you have been learning, stories emerging from MSC).
- Remind those who are doing audio diaries, to upload them.
- You could discuss any other issues that have arisen.

3.1 - Group work Same task and different tasks group work

You will find notes and summaries of various techniques and concepts on our reference page, and you might want to refer to those for clarification during this activity if needed.

11 Follow-up activities

 **Agreeing follow-up activities** (5 min).

Part A: Carry out one same task group work and one different tasks group work in your classroom. You could use the questions that were formed during the above activity. Plan in advance:

- (a) how will you form the groups,
- (b) what will you do while pupils are engaged,
- (c) how will you ensure that all pupils are participating and
- (d) how will you encourage agreement, disagreement and negotiation?

Try out the numbering strategy for randomly selecting the presenter.

Part B: Can you suggest at least 3 other ways in which you might select group members at random for giving a presentation? If uncertain, refer back to strategies for increasing participation in answering questions from Unit 2, session 3, activity 5.

Part C: (optional) One volunteer from each group G1, G2 and G3 (formed during above activity) should post their questions on the Google groups for all participants. Other participants should reply with a comment when they have seen the questions.

Educator note

In the next session, these follow-up activities will be reviewed. If you are using this session on its own, you can have a look at the review of follow-up activities here.

Educator note

At the end of each session, we provide an overview of the activities in this session, together with their suggested timings. Although this appears at the end of the session (for technical reasons), you should keep an eye on this throughout the session, to make sure that you are pacing the workshop session appropriately!

Total time: 135 (min)

Activities in this session:

- **Whole group discussion** (10 min): *Concept mapping*
- **Observing, thinking, reflecting** (10 min): *Watching a slideshow on group work.*
- **Individual activity** (5 min): *Read the background text on same task group work and different tasks group work.*
- **Whole class dialogue** (10 min): *Discussion on group work.*
- **Same-task group work** (5 min) *on identifying group work activities used in the programme so far and thinking about why same task/different tasks.*
- **Observing, thinking, reflecting** (5 min): *Facilitator talk on modelling activities in workshop sessions.*
- **Group formation** (5 min) *by assigning numbers, and numbering group members.*
- **Same-task group work** (10 min): *Formulate open-ended questions.*
- **Same-task group work** (10 min): *Reporting back from group.*
- **Observing, thinking, reflecting** (10 min): *Video on group discussion.*
- **Observing, thinking, reflecting** (10 min): *Video on group discussion.*
- **Whole class dialogue** (10 min) *on teacher participation in group work.*
- **Whole class dialogue** (5 min) *on Etherpad.*
- **Different-tasks group work** (15 min) *with Etherpad.*
- **Open space**(10 min).

3.1 - Group work Same task and different tasks group work

- **Agreeing follow-up activities**(5 min).

If you have printed this session for offline use, you may also need to download the following assets:

- Unit 3.1 Group Work for Interactive Teaching.ppt (http://oer.educ.cam.ac.uk/w/images/a/a6/Unit_3.1_Group_Work_for_Interactive_Teaching.ppt)
- Unit 3.1 Group Work for Interactive Teaching.odp (http://oer.educ.cam.ac.uk/w/images/5/55/Unit_3.1_Group_Work_for_Interactive_Teaching.odp)
- Video/Pindi graphs 3.1-1.m4v (local play / download options)
- Unit 3.1 Group Work for Interactive Teaching.ppt (http://oer.educ.cam.ac.uk/w/images/a/a6/Unit_3.1_Group_Work_for_Interactive_Teaching.ppt)
- Video/Eness vertebrates 6.mp4 (local play / download options)
- Video/Eness vertebrates 7.mp4 (local play / download options)
- Video/New Abel clip 4.m4v (local play / download options)

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Categories: OER4S CPDCCEPrimaryTeacher EducationGroup work

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Session 3.2 - When to use group work and how to manage it

3.2 - When to use group work and how to manage it

Learning intentions and objectives.

In this session you will learn about:

- when and why to use group work in the classroom
- three different aspects of managing group work:
 - **group composition** and formation
 - **ground rules** during group work
 - group size and seating arrangement
- **"carousel"** group work (sometimes called a circus of activities) where different groups do the same activities but in a different order

Success criteria.

To meet the learning intentions you will:

- participate in a magic microphone reasoning activity, suggesting a specific example of when group work could be used in the classroom with reasons
- work as part of a small group on one aspect of managing group work and prepare and deliver a presentation on it to the whole group
- actively listen to other groups presentations on two other aspects of managing group work
- watch a video and discuss 'carousel' group work, thinking particularly about its use in a limited resource environment

ICT components.

The ICT components you will focus on are Classroom use of

- Geogebra,
- slideshows,
- (optional) concept mapping software.

Classroom based activities (with your students, after this session):

- You will do a lesson with your students that involves Geogebra, slideshows, or (optionally) concept mapping software.

1 Review of follow-up activities from last session

Edit this review section (http://oer.educ.cam.ac.uk/w/index.php?title=OER4Schools/Group_work_Same_task_and_different_tasks_group_work/review_of_follow_up&action=edit)

title=OER4Schools/Group_work_Same_task_and_different_tasks_group_work/review_of_follow_up&action=edit)

Educator note

If you are running a professional learning programme which follows these sessions in sequence, then you should do the review of follow-up activities relating to the previous session (Group work Same task and different tasks group work). The 'review of follow-up activities' for that session is available here, and also shown below in the session text. However, if you are following selected sessions in a different order, then you should use the reflection appropriate to the previous session you did.

The review of the follow-up activities for this session (to be done at the start of the next session) is available here.

3.2 - Supporting reasoning and managing group work

Whole class dialogue (10 min): *Review of follow-up activities* There were three tasks (one of which was optional) set as follow-up activities, which we will now review:

In Part A you were asked to carry out one same task group work and one different tasks group work in your classroom. As a group, draw out the variety of different approaches used for the following:

(a) how did you form the groups, (b) what did you do while pupils were engaged, (c) how did you ensure that all pupils were participating and (d) how did you encourage agreement, disagreement and negotiation?

Did you try out the numbering strategy for randomly selecting the presenter?

Part B: Share with the whole group any other methods that you used select group members at random for giving a presentation. Were your methods straightforward/successful/fun? Did you manage to get normally reticent students to take part?

Part C: Did anyone choose to post their questions on the Google groups for all participants? Those of you that posted/commented or replied, share with the others how you found the process and be prepared to answer any questions that other participants might have about the technicalities of the process.

2 Reinforcing understanding of group work: Using the Magic Microphone for reasoning

Individual activity (10 min) *on answering the question: 'When would you use group work in your classroom and why?'*. Think of answers to the question below. You can write them on a mini-blackboard or sheet of paper for reference during the activity. Think of as many answers as possible and **give a reason in each case**. (Tip: think of the Powerpoint presentation about questioning strategies that you saw in the previous session and draw on your own experience of carrying out group work in the classroom.)

QUESTION: When would you use group work in your classroom and why?

Give concrete examples of specific lesson activities where possible. For example:

- when a topic has many sub-topics **because** the sub-topics can be mastered by small groups and then taught to other groups, as in different types of pollution
- when summarising the topic that has extended over many lessons (give example) **because** pupils can remind each other about the things that they have learnt without repetition by the teacher
- when applications of a topic (give example) are being discussed **because** there can be many answers for this
- when practising a new skill (e.g. working out the average) to allow learners to learn from each other



Educator note

We did a simple version of the magic microphone activity in Unit 2 Session 1. Now we are taking this to the next level to explicitly promote **reasoning** among participants as well as pupils.

For this activity, you will need a prop such as a stick, a pen, a ball or an empty water bottle.

Allow 8-10 minutes thinking time before passing around the prop.

Magic microphone (5 min) *activity on group work*. Pass a prop around. Whoever has the prop answers the question above and gives their reason(s).

Educator note

3.2 - Supporting reasoning and managing group work

Ask every participant to contribute one answer initially, with a **reason**. Encourage them to avoid repeating an answer that has been already said. In the end, if time permits, you can ask participants to contribute any reason that they have written but has not yet been said by any other participant.

Emphasise that participants should give reasons for their answers or answer the 'why' question. Ideally they should mention a specific lesson topic example.

Some examples of expected answers are:


- when peers can be useful learning resources for each other
- to encourage sharing, reasoning and challenging of ideas
- to support pupils' construction and articulation of their own understanding of problems, processes or concepts
- when groups can usefully each contribute one part to a larger whole task
- when the teacher wants learners to investigate a topic for themselves and present their findings to the class for other groups to learn from, perhaps via comparison of findings
- when teacher attention is required for conceptual learning of a small number of participants at one time
- at any stage of the lesson: introduction, development and consolidation

If any of the points above are not mentioned by participants, you can state them in the end.

3 Managing group work


Educator note

Place three containers (or sheets of paper) on the table. Label them 'same task', 'different tasks' and 'both'.

 **Practical activity** (5 min): *Indicating your progress with group work*. Write your name on a slip (small piece) of paper and fold it. Drop your name slip in the 'same task' container if you are confident about carrying out same task group activity in the class. Similarly, drop it in the container 'different tasks' if you are confident about carrying out different tasks and 'both' container if you are confident about 'both'.

Educator note

Pull out one name from each container and group them together as Group 1 (G1). Similarly form groups G2 and G3. If there are too many names in one container and too few in another, adjust the numbers taken from each container whilst trying to maintain a level of similarity in group composition. The aim is to form groups that have the same level of 'expertise' in managing group work. Alternatively you could choose another strategy of forming groups from the document 'Group composition and formation'. Try to manage this process of forming groups swiftly.

 **Different-tasks group work** (20 min) *on managing group work in the classroom*. The three mixed groups will work on different aspects of managing group work in classroom. They are:

- G1: Group composition and formation (Group Composition and Formation.pdf (http://oer.educ.cam.ac.uk/w/images/4/44/Group_Composition_and_Formation.pdf) ^(info) (http://oer.educ.cam.ac.uk/wiki/File:Group_Composition_and_Formation.pdf))
- G2: Ground rules during group work (Ground Rules.pdf (http://oer.educ.cam.ac.uk/w/images/2/2c/Ground_Rules.pdf) ^(info) (http://oer.educ.cam.ac.uk/wiki/File:Ground_Rules.pdf))
- G3: Group size and seating arrangement (Group Size and Seating Arrangement.pdf (http://oer.educ.cam.ac.uk/w/images/c/c3/Group_Size_and_Seating_Arrangement.pdf) ^(info) (http://oer.educ.cam.ac.uk/wiki/File:Group_Size_and_Seating_Arrangement.pdf))

Read the document for your group. Do the group tasks mentioned in your document.

Group G2 will watch a video during their task.

3.2 - Supporting reasoning and managing group work

Group presentations (15 min) *on managing group work*. At the end, present what you have learned about managing group work for the benefit of other participants (see details in your document).

Educator note

VIDEO

Involving students in setting ground rules

How to Involve Students in Setting Up Their Own Ground Rules

About this video, 4:08, link to YouTube (<http://www.youtube.com/watch?v=uBk4Hq4IEx8&list=PLtf3oOEBE-EXgP2iN30V3UhcD8x54FGyO>) (local play / download options)(Series: Video from other organisations, episode N/A)

Before the session starts prepare this video clip for G2 to access on a netbook. Ask G2 members to sit near the netbook during the task.

Allow G1 and G3 participants to choose an area where they wish to work.

Distribute the document ‘

’ to G1, ‘

’ to G2 and ‘

’ to G3 at this stage.

Allow 30 minutes for the group tasks. After 20 minutes, remind the groups that they should start preparing their presentation if they have not already done so.

Visit each group during the group task. Assist them if they need help in understanding the information in the document or group task. Ask questions to monitor understanding. Suggest ideas only if the participants ask for your suggestions.

Ensure that all participants have all documents before the presentations at the end of this activity.

4 Classroom organisational strategies and carousel group work

Observing, thinking, reflecting (10 min): *Video on classroom organisational strategies and carousel group work*.

The video below shows some classroom organisational strategies mainly around

3.2 - Supporting reasoning and managing group work

The video below shows some classroom organisational strategies mainly around group work. We will watch the first 10 minutes of the video now and the rest can be watched after the session in participants' own time. Although the video describes science teaching in the UK context, the principles are generic and can be applied in various curriculum areas and contexts. The organisation called the 'circus of activities' is commonly known as a 'carousel' because the children move around the classroom like the hobby horses move around a carousel (see image).



Suggested questions for reflection on video:

- Summarise the **different classroom organisation strategies** that you saw in this video (in the first 10 minutes):
 - whole class introduction
 - whole class doing same practical activity
 - groups doing different practical activities
 - circus of activities or carousel of activities
- What is **one new thing that you have learned** from this video? How can you transfer what you have learned to another curriculum area besides science?
- What is the role of teachers before the group work and after the group work? Is it different from your current practice? If yes, in what ways is it different?
- What did the teachers in the video do while the pupils were doing group work? Is it different from your current practice? If yes, what changes, if any, would you like to make for effective group work in your class?
- What do you think about noise in the classroom during group work from this video? What can you do to make sure that noise is productive during group work?
- After the session, in your own time, summarise the **different classroom organisation strategies** that you saw in this video (in the second 10 minutes):
 - one group only doing science
 - whole class demonstration
 - sharing science books with the whole class
- How did the teachers in this video make **use of ICT resources during group work**? Suggest some ways in which you can use those or other ICT resources in your classroom? (You can also think of improvising with the materials available in your surroundings, if there is no ICT)

VIDEO

Primary Science

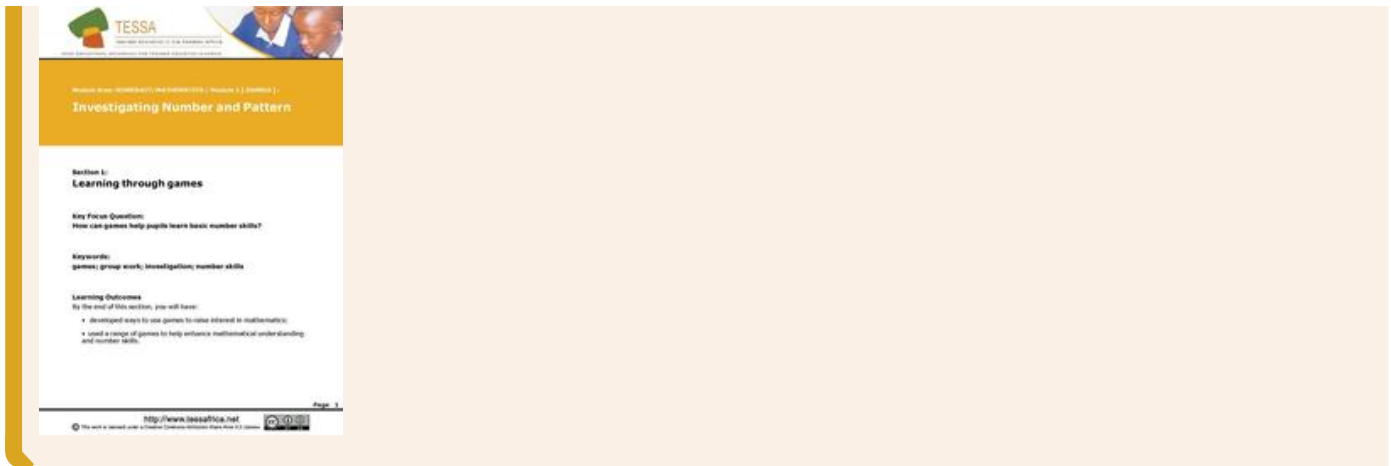
Primary Science - Classroom Organisation

About this video, 19:47, link to YouTube (<http://www.youtube.com/watch?v=Kz2c5OJ5Yx0&list=PLf3oOEBE-EXgP2iN30V3UhCd8x54FGyO>) (local play / download options) We are grateful to **Prof Tina Jarvis and colleagues** for permission to use this clip produced by the SCICentre (National Centre for Initial Teacher Training in Primary School Science).(Series: Video from other organisations, episode N/A)

Related resources

The **TESSA** resource *Investigating Number and Pattern : Learning through games* consists of five traditional number-based games that you can play with your students to help enhance their mathematical understanding. They range from mental arithmetic games played with the whole class to more complex board games to be played in groups as part of a carousel of number-based activities. Useful case studies and an interesting context (a story of a boy whose arithmetic improved because he entered puzzles into a competition) are also included with the resource.

3.2 - Supporting reasoning and managing group work



Whole class dialogue (10 min): *Discussion on Video on classroom organisational strategies and carousel group work.*

Educator note

Carousel^(a) group work is an important concept, for instance in situations where there are not enough ICTs available to 'go round'. Rather than distributing available ICTs 'thinly', you can do carousel group work instead. We have already alluded to this when introducing typing practice in the classroom.

The TESSA resource on learning through games contains cultural games that can be played in groups as a carousel of activities (meaning that only one of each game is required rather than a class set).

5 ICT practice: Different-tasks group work with ICT and activity planning

Different-tasks group work (20 min) *with GeoGebra.*

Continue to try out GeoGebra. How did the GeoGebra exploration go? How can you use GeoGebra in a lesson? Use the activity template to develop an activity as you continue exploring GeoGebra.


By now, you should aim to develop some familiarity with the ICT tools that we have introduced so far, namely GeoGebra and Open Office Impress (for images), and also make progress with your typing practise. You can refer back to the introduction to GeoGebra, introduction to slideshows with OpenOffice, and typing practice with students.

Educator note

Learning about GeoGebra, Open Office Impress, and attaining reasonable typing skills are key goals for this programme. As participants practise these skills, go around the room and see whether you can identify problems.

6 Connecting with overarching goals of the programme

3.2 - Supporting reasoning and managing group work

 **Open space** (10 min). It's now time for the "open space", that gives you an opportunity to discuss issues that have arisen, and to relate those to the broader context of the programme. Do not just gloss over this section, but make time to raise issues, and probe the progress that you are making. You could use this space to:

- Remind yourselves of the of the Most Significant Change Technique, and e.g. collect more of your stories.
- Discuss your assessment portfolios: Is there anything that you are unsure about? Is it going well? What could be done better?
- Check on the work with the classroom assistants: Is this going well? Are there any tensions? Any observations or tips you can share?
- Reviewing individual ICT practise (such as typing practise).
- If you are preparing a presentation for other teachers, you could work on the presentation (about what you have been learning, stories emerging from MSC).
- Remind those who are doing audio diaries, to upload them.
- You could discuss any other issues that have arisen.

You will find notes and summaries of various techniques and concepts on our reference page, and you might want to refer to those for clarification during this activity if needed.

7 Follow-up activities

 **Agreeing follow-up activities** (5 min).

Part A: Try the magic microphone activity with **reasoning** in your class. Form an open question that is related to the topic that students are learning followed by 'why'. Encourage students to answer the 'why' question.

Part B: During the second activity you read one document on managing group work. Read the other two documents. Make a note of any questions that you might have about them. List examples of objectives that can be achieved through different types of groups in the document 'Group composition and formation'.

Part C: Try one new organisational strategy that you saw in the video in your classroom, in any curriculum area.

Part D: Watch the rest of the video on carousel group work and complete the remaining questions.

Educator note

In the next session, these follow-up activities will be reviewed. If you are using this session on its own, you can have a look at the review of follow-up activities here.

8 Acknowledgement

We are grateful to **Prof Tina Jarvis and colleagues** for permission to use their Primary Science - Classroom Organisation video, produced by the SCICentre (National Centre for Initial Teacher Training in Primary School Science).

Educator note

At the end of each session, we provide an overview of the activities in this session, together with their suggested timings. Although this appears at the end of the session (for technical reasons), you should keep an eye on this throughout the session, to make sure that you are pacing the workshop session appropriately!

Total time: 120 (min)

Activities in this session:

- **Whole class dialogue** (10 min): *Review of follow-up activities*
- **Individual activity** (10 min) on answering the question: *'When would you use group work in*

3.2 - Supporting reasoning and managing group work

your classroom and why?' .

- **Magic microphone** (5 min) *activity on group work.*
- **Practical activity** (5 min): *Indicating your progress with group work.*
- **Different-tasks group work** (20 min) *on managing group work in the classroom.*
- **Group presentations** (15 min) *on managing group work.*
- **Observing, thinking, reflecting** (10 min): *Video on classroom organisational strategies and carousel group work.*
- **Whole class dialogue** (10 min): *Discussion on Video on classroom organisational strategies and carousel group work.*
- **Different-tasks group work** (20 min) *with GeoGebra.*
- **Open space**(10 min).
- **Agreeing follow-up activities**(5 min).

If you have printed this session for offline use, you may also need to download the following assets:

- Group Composition and Formation.pdf (http://oer.educ.cam.ac.uk/w/images/4/44/Group_Composition_and_Formation.pdf)
- Ground Rules.pdf (http://oer.educ.cam.ac.uk/w/images/2/2c/Ground_Rules.pdf)
- Group Size and Seating Arrangement.pdf (http://oer.educ.cam.ac.uk/w/images/c/c3/Group_Size_and_Seating_Arrangement.pdf)
- Video/How to Involve Students in Setting Up Their Own Ground Rules.mp4 (local play / download options)
- Video/Primary Science - Classroom Organisation.mp4 (local play / download options)

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[title=OER4Schools/Supporting_reasoning_and_managing_group_work&oldid=21297](http://oer.educ.cam.ac.uk/w/index.php?title=OER4Schools/Supporting_reasoning_and_managing_group_work&oldid=21297)"

Categories: OER4S CPDCCEPrimaryTeacher Education

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Session 3.3 - Mixed pace group work with and without ICT

3.3 - Mixed pace group work with and without ICT

Learning intentions and objectives.

In this session you will learn about:

- **pace grouping** and its effect on students
- strategies to discourage copying during mixed pace group work
- **differentiation** by
 - task
 - support
 - outcome

as ways of allowing students to access work at their level and ensuring that all students produce results and progress in their learning

Success criteria.

To meet the learning intentions you will:

- listen to teachers talking about their experiences of using pace groups and discuss
- discuss strategies to discourage copying by students during mixed pace group work
- read some background text on differentiation and consider if its use might enable teachers to set high expectations of all students
- plan to teach a mixed pace group work activity with ICT

ICT components.

The ICT components you will focus on are

- Planning of another lesson with ICT (Geogebra / Slideshow / Concept mapping)

Classroom based activities (with your students, after this session):

- you will ...



1 Review of follow-up activities from last session

Edit this review section (http://oer.educ.cam.ac.uk/w/index.php?title=OER4Schools/Supporting_reasoning_and_managing_group_work/review_of_follow_up&action=edit)

Educator note

3.3 - Mixed pace groupwork with and without ICT

If you are running a professional learning programme which follows these sessions in sequence, then you should do the review of follow-up activities relating to the previous session (Supporting reasoning and managing group work). The 'review of follow-up activities' for that session is available here, and also shown below in the session text. However, if you are following selected sessions in a different order, then you should use the reflection appropriate to the previous session you did.

The review of the follow-up activities for this session (to be done at the start of the next session) is available here.

Whole class dialogue (10 min): *Review of follow-up activities* There were four tasks set as follow-up activities, which we will now review:

- **Magic microphone.** Did you try this activity? What was the open question that you used?
- Share your list of **examples of objectives that can be achieved through different types of groups**
- Do you have any questions that arose from reading the documents?
- Did you try the **new organisational strategy** put forward? Share your experiences with the group!

2 Pace grouping

Individual activity (10 min): *Listen to a podcast on pace grouping.* Listen to the podcast and discuss the ideas that arise. A transcript is provide to aid discussion and guiding questions are included below. Make sure you read the guiding questions **before** reading the transcript, as this will help you in analysing the transcript.

Whole class dialogue (10 min): *Discussion of transcript.* Discuss the transcript, together with the following questions:

- Is your experience of grouping in the classroom similar or different to Agness's experience (before she tried the new way of grouping)? Give specific examples.
- Some people worry that in mixed groups those who work at a slower pace, or are less motivated, or less proficient in the language of instruction, or less skilled at the task (including slower at typing in ICT-supported lessons), might "coast" and allow others to do the work because they cannot keep up with their peers, or they might copy. What do you think about that?
- What do you think about Agness's idea that pupils should be asked to hide their work and then show it to the teacher by using the mini-blackboards as "showboards", to discourage **copying** during group work?
- What do you think about Brian's idea of singling out pupils who copy, for example asking them a question or asking them to "show the class"?
- What could be other ways to prevent copying, "coasting" or "free-riding" during mixed group work?



Educator note

During discussion of the last question, probe the participants to think of:

- ideas during group work that focus on learning of new concepts. This is because the issue of copying generally arises when group work focuses on 'drill and practice' of what has already been learnt. There could be other 'free-rider' issues that participants have experienced and may have ideas for discouraging them
- the usefulness of 'ground rules' (introduced in session 3.2) in this context.
- Slavin's criterion that groups must take responsibility for ALL members' learning and they must make sure everyone understands, if participants do not mention this themselves; ask them if that overcomes some of the problems with slower learners not keeping up or contributing enough?
- assigning different roles within a group (likewise, participants might mention this, if not you can raise it).

3.3 - Mixed pace groupwork with and without ICT

Agness talks about pace grouping.mp3

The description of the video

Agness talks about pace grouping.mp3, 1:23,(Series: OER4Schools audio, episode N/A)

”OER4schools Extract from workshop 4th June 2011: Agness Tembo talking about pace grouping”

Agness: It was a . . . a successful lesson to see what the pupils did in their exercise books. Yes. Most of them got everything. It was only three or four pupils in Banana Group, they didn't do well and . . . she even asked me and I said, I think those numbers, they are big for them because they are slow in maths. So, I tried to give the exercises using smaller numbers so that they know the concept. Ah yes.

Brian: What was in the lesson? What . . . what programme did you base this on?

Agness: I remember, at first, something that was the fun addition using a number tree. There was a number down there, a bigger number and then there were some branches. Beside one branch there was one number, the other branch was the other number so others could add that number and the number at the bottom and they could find the long number. So that was a challenge so I had to go around to tell them that this number, which you have here, you have to subtract it from this number at the bottom for you to find it . . .the missing number.

. . .So I noticed that in two groups. So I had to go there and explain. . . They did know that it was addition but in actual sense it was subtraction for them to find another answer. So that was a challenge, yes. Because I remember in the other group [one learner] said 'Teacher I'm through... If I go there, I could find the bigger ... ' I said 'No, you add when you want to check that the answers are correct. If after adding, you're going to find this bottom number.' So that was the challenge. Addition but it was subtraction, in actual sense.

Brian: Was it that you were reading the lesson or did . . . they did most of the things themselves?

Agness: They did most of the things on their own. Writing numbers. . . I did not tell them and then they could give their friends the calculators, they could find the answers. The only part which, using the calculator, the Banana Group, they could press the numbers and then when they pressed on minus they wanted to see actual minus there. . . 'Teacher there is no minus here.' It is not shown so they continued pressing on that. So, I went there, I said 'No, minus, it won't be shown here, just continue pressing the numbers, it will give you the answer.' Those challenges were there. Yes.

Maud: Oh Banana Group. (laughs) Isn't that where you put all your slow learners . . . in the Banana Group?

Agness: Yes, we have put them according to pace group. Yes, so that is what is encouraging in their first time in education. First when they come, the first time we meet, I let them sit according to their play group. After that, after assessing now, you put them according to their pace group because they say maybe if a dull person is mixed with those very intelligent they won't participate the same. So, it's better you have them on their own. . .

Brian: Do you find any from that pace group joining another group?

Agness: They do. Every time when you come in [they've moved]: 'Go back to your places.' They change.

Brian: Why can't you allow them to remain there instead of . . .

Agness: No. The rule is that those slow learners should be nearer the teacher . . . because if you get a slow learner and you put him at the back, truly it will be difficult for you to monitor that pupil every time. So, always the slow learners should be near the teacher. So that even if you are seated you can see what that pupil is doing.

Copying

Ivy: Sometimes maybe mixing slow learners and fast learners [is good] but the thing is slow learners will copy from their friends. They will get everything correct but they don't know. . . so it's better slow learners are in their own group.

Agness: But in... in the interactive way, yes, copy it's there but it depends also on the teacher. I remember in my lesson, one said 'Teacher! This one is not doing anything. She just wants to see what we're doing.' I went there and physically said 'Can you give the calculator to her? Tell her what is your lesson? Can you... place all eight? They are all there teaching the writing to their friend. So it depends with you as a teacher. If you just direct them, truly, they'll copy.

I remember. . . the science lesson on the rocks weathering. . . I gave them the [mini] whiteboard. 'Can you draw what you learnt in the last lesson?' One [child] drew the sun very fast and he said 'Teacher! I am finished!' So I noticed that [others then drew the same] and I said 'when you are finished don't show me, put it upside down.

3.3 - Mixed pace groupwork with and without ICT

That's what they did.


Only two drew the river, the rest drew the sun. So, I thought, ok, they're copying, fine. 'When you find the answer, put your whiteboard upside down'. And they are there, struggling. And most of them were able to find the answers. I said 'Can I see?' and all of them did this [held up the boards at the same time]. So that's what I am saying: you as the teacher should have different methods. You should vary, not stick to one method.

Brian: We don't talk about copying. If one is copying, you just come, you wait and have them 'Show me or show the class'. And that's what I'm asking.

3 Discussion of pace groups: Judith's division lesson

Educator note

Participants watch video, and then discuss.

 **Observing, thinking, reflecting** (10 min): *We now watch two videos, to do with the pace grouping.*

Video 1: Judith's division lesson Judith carried out a lesson that consisted of group work on solving four questions to practice division, besides other activities. The children worked in "pace" or "ability" groups. She encouraged group responsibility of solving the problems as well as reporting of answers by group secretaries. She also invited pupils to explain how they arrived at the answers. In the end, Judith made the outcome of the group task transparent by listing the answers of all groups on the blackboard. She also involved pupils in assessing their own answers and pupils' involvement in it. In the following clip, she is checking the groups' answers on the board and finds that a group of "slow learners" has scored 0 correct.

VIDEO

Division scoring

Judith's lesson: Division scoring (short clip)

About this video, 0:37, link to YouTube (http://www.youtube.com/watch?v=a39qxJBA5_Q&list=PLtf3oOEbE-EUWzUGK3mlewZAtwxnyD30v) (local play / download options)(Series: Judith Division, episode N/A)

Video 2: Workshop. Judith and others discussing mixed pace grouping and change in practice: In the this extract from a teacher workshop 2 days after this lesson, Judith discusses this episode and the notion of pace grouping with her colleagues. They agreed that the teacher's role was to indicate that laughing at peers was unacceptable, and also that government policy for pupils to work in pace groups was problematic. Note: Since the time of recording this, mixed ability groupings have become a requirement of the Zambian education policy and are not solely something advocated by the OER4Schools programme.⁷.

VIDEO

Reflection on pace groups

Reflection on Judith's lesson in the workshop: Pace groups. Note: Since the time of recording this, mixed ability groupings have become a requirement of the Zambian education policy and are not solely something advocated by the OER4Schools programme.

About this video, 3:49, link to YouTube (<http://www.youtube.com/watch?v=vwKmPn1hqD8&list=PLtf3oOEbE-EUWzUGK3mlewZAtwxnyD30v>) (local play / download options)(Series: Judith Division, episode N/A)

3.3 - Mixed pace groupwork with and without ICT

Workshop transcript for the above video.

Judith: That was the group which is the slow learners, that group which [scored] zero.

Melissa: But these students, do they usually laugh at their friends?


Judith: They feel like laughing but I rebuke them. Eventually, they catch up as well. But some, they try. Otherwise it is a good idea to mix up the groups because those who are slow will remain slow. Those have accepted that we are known to be slow learners. So usually they don't mind. But if they're mixed, although the clever ones may dominate, they can help. It's a good idea what she says. So that the policy of the government, it confuses us. When we are teaching ICT we can mix them. But when it comes to normal teaching, they say 'put them in their ability groups'. (Note: In Kenya, there is currently no government policy, either to encourage or discourage pace or ability grouping.)^K

Priscilla: I just wanted to relate something that happened to me concerning the teaching of children according to their abilities. I taught at a private school where we were encouraged to do that. We received people from the Ministry who really emphasised the teaching of children according to the ability of this, the ability of that. The underachievers are lonely, and stuff like that. You know it was quite a challenge because we asked them how we are going to conduct activities in such a classroom with children put according to... What you do is, you have to devise work for each group who come up with their own work. One topic that you find different work for the different abilities that you have in class. For the best you give them tough work, for the underachievers you try as much as possible to simplify that work. But they come up with whatever [they can].... But it was a challenge. I had about four groups of different levels so I had to write for the best, [then] the other group that followed them and right up to the last group. So it was difficult for me to prepare for this group and that group, just like that.

So we found it a challenge ... we reverted to the old system of mixing up children. Because another challenge which was there was the best group would always laugh at them and that is inevitable when you put the best children on their own, definitely they will be able to laugh at their friends and for the underachievers, it was quite difficult for them to even take part because they always feel they are underachievers, they couldn't do anything. So I think I concur with what she's saying. Mixing up children really helps. As a teacher, I have to be there, making sure that even those that are performing at their best, they don't laugh at their friends. Such things are there in the classroom: when somebody tries to give an answer, the best student laughs at the underachiever. So there you have to come in, as teachers, you have to make sure you discipline such a child.

Aggie: The challenge mainly is in the exam. We do not have an exam for the slow learners. So it's better we group everyone.


Teachers: Yes.

 **Whole class dialogue** (10 min): *On pace groups.* Discuss your own ideas on pace grouping along with those views expressed and issues raised in the two videos you have just watched.

4 Further reading

Educator note

Participants read this section.

 **Observing, thinking, reflecting** (10 min): *We now read a short text about the issue of pace grouping and differentiation by task.*

Background reading

Scenarios where students within one class are grouped according to the pace at which they work (pace grouping) and set non-differentiated tasks i.e. the same task regardless of their pace of working, can have unfortunate consequences such as those illustrated in the video clip of Judith's lesson on division. Students in the slower pace group failed to get any useful results and for this they were laughed at. One way of ensuring that students in all groups have the opportunity of succeeding at a task is to offer different groups different tasks based on their pace of working. This is called **differentiation by task**.

3.3 - Mixed pace groupwork with and without ICT

There are a number of issues raised about pace groups and differentiation by task:

- practical difficulties
- challenge for teacher of devising several tasks
- students that work at a slower pace may be ridiculed
- challenge of same assessment for all

It need not be necessary to set entirely different tasks for different groups. For example, in a maths lesson, all groups could be set questions on multiplication, with the students who are working at a slower pace being given fewer questions.

A very important point to consider in all of this is that “pace” or “ability” is variable and can grow; pupils underachieve for lots of reasons, including absenteeism as in Judith’s group, and lack of home support. But their achievement levels may rise if expectations are high and support is given. As a consequence, **a teacher needs to provide for all students to develop their ability to the next level and beyond.** Pupils should always have a next step and a new *challenge* to move on to. Whatever level a learner is at, they can *stretch* themselves and you can *support* them to improve it.

Differentiation by support is a refinement of differentiation by task and involves different levels of support being given to different groups according to their ability as all groups work on the same/a similar task. For example, lower achieving students may be given more information to help them solve a problem or they may have access to workbooks or text books. They could also be given resources that make it easier for them to complete a problem or the teacher could choose to work with one particular group whilst other groups work independently.

Differentiation by outcome^(a) occurs when students do the same task but they respond differently, reach different levels and produce a variety of results. The task needs to be open-ended for this to work; it should allow learners to explore and be original. It can be done with ICT or without but it needs a clear time frame. For example:

- collaborate to write a story or a report (using Etherpad)
- create a piece of art with the title “new beginning”
- investigate how plants grow

One way to allow students to access work at their level and ensure that students produce results is to assign 'must, should, could' criterion for success along with learning objectives. So, if we consider the example of 'collaborate to write a story or a report (using Etherpad)', the differentiated success criteria might be:

- all students **MUST** give their work a clear title and write one paragraph consisting of 5 correctly formed sentences
- some students **SHOULD** make sure to use powerful verbs in their writing
- a few students **COULD** use direct speech to make their piece more interesting


Students could work in mixed pace groups encouraging each other to achieve their respective goals.

Teachers should emphasize that they want students to progress and be challenged appropriately so that no student stops working once they have achieved the minimum criterion for success. We will consider success criteria again in a future session.

In summary:

- Set clear expectations of appropriate kinds of outcomes (consider using **MUST**, **SHOULD**, **COULD**)
- Challenge and support students to reach the highest level they possibly can (consider using Traffic Lights with students so that they can indicate how they are finding the work)

Acknowledgement: Some of these ideas derive from the Differentiation Pocketbook by Peter Anstee. Teachers' Pocketbooks, Alresford, Hampshire, UK.

 **Whole class dialogue** (10 min): *Discussion on differentiation.* There is research evidence to show that teachers' expectations of students can influence how students perform. Consider this in the context of pace groups and differentiation:

- Can differentiation be used successfully by teachers to set high expectations of all students?
- Will this be easier or more difficult to achieve by using pace groups?

5 Judith's workshop reflections on pace groups

Educator note

Continue with reading, and listening to the clips.



Observing, thinking, reflecting (10 min): *We hear more about Judith's reflections on pacegroups. We now listen to two clips that follow on from the experiences in Judith's lesson. Later in the OER4Schools workshop Judith indicated how her thinking had changed through discussion with her peers, illustrating her open mind and flexibility as a reflective teacher:*

"I have learnt from that to say, so those if they remain like that [slow learners together], they will remain like that forever. They can never learn anything from others. So the best I can do, just the way we have been discussing, to say, it's better to mix them so that, at least, even them can learn something from the rest of the group. So to me this is an advantage I have gained."

In a subsequent interview Judith was probed to elaborate and reflect further on the incident when pupils laughed at the group of learners working at a slower pace. She concluded that mixed pace grouping would be better than same pace grouping. Listen to these 2 very short excerpts from that interview.

Judith's Interview - Clip 1:

AUDIO

Judith interview clip 1 fine.mp3

The description of the video

Judith interview clip 1 fine.mp3, 1:23,(Series: Judith Division, episode N/A)

Transcript for clip 1: We have learned that if we mix them up then it is to the advantage of the slow learners because they are able to learn from their friends because when they are bringing group work every child will want to participate in group work. So, through interactive ICT, which we have learned, it is really helping pupils to share more ideas, including those who used to be idle. They are able to participate now. At a certain point sometimes, it is even them [idle pupils] now, who report, in their groups if the work is to report after finding the answers, they even get it and they report also. So, they are participating. It is helping every child in the class. Yes.

Judith's Interview - Clip 2:

AUDIO

Judith interview clip 2 fine.mp3


The description of the video

Judith interview clip 2 fine.mp3, 1:23,(Series: Judith Division, episode N/A)


Transcript for clip 2: The government has a policy whereby children have to be put in ability groups. So that time, when you came, the children were in their own ability groups. Yes. So, they worked according to their ability groups. So those four, because I put them into fours, but in that group of slow learners they are not only four, they are nine. But, the others within their group, the other group who have stayed the other side, they managed to get

3.3 - Mixed pace groupwork with and without ICT

everything correct. But those four, they failed. The other contributing factors, those four who stayed alone, they usually don't come to school. Yes, they absent themselves. (Note: In Kenya, there is currently no government policy, either to encourage or discourage pace or ability grouping.)^K

 **Whole class dialogue** (10 min): *Discussion of the audio clips.* What do you think about this? Do you think that students working at a slower pace could benefit from working in mixed pace groups? Discuss.

6 Planning a mixed pace group work with ICT task

 **Same-task group work** (20 min): *Planning a mixed pace group work with ICT task.* You now have an opportunity for planning an activity using the activity template.

- Devise an open activity where groups have a shared goal and where outcomes may differ between groups, for a lesson you are teaching next week.
- Decide group size and how you will formulate groups so that they are made up of students working at different paces (look back at documents from Session 3.2 if you need to).
- How will you ensure everyone participates and everyone learns? How will you stretch all learners?
- **Explicitly ask groups to make sure everyone understands the new concept or process; make it their responsibility to support each other and check this is happening.**
- Assign different roles within the group.


Educator note

Explicitly ask groups to make sure everyone understands the new concept or process; make it their responsibility to support each other and check this is happening.

On the above point, make sure to point out to participants that students are quite happy to help each other in this way and that sometimes they will even go above and beyond just helping each other in the classroom. The following quote from a teacher on the programme illustrates the point quite well:

When I was doing the leadership for learning, so I say if you find that your friend hasn't done well, create a situation whereby that person will have work to do at home, then you check the following morning. So it has continued just like that in class, yes, so they are used to doing it.

7 ICT practice: Different-tasks group work with ICT and activity planning

 **Different-tasks group work** (20 min) *with ICT on spreadsheets.* As usual, you now have an opportunity to work on your own ICT skills. In this session, we continue with spreadsheets in OpenOffice Calc or GeoGebra. We have done some of the earlier spreadsheet exercises from the list below already. See which ones you have mastered and which ones require further work. Also try out some new ones. As before, work in pairs, help each other and help other groups.

This activity will orientate you to make use of OpenOffice for creating spreadsheets and databases which can be useful for investigating maths and science problems. You will need to access a computer/laptop/netbook and internet. Access a web browser and navigate to this page: <http://inpics.net/calc.html>

We suggest that you go through some of the exercises on the page in this order:

1. Basic Calculations

- Add (<http://inpics.net/tutorials/calc2/basics13.html>)
- Subtract (<http://inpics.net/tutorials/calc2/basics21.html>)
- Multiply (<http://inpics.net/tutorials/calc2/basics24.html>)
- Divide (<http://inpics.net/tutorials/calc2/basics28.html>)

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- Calculate averages (<http://inpics.net/tutorials/calc2/basics31.html>)
- Find the maximum value (<http://inpics.net/tutorials/calc2/basics35.html>)

2. Formatting Worksheets

- Format text (<http://inpics.net/tutorials/calc2/format2.html>)
- Format cells (<http://inpics.net/tutorials/calc2/format11.html>)
- Adjust columns and rows (<http://inpics.net/tutorials/calc2/format23.html>)
- Print worksheets (<http://inpics.net/tutorials/calc2/format28.html>)

3. Manipulating Data

- Move, copy, and paste (<http://inpics.net/tutorials/calc2/data2.html>)
- Add / delete columns (<http://inpics.net/tutorials/calc2/data12.html>)
- Add / delete rows (<http://inpics.net/tutorials/calc2/data18.html>)
- Employ multiple worksheets (<http://inpics.net/tutorials/calc2/data23.html>)
- Employ AutoFill (<http://inpics.net/tutorials/calc2/data26.html>)
- Insert / delete worksheets (<http://inpics.net/tutorials/calc2/data32.html>)

4. Advanced Calculations

- Create formulas across worksheets (<http://inpics.net/tutorials/calc2/calc2.html>)
- Employ absolute references (<http://inpics.net/tutorials/calc2/calc8.html>)
- Employ the function wizard (<http://inpics.net/tutorials/calc2/calc17.html>)


5. Making Data Visible

- Add notes (<http://inpics.net/tutorials/calc2/vis2.html>)
- Freeze panes (<http://inpics.net/tutorials/calc2/vis5.html>)
- Create charts (<http://inpics.net/tutorials/calc2/vis9.html>)

You can print this content on a separate sheet here: [OER4Schools/Spreadsheet exercises](http://OER4Schools/Spreadsheet%20exercises).

As you work on your ICT skills, you should think about planning another lesson with ICT (involving spreadsheets, GeoGebra, slideshows, concept mapping). Remember to keep up the **typing tutor** practise too!

8 Connecting with overarching goals of the programme

 **Open space** (10 min). It's now time for the "open space", that gives you an opportunity to discuss issues that have arisen, and to relate those to the broader context of the programme. Do not just gloss over this section, but make time to raise issues, and probe the progress that you are making. You could use this space to:

- Remind yourselves of the of the Most Significant Change Technique, and e.g. collect more of your stories.
- Discuss your assessment portfolios: Is there anything that you are unsure about? Is it going well? What could be done better?
- Check on the work with the classroom assistants: Is this going well? Are there any tensions? Any observations or tips you can share?
- Reviewing individual ICT practise (such as typing practise).
- If you are preparing a presentation for other teachers, you could work on the presentation (about what you have been learning, stories emerging from MSC).
- Remind those who are doing audio diaries, to upload them.
- You could discuss any other issues that have arisen.

You will find notes and summaries of various techniques and concepts on our reference page, and you might want to refer to those for clarification during this activity if needed.

9 Follow-up activities

 **Agreeing follow-up activities** (5 min).

Part A: Try out your group work with ICT. Video some of the group work if you can (ideally a colleague can do this for you so they can capture you as well as the pupils) and upload it to the server.

Part B: Remember to think about your own role in the classroom; it is not just to monitor progress but also to interact with pupils, assess their understanding, offer support and help move their thinking forward. Sometimes a group will even need you to sit with them and offer intensive support to progress. Think about how you can identify this need?

Educator note

In the next session, these follow-up activities will be reviewed. If you are using this session on its own, you can have a look at the review of follow-up activities here.

Educator note

At the end of each session, we provide an overview of the activities in this session, together with their suggested timings. Although this appears at the end of the session (for technical reasons), you should keep an eye on this throughout the session, to make sure that you are pacing the workshop session appropriately!

Total time: 145 (min)

Activities in this session:

- **Whole class dialogue** (10 min): *Review of follow-up activities*
- **Individual activity** (10 min): *Listen to a podcast on pace grouping.*
- **Whole class dialogue** (10 min): *Discussion of transcript.*
- **Observing, thinking, reflecting** (10 min): *We now watch two videos, to do with the pace grouping.*
- **Whole class dialogue** (10 min): *On pace groups.*
- **Observing, thinking, reflecting** (10 min): *We now read a short text about the issue of pace grouping and differentiation by task.*
- **Whole class dialogue** (10 min): *Discussion on differentiation.*
- **Observing, thinking, reflecting** (10 min): *We hear more about Judith's reflections on pacegroups.*
- **Whole class dialogue** (10 min): *Discussion of the audio clips.*
- **Same-task group work** (20 min): *Planning a mixed pace group work with ICT task.*
- **Different-tasks group work** (20 min) *with ICT on spreadsheets.*
- **Open space**(10 min).
- **Agreeing follow-up activities**(5 min).

If you have printed this session for offline use, you may also need to download the following assets:

- Video/Judith division scoring short.m4v (local play / download options)
- Video/Workshop 21-3 pace groups.m4v (local play / download options)

Retrieved from "http://oer.educ.cam.ac.uk/w/index.php?title=OER4Schools/Mixed_pace_groupwork_with_and_without_ICT&oldid=21285"

Categories: OER4S CPDCCEPrimaryTeacher EducationOER4Schools ZambiaOER4Schools Kenya

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Session 3.4 - Talking points and effective group work

3.4 - Talking points and effective group work

Learning intentions and objectives.

In this session you will learn about:

- using **talking points** to support productive, open-ended discussion
- effective group work practices including team-building
- reflective practices and **being critical** to get the most from activities

Success criteria.

To meet the learning intentions you will:

- discuss group work using talking points
- devise some talking points for a classroom activity
- plan the activity to include team building
- do the activity and prepare to feedback reflections next session
- analyse another teacher's reflective practice and look at ways of improving how we reflect

ICT components.

The ICT components you will focus on are

- Planning of another lesson with ICT (Geogebra / slideshow / concept mapping / spreadsheets), for open-ended tasks

Classroom based activities (with your students, after this session):

- you will ...

1 Review of follow-up activities from last session

Edit this review section (http://oer.educ.cam.ac.uk/w/index.php?title=OER4Schools/Mixed_pace_groupwork_with_and_without_ICT/review_of_follow_up&action=edit)

Educator note

If you are running a professional learning programme which follows these sessions in sequence, then you should do the review of follow-up activities relating to the previous session (Mixed pace groupwork with and without ICT). The 'review of follow-up activities' for that session is available here, and also shown below in the session text. However, if you are following selected sessions in a different order, then you should use the reflection appropriate to the previous session you did.

The review of the follow-up activities for this session (to be done at the start of the next session) is available here.

Did you try out the group work with ICT activity that you planned?

- How did it go?
- Were there any practical difficulties? If so, how did you overcome these?
- How did the students respond to the activity?
- What would you do differently if you did this activity again?

Did anyone manage to video some of the group work and upload it to the server?

- Discuss any difficulties you had with this.

Educator note

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If participants have uploaded some video of their group work with ICT activity, find time to watch and discuss it during this session, bearing in mind these guidelines for the activity :


- Devise an open activity where groups have a shared goal and where outcomes may differ between groups, for a lesson you are teaching next week.
- Decide group size and how you will formulate groups so that they are made up of students working at different paces (look back at documents from Session 3.2 if you need to).
- How will you ensure everyone participates and everyone learns? How will you stretch all learners?
- **Explicitly ask groups to make sure everyone understands the new concept or process; make it their responsibility to support each other and check this is happening.**
- Assign different roles within the group.

2 More on pace grouping

Educator note


We will consider further Judith's video clips on pace grouping from the previous session. Remind participants of the contents of those clips and pick up the discussion with the following two activities.

If these ideas have already been covered as a result of discussions in the last session, then just review the key issues.

 **Same-task group work** (10 min): *Discussion in pairs on pace grouping.* Consider the following statements and associated questions for reflection on Judith's clips from the previous session:

In this interview Judith informed us that there were 9 slow learners in her class and only 4 formed a slow pace group; these 4 scored 0 but the other 5 were dispersed in other groups who got correct answers to the same problems. This indicates that not only is *participation* higher in mixed pace groups but *achievement* can be too (and research with bigger samples backs this up). Nevertheless, the 4 who achieved poorly were also regularly absent so their prior knowledge base was probably lower. Discuss: **Do you think this means that the absentees are even more likely to benefit from peer interaction in a mixed group?**

Judith was quick and effective at discouraging pupils from laughing at the low achieving group. Discuss: **What other things could a teacher do during the lesson to prevent this situation?**

 **Same-task group work** (10 min): *Further small group discussion on pace grouping.* Suggested questions for reflection on both examples (on the audio and video clips from Agness and Judith):


- What in your opinion is the effect of labelling groups as low, middle or high ability of the pupils?
- How would you like to form groups supportive of everyone's learning? Why?

Educator note

Additional things to consider:

- helping low achieving group while everybody else is working in their groups
- peer support within a mixed pace group
- assigning roles within group

3 Talking points on statements about group work

 **Whole class dialogue^(a) with talking points^(a)** (15 min): *Discussing statements about group work.* Discuss (in groups of 4 or 5 for the first 5 minutes) whether the following statements about group work (talking points) are 'true', 'false' or 'not

3.4 - Talking points and effective group work

sure'. **Explain your reasoning.** Tick ("V") if your group agrees that they are true, cross ("X") if your group agrees that they are false and question mark ("?") if your group is not sure.

- Group work **should** finish in one lesson.
- Groups should be formed with the **same** pupils every time.
- Teacher should assist pupils for effective group work.
- **All** pupils in the group should be active during group work.
- Noise is **not acceptable** during group work.
- Agreements and disagreements are inevitable during group work.
- Mixed pace groups are better than same pace groups.
- Group work should **always promote** competition amongst different groups.
- Group work by pupils is free time for the teacher.
- Effective group work needs planning and preparation by the teacher before the lesson.

Discuss (as a whole group for the next 10 minutes) each talking point mentioned above. Each group should be prepared to explain their stance on any point, giving their reasons.

Educator note

Circulate during the first 5 minutes and listen for lively discussions that you can refer to during the whole class dialogue. Remember, be selective when taking feedback from groups. Ask questions like:

- Does any group disagree with what this group has said?
- Does any group feel particularly strongly about any of the talking points?

Use the responses to these types of questions to build the whole group discussion/whole class dialogue.

Expect disagreements amongst groups about certain talking points. This is actually productive for the whole group as it promotes further discussion.

Encourage reasoning for all talking points. Get participants to explain **why** they agree or disagree with something?

Finally explain the concept of talking points: The above points stimulated participants discussion about group work. In the same way, you can use talking points in the classroom, e.g. when discussing a science topic.

Also remind the participants of the idea of "modelling": We use similar techniques in the workshops sessions to what we would use in the classroom.

4 About talking points

Background reading

Talking points

What are they?


Talking points are deliberately thought-provoking statements for discussion and reasoning in small groups.

Why use them?

Research shows that using talking points is an effective strategy to promote conceptual learning in a target area for the following reasons:

- They **structure** the group task yet keep the discussion open-ended. This is because pupils discuss the points but are free to contribute their own understanding /opinion about the point. In other words, the task is well-defined as well as interactive.
- They help pupils to discuss different aspects of a concept by providing **cues for discussion**.
- They help to **maintain the focus** of discussion.

5 Planning a classroom activity with talking points

 **Same-task group work** (15 min): *Pair work on talking points.* Work in pairs or threes with same-grade colleagues. Decide on a topic that you will be teaching this week. In the activity template, write down the talking points for that topic. Write at least 10 statements - some of which are true, some are false and some can either be true or false, depending on certain factors. Make sure the statements will generate discussion and not close it down; they need to provoke an argument. Here are some ideas:

- Things stop when they run out of force.
- Light can travel through water, air, and space.
- Sound can travel through water, air, and space.
- Things that give out light (like the sun) are always hot.
- Dark is a form of energy that is weaker than light.
- There is no gravity above the earth's atmosphere.
- The air is too light to be affected by the earth's gravity.
- You can reduce pressure by spreading weight out over a larger area.
- Money causes a lot of problems for people.
- Poor people are lazy.
- Some people, like footballers, get paid too much.
- There is never a good reason to steal money.
- Throwing rubbish into a pit is a good way of getting rid of it.
- You cannot throw things away, because there is no such place as 'away'.
- Recycling means that you don't cause any damage to the environment.
- The best way of getting from one town to another is by plane.
- Trains are a really slow way of travelling.
- Heating food is the same as burning it.

Background reading

You can look at this website <http://thinkingtogether.educ.cam.ac.uk/resources/> to learn more about talking points

6 Effective group work practices


Background reading

Research on co-operative learning methods (by Bob Slavin and colleagues) has long established that pupils learn mathematics significantly better if they work in small groups structured in a specific way. That is, they learn best if

- **they work in 4-member groups (with mixed performance levels) toward a common goal;**
- **achieving that goal depends on the individual learning of all team members.**

The group size of course depends on the task that you are doing, but often a group size of around 4 seems to work well in the Zambian context.

Individual accountability. (Relates to: LfL,) Children might be assessed separately, and the group score then depends on those individual performances – individual accountability leading to team scores. Individual assessment is the most common scenario, i.e. children are given a brief quiz, where group members cannot help. Or there could be a random process ("random reporter"): "Number 2s should now represent their teams." Teacher doesn't know who the number 2s are, but the children do, and the corresponding children respond, justifying their answers etc. They in turn do not know in advance which number will be chosen - so everyone has to be ready or the team will not succeed!

 **Whole class dialogue** (10 min) *on structuring group work and individual accountability.* How would you structure group work, to encourage individual accountability?

Educator note

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You can link individual accountability to the use of mini blackboards. Learners could hold up mini blackboards or use another technique.

Team building exercises. You are forming “unlikely” groups (boys/girls, different achievement, different ethnic origins), so team building is needed. Take some account of friendship if conflicts may cause difficulties.

Whole class dialogue (5 min): *Brainstorm on team building.* What activities can you think of that you can use for team building?



7 ICT practice: Different-tasks group work with ICT and activity planning

Different-tasks group work (20 min) *with ICT talking points with images.* We previously used images as part of questioning activities. Can you think of ways in which images could support certain talking points? Pair up and collect some images that you can use for talking points. What are the talking points? Why have you chosen these images?

8 Connecting with overarching goals of the programme

Open space (10 min). It's now time for the "open space", that gives you an opportunity to discuss issues that have arisen, and to relate those to the broader context of the programme. Do not just gloss over this section, but make time to raise issues, and probe the progress that you are making. You could use this space to:

- Remind yourselves of the of the Most Significant Change Technique, and e.g. collect more of your stories.
- Discuss your assessment portfolios: Is there anything that you are unsure about? Is it going well? What could be done better?
- Check on the work with the classroom assistants: Is this going well? Are there any tensions? Any observations or tips you can share?
- Reviewing individual ICT practise (such as typing practise).
- If you are preparing a presentation for other teachers, you could work on the presentation (about what you have been learning, stories emerging from MSC).
- Remind those who are doing audio diaries, to upload them.
- You could discuss any other issues that have arisen.

You will find notes and summaries of various techniques and concepts on our reference page, and you might want to refer to those for clarification during this activity if needed.

9 Focus on reflection

Observing, thinking, reflecting (10 min): *Listening to a Zambian teacher's audio reflections on talking points.* We now listen to a clip that was recorded after the teacher (Agness) had taken part in a previous version of this session. She is reflecting on the talking points and recording her own thoughts as a result of having taken part in a discussion like the one you took part in at the beginning of this session. In a subsequent recording for her portfolio, Agness elaborates and reflects further on her own personal use of talking points in the classroom.

3.4 - Talking points and effective group work

"Using of talking points in the lesson, it is so encouraging to both teacher and learners. This is so because it enables a lot of interactivity to the learners because they are able to discuss, argue and agree as a group. 'Talking points' also make learners not to lose track when they are discussing as a group because every learner is very attentive to hear what their friend is saying in a group."

Agness audio diary - talking points:

AUDIO

Agness audio diary - talking points.mp3


The description of the video

Agness audio diary - talking points.mp3, 1:23,(Series: OER4Schools audio, episode N/A)

Summary of the transcript for clip 1: [Summary of transcript for ease of reading]

10 talking points:

- Group work should finish in one lesson. True. You have to plan for read in a particular time.
- Groups should be formed with the same pupils every time. No. They can start playing with each other.
- Teacher should assist pupils for effective group work. Yes. Those who do not have the concept can access it though other pupils.
- All pupils in the group should be active during group work. Yes. If they are not active, they won't get the concept.
- Noise is not acceptable during group work. No. They need to do a bit of talking to share ideas. Constructive noise.
- Agreements and disagreements are inevitable during group work. Yes. That is the way they can learn with each other.
- Mixed pace groups are better than same pace groups. Yes. New ideas can be achieved from one another.
- Group work should always promote competition amongst different groups. Yes. Each group wants to prove they are the best.
- Group work by pupils is free time for the teacher. No. The teacher wont know the progress of the learners. She must go around and see
- Effective group work needs planning and preparation by the teacher before the lesson. Yes. That is when you know the work to be taught and how to go about the lesson.

 **Whole class dialogue** (5 min): *Discussion of the audio clip on the 10 talking points about group work.* In this case Agness has given well thought out responses to the talking points and has captured her own views about group work well. As a whole group, think about the following questions:

- Were Agness's opinions affected by taking part in the workshop discussion about group work?
- What learning took place for Agness during the 10 talking point discussion on group work?

The reality is that we can't answer these questions because the reflection, whilst detailed and comprehensive doesn't make explicit the participant's learning journey. Phrases like **"initially I thought...but then someone made the comment that...which made me think that perhaps..."** in your reflections are a way of reminding yourself how your thoughts and ideas are being developed as a result of taking part in this programme.

Listen to this short excerpt from Agness' portfolio audio recording.

Agness portfolio recording - talking points:

AUDIO


Agness portfolio recording - talking points.mp3

The description of the video

3.4 - Talking points and effective group work

Agness portfolio recording - talking points.mp3, 1:23,(Series: OER4Schools audio, episode N/A)

Transcript for clip 2: 'Talking points', these are points which can make learners discuss more on the topic given to them. It gives room to the learners to reason well in their groups. It is like that because we will be able to think of the answer whether true or not true, or not sure of the question. Using of talking point in the lesson, it is so encouraging to both teacher and learners. This is so because it is able . . . a lot of interactivity to the learners because they are able to discuss, argue and agree as a group. 'Talking points' also make learners not to lose track when they are discussing as a group because every learner is very attentive to hear what their friend is saying in a group. 'Talking points' also makes the learners to be more attentive to hear the reasoning of learners and the arguments which is more, . . . which is made within the group and the teacher will learn more from pupils. This is all about 'talking points'.

 **Whole class dialogue** (5 min): *Discussion of the portfolio reflection audio clip on talking points.* Here Agness has presented a useful description of the talking points technique and its benefits in interactive teaching. It is very clear that she thinks it is a useful technique.

- What are the main differences between the two clips in terms of the depth of the teacher's reflection?

Remind yourselves of the reflective journal questions

(http://orbit.educ.cam.ac.uk/wiki/OER4Schools/reflective_journal_questions%7C) and notice which of those points the audio recordings address. Think about your own audio recordings or reflective journal and how they might be improved so as to highlight more explicitly your own learning journey in respect to using talking points (and other interactive teaching techniques) to improve teaching and learning.

Educator note

Draw out the idea that example is useful to illustrate a point also the idea of the Plan-Teach-Reflect cycle. Encourage participants to make meaningful reflections that make it clear what learning has taken place for both them and the students. Here are some more specific questions if you feel that the reflective journal ones are too general:

- How was it the first time you used talking points? Were the students responsive? Did everyone participate?
- Which points were most successful and why?
- Why did you chose the statements that you chose? You don't have to mention them all, just perhaps one or two that specifically challenged a concept.
- Where your statements pitched at the right level for all students to access? How do you know?
- What did the students say that gave you an insight into their understanding or lack of?
- What could you change so that they worked better next time?

We will be listening to another portfolio reflection in the next session.

10 Follow-up activities

 **Agreeing follow-up activities** (5 min).

Try out your 10 **talking points**.

- Form mixed-pace groups of 4 students.
- Start with a team building activity of your choice.
- Set up the discussion – framed by some controversial talking points and using a technique to ensure individual accountability. (For example, ask every child to participate and explain you will pick [students won't choose!] one from each group later on to report their own opinion and how it may have changed through the discussion.
- Encourage students to **explain** their reasoning and understanding to peers, ensuring that everyone understands and any gaps are identified and addressed. This is **cooperative learning; students are expected to help each other learn**.

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- Monitor the groups to ensure this is happening and that there are no 'free riders' or individuals dominating the discussion.

Plan-Teach-Reflect

- Reflect on how the activity went and plan to use it again with refinements/adjustments (you do not need to plan to teach exactly the same activity again, just to use talking points again)
- Make any changes to your plan that you feel are needed (e.g. were the group sizes too small/large, was your explanation clear enough, did you manage to ensure that all students participated, were there too many talking points etc)
- Be prepared to discuss how you will improve your use of the talking points activity at the beginning of the next session.

Computer tasks.

- Remember to keep practising your typing skills! (The awarding of a certificate at the end of the course will also depend on your typing skills!)
- Find and download images that could be used in conjunction with talking points.

Educator note

In the next session, these follow-up activities will be reviewed. If you are using this session on its own, you can have a look at the review of follow-up activities here.

Educator note

At the end of each session, we provide an overview of the activities in this session, together with their suggested timings. Although this appears at the end of the session (for technical reasons), you should keep an eye on this throughout the session, to make sure that you are pacing the workshop session appropriately!

Total time: 120 (min)

Activities in this session:

- **Same-task group work** (10 min): *Discussion in pairs on pace grouping.*
- **Same-task group work** (10 min): *Further small group discussion on pace grouping.*
- **Whole class dialogue^(a) with talking points^(a)** (15 min): *Discussing statements about group work.*
- **Same-task group work** (15 min): *Pair work on talking points.*
- **Whole class dialogue** (10 min) *on structuring group work and individual accountability.*
- **Whole class dialogue** (5 min): *Brainstorm on team building.*
- **Different-tasks group work** (20 min) *with ICT talking points with images.*
- **Open space**(10 min).
- **Observing, thinking, reflecting** (10 min): *Listening to a Zambian teacher's audio reflections on talking points.*
- **Whole class dialogue** (5 min): *Discussion of the audio clip on the 10 talking points about group work.*
- **Whole class dialogue** (5 min): *Discussion of the portfolio reflection audio clip on talking points.*
- **Agreeing follow-up activities**(5 min).

If you have printed this session for offline use, you may also need to download the following assets:

Retrieved from "http://oer.educ.cam.ac.uk/w/index.php?title=OER4Schools/Talking_points_and_effective_group_work&oldid=21059"

Categories: OER4S CPDCCEPrimaryTeacher Education

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Session 3.5 - Review of group work

3.5 - Review of group work

Learning intentions and objectives.

In this session you will learn about:

- ways of consolidating learning about group work
- strategies for dealing with group work issues i.e making sure that all students participate, how best to arrange groups to make good use of resources etc
- reflecting in a way that makes learning explicit by giving specific examples of where learning has taken place (or not)

Success criteria.

To meet the learning intentions you will:

- complete a questionnaire on group work practices/strategies and plan an agenda to use these in the classroom
- take part in a brainstorm to come up with strategies for dealing with group work issues
- listen to a Zambian teacher's portfolio reflection and work on making portfolio reflections more meaningful

ICT components.

The ICT components you will focus on are

- Introduction of EtherPad in the classroom

Classroom based activities (with your students, after this session):

- you will ...

1 Review of follow-up activities from last session

Edit this review section (http://oer.educ.cam.ac.uk/w/index.php?title=OER4Schools/Talking_points_and_effective_group_work/review_of_follow_up&action=edit)

Educator note

If you are running a professional learning programme which follows these sessions in sequence, then you should do the review of follow-up activities relating to the previous session (Talking points and effective group work). The 'review of follow-up activities' for that session is available here, and also shown below in the session text. However, if you are following selected sessions in a different order, then you should use the reflection appropriate to the previous session you did.

The review of the follow-up activities for this session (to be done at the start of the next session) is available here.

- In the last session, you planned **Talking Points** about a topic. Did you try teaching through the talking points during this week? If yes, how did your pupils respond to the talking points? Share your experience about as many points given below:
 - Which activity did you use for team building?
 - How did you get everybody to participate?
 - Were students able to **explain** their reasoning and understanding to peers?
 - Were there 'free riders' or individuals dominating the discussion? How did you address this?

3.5 - Review of group work

- Will you plan Talking Points activity again for your pupils? What changes will you make to the points for this activity, so that they are more effective for group discussion? Some of the things that you can think about, are: number of correct/incorrect/unsure statements, wording of statements, length of statements, concrete and abstract statements.
- Did you download or try to **download images** that could be used with the Talking Points? Share any *technology issues* that you faced while downloading. Also describe the steps if you were able to resolve them. Otherwise, discuss unresolved issues with your peers for ideas on how they can be resolved.
- While downloading images for Talking Points, did you face any *conceptual issues* such as availability of images related to the teaching concept or choosing images that were relevant? Did using images improve the effectiveness of Talking Points? Give examples to support your response.

2 Consolidating aspects of group work

Educator note

This is the last session focussing specifically on group work. In it we review the key aspects of the previous sessions.

For this activity, you will need the questionnaire on group work (). Print one copy for

each participant.

Give the participants at least 20 minutes to fill in the questionnaire, especially Section D. More time can also be given if needed by the participants.


It is important that participants think about the meaning of each aspect as discussed during the previous sessions (not their own interpreted meaning) and its implementation in their classrooms. They can refer to the previous sessions (online or on paper) for this. Remember, the unit overview is a good place to look to be reminded about what material is covered in each session. The questionnaire draws on material covered in sessions 1.3 (seating arrangements) and 1.4 (sharing resources) as these are relevant to group work, as is the use of classroom assistants.

You can ask the participants to write their responses in their first language if it will help in expressing their thoughts.

Encourage participants to answer carefully the last question in the questionnaire. They should think about their agenda regarding teaching through group work. This will be required for the fourth activity of the session.

In Unit 3 you have discussed and reflected on a variety of topics related to group work. Here is a list for recap:

- Exploratory Talk
- Same tasks group work
- Different tasks group work
- Group composition and formation
- Ground rules for group work
- Carousel of activities for group work
- Mixed pace group work and differentiation
- Talking Points activity for promoting group interaction

 **Individual activity** (20 min): *Completing a questionnaire on different aspects of group work.* Answer the questionnaire on group work. You will notice that it also contains some questions on other aspects of the programme that are relevant to group work eg sharing resources. Be honest about your responses for Sections A and C. Be reflective about your responses for Section D. Carefully and realistically plan your agenda for carrying out group work in your classroom, taking account of mixed pace group work and differentiation.

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Questionnaire on Group Work

Teacher Name: _____

1. Follow the section guidelines given below to fill this double-sided questionnaire:

- Section B - Read an aspect of group work
- Section A - Cross (X) the appropriate box to record if you have tried it in your class
- Section C - Cross (X) the appropriate box to record your reflection about its effectiveness (answer even if you have not tried it yet!)
- Section D - Briefly write your reasons for your response in section C or any issues you have about this aspect

A			B	C					D
Have you tried this in your class?			Aspect of Group Work	How would you rate its effectiveness for your pupils' learning/in your context?					Reasons for your response in Section C... OR Issues about this aspect...
Yes	No	Sort of		Very effective	Effective	Not sure	Not effective	Not effective at all	
			Exploratory Talk						
			Same-task group work						
			Different-tasks group work						
			Group composition and formation						
			Group size and seating arrangement						
			Ground Rules for group work						

1

A			B	C					D
Have you tried this in your class?			Aspect of Group Work	How would you rate its effectiveness for pupils' learning/in your context?					Reasons for your response in Section C... OR Issues about this aspect...
Yes	No	Sort of		Very effective	Effective	Not sure	Not effective	Not effective at all	
			Carousel of activities for group work						
			Seating arrangement during group work with computers						
			Sharing ICT resources within groups						
			Sharing ICT resources across groups						
			Using non-ICT resources during group work						
			Talking Points activity						
			Recruiting classroom assistants						


Reference: The format of double-sided questionnaire is borrowed from- Swaffield, S. and MacBeath, J. (2009). Leading Leadership for Learning Resources. University of Cambridge: UK

2

2. Based on the aspects of group work that you have not tried so far and their effectiveness, decide an agenda for what you would like to try out in the classroom next week and over the next month. (Decide these as a commitment, not a tentative plan!)

A. My agenda for next week:

B: My agenda over next month:

 **Whole class dialogue** (10 min) on the meaning of the different aspects of group work. Take turns to recap meaning of the different aspects of group work and share your responses from Section D (Column D). This means that one participant explains the meaning of one aspect of group work briefly. Other participants share their responses as listed in Section D of the questionnaire for this aspect. Then another participant explains the meaning of another aspect followed by sharing of responses.


3 Revisiting issues of group work

In Unit 3 you have also discussed and reflected on issues about teaching through group work. Some persistent issues are:

- Teacher's role for effective group work
- Ensuring participation of every member
- Deciding appropriate grouping strategy
- Learning of every member of the group being a group responsibility
- Bully effect and free rider effect (issue of copying)
- Seating arrangement during group work with ICTs such as computers

Educator note

You will need a flipchart (preferably one sheet for each issue) or concept mapping software to record strategies suggested by the participants.

 **Whole class dialogue** (10 min): *Brainstorm on practical strategies for handling group work issues.* It is inevitable that you would have discussed some of the issues about group work during the first activity. Now, extend the previous discussion and brainstorm strategies that you can use for resolving the issues mentioned above. Suggest realistic and practical strategies that the facilitator can record on the flipchart or concept mapping software (see Unit 2, Session 4 (http://orbit.educ.cam.ac.uk/wiki/OER4Schools/2.4_Concept_mapping%7C) for concept mapping).

Educator note

Make sure that you cover the strategies for all of the points mentioned below:

- Teacher's role - during lesson planning, carrying out and concluding group work
- Ensuring participation of every member - contribution to the task and feeling free to express opinion by agreeing or disagreeing
- Deciding appropriate grouping strategy - in view of the learning objectives
- Learning of every group member being a group responsibility - at the time or carrying out group work and reporting it
- Bully effect and free rider effect - for pupils who are dominating, shy and even lazy
- Seating arrangement during group work with ICTs - all arrangements that increase optimum use of ICT resources

4 Practising group work with the EtherPad application

Educator note

For this activity you will need a blank EtherPad file. (At Chalimbana Basic School, use your CBS server, and follow the link to EtherPad - see here for help.)

Form 3 groups of 2-4 participants in advance, each with a computer and all 3 computers sharing the same EtherPad file. Allot a name to each group, such as Group 1, Group 2, Group 3, or Grade 4, Grade 5, Grade 6 if teachers want to work in same-grade groups.

While choosing participants in each group, try to include one participant who is fast at typing.

Get into the groups suggested by the facilitator. Each group will have one computer to work with and 3 groups will share a single Etherpad file.

The advantage of working with EtherPad is that different groups can collaborate in real time. So groups can simultaneously work on one topic and see each other's contributions in different colours.


 **Whole class dialogue** (5 min): *Suggesting open questions for use with the EtherPad.* As a whole group, suggest a

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topic to your facilitator on which you would like to work in groups as well as collaborate across groups. It is suggested that you select a topic that some of you plan to teach soon in your classes. Some suggestions of topics which can be relevant across grades are:

- Importance of Zambia's Heroes day or Unity day / Kenya's Mashujaa day (heros day)
- Prevention of communicable diseases
- Causes of different types of pollution
- Factors affecting vegetation in Zambia / Kenya
- Good practices of rearing cattle
- Scientific concepts such as Force, Friction or Gravity

Remember to form an open question for the topic that you choose (discussed in Unit 2, Session 2 (http://orbit.educ.cam.ac.uk/wiki/OER4Schools/2.2_Questioning%7C)). This will help different groups to think beyond basic facts and use reasoning.

 **Same-task group work** (10 min): *Answering open questions on EtherPad using exploratory talk.* Discuss the answers using exploratory talk (remind yourselves of this presentation from the beginning of this unit if necessary - Unit 3.1 Group Work for Interactive Teaching.ppt

(http://oer.educ.cam.ac.uk/w/images/a/a6/Unit_3.1_Group_Work_for_Interactive_Teaching.ppt) ^(info)

(http://oer.educ.cam.ac.uk/wiki/File:Unit_3.1_Group_Work_for_Interactive_Teaching.ppt)) and type answers that you have agreed on the EtherPad.

Educator note

Visit each group and spend some time assisting them. You can help in solving any issues that they might be having with technology or importantly help them to think of answers to the open question. Remember not to suggest answers but ask questions that will prompt them to think of answers.


Encourage group members to discuss their answers to the open question using exploratory talk and to try to reach a consensus before typing their answers.

Allow 20 minutes in total for the three parts of the activity. Keep the activity moving along at a lively pace.

 **Whole class dialogue** (5 min): *Reflection on EtherPad activity.* Reflect on the questions below as a group:

- What would be the teacher's role in planning, carrying out and concluding group work using EtherPad? (Clues: deciding groups, managing technology, interacting with pupils to assist them in learning, facilitating group talk)
- Think about whether any of the scenarios mentioned below have happened or could happen in your classroom. What would you do if...?
 - (1) one EtherPad stops working
 - (2) one pupil is dominating the use of EtherPad in the group
 - (3) one pupil is not interested in the group task with EtherPad
 - (4) pupils are concentrating only on typing and are not discussing the answers
 - (5) time is over but pupils still want to continue on the task

5 Planning group work in the classroom with EtherPad

 **Same-task group work** (20 min) : *Planning in pairs or small groups to use EtherPad for group work in the classroom.* In your responses to the questionnaire, you have decided an agenda related to group work for next week. Combine this agenda with use of EtherPads that you have just done. With a **same grade buddy/buddies** plan your teaching to take action on the agenda combined with use of EtherPad for collaborative writing. Use the activity template for planning.


Here are a few tips to keep in mind while planning the activity for your pupils:

- Choose an **open-ended question**. For example, 'Who is the current Hero of Zambia?' There can be various responses to this question such as, Stoppila Sunzu or Kennedy Mweene (footballers), Michael Sata (current president), Fredrick Chiluba (president for two consecutive terms) etc. Or 'What causes pollution in our environment?'
- The question should require **detailed discussion**. Encourage reasoning and exploratory talk during this discussion. For example, for each of the personalities listed above, pupils can state their choice,


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- agree and disagree with reasons.
- The written output in EtherPad after discussion of the question should be **short**. Ideally it should not be more than one word or sentence. It is important to minimise typing for time management. For example, students will choose one personality as answer to the above question.
- The question should also stimulate **discussion across groups**. For example, different groups can discuss their choice of personality or one group can propose a name, another group can give a reason for why they agree or disagree that that person is a hero. Each group should have good reasons for their choice.

6 ICT practice: Different-tasks group work with ICT and activity planning

 **Different-tasks group work** (10 min) *with ICT on group work*. Pair up and discuss how you think you can use ICTs in group work? We have discussed this on previous occasions, but record what you have found so far. What ICT tool should you use to record this? What ICT tools support group work and how? How do you ensure fair access to what equipment there is?

7 Connecting with overarching goals of the programme

 **Open space** (10 min). It's now time for the "open space", that gives you an opportunity to discuss issues that have arisen, and to relate those to the broader context of the programme. Do not just gloss over this section, but make time to raise issues, and probe the progress that you are making. You could use this space to:


- Remind yourselves of the of the Most Significant Change Technique, and e.g. collect more of your stories.
- Discuss your assessment portfolios: Is there anything that you are unsure about? Is it going well? What could be done better?
- Check on the work with the classroom assistants: Is this going well? Are there any tensions? Any observations or tips you can share?
- Reviewing individual ICT practise (such as typing practise).
- If you are preparing a presentation for other teachers, you could work on the presentation (about what you have been learning, stories emerging from MSC).
- Remind those who are doing audio diaries, to upload them.
- You could discuss any other issues that have arisen.

You will find notes and summaries of various techniques and concepts on our reference page, and you might want to refer to those for clarification during this activity if needed.

Educator note

Spend a few minutes discussing any issues that participants may have and then move straight on to the next activity which focuses on reflection and is a continuation of the focus on reflection activity in the previous session.

8 Focus on reflection

 **Observing, thinking, reflecting** (15 min): *Listening to a Zambian teacher's audio reflection on a talking points activity followed by individual work on portfolios*. We now listen to a clip that was recorded after the teacher (Judith) had use

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talking points with her lesson. She is reflecting on the talking points activity and recording her own thoughts about how the pupils responded to the activity. Notice how she uses a specific example and records what the pupils said. She reflects on how successful (or otherwise) her planning was and concludes that there were too many talking points for the pupils to get through in the time allowed.

"Very few groups completed writing reasons to all sentences due to too many talking points but interactive teaching and learning took place."

Judith portfolio - talking points:

AUDIO

Judith portfolio recording - talking points.mp3

The description of the video

Judith portfolio recording - talking points.mp3, 1:23,(Series: OER4Schools audio, episode N/A)

Transcript for clip 1: My Name is Judith S Munsaka. Activity five (5): Ten talking points. These are selected points from a topic to help pupils reason at length:

- Subject: Science
- Topic : Amphibians and reptiles

I have chosen the above activity because it helped pupils to think on why certain (things or animals) are said to be what they are. For example; pupils had to think hard as to why it is true that Amphibians and reptiles are called cold blooded animals. Many reasons were given as to why, answers like True and False were given. This was illustrated through group work. Pupils discussed in their groups as to why they chose true or false to the given sentences. In their discussions they interacted freely, even arguing at times especially on the point which read 'snakes are special reptiles'. A lot of them argued that it is not special because it is dangerous. Not knowing that it becomes a special reptile because it has no legs. They tried their best to support their answers by giving reasons. Most of them gave reasons but not in written form. Very few groups completed writing reasons to all sentences due to too many talking points (10). But interactive teaching and learning took place. Putting pupils in groups/peers to discuss talking points helps a lot because it creates room for pupils to share ideas freely and also interact freely.

The image here shows a copy of Judith's portfolio submission for this activity. In this case she has written her reflection and then recorded herself reading it. It is not necessary to present two versions of your reflections, one or other would be fine. How are your portfolios coming on? Ask yourself the following questions:

- When you reflected on the talking points activity did you record the subject and topic of the lesson?
- Did you comment on how the pupils specifically/personally responded to the talking points?
- Where there any unexpected points made by the pupils?
- Did your talking points spark a discussion between pupils (as it did in Judith's case with the snake)? If so, what was it?
- What evidence do you have that interactive teaching and learning took place? This will most likely come from the conversations that took place between the pupils so you should record this in your reflection.
- What adjustments will you make when you do the talking points activity again?

Use the remaining time now to work on your portfolios, making sure that your reflections are meaningful and in enough depth with enough detail. You should include at least one portfolio entry based on an aspect of group work. Work with a partner if you would find it useful to have their feedback

My name is Judith S. Munsaka.
 Activity Five (5): Ten talking points.
 These are selected points from a topic to help pupils reason at length.
 Subject: Science.
 Topic: Amphibians and Reptiles.
 I have chosen the above activity because it helped pupils to think on why certain (things or animals) are said to be what they are. For example; pupils had to think hard as to why it is true that Amphibians and Reptiles are called Cold blooded animals. Many reasons were given or said as to why answers like True and False were given. This was illustrated through group work. Pupils discussed in their groups as to why they chose true or false to the given sentences. In their discussions, they interacted freely even arguing at times especially on the point which read 'snakes are special reptiles'. A lot of them argued that it is not special because it is dangerous. Not knowing that it becomes a special reptile because it has no legs. They tried their best to support their answers by giving reasons. Most of them gave reasons but not in written form. Very few groups completed writing reasons to all sentences due to too many talking points (10). But interactive teaching and learning took place. Putting pupils in groups/peers to discuss talking points helps a lot because it creates room for pupils to share ideas freely and also interact freely.

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on what you have written. Use Judith's portfolio entry as a useful example to follow if you are unsure about how much to write.

Educator note

Ensure that participants are fully aware of what makes a good 'reflection'. Agness's reflections from the previous session contained a useful general description of the talking points activity and Judith's reflection contains a specific example of talking points in action - both of these reflections contain useful information. The 'perfect' reflection will contain both elements i.e Agness's description of the activity + Judith's detailed critical account of how the activity went.

9 Follow-up activities

Agreeing follow-up activities (5 min).

Part A: The **questionnaire on group work** is available electronically (on the server). Type the answers that you have written on paper, into the electronic version. As soon as you download the questionnaire, first save it using the filename - [Your Name] Q on GW.doc (fill in your name in the space mentioned [Your Name] but without the brackets [], e.g "Susan Q on GW.doc". Save/upload it onto the server once you have completed it.

Part B: Carry out the **lesson activity using EtherPads** that you have planned using the activity template. Record your reflections on the dictaphone.

The following items are specific to the programme at CBS, and may need to be adapted to local circumstances:

Note that under each teacher's name, in the classroom resources section on your homepage, you will see several EtherPad files already set up, ready for students to use. Divide the class so as to use all the EtherPads or as many as you need for your class size, then assign groups to each one and make sure they use the right EtherPad for their group. For more information, see CBS server.

Educator note

In the next session, these follow-up activities will be reviewed. If you are using this session on its own, you can have a look at the review of follow-up activities here.

Educator note

At the end of each session, we provide an overview of the activities in this session, together with their suggested timings. Although this appears at the end of the session (for technical reasons), you should keep an eye on this throughout the session, to make sure that you are pacing the workshop session appropriately!

Total time: 120 (min)

Activities in this session:

- **Individual activity** (20 min): *Completing a questionnaire on different aspects of group work.*
- **Whole class dialogue** (10 min) *on the meaning of the different aspects of group work.*
- **Whole class dialogue** (10 min): *Brainstorm on practical strategies for handling group work issues.*
- **Whole class dialogue** (5 min): *Suggesting open questions for use with the EtherPad.*
- **Same-task group work** (10 min): *Answering open questions on EtherPad using exploratory talk.*
- **Whole class dialogue** (5 min): *Reflection on EtherPad activity.*

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- **Same-task group work** (20 min) : *Planning in pairs or small groups to use EtherPad for group work in the classroom.*
- **Different-tasks group work** (10 min) *with ICT on group work.*
- **Open space**(10 min).
- **Observing, thinking, reflecting** (15 min): *Listening to a Zambian teacher's audio reflection on a talking points activity followed by individual work on portfolios.*
- **Agreeing follow-up activities**(5 min).

If you have printed this session for offline use, you may also need to download the following assets:

- Unit 3.1 Group Work for Interactive Teaching.ppt
(http://oer.educ.cam.ac.uk/w/images/a/a6/Unit_3.1_Group_Work_for_Interactive_Teaching.ppt)

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Session 3.6 - Designing interactive lesson plans

3.6 - Designing interactive lesson plans

Learning intentions and objectives.

In this session you will learn about:

- using **lesson templates** as a tool when planning interactive lessons
- designing interactive lesson plans to include a range of interactive techniques
- planning to use effective questions by referring to **Bloom's Taxonomy**

Success criteria.

To meet the learning intentions you will:

- watch a sequence of videos and map them on to an interactive lesson plan
- plan an interactive lesson using a lesson template
- complete a range of activities to become familiar with Bloom's hierarchy of question types

ICT components.

The ICT components you will focus on are

Classroom based activities (with your students, after this session):

- you will ...


1 Review of follow-up activities from last session

Edit this review section (http://oer.educ.cam.ac.uk/w/index.php?title=OER4Schools/Review_of_group_work/review_of_follow_up&action=edit)

Educator note

If you are running a professional learning programme which follows these sessions in sequence, then you should do the review of follow-up activities relating to the previous session (Review of group work). The 'review of follow-up activities' for that session is available here, and also shown below in the session text. However, if you are following selected sessions in a different order, then you should use the reflection appropriate to the previous session you did.

The review of the follow-up activities for this session (to be done at the start of the next session) is available here.

 **Whole class dialogue** (15 min) *on follow up activities from last time.*

Part A: Did you type your responses to the **questionnaire on group work** on the Word document and upload it onto the server?

- How much time did it take for you to type everything?
- What is your assessment of your typing speed now compared to when you first came for the OER4Schools workshop? (Try thinking in terms of words per minute).

Part B: You planned a **group work activity** using the Activity Template during the last session. Did you carry out the activity in class? If yes, share your experience by addressing the questions given below:

- Which aspect of group work did you choose as your agenda (that was also mentioned in the questionnaire for group work)?
- What was the lesson topic?

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- On a scale from 1 to 5 (1 being the lowest and 5 being highest), how would you rate the effectiveness of the aspect of group work? Think in terms of achievement of learning objectives.
- What changes will you make when you repeat the same activity with another batch of pupils or with another topic?

Part C: Did you carry out a group work activity using **EtherPad**? If yes, what was your open-ended question?

- How did your students respond to the activity? Share examples of: students' discussion within their group, their written responses and their discussion across groups. Will you use EtherPad with the same aspect of group work again? Give reasons for your answer.
- For the EtherPad activity, were there any instances of the issues that were discussed during the last session such as, bully and free rider effect, learning of every member as a group responsibility etc. (refer to the last session, Unit 3 Session 6, for more issues). How did you resolve these issues? What else can you do to resolve them?

2 Lesson planning

Let us think about planning whole lessons using a combination of the interactive teaching techniques that we have encountered so far.

 **Whole class dialogue** (10 min): *How do you currently plan your lessons?* Share your thoughts with the rest of the group, listening out for similarities and differences.

Educator note

Check variation, discuss value of recording lesson plans (better prepared for teaching process/can be used by someone else if you are away/makes it easier to reflect and improve on teaching/saves time as good parts can be used again).

3 An interactive lesson plan in action


Look at the lesson plan template and the example of a completed one: this shows the plan for a lesson that you have seen clips from earlier on in the programme – Eness's lesson on vertebrates.


Interactive Teaching Lesson Plan template

Teacher: Lesson title/topic:	Grade: Duration: mins.
Learning objectives for students: Resources to be used (ICT and non-ICT): No. and size of groups:	
<i>Lesson plan (methodology)</i>	
<i>Learner activity</i>	<i>Teacher activity</i>
Introductory activity	Introductory activity (e.g. finding out what students

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	know or remember): Questions:
Main body of lesson (in steps):	Main body of lesson : Questions:
Plenary activity	Plenary activity (e.g. seeing who has understood what, groups presenting, etc.): Questions:
Notes / special needs / differentiation for different pace groups or learners	
Change for next time / Follow-up lesson plan	

 **Observing, thinking, reflecting** (15 min): *Watching video clips of an interactive lesson.* Watch the following 4 clips to see how the activities in that lesson are sequenced. (A couple of these you have already seen, the other two are new).

 **Whole class dialogue** (10 min) *on these videos, adding useful notes to the completed lesson template.* Discuss these clips at the end; how did the teacher build up the sequence of activities? Look at her lesson plan again and add any useful notes for reference when planning your own interactive lessons. Notice how the teacher gives the children time to think before the brainstorm; she is very patient! This is called “wait time” and can be used any time when learners are asked a question or given a challenging task. Rather than jumping in to tell them an answer, it allows uncertainty and encourages deeper thinking.

VIDEO**A brainstorm naming animals**

A brainstorm naming animals. Start of lesson: brainstorm with unique contributions, time to think first, no hands up technique.

About this video, 2:43, link to YouTube (<http://www.youtube.com/watch?v=SQEOwYVAC78&list=PLF0530A6FEF00D354>) (local play / download options)(Series: Eness Vertebrates, episode 01)(Transcript available here or via YouTube captions.)

VIDEO**Instructions to set up the task**

Instructions to set up the task and initiate group work. Group enjoying themselves.

About this video, 1:17, link to YouTube (<http://www.youtube.com/watch?>

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v=cXyibsmbs3M&list=PLF0530A6FEF00D354) (local play / download options)(Series: Eness Vertebrates, episode 03)

VIDEO**Teacher gives detailed help**

Teacher gives detailed help to group: shows ICT use. ("I've never seen a Zebra.")

About this video, 4:04, link to YouTube (<http://www.youtube.com/watch?v=Q2jnT6w2ub0&list=PLF0530A6FEF00D354>) (local play / download options)(Series: Eness Vertebrates,

episode 05)

VIDEO**Whole class discussion**

Whole class discussion of 'Is a bat a bird?' Teacher sets unresolved problem as homework

About this video, 4:19, link to YouTube (<http://www.youtube.com/watch?v=kY2Ow7Pusel&list=PLF0530A6FEF00D354>) (local play / download options)(Series: Eness Vertebrates,

episode 12)(Transcript available here or via YouTube captions.)


Educator note

The clips are from Eness' lesson on vertebrates, clips 1 (part), 3, 5, 12 .mp4. They demonstrate:

- 1 = start of lesson: brainstorm with unique contributions, time to think first, no hands up technique too
- 3 = Instructions to set up the task and initiate group work; group enjoying themselves
- 5 = teacher gives detailed help to group: shows ICT use
- 12 = whole class discussion of 'is a bat a bird?' + teacher sets unresolved problem as homework

The lesson builds from (a) brainstorm to (b) groupwork using ICT and developing children's own classifications, to (c) group presentations to the class, interspersed with (d) whole class discussion and follow-up homework.

4 Developing lesson plans using lesson plan "templates"

 **Small group activity** (20 min) *writing a lesson plan* Working in small groups, each participant should complete a whole lesson plan for a lesson they will teach shortly. Spend quite a lot of time on this.

- Think about incorporating interactive elements in your lesson plans. Discuss ideas with your group. Plan the lesson in detail, so every activity is described in enough detail that someone else could teach from your plan.
- However, allow for some flexibility according to learners' responses. Remember at the end of Eness's lesson (Clip 12), she set the learners a research task for homework because they had not come to a consensus view about whether a bat was a bird or not.
- **Including all learners.** How can you ensure that everyone is participating actively?

For example, you saw how Eness (Clip 1) required every child to think of their own example of an animal. Are there other techniques you can use, especially if you have a large class where that might be too time consuming?

Are there any learners that may have difficulty with the tasks?

- **Differentiation.** Think too about how you will cater for slower and faster learners – can the faster learners get further or get more work done than the slower ones? Do you need to have additional, more challenging work ready for them to do if they finish an activity before their peers?

3.6 - Designing interactive lesson plans

Choose one or more of these activities (that you have already tried) and consider using group work with or without ICT:

- Brainstorm
- Mini-blackboard use, with or without student presentations
- A question-and-answer session with students as to what they might want to learn. (You would need to then take those requests seriously!)
- Talking points
- Magic microphone
- A practical or outdoors activity

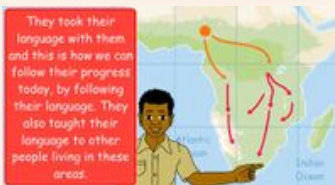
Think carefully about the types of questions that you will ask students during the lesson and record these on your lesson plan template. The Bloom's Taxonomy activities in the following section will help to improve your repertoire of effective questions.

Related resources

The **Zedupad** resource *Bantu on the move* (see link below) could be used as a basis around which to develop an interactive lesson plan. It tells the story of the Bantu tribe and there are opportunities for pair discussion and research using ICT. Slide 6 asks the following question and could be used for a brainstorm activity:


- Why do you think the Bantu moved away from their home and continued to move around southern Africa?

Slides 13-18 ask questions about how the Bantu lived and could be shown after a small group discussion activity where students imagine how it might have been to be a Bantu child.



http://www.zedupad.com/zambian_school_lessons.php

5 Questioning and Bloom's taxonomy

 **Group activity** (15 min): *Becoming familiar with different question types and their level of demand.*

You will need one copy of pages 4, 5 and 6 from the VVOB Questioning the Questions handout per group for these card sort activities along with some scissors.



3.6 - Designing interactive lesson plans

Bloom's taxonomy

Benjamin Bloom is known for his taxonomy which describes levels of learning. The (revised) taxonomy can help us develop the right questions which lead to higher order thinking skills. The discussion whether we prefer the original or the revised taxonomy is not relevant here. Crucial is that we reflect on whether we give our students enough opportunities to develop their higher order thinking skills. On these pages you will find for each level some verbs that typically belong to this level, guiding questions and some examples of questions set in a Danish art context.

Higher Order Thinking Skill

↑

Creating

Evaluating

Analysing

Applying

Understanding

↓

Lower Order Thinking Skill

Can Bloom help us?

Applying

Using information in concrete situations

Verbs	Questions	Examples
Report Construct Solve Illustrate Predict Modify Design Develop Use ...	How would you develop... to present...? What would be the result if...? How would you present...? How would you change...? Why does... occur? Can you develop a set of instructions about...? What factors would you change if...? ...	Calculate the area of the round square in front of the administration building. Identify all forms of argument you have observed in the video recording of a lesson taught in Gd. Identify examples of metaphors in the poem. NOTE: a student writing "10" next to "3 times 5 equals" is not applying but remembering/understanding. Develop your own: • ... • ...

Analysing

Breaking down material into parts and understanding their relationship to the whole

Verbs	Questions	Examples
Sort Analyse Investigate Classify Sort out Detail Single Compare Contrast Distinguish ...	How can you classify... according to...? How can you compare the different parts...? What expectation do you have for...? Discuss the pros and cons of...? What is the analysis of...? How is... similar to...? ...	What strategies do you need to solve this math word problem? Listen to the speech of the president; distinguish facts and opinions. Compare the major differences in the economic policies of President Koenders and President Ombuis. Develop your own: • ... • ...

Understanding

Grasping the meaning of material

Verbs	Questions	Examples
Discuss Explain Classify Compare Diagram Illustrate Assess what, what, when, where, why (questions) Summarise Define in your own words ...	How would you clarify the meaning...? How would you differentiate between...? What did you observe...? How would you identify...? What would happen if...? Can you give an example of...? ...	Name all Zealand provinces and their capitals. What crops are grown in Eastern Provinces? How many weeks does it take to sail? State the formula for the area of a circle. Develop your own: • ... • ...

Evaluating

Judging the value of a product for a given purpose, using definite criteria

Verbs	Questions	Examples
Justify Self evaluate Critique Justify Group discussion Judge Critical Appraise Recommend	What criteria would you use to assess...? What data was used to evaluate...? What choice would you have made...? What is the most important...? How could you verify...? Is there a better solution to...? What do you think about...? Do you think this is a bad or a good thing? ...	Write a review for the novel you have read and specify the type of audience that would enjoy this. Observe another teacher (or yourself) and determine the quality of the teaching performance in terms of the teacher's appropriate application of questioning techniques. After solving the math problem, determine the degree to which that problem was solved as efficiently as possible. Develop your own: • ... • ...

Creating (+synthesising)

Putting parts together into a new whole

Verbs	Questions	Examples
Invent Establish Design Formulate Hypothesise Re-act differently Rebuild Supplement Generate Compose ...	What alternative would you suggest for...? What changes would you make to revise...? Predict the outcome of...? What could you invent...? How would you complete the task for...? If you had access to all resources how would you deal with...? Compare a story about... Design a... to... ...	How could you re-write this story with a city setting? Write an essay on a poem. Write a set of rules to prevent what happened in this part of Zealand history. Apply the strategies learned in educational psychology in an organised manner to solve the educational problem. Apply and integrate several different strategies to solve a mathematical problem. Develop your own: • ... • ...

The more you deliberately design questions, the easier it gets.

More ideas: <http://www.teachers.asn.au/~mbeck2/askfor/difficult.htm>


"Judge a man by his questions rather than his answers."
(Aristotle)

Handling answers

- Listen carefully to your students as they respond, let them finish their responses unless they are completely missing the point.
- "Check" their responses in your own words.
- Acknowledge correct answers and provide positive **reinforcement**. Identify incorrect responses (try to find out the meaning behind it) and ask for alternative explanations from other students.
- Repeat student answers when the other students have not heard the answers.
- Periodically restate the **goal** of the discussion so that it is clear for the students. It is particularly important to ask questions near the end of your discussion that help make it clear whether or not the goal has been achieved. Identify areas in need of clarification.
- Ask **(probing)** questions to trigger more responses, to adjust or to redirect.
- Don't ignore wrong answers, follow-up.
- Sometimes student will restate the teacher's questions in their own words and ask the teacher for a response – getting the teacher to do the crucial work. When such an event occurs, **restate** the question, and pose it to the class.
- If you don't know the answer to a student's question, ask anyone in class, **invite** a plan for finding the answer.

Cut out the different sections so that there are six equal sized pieces of paper, each with one section each on it - these will be referred to as the question type cards (1-6).


Remembering



Remembering previously learned material

<p>Verbs</p> <ul style="list-style-type: none"> Label List Name State Outline Define Locate Repeat Identify Recite 	<p>Questions</p> <ul style="list-style-type: none"> What do you remember about...? How would you define...? How would you recognise...? What would you choose...? Describe what happens when...? How is...? Which one...? Why did? ... 	<p>Examples</p> <ul style="list-style-type: none"> Name all Zambian provinces and their capitals. What crops are grown in Eastern Province? How many vowels does Nyanja have? State the formula for the area of a circle. <p>Develop your own:</p> <ul style="list-style-type: none"> • ... • ...
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Understanding



Grasping the meaning of material

<p>Verbs</p> <ul style="list-style-type: none"> Discuss Explain Observe Diagram demonstrate Answer who, what, when, where, why questions Illustrate Define in your own words ... 	<p>Questions</p> <ul style="list-style-type: none"> How would you clarify the meaning ...? How would you differentiate between ...? What did you observe ...? How would you identify ...? What would happen if ...? Can you give an example of ...? ... 	<p>Examples</p> <ul style="list-style-type: none"> Who was the key character in Zambia's independence? What is the difference between socialists and communists? Explain the formula for the area of a circle in your own words. <p>Develop your own:</p> <ul style="list-style-type: none"> • ... • ...
--	---	---

PAGE 4

Applying



Using information in concrete situations

Verbs

Report
Construct
Solve
Illustrate
Exhibit
Modify
Design
Develop
Use

...

Questions

How would you develop... to present...?
What would be the result if ...?
How would you present ...?
How would you change...?
Why does ... work?
Can you develop a set of instructions about..?
What factors would you change if ...?

...

Examples

Compute the area of the round square in front of the administration building
Identify all forms of punishment you have observed in the video recording of a lesson taught in Gr3.
Identify examples of metaphors in this poem.
NOTE: a student writing "15" next to "3 times 5 equals" is not applying but remembering/understanding.

Develop your own:

- ...
- ...

Analysing



Breaking down material into parts and understanding their relationship to the whole

Verbs

Sort
Analyse
Investigate
Classify
Survey
Debate
Graph
Compare
Contrast
Distinguish

...

Questions

How can you classify ... according to?
How can you compare the different parts ...?
What explanation do you have for ...?
Discuss the pros and cons of ...?
What is the analysis of ...?
How is ... similar to ...?

...


Examples

What strategies do you need to solve this math word problem?
Listen to the speech of the president: distinguish facts and opinions.
Compare the major differences in the economic policies of President Kaunda and President Chiluba.

Develop your own:

- ...
- ...

Evaluating



Judging the value of a product for a given purpose, using definite criteria

Verbs

Justify
Self evaluate
Conclude
test
Group discussion
Justify
Judge
Criticise
Appraise
Recommend
...

Questions

What criteria could you use to assess ...?
What data was used to evaluate ...?
What choice would you have made...?
What is the most important...?
How could you verify ...?
Is there a better solution to...?
What do you think about...?
Do you think this is a bad or a good thing?
...

Examples


Write a review for the novel you have read and specify the type of audience that would enjoy this.
Observe another teacher (or yourself) and determine the quality of the teaching performance in terms of the teacher's appropriate application of questioning techniques.
After solving the math problem, determine the degree to which that problem was solved as efficiently as possible

Develop your own:

- ...

PAGE 5

Creating (+synthesising)



Putting parts together into a new whole

Verbs

Invent
establish
Design
Formulate
Hypothesize
Re-tell differently
Report
Experiment
Generate
Compose
...

Questions

What alternative would you suggest for ...?
What changes would you make to revise...?
Predict the outcome if...?
What could you invent ...?
How would you compile the facts for...?
If you had access to all resources how would you deal with ...?
Compose a song about ...
Design a ... to ...
...

Examples

How could you re-write this story with a city setting?
Write an essay or a poem.
Write a set of rules to prevent what happened in this part of Zambian history.
Apply the strategies learned in educational psychology in an organised manner to solve this educational problem.
Apply and integrate several different strategies to solve a mathematical problem.

Develop your own:

- ...
- ...

There are a number of activities you could do to help you get to grips with the material that these pages cover and to help you develop a deeper understanding of the types of questions you can ask students and the level of demand of different types of questions:

Activity 1

In your groups, sort the question type cards in order of increasing demand on the student - be prepared to discuss with group members why you think one type of question is more demanding than another.

Activity 2

Turn the question type cards upside down and place them in a pile. Members of the group take it in turn to pick a card from the top of the pile and read one piece of information from the card from either the verb, question or example columns. Other members of the group try to guess what question type this card is. Be prepared to discuss why you think a question is a particular type. Cards can be returned to the pile at the end, shuffled and a different piece of information read out next time a card is turned over. Continue to play the game until all members of the group can spot the question types easily.

3.6 - Designing interactive lesson plans

Activity 3

Now that everyone is familiar with the question types and hierarchy, divide out the cards and working in pairs within your group come up with two additional questions for your particular question types and write them on the cards that you have. Try out your questions on the rest of the group and see if they can classify the question type correctly.

These are the question types in order of increasing demand:

LOW LEVEL

- remembering
- understanding
- applying
- analysing
- evaluating
- creating

HIGH LEVEL

Both **open** and **closed** questions may be at any level of the taxonomy.


An **open low-level question** might be: "What is an example of an adverb?"

An **open high-level question** might be: "What are some ways we might solve the energy crisis?"

A **closed low-level question**: "What are the properties of a square?"

A **closed high-level question**: "Given the data before you, would you say that mercury is a metal or a non-metal?"

6 ICT practice: Different-tasks group work with ICT and activity planning

 **ICT practice** (20 min): *consolidating what you have learnt so far*. Like last time at the end of a unit, review the previous sessions, including Units 1 and 2 as well. You have learnt about netbook use, about slideshows (in a browser and in OpenOffice), as well as about finding images, GeoGebra, concept mapping, spreadsheets and collaborative writing with Etherpad. In this session you can now consolidate some of these skills. Work in pairs, on a topic of your choice. As always, work towards activities that you can also try in the classroom.


Educator note

Again, judge how the ICT is going. If the group you are working with have so far mastered the ICT tasks easily, you need to make sure that they do not get bored. Invite them to explore more advanced features of the software and more advanced uses in the classroom. However, if the group you are working with has been struggling, make sure that they understand the basics. More than likely, there will be some more advanced participants and some participants who are struggling. Pair teachers who are more advanced in their ICT use with teachers who are less advanced.

As we mentioned in the section on how to use this resource, we introduce a few new ICTs in each unit. Participants should continue using the tool that they have learnt and participants should continue doing typing practise. Maybe by now typing skills are beginning to improve and maybe you could have some typing races?

7 Connecting with overarching goals of the programme

3.6 - Designing interactive lesson plans

 **Open space** (10 min). It's now time for the "open space", that gives you an opportunity to discuss issues that have arisen, and to relate those to the broader context of the programme. Do not just gloss over this section, but make time to raise issues, and probe the progress that you are making. You could use this space to:

- Remind yourselves of the of the Most Significant Change Technique, and e.g. collect more of your stories.
- Discuss your assessment portfolios: Is there anything that you are unsure about? Is it going well? What could be done better?
- Check on the work with the classroom assistants: Is this going well? Are there any tensions? Any observations or tips you can share?
- Reviewing individual ICT practise (such as typing practise).
- If you are preparing a presentation for other teachers, you could work on the presentation (about what you have been learning, stories emerging from MSC).
- Remind those who are doing audio diaries, to upload them.
- You could discuss any other issues that have arisen.

You will find notes and summaries of various techniques and concepts on our reference page, and you might want to refer to those for clarification during this activity if needed.

8 Follow-up activities

 **Agreeing follow-up activities** (5 min).

Teach the lesson you have planned. Then **REFLECT** on it as you did before when you trialled a new activity. Use your dictaphone to record your reflections. You may want to write down a few brief notes too, so you can remember the issues arising when you come to the next workshop session, as you will be asked to share your reflections with others then (focusing on how the lesson went, how learners responded, and what you would change if you taught it again).

Educator note

At the end of each session, we provide an overview of the activities in this session, together with their suggested timings. Although this appears at the end of the session (for technical reasons), you should keep an eye on this throughout the session, to make sure that you are pacing the workshop session appropriately!

Total time: 120 (min)

Activities in this session:

- **Whole class dialogue** (15 min) *on follow up activities from last time.*
- **Whole class dialogue** (10 min): *How do you currently plan your lessons?*
- **Observing, thinking, reflecting** (15 min): *Watching video clips of an interactive lesson.*
- **Whole class dialogue** (10 min) *on these videos, adding useful notes to the completed lesson template.*
- **Small group activity** (20 min) *writing a lesson plan*
- **Group activity** (15 min): *Becoming familiar with different question types and their level of demand.*
- **ICT practice** (20 min): *consolidating what you have learnt so far.*
- **Open space**(10 min).
- **Agreeing follow-up activities**(5 min).

If you have printed this session for offline use, you may also need to download the following assets:

- Video/Eness vertebrates 1.mp4 (local play / download options)
- Video/Eness vertebrates 3.mp4 (local play / download options)
- Video/Eness vertebrates 5.mp4 (local play / download options)
- Video/Eness vertebrates 12.mp4 (local play / download options)

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3.6 - Designing interactive lesson plans

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Unit 4 - Assessment for learning and lesson pacing



The unit introduces how to find out what your pupils have learnt, and where they need more help, allowing you to use lesson time effectively whilst making sure that your pupils are making continued progress.

In detail the unit covers

- using an assessment inventory as a self-assessment measure,
- sharing learning objectives and success criteria,
- summative feedback,
- formative feedback, and
- peer assessment.

Unit 4 Assessment for learning and lesson pacing

4.1 - Introduction to Assessment for Learning		
<p>In this session you will learn about:</p> <ul style="list-style-type: none"> ▪ using an assessment inventory as a self-assessment measure ▪ using Traffic Lights as a tool in AfL ▪ the concept of 'Assessment' vs 'Assessment for Learning' ▪ Assessment for Learning as the process of seeking and interpreting evidence for use by learners and their teachers to decide: <ul style="list-style-type: none"> ▪ where the learners are in their learning, ▪ where they need to go next, ▪ and how best to get there. 	<p>To meet the learning intentions you will:</p> <ul style="list-style-type: none"> ▪ keep a record of the assessment methods that you have used on your assessment inventory ▪ come up with ways that Traffic Lights can be used to help with the review of progress that is part of AfL ▪ watch an introductory video on AfL and draw out the important points for discussion ▪ watch a powerpoint presentation on AfL, pausing for reflection and to think about how interactive teaching techniques can help with the application of AfL in the classroom 	<p>In this session you will continue consolidating the ICT skills you have learnt so far, and apply them in the classroom. You will be able to apply AfL techniques in conjunction with ICT classroom use as well.</p>
4.2 - Learning objectives and success criteria		
<p>In this session you will learn about:</p> <ul style="list-style-type: none"> ▪ using an assessment inventory as a self-assessment measure ▪ two AfL strategies that improve students metacognition and lead to better learning: sharing learning objectives and sharing success criteria ▪ writing/forming learning objectives and success criteria ▪ activities covered in previous sessions that can be adapted for AfL e.g. magic microphone, concept mapping, talking points 	<p>To meet the learning intentions you will:</p> <ul style="list-style-type: none"> ▪ keep a record of the assessment methods that you have used on your assessment inventory ▪ listen to some Zambian teachers' experience of sharing learning objectives and think about the pros and cons of doing so ▪ understand the need for sharing learning objectives and sharing success criteria by completing an activity to illustrate this ▪ plan to write 	<p>In this session you will continue consolidating the ICT skills you have learnt so far, and apply them in the classroom. You will be able to apply AfL techniques in conjunction with ICT classroom use as well.</p>

Unit 4 Assessment for learning and lesson pacing

	<p>learning objectives and success criteria</p> <ul style="list-style-type: none"> revisit activities covered in previous sessions and think about ways of adapting them for use with AfL 	
4.3 - Formative feedback		
<p>In this session you will learn about:</p> <ul style="list-style-type: none"> using an assessment inventory as a self-assessment measure two types of feedback (summative feedback and formative feedback) and their use in AfL how to give formative feedback 	<p>To meet the learning intentions you will:</p> <ul style="list-style-type: none"> keep a record of the assessment methods that you have used on your assessment inventory watch videos of formative and summative feedback in action and draw out the salient points read about the differences between summative and formative feedback role play giving and receiving formative feedback 	<p>In this session you will continue consolidating the ICT skills you have learnt so far, and apply them in the classroom. You will be able to apply AfL techniques in conjunction with ICT classroom use as well.</p>
4.4 - Peer and self-assessment		
<p>In this session you will learn about:</p> <ul style="list-style-type: none"> peer and self-assessment as AfL methods that promote independent learning, communication and support in the classroom combining the use of two self-assessment measures - inventory and traffic lights strategies for peer and self-assessment such as two stars and a wish/thinking hats/checklist 	<p>To meet the learning intentions you will:</p> <ul style="list-style-type: none"> give examples of how you could use inventory and traffic lights in the classroom read about peer and self-assessment and formulate your ideas during discussion peer assess each others homework role play peer assessment between students working at different paces try out some strategies for peer and self-assessment in the classroom 	<p>In this session you will continue consolidating the ICT skills you have learnt so far, and apply them in the classroom. You will be able to apply AfL techniques in conjunction with ICT classroom use as well.</p>

Unit 4 Assessment for learning and lesson pacing

4.5 - Review of AfL and lesson pacing		
<p>In this session you will learn about:</p> <ul style="list-style-type: none"> ▪ self assessment and review as a way of consolidating learning about AfL ▪ ways to ensure lessons are paced appropriately and adapted to learners' needs 	<p>To meet the learning intentions you will:</p> <ul style="list-style-type: none"> ▪ complete a review document about what has been learnt and tried out for AfL ▪ watch two videos and analyse the pace of the lesson shown 	<p>In this session you will continue consolidating the ICT skills you have learnt so far, and apply them in the classroom. You will be able to apply AfL techniques in conjunction with ICT classroom use as well.</p>

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Session 4.1 - Introduction to Assessment for Learning

4.1 - Introduction to Assessment for Learning

Learning intentions and objectives.

In this session you will learn about:

- using an **assessment inventory** as a self-assessment measure
- using Traffic Lights as a tool in AfL
- the concept of 'Assessment' vs 'Assessment for Learning'
- **Assessment for Learning** as the process of seeking and interpreting **evidence** for use by learners and their teachers to decide:
 - where the learners are in their learning,
 - where they need to go next,
 - and how best to get there.

Success criteria.

To meet the learning intentions you will:

- keep a record of the assessment methods that you have used on your assessment inventory
- come up with ways that Traffic Lights can be used to help with the review of progress that is part of AfL
- watch an introductory video on AfL and draw out the important points for discussion
- watch a powerpoint presentation on AfL, pausing for reflection and to think about how interactive teaching techniques can help with the application of AfL in the classroom

ICT components.

In this session you will continue consolidating the ICT skills you have learnt so far, and apply them in the classroom. You will be able to apply AfL techniques in conjunction with ICT classroom use as well.


1 Review of follow-up activities from last session

Edit this review section (http://oer.educ.cam.ac.uk/w/index.php?title=OER4Schools/Designing_interactive_lesson_plans/review_of_follow_up&action=edit)

Educator note

If you are running a professional learning programme which follows these sessions in sequence, then you should do the review of follow-up activities relating to the previous session (Designing interactive lesson plans). The 'review of follow-up activities' for that session is available here, and also shown below in the session text. However, if you are following selected sessions in a different order, then you should use the reflection appropriate to the previous session you did.

The review of the follow-up activities for this session (to be done at the start of the next session) is available here.

 **Small group** (15 min): *Share your reflections on your interactive lesson.* Take turns in your small group sharing your experience of teaching a whole lesson using interactive teaching techniques. Make sure you cover the following:

- What was the objective of the new lesson?
- How was the lesson interactive? What techniques did you use?
- How did you manage the transition from one interactive activity to the next?
- How do you think the lesson went? In particular, how did learners respond to the different activities?
- What would you change if you taught this again?


2 My assessment inventory

OER4Schools

Unit 4: Assessment for Learning

My Assessment Inventory: _____

Date	My understanding of assessment is....	Assessment measures that I have used are...

 **Individual activity** (10 min): *Working on your assessment inventory* Complete the assessment inventory My assessment inventory.doc (http://oer.educ.cam.ac.uk/w/images/f/fd/My_assessment_inventory.doc) ^(info) (http://oer.educ.cam.ac.uk/wiki/File:My_assessment_inventory.doc). You can use this to keep track of the assessment methods that you have used (old and new). Each week as you encounter new methods you can add them to the inventory.

- First fill in your name next to the title then add the date in the first row.
- Next describe your current understanding of assessment by identifying different kinds or elements of assessment that you know about.
- Lastly record the assessment measures that you have used in your classroom to assess the student's progress e.g. do you give them a test/ask them questions and record how they have answered/give them homework and assess how well they have done it etc? Please take care that you mention only the measures that you **have used** yourself and not the measures that you know of but have not tried.

By completing another row at the beginning of each session on Assessment for Learning you can assess your own progress as the workshops proceed. As well as adding assessment methods (e.g. Traffic Lights) you can also add any new learning on assessment that the workshop sessions have highlighted.

Educator note

Orally repeat the guidelines given above regarding the sequence of filling up the inventory. Emphasise that only the assessment measures that participants have used to assess their students should be recorded.

Remind the participants to bring the inventory to every session on assessment.

3 Traffic Lights

Unit 4 is about 'Assessment for Learning' and not simply about 'Assessment'. Before we proceed to understanding more about Assessment for Learning (AfL), let's use our Traffic Lights.

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We have already used the Traffic Lights (robots) in the ICT practice, to indicate our own progress in these activities. Can you see in the photo here that the students are displaying a green card on their desk - indicating that they know what they are supposed to be doing?

Let's do another quick exercise.

Whole class dialogue (10 min): *Whole Group discussion about Traffic Lights.* What do you know about 'Assessment for Learning' at this stage? Show by holding up or putting forward on the table your Traffic Light. Now discuss:

- What are the different ways in which I can use Traffic Lights in my classroom?
- In what ways can I respond to each colour of the Traffic Light?
- When is it appropriate for *students* to respond instead of me? What are the pros and cons of that?



Educator note

Reinforce that when Traffic Lights are displayed the teacher can see at a glance those students that need help. The Traffic Lights can be used while students are engaged in a task to indicate their progress. The teacher may need to gently remind students to display theirs by saying something like "remember to display your Traffic Light", "has everyone displayed their Traffic Light?", "have a look around and make sure that everyone has displayed their Traffic Light" etc.

If the number of participants is 10 or less, make a note of the Traffic Light colour of each participant on a flip chart. You can prepare the flip chart with the participants' names listed on it, in advance.

4 Introducing Assessment for Learning (AfL)

Observing, thinking, reflecting (5 min): *Watching a video on formative assessment.* Watch 2 segments of this video, bearing in mind these questions for reflection:

- How is the concept of AfL different from the commonly known notion of assessment?
- What are some of the elements of AfL that have been mentioned in the video?
- Which element(s) of AfL did you find most interesting? Why?

VIDEO

Shirley Clarke video on feedback

0:00 - 0:56 (introduction to AfL), 4:38 - end (example of 10-year-olds doing peer assessment) In this video, Shirley Clarke explains the concept of 'Assessment for Learning' and its elements in brief. Some elements can also be seen in action.

About this video, 8:19, link to YouTube (http://www.youtube.com/watch?v=DGNp0AJte_c&list=PLtf3oOEBE-EXgP2iN30V3UhCd8x54FGyO) (local play / download options)(Series: Video from other organisations, episode N/A)

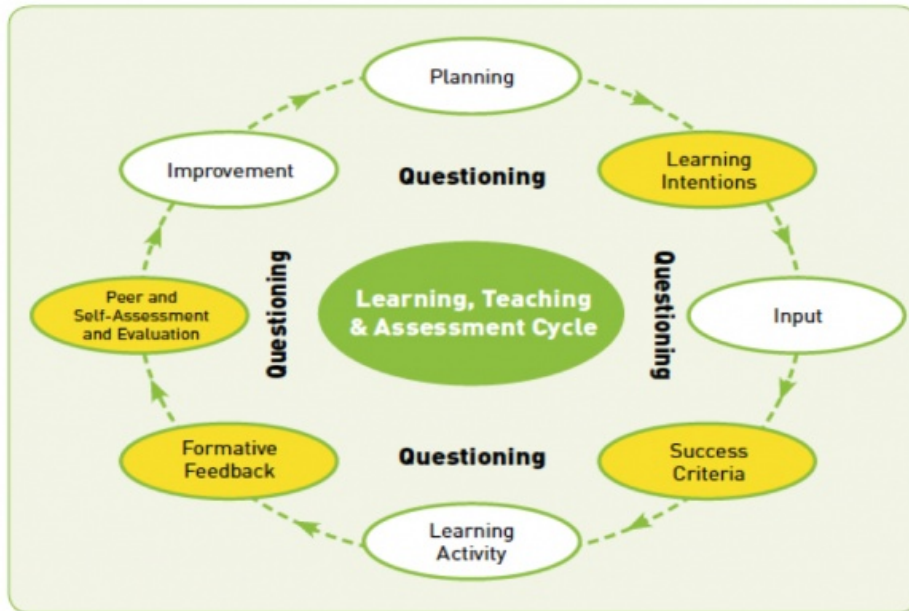
Educator note

Draw out the idea that AfL is about constantly reviewing ones progress rather than being tested on learning at the end of a piece of work. Feedback from peers is an important part of this review process. Also, it is easier to review progress if it is clear what is expected, that's where using success criteria can help.

Whole class dialogue (10 min): *Discussion on the questions.* Discuss the above questions for reflection.

5 Understanding 'Assessment' and 'Assessment for Learning'

AfL Strategies in Teaching-Learning Cycle



Reproduced from: CCEA (2007): *AfL Guidance KS 1-2*, with the kind permission of the Northern Ireland Council for the Curriculum, Examinations and Assessment.

👤 Observing, thinking, reflecting (15 min): *Watching a powerpoint presentation on AfL.* By now, you will have already discussed some of the points that will arise on this PowerPoint. Do a mental assessment to see if your understanding of assessment and AfL advances by watching the PowerPoint (File:Unit 4.1 AfL.ppt).

👤 Whole class dialogue (5 min): *Proposed activity for covering the information on page 3 of the VVOB handout (for slide 8).*

There are 14 short points for participants to get their heads around. These could be divided up amongst the group, so one point each or one between two depending on the group size. Participants should read and understand their point, perhaps coming up with an example to help clarify it to the rest of the group. After allowing participants a few minutes to understand their point, ask them in turn to stand up and explain it to the rest of the group. By the end of this activity the participants will have verbally presented the content in a way that should make the material easily accessible and easier to remember.

Educator note

Play the slideshow of the Power Point 'File:Unit 4.1 AfL.ppt'. Read aloud the contents of the slides if you think it will help the participants.

During slide 8, tell participants that AfL strategies are in yellow ellipses (it is the image at the beginning of this section).

During slide 11, ask participants to read (or to keep reading to a minimum you could do the proposed activity) of

the VVOB handout called 'Questioning the Questions'



that was distributed during Unit

2 Session 2, as a homework task. We will do another activity later that is designed to cover the material on pages 4-6.

During slide 12 titled 'Self-assessment', ask the participants to show their understanding about assessment and AfL on their Traffic Lights. Then take the following steps:

- If anybody shows 'orange light' or 'red light', ask them the specific topic to which they are referring.
- Then ask other participants who have shown 'green light' to explain the topic to their peers.
- If doubts are still not resolved, record the topic and include it in your feedback about the session. Assure participants that you will get back with more information.

Remember the AfL strategies will be discussed in the upcoming sessions. So if doubts are about the strategies, inform the participants that the future sessions will cover them.

If you had prepared a flip chart with the traffic light of each participant before the activity, record their current light. You can also ask the participants to come up and write their current traffic light. This will help them to see their own progress.

Whole class dialogue (15 min): *Whole group reflection on the AfL powerpoint.* Questions for reflection on PowerPoint

- What steps, do you anticipate, you will have to take to implement AfL in your classrooms?
- What issues do you think will arise in implementing AfL in your classrooms? Discuss ways of resolving them with your peers.
- Are there any current practices which are useful or can become useful for AfL with some modifications? For example, current practice of marking notebooks can include qualitative feedback. Discuss these practices, the modifications and their use for AfL with examples.
- Do you think 'Traffic Lights' is a useful strategy for AfL? Why? (Tips: targeted help, self-assessment etc)
- How would you respond to each colour when using Traffic Lights in your classroom?

6 ICT practice: Different-tasks group work with ICT and activity planning

Different-tasks group work (20 min) *on becoming an expert.* You have looked at various ICTs now, including:

- finding and using images
- slideshows
- the browser
- GeoGebra
- spreadsheets
- EtherPad for collaborative writing and concept mapping


You should also be able to type more comfortably now. You should be able to develop ICT ideas that support subject learning in the classroom. You may have found that you have a particular interest in a particular application, or the particular use of an application. In this Unit, you can choose one application and deepen your knowledge.

Throughout this unit, you will have an opportunity to deepen your skills in that application. Have a brief brainstorm as a group about the different ICT skills that you have developed and see who would like to deepen which skills. Ideally as a group you will be able to cover all of the ICTs that we have looked at so far and develop experts for each application. Divide into pairs and think about what you might do for the next few sessions. Which application would you like to

4.1 - Introduction to Assessment for Learning

become more proficient in using? Is there a particular idea that you would like to work on using this application? Is there a particular project that you would like to develop using it? This is your opportunity to become an expert. As you proceed along the next few sessions, make notes about the things that you are exploring with your chosen application. In the last session of this Unit, you will be able to present this.

7 Connecting with overarching goals of the programme

 **Open space** (10 min). It's now time for the "open space", that gives you an opportunity to discuss issues that have arisen, and to relate those to the broader context of the programme. Do not just gloss over this section, but make time to raise issues, and probe the progress that you are making. You could use this space to:

- Remind yourselves of the of the Most Significant Change Technique, and e.g. collect more of your stories.
- Discuss your assessment portfolios: Is there anything that you are unsure about? Is it going well? What could be done better?
- Check on the work with the classroom assistants: Is this going well? Are there any tensions? Any observations or tips you can share?
- Reviewing individual ICT practise (such as typing practise).
- If you are preparing a presentation for other teachers, you could work on the presentation (about what you have been learning, stories emerging from MSC).
- Remind those who are doing audio diaries, to upload them.
- You could discuss any other issues that have arisen.

You will find notes and summaries of various techniques and concepts on our reference page, and you might want to refer to those for clarification during this activity if needed.

8 Follow-up activities

 **Agreeing follow-up activities** (5 min).

Part A: My Assessment Inventory is available electronically (My assessment inventory.doc

(http://oer.educ.cam.ac.uk/w/images/f/fd/My_assessment_inventory.doc) ^(info)

(http://oer.educ.cam.ac.uk/wiki/File:My_assessment_inventory.doc)). Type the answers that you have written on paper, on this electronic version. As soon as you download the inventory, first save it with a new filename, which includes your name. For instance, if your name is "Esther Phiri", save the document with the name "My assessment inventory - Esther Phiri.doc". Save the document to your 'files area' on the desktop, so that it will get copied to the server. Remember to bring the paper inventory for every session and fill up the electronic inventory every week, from now on.

Part B: Try Traffic Lights as a part of one or more teaching lessons. You could employ the help of classroom assistants (from your own or another class) to resolve the doubts of 'red lights' and 'orange lights'; for example those with 'green lights' could then help their peers? Record your experience of using Traffic Lights and your students' responses on the dictaphone.

Part C: Consider watching the video clip and the Powerpoint presentation together again during the week. This will help you in understanding the concept of AfL by seeing some examples from real classrooms.

Educator note

In the next session, these follow-up activities will be reviewed. If you are using this session on its own, you can have a look at the review of follow-up activities here.

9 Acknowledgements

We are very grateful to:

- **Dr Sue Swaffield**, Senior Lecturer in Educational Leadership and School Improvement at Faculty of Education, University of Cambridge for suggestions and permission to use some of her slides in the Power Point presentation;
- **Dr Shirley Clarke**, for permission to use clips from her DVD 'The Power of Formative Assessment' for the session;
- **Northern Ireland Council for the Curriculum, Examinations and Assessment**, for permission to use their document 'CCEA: Afl Guidance KS 1-2 – 2007' in developing the session.

10 References

Assessment Reform Group (2002) Assessment for Learning: 10 Principles. Cambridge: University of Cambridge School of Education.

Criticos, C., Long, R., Moletsane, R., Mthiyane, N., & Mays, T. (2009). Getting practical about classroom-based teaching for the National Curriculum Statement. South Africa: Oxford University Press.

Educator note

At the end of each session, we provide an overview of the activities in this session, together with their suggested timings. Although this appears at the end of the session (for technical reasons), you should keep an eye on this throughout the session, to make sure that you are pacing the workshop session appropriately!

Total time: 120 (min)

Activities in this session:

- **Small group** (15 min): *Share your reflections on your interactive lesson.*
- **Individual activity** (10 min): *Working on your assessment inventory*
- **Whole class dialogue** (10 min): *Whole Group discussion about Traffic Lights.*
- **Observing, thinking, reflecting** (5 min): *Watching a video on formative assessment.*
- **Whole class dialogue** (10 min): *Discussion on the questions.*
- **Observing, thinking, reflecting** (15 min): *Watching a powerpoint presentation on AfL.*
- **Whole class dialogue** (5 min): *Proposed activity for covering the information on page 3 of the VVOB handout (for slide 8)*
- **Whole class dialogue** (15 min): *Whole group reflection on the AfL powerpoint.*
- **Different-tasks group work** (20 min) *on becoming an expert.*
- **Open space**(10 min).
- **Agreeing follow-up activities**(5 min).

If you have printed this session for offline use, you may also need to download the following assets:

- My assessment inventory.doc
(http://oer.educ.cam.ac.uk/w/images/f/fd/My_assessment_inventory.doc)
- Video/Formative Assessment in Schools.mp4 (local play / download options)
- My assessment inventory.doc
(http://oer.educ.cam.ac.uk/w/images/f/fd/My_assessment_inventory.doc)

Retrieved from "http://oer.educ.cam.ac.uk/w/index.php?title=OER4Schools/Introduction_to_Assessment_for_Learning&oldid=20661"

Categories: OER4S CPDCCEPrimaryTeacher Education

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Session 4.2 - Learning objectives and success criteria

4.2 - Learning objectives and success criteria

Learning intentions and objectives.

In this session you will learn about:

- using an **assessment inventory** as a self-assessment measure
- two AfL strategies that improve students metacognition and lead to better learning: sharing **learning objectives** and sharing **success criteria**
- writing/forming learning objectives and success criteria
- activities covered in previous sessions that can be adapted for AfL e.g. magic microphone, concept mapping, talking points

Success criteria.

To meet the learning intentions you will:

- keep a record of the assessment methods that you have used on your assessment inventory
- listen to some Zambian teachers' experience of sharing learning objectives and think about the pros and cons of doing so
- understand the need for sharing learning objectives and sharing success criteria by completing an activity to illustrate this
- plan to write learning objectives and success criteria
- revisit activities covered in previous sessions and think about ways of adapting them for use with AfL

ICT components.

In this session you will continue consolidating the ICT skills you have learnt so far, and apply them in the classroom. You will be able to apply AfL techniques in conjunction with ICT classroom use as well.

1 Review of follow-up activities from last session

Edit this review section (http://oer.educ.cam.ac.uk/w/index.php?title=OER4Schools/Introduction_to_Assessment_for_Learning/review_of_follow_up&action=edit)

Educator note

If you are running a professional learning programme which follows these sessions in sequence, then you should do the review of follow-up activities relating to the previous session (Introduction to Assessment for Learning). The 'review of follow-up activities' for that session is available here, and also shown below in the session text. However, if you are following selected sessions in a different order, then you should use the reflection appropriate to the previous session you did.

The review of the follow-up activities for this session (to be done at the start of the next session) is available here.


Whole group discussion (15 min).

- Did you update the word document My assessment inventory.doc (http://oer.educ.cam.ac.uk/w/images/f/fd/My_assessment_inventory.doc) ^(info) (http://oer.educ.cam.ac.uk/wiki/File:My_assessment_inventory.doc) and save it in your files area on the desktop? Discuss if there were any issues as this activity will be repeated again this week.
- Did you use the Traffic Lights in your class? Share your experience by answering these questions:
 - For which topic did you ask your students to use Traffic Lights?

4.2 - Learning objectives and success criteria


- Did you try different ways of using them such as holding them up all together or putting them forward on the table while they were working?
- How did you handle when students showed different lights?
- Did you employ classroom assistants for helping with Traffic Lights? Will you do it again? Why?
- From your experience, discuss any advantages or disadvantages of using them in your context.
- How did your students handle using the Traffic Lights? (e.g. ease/ difficulty of using them, indicating proper/improper light) What steps will you take so that this can be improved in future lessons?
- Did you manage to see the **video and Powerpoint** shown in the last session together after the workshop? Share if you observed anything new about the concept of AfL or practice of AfL in classroom (i.e. share something that was not discussed in the workshop last week).


2 My assessment inventory

 **Individual activity** (5 min): *Updating the assessment inventory* Update the assessment inventory My assessment inventory.doc (http://oer.educ.cam.ac.uk/w/images/ffd/My_assessment_inventory.doc) ^(info) (http://oer.educ.cam.ac.uk/wiki/File:My_assessment_inventory.doc) that you started in the previous session. Add the date in the second row and describe your current understanding of assessment by identifying different kinds or elements of assessment. Then record the assessment measures that you have used. Please take care that you mention only the measures that you **have used** yourself and not the measures that you know of but have not tried. If you have used Traffic Lights for assessment you can include that now.

3 Need for Sharing Learning Objectives and Success Criteria

It was mentioned in the powerpoint presentation last week that sharing learning objectives and success criteria are two AfL strategies. We will now do an activity to illustrate these strategies. After you complete each question, swap with your neighbour and assess each others attempt (peer assessment).

 **Individual activity** (10 min): *Answering questions*. Fold a plain sheet of paper into 3 equal parts. Write 'Answer 1' on the top of the first section, 'Answer 2' on the top of the second section and 'Answer 3' on the top of the third section. The facilitator will display and read 3 questions for you. Answer them in the respective area on the sheet.

 **Same-task group work** (5 min) *in pairs: Peer assessment*. After answering each question, exchange your sheet with the person sitting next to you. Assess their work. Be critical. Then take your sheets back to answer the next question.

Educator note

The questions are given below. Write each question on the blackboard or flip chart sheets and **display them one at a time** . Also read them out.

Allow 3-4 minutes to answer each question, but no longer. After answering each question, ask participants to exchange their sheets and assess their neighbour's work. Do not allow participants to change answers or assessment once it has been done.


While reading, say the words exactly as they are given below:

- Question 1: Draw a child.
- Question 2: We are learning to name parts of the body. For this please draw a child (do this again even though you did it already in question 1) and label parts of its body.
- Question 3: For the activity of drawing and labelling parts of the body, your success criteria are that your picture should show: (1) at least three parts of the body that are sense organs and (2) at least three parts of the body that have joints.

If participants are not sure about sense organs, mention that there are five senses: seeing, tasting, hearing, touching and smelling.

4.2 - Learning objectives and success criteria

If participants are not sure about parts of the body that have joints, give examples such as elbow, knee, shoulder.

 **Whole class dialogue** (5 min): *Whole Group discussion*. Discuss:

First, think as a learner who was assessed,

- Answering which question was easiest? Why?
- In which question were you most and least sure about your success? Why?
- In which question did you have most and least anxiety about the outcome? Why?

Now, think as an assessor,

- Assessing which question was most easy and least easy? Why?
- Assessing which question was most fair and least fair? Why?

Which of the questions has resulted in the most meaningful drawing of a child?

Educator note

Inform participants that: Question 2 is an example of sharing learning objectives with students; and Question 3 is an example of sharing success criteria with students. More discussion on this will be done during this session, but see if participants realise that learners can succeed much more easily in the classroom if they are told in advance what the criteria for success are.

4 Understanding Learning Objectives and Success Criteria

'Learning objective' has also been referred to as 'Learning intention' in AfL literature.

A **learning intention** is simply a description of what you want your pupils to know, understand or be able to do by the end of a lesson. It tells pupils what the focus for learning is going to be. (AfL Guidance (2007) KS 1-2, Pg 8)

Success criteria are the statements that help pupils recognise if they have been successful in their learning. They summarise the main teaching points (key ingredients) or processes (key steps), and they always link directly to the learning intention. They essentially spell out the steps required to achieve the learning intention, offering explicit guidance on how to be successful. By referring to the success criteria, pupils know if they have achieved the learning intention. (AfL Guidance (2007) KS 1-2, Pg 12)

Consider watching this short video if you are unsure of the differences between learning objectives and success criteria. The teacher in the video uses two acronyms for these:


- **W A L T** = **We Are Learning To...** (learning objectives)
- **W I L F** = **What I'm Looking For...** (success criteria)

VIDEO

Assessment for Learning: sharing learning objectives and outcomes 1

Assessment for Learning: sharing learning objectives and outcomes 1

About this video, 03:25, link to YouTube (<http://www.youtube.com/watch?v=8diVTayHxpk&list=PLtf3oOeBE-EU-CGhfed3LA4e0fXTNT88Y>) (local play / download options) This resource is part of the DfES resource Pedagogy and practice.(Series: Pedpack2, episode 14)

 **Whole class dialogue** (5 min): *on the similarities and differences between learning objectives and success criteria*. Read Question 2 and Question 3 displayed on the board or flip chart again. Discuss:

- What are the similarities between Learning Objectives and Success Criteria for AfL?
- What are the differences between Learning Objectives and Success Criteria for AfL?

4.2 - Learning objectives and success criteria

Educator note

Mention these points if participants have not already mentioned them.

Learning Objectives and Success Criteria are **similar** because:

- success criteria spell out the specific features of the learning objective
- learning objective and success criteria can be same (constant over time) even if the activity changes, e.g. parts of the body can be learnt by drawing (as above) or it can be learnt through poems, stories, questioning and dialogue, or direct teaching; but learning objective and success criteria remain the same
- both provide guidance to students about what is expected from them

Learning Objective and Success Criteria are **different** because:

- Learning objective relates to a topic/lesson while success criteria relate to an activity – spell out the steps needed to achieve the learning objective
- The same learning objective can have different success criteria in different grades. e.g. success criteria for the objective of drawing parts of the body will be simple (such as, head, arms, legs) for Grade 1 but detailed (such as in Question 3) for Grade 4

Why share learning objectives with students?

Informing pupils about what they are going to learn and why they should learn it gives pupils the tools they need to take more responsibility for their own learning and achieve learning independence. Practice shows that pupils who regularly receive this information in the classroom are:

- more focused for longer periods of time;
- more motivated;
- more involved in their learning; and
- better able to take responsibility for their own learning.

This step also immediately and actively involves pupils with their own learning, even before the activity or lesson has begun, and it offers opportunities for key interactions between you and your pupils." (AfL Guidance (2007) KS 1-2, Pg 8)



So, if pupils know what the goals are, they can be more active and proactive in reaching them.

Educator note

The audio clip features teachers discussing about 'feeling uncomfortable' when sharing learning objectives with their students. Whilst **we acknowledge that sharing learning objectives with your students is not standard practice in Zambia^ZKenya^K** there are very good reasons for doing so. Students being aware of what they are expected to learn in a lesson is a step along the way towards them developing their understanding of what is involved in being successful. By students taking greater responsibility for their learning, they are improving their **metacognition** and this has been shown by numerous researchers to have a high level of impact on attainment, especially for students working at a slower pace. The Education Endowment Foundation (EEF) has put together a toolkit currently covering 30 topics, each summarised in terms of their average impact on attainment, the strength of the evidence supporting them and their cost. You will see from this that **strategies that improve student's metacognition are highly effective at improving attainment for very little cost**. Ensure that participants have grasped this vital piece of information.

<http://educationendowmentfoundation.org.uk/toolkit/approaches/into>

👤 Observing, thinking, reflecting (5 min): *Listening to some Zambian teachers reflecting on how they felt about sharing learning objectives with their students. We now listen to a clip that was recorded during an interview with a group of Zambian teachers that have been through the OER4 Schools professional development programme already. They have been asked by the interviewer if there are any new practices that they have learned through the programme they felt that they may not continue with in their own practice.*

"I should just know those objectives as a teacher, but not necessarily telling them to say "today we are going to achieve these objectives"."

4.2 - Learning objectives and success criteria

Teachers interview - learning objectives:

AUDIO

Teachers interview - learning objectives


The audio clip features teachers discussing about 'feeling uncomfortable' when sharing learning objectives with their students.

Teachers interview - learning objectives.mp3, 1:23,(Series: OER4Schools audio, episode N/A)

Transcript: I think personally I would not continue the, telling the kids about brainstorming, this is brainstorming, yeah I wasn't comfortable with that, even telling them the objectives that I'm going to, yeah, I will still stick to what I was taught. I should just know those objectives as a teacher, but not necessarily telling them to say "today we are going to achieve these objectives" ah ah, even the ones where what we are doing now is brainstorming, personally I wasn't comfortable with that! I don't know, maybe, I wasn't comfortable.

Different speaker: I think, to come in on that, even the inspectors if they have come, cos this is not taught in Zambian content. I think you can be questioned that "why are you saying that now it's time for brainstorming?" "It's time for objective, I'll tell you my objective". I think they can question you, "where have you learned this? which lecturer, which college?". You know, they do talk! So I think, the way she has said, even me I was not comfortable, I wasn't. It's better just to come in, ask a question, for you, you know that on your lesson plan you have written "brainstorming". What type of brainstorming? I'll ask you this question. Or I'll tell them to do this. That way, you will be able to know that I have achieved my brainstorm.

And then maybe when it comes to the objective, you are as the teacher, you know what you are going to teach in that lesson, because when preparing your lesson you know maybe you have put two objectives or even one, if you have seen one it's enough, you just put that objective, not to reaching an extent of telling the learners "my objective today it's this and this and this" ah I don't think so, we have gone to two colleges, we have never been taught about that, yes.

 **Whole class dialogue** (5 min): *on the pros and cons of sharing learning objectives and success criteria with your students.*

- What do you think about the point of view expressed in the audio clip?
- Do you think you will feel the same or different when you introduce learning objectives and success criteria to your students?
- How does the research evidence in favour of sharing learning objectives impact on how you feel about this?
- Can you think of any other pros or cons for using these two AfL strategies?
- What could you say to an education minister who visited your class and challenged you about your use of learning objectives and success criteria?

5 Forming Learning Objectives and Success Criteria

Educator note

Remind the participants that one of the learning objectives for today's session is to form learning objectives and success criteria. Also draw to their attention the use of learning objectives and success criteria at the beginning of each session throughout the programme.

Background reading

Points to remember for forming learning objectives:

4.2 - Learning objectives and success criteria

- Learning objectives relate to what students are expected to: know, understand and do (knowledge, understanding and skills). (You can also refer to verbs in the Bloom’s Taxonomy mentioned in the VVOB handout for this.)
 - Knowledge or factual information: e.g. (1) we are learning about ‘learning objectives and success criteria’ for AfL, and (2) we are learning names of Zambian provinces and their capitals. we are learning names of Kenyan counties and their capitals.
 - Understanding such as concepts, reasons and processes: e.g. (1) we are learning about the relationship between learning objectives and success criteria, and (2) we are learning reasons for pollution in Zambia Kenya.
 - Skills or abilities acquired through training or experience. e.g. (1) we are learning to form learning objectives and success criteria for AfL, and (2) we are learning to draw bar graphs from raw data.
- Learning objectives specify learning. They do not specify the activity.
- It is good to have generic learning objectives that can be transferred across the curriculum, e.g. (1) we are learning to download pictures from flickr, (2) we are learning to work effectively in groups, (3) we are learning to use evidence to support an opinion, and (4) we are learning to interpret data.
- Learning objectives should be in simple language that students can easily understand.
- Learning objectives should be broad enough to allow pupils of all capabilities to achieve them; “the **differentiation** is in the way the pupils achieve or demonstrate the intention, not by creating different learning intentions for pupils of different abilities.” (AfL Guidance (2007) KS 1-2, Pg 10). So you might expect some pupils to achieve more but they will all share the same learning objective and success criteria.

Note: You might want to record the learning objective on the blackboard at the beginning of a lesson or you may already be doing this.

Points to remember for forming success criteria:

- Success criteria relate to the specific activity
- Success criteria focus on specific teaching points or processes, e.g. in Question 3 above, the success criteria focus on including particular parts of the body (teaching points)
- Success criteria should also have simple child-friendly language

Educator note


Display the following on the board or a flip chart sheet and read it aloud:


Your success criteria for forming learning objectives are:

- focus on learning
- one key aspect from knowledge, understanding or skill (understanding and skill preferred)
- simple child-friendly language

Your success criteria for forming success criteria are:

- specific to the activity for achieving learning objective
- detailed information about your expectation of students
- simple child-friendly language

 **Same-task group work** (10 min) *in pairs*. Read Question 2 and Question 3 displayed on the flip charts again. With a same grade buddy, think of a topic that you will be teaching this week. Form the learning objectives and success criteria for this topic. Write them on the board or flip chart so that everybody will be able to see them. Your facilitator has already displayed the success criteria for this activity. Think about **differentiation** – how can all pupils achieve the learning intention to some degree?

 **Whole class dialogue** (10 min): *Whole Group discussion* Display your planned activity and read out your learning objective and success criteria to all other participants. Other participants should:

- assess the learning objective and success criteria in view of the success criteria mentioned above
- comment positively about criteria that are met
- make suggestions for addressing any criteria that are not yet met

6 Activities for AfL


In the previous units you have done some activities that can be used for AfL with some adaptation. Today we will revisit these activities in the context of AfL.

Educator note

If there is time, form three groups. Ask each group to read one activity and do a role play of carrying out the activity in the class. Role play can be done by one participant acting as a teacher and other participants acting as students. Some acting students demonstrate right answers, some demonstrate wrong answers, and some demonstrate partial understanding. The acting teacher demonstrates handling of all these answers.


Alternatively, different groups can explain the activities with more examples.

- **Magic microphone^(a)** (Unit 2 Session 1) - Ask an open question about a topic, for example “How many ways can you think of to make 23?”. Pass around a prop. Whoever has the prop will give one answer to the question. Allow students to use mini-blackboards to work out their answers. If many students give right answers, increase the challenge by changing to a 3-digit number. If many students give the wrong answer, revise the topic again in class.
- **Concept Mapping^(a)** (Unit 2 Session 4) - Write the main topic for which aspects have already been covered over a period of time in different lessons, on a concept mapping software or black board. Ask students to review all that they have learned about the topic and report them as answers. Record answers but do not correct wrong answers at this time. Review all answers in the end by asking students for opinion about each answer - if they are right; wrong; and how they can be improved. Avoid naming any student who said the wrong answers. For topics for which many students think positively about the wrong answer, revise them again in class. e.g. for the topic ‘mammals’ if many students think that man is not a mammal, revise the topic.
- **Talking Points^(a)** (Unit 3 Session 5) - Frame some right, some wrong and some unsure statements about a topic. Try to include topics for which your students have struggled during teaching. Discuss each sentence as a whole class activity. Try the ‘**No hands up^(a)**’ strategy; this supports AfL because it allows you to assess understanding of any learners that you think may not understand or may not be following. If shy pupils do not participate, use this or other non-voluntary participation strategies (Unit 2 Session 3) to select students for answering. You will come to know about common misconceptions through this activity so that you can address them.

 **Whole class dialogue** (10 min): *Whole group discussion.* Discuss:


- Which activity(ies) do you think you would like to try this week? Why?
- Do you foresee any problems in carrying out these activities based on your previous experience of doing them? Discuss solutions with your peers.

7 ICT practice: Different-tasks group work with ICT and activity planning

 **Different-tasks group work** (20 min) *on becoming an expert.* As we discussed in the ICT practice in the first session of this unit, you now have an opportunity to deepen your skills in your chosen application. Divide into the same pairs as last time and continue developing the skills in your chosen application. What is the idea that you are developing? In the last session of this Unit, you will be able to present what you have developed, so make notes, and work towards a particular item, such as a spreadsheet, a GeoGebra file etc.

8 Connecting with overarching goals of the

programme

 **Open space** (10 min). It's now time for the "open space", that gives you an opportunity to discuss issues that have arisen, and to relate those to the broader context of the programme. Do not just gloss over this section, but make time to raise issues, and probe the progress that you are making. You could use this space to:

- Remind yourselves of the of the Most Significant Change Technique, and e.g. collect more of your stories.
- Discuss your assessment portfolios: Is there anything that you are unsure about? Is it going well? What could be done better?
- Check on the work with the classroom assistants: Is this going well? Are there any tensions? Any observations or tips you can share?
- Reviewing individual ICT practise (such as typing practise).
- If you are preparing a presentation for other teachers, you could work on the presentation (about what you have been learning, stories emerging from MSC).
- Remind those who are doing audio diaries, to upload them.
- You could discuss any other issues that have arisen.

You will find notes and summaries of various techniques and concepts on our reference page, and you might want to refer to those for clarification during this activity if needed.

9 Follow-up activities

 **Agreeing follow-up activities** (5 min).

Part A: Update the electronic version of "my assessment inventory". Open your file from your 'files area' on your desktop. Fill it in and save it again. Remember to bring the paper inventory to every session and make an entry in the electronic inventory every week.

Part B: Share with your class the learning objective and success criteria that you have formed in the session today. Consider using **W A L T** and **W I L F** to help your students get to grips with what is meant by learning objectives and success criteria. Record your experiences on the dictaphone and upload onto the server.

Part C: Form learning objectives and success criteria for as many lessons as you can during this week. Refer to verbs in the Bloom's Taxonomy mentioned in the VVOB handout 'Questioning the questions' (pages 3 to 6) for this. Make a note of your learning objectives and success criteria for discussion in the next session.

Part D: Try out one or more of the adapted activities for AfL that we discussed today in Activity 6. Record your experiences on the dictaphone and upload onto the server.

Part E: *Optional reading activity* (if you want to go into the material covered in greater depth). As there is a lot of material to cover we have suggested a way of doing so to reduce the burden for each individual.

Divide yourself into two groups (for practical reasons, choose members of these groups who can work together outside the workshop session if possible).

The group tasks are:

- **Group One:** Read pages 8 to 11 about Learning Intentions from the "AfL Guidance (2007) for KS 1-2" .pdf document (AfL-Guidance_KS_1-2-2007-pages_1_to_14.pdf (http://oer.educ.cam.ac.uk/w/images/d/d2/AfL-Guidance_KS_1-2-2007-pages_1_to_14.pdf) ([info](http://oer.educ.cam.ac.uk/wiki/File:AfL-Guidance_KS_1-2-2007-pages_1_to_14.pdf)) (http://oer.educ.cam.ac.uk/wiki/File:AfL-Guidance_KS_1-2-2007-pages_1_to_14.pdf)). You can skip sections 'Defining the learning' and 'what makes a good learning intention' as these have been covered in the session. Read everything else.
- **Group Two:** Read pages 12 to 14 about success criteria from the "AfL Guidance (2007) for KS 1-2" .pdf document (AfL-Guidance_KS_1-2-2007-pages_1_to_14.pdf (http://oer.educ.cam.ac.uk/w/images/d/d2/AfL-Guidance_KS_1-2-2007-pages_1_to_14.pdf) ([info](http://oer.educ.cam.ac.uk/wiki/File:AfL-Guidance_KS_1-2-2007-pages_1_to_14.pdf)) (http://oer.educ.cam.ac.uk/wiki/File:AfL-Guidance_KS_1-2-2007-pages_1_to_14.pdf)).
- **Both groups:** Identify points (from your group's pages) that are new (i.e. have not been discussed during the session). Record a few notes about these points for the benefit of the other group members and bring these to the next session. You could also email them to the OER4schools Google group mailing list.
- **Note:** We recommend that you read all pages 1 to 14 from the document as background reading for AfL

4.2 - Learning objectives and success criteria

and the two strategies discussed in this session.

Educator note

In the next session, these follow-up activities will be reviewed. If you are using this session on its own, you can have a look at the review of follow-up activities here.

10 Acknowledgements

Some parts of this session have been adapted or reproduced from: CCEA: Afl Guidance KS 1-2 – 2007, with the kind permission of the Northern Ireland Council for the Curriculum, Examinations and Assessment.

Thanks once again to Sue Swaffield (University of Cambridge) for the ideas we drew on in this session.

Educator note

At the end of each session, we provide an overview of the activities in this session, together with their suggested timings. Although this appears at the end of the session (for technical reasons), you should keep an eye on this throughout the session, to make sure that you are pacing the workshop session appropriately!

Total time: 120 (min)

Activities in this session:

- **Whole group discussion**(15 min).
- **Individual activity** (5 min): *Updating the assessment inventory*
- **Individual activity** (10 min): *Answering questions.*
- **Same-task group work** (5 min) *in pairs: Peer assessment.*
- **Whole class dialogue** (5 min): *Whole Group discussion.*
- **Whole class dialogue** (5 min): *on the similarities and differences between learning objectives and success criteria.*
- **Observing, thinking, reflecting** (5 min): *Listening to some Zambian teachers reflecting on how they felt about sharing learning objectives with their students.*
- **Whole class dialogue** (5 min): *on the pros and cons of sharing learning objectives and success criteria with your students.*
- **Same-task group work** (10 min) *in pairs.*
- **Whole class dialogue** (10 min): *Whole Group discussion*
- **Whole class dialogue** (10 min): *Whole group discussion.*
- **Different-tasks group work** (20 min) *on becoming an expert.*
- **Open space**(10 min).
- **Agreeing follow-up activities**(5 min).

If you have printed this session for offline use, you may also need to download the following assets:

- My assessment inventory.doc (http://oer.educ.cam.ac.uk/w/images/ffd/My_assessment_inventory.doc)
- My assessment inventory.doc (http://oer.educ.cam.ac.uk/w/images/ffd/My_assessment_inventory.doc)
- Video/Pedpack2-12.m4v (local play / download options)
- Afl-Guidance_KS_1-2-2007-pages_1_to_14.pdf (http://oer.educ.cam.ac.uk/w/images/d/d2/Afl-Guidance_KS_1-2-2007-pages_1_to_14.pdf)
- Afl-Guidance_KS_1-2-2007-pages_1_to_14.pdf (http://oer.educ.cam.ac.uk/w/images/d/d2/Afl-Guidance_KS_1-2-2007-pages_1_to_14.pdf)

4.2 - Learning objectives and success criteria

title=OER4Schools/Learning_objectives_and_success_criteria&oldid=21029"

Categories: OER4S CPDCCEPrimaryTeacher EducationOER4Schools ZambiaOER4Schools Kenya

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Session 4.3 - Formative feedback

4.3 - Formative feedback

Learning intentions and objectives.

In this session you will learn about:

- using an assessment inventory as a self-assessment measure
- two types of feedback (**summative feedback and formative feedback**) and their use in AfL
- how to give formative feedback

Success criteria.

To meet the learning intentions you will:

- keep a record of the assessment methods that you have used on your assessment inventory
- watch videos of formative and summative feedback in action and draw out the salient points
- read about the differences between summative and formative feedback
- role play giving and receiving formative feedback

ICT components.

In this session you will continue consolidating the ICT skills you have learnt so far, and apply them in the classroom. You will be able to apply AfL techniques in conjunction with ICT classroom use as well.

1 Review of follow-up activities from last session

Edit this review section (http://oer.educ.cam.ac.uk/w/index.php?title=OER4Schools/Learning_objectives_and_success_criteria/review_of_follow_up&action=edit)

Educator note

If you are running a professional learning programme which follows these sessions in sequence, then you should do the review of follow-up activities relating to the previous session (Learning objectives and success criteria). The 'review of follow-up activities' for that session is available here, and also shown below in the session text. However, if you are following selected sessions in a different order, then you should use the reflection appropriate to the previous session you did.

The review of the follow-up activities for this session (to be done at the start of the next session) is available here.

Whole group discussion (15 min).

- Did you type your responses to the **My Assessment Inventory** on the Word document and save it in your files area on the desktop? Discuss if there were any issues as this activity will be repeated again this week.
- Share the new points that you have found from reading of your group's pages from the document 'AfL-Guidance (2007) for KS1-2'. Elaborate on these points with examples from your understanding that have been shaped by your teaching experience. Also share examples given in the document.

Educator note

Highlight to the teachers that in the document it is explicitly mentioned that learning objectives and success criteria should be negotiated with the pupils. This will happen gradually when students get used to hearing the learning objectives and success criteria in every lesson and working to achieve them. Teachers should assess when their students are ready for the negotiation and then introduce it.


4.3 - Formative feedback

- Which learning objectives and success criteria did you form during the week? Did you face any issues in forming them (e.g. too wide/ too narrow, language child-friendly or not)? Share some examples with your peers.
- Did you try to share the learning objectives and success criteria with your students? How did you do it? (e.g. writing on the board, telling orally, displaying on a chart)
- Did you remind students about these objectives during the lesson? What were your students' responses to these? (Remember we do not expect immediate improvement in learning but awareness of the objectives at this time should also be helpful in some ways. Share these experiences, if there were any.)
- Did you try one or more activities adapted for AfL in your classroom?
 - Which activity(ies) did you try and for which topic?
 - Did you find it useful for assessing students' learning?
 - What steps did you take to follow up on what you learned from the assessment (e.g. revising the topic or increasing the challenge)?

2 My assessment inventory

Educator note

As this activity is repeated every week, avoid spending more than 4-5 minutes on it. Ask participants to start filling up the inventory as soon as they arrive for the workshop if there is any waiting time for everybody to get together.

 **Individual work** (5 min) *updating assessment inventory*. Update the assessment inventory My assessment inventory.doc (http://oer.educ.cam.ac.uk/w/images/ffd/My_assessment_inventory.doc) ^(info) (http://oer.educ.cam.ac.uk/wiki/File:My_assessment_inventory.doc) that you started at the beginning of Unit 4. Add the date in the third row and describe your current understanding of assessment by identifying different kinds or elements of assessment. Then record the assessment measures that you have used. Please take care that you mention only the measures that you **have used** yourself and not the measures that you know of but have not tried.

3 Examples of different types of feedback

You have seen a short video clip of this same lesson before when you discussed mixed pace group work. During the lesson portrayed in these 2 video clips, Judith assigned groups to work on maths problems together. She invited students to share how they worked out the problems. Then she invited group secretaries to report the answers of their group. Finally, she assessed each group's learning by involving all students in the whole-class assessment.

In today's session the first short clip (group working on maths problem: duration 36 secs.) and the first part of the second clip (one girl shows her group's working) will help to familiarise you with the context. Then watch the final part of the second video from the perspective of assessment (Judith goes through the groups' answers: clip duration is 2.36). Discuss the episode afterwards using the stimulus questions below.

Video sequence:

VIDEO

Group discussion on division

Judith's lesson: Group talk on division


About this video, 12:34, link to YouTube (<http://www.youtube.com/watch?v=7oNonwFuq-s&list=PLtf3oOEBE-EUWzUGK3mlewZAtwxnyD30v>) (local play / download options)(Series: Judith Division, episode N/A)

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VIDEO**Division demonstration and scoring**

Judith's lesson: Division demo and scoring

About this video, 12:34, link to YouTube (<http://www.youtube.com/watch?v=mR1AAS7bAVA&list=PLtf3oOEbE-EUWzUGK3mlewZAtwxnyD30v>) (local play / download options)(Series: Judith Division, episode N/A)

 **Observing, thinking, reflecting** (10 min): *Video clips involving students in assessing their own learning.* Suggested questions for reflection:

- Judith involved all students in assessing the learning of their own group. Share any personal experiences when you have involved students in assessing their own learning as a group.
 - What was your topic?
 - How did you assess the learning?
 - How did you involve your students?
- Giving marks to students for their learning is common practice in classrooms in most countries. How often and when do you give marks to your students?
- How could teachers use AfL to **diagnose** what the low achievers like the group in the video had trouble with understanding?
- Can you think of other ways of giving feedback (besides giving marks) to students and involving them, so that they can be aware of their own learning?

 **Whole group discussion** (10 min) *on formative assessment video.* Reflect on these questions as you watch the following video, then discuss them:

- From Shirley Clarke's brief description at the beginning, what do you think was the most significant point related to feedback?
- What do you notice in Helen's discussion about the drawing when she was talking to the whole class?
- Do you think Helen's feedback to the boy was fair? Why?
- Helen's feedback was not quantitative but qualitative. Do you think this was more helpful or less helpful than the quantitative feedback? Why?

Shirley Clarke video on feedback: Watch from 0:00 to 4:37

VIDEO**Shirley Clarke video on feedback**

0:00 - 0:56 (introduction to AfL), 4:38 - end (example of 10-year-olds doing peer assessment) In this video, Shirley Clarke explains the concept of 'Assessment for Learning' and its elements in brief. Some elements can also be seen in action.

About this video, 8:19, link to YouTube (http://www.youtube.com/watch?v=DGNp0AJte_c&list=PLtf3oOEbE-EXgP2iN30V3UhCd8x54FGyO) (local play / download options)(Series: Video from other organisations, episode N/A)

- **(Optional extra question, skip if there is less time)** Imagine this situation: Helen was assessing the boy's drawing at home i.e. when the child was not physically present near her. Would she still be able to give qualitative feedback? What would it look like?

Now watch the following video showing a different form of feedback.

VIDEO**Secondary improvement**

Secondary improvement marking

About this video, 01:53, link to YouTube (<http://www.youtube.com/watch?v=LNxU7hn6FqM&list=PLtf3oOEbE-EXgP2iN30V3UhCd8x54FGyO>) (local play / download options)(Series: Video from other organisations, episode N/A)

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Whole group discussion (10 min) *on giving written feedback.* Suggested questions for reflection:

- How was feedback in this video clip different from the clip of Helen?
- What are the advantages of giving written feedback to students?
- Do you think giving written feedback is possible in your context? What could be the issues? Discuss ways to solve these issues with your peers.

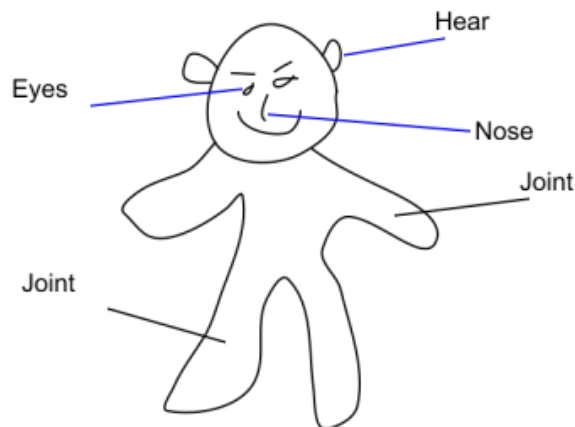
4 Understanding summative and formative feedback

Educator note

Remind participants about the second Activity from last session (Unit 4 Session 2): Read Question 3 again for the benefit of the participants. It was: For the activity of drawing and labelling parts of the body, your success criteria are that your picture should show: (1) at least three parts of the body that are sense organs and (2) at least three parts of the body that have joints.

Ask the participants to turn to the third Activity ('Understanding summative and formative feedback') from the current session's printouts.

Look at the example below. Two teachers - Teacher A and Teacher B have given feedback on this work.



Teacher A: This is inaccurate. Please try again.

Teacher B: You have drawn and labelled most of the sense organs and joints correctly. Good work! You might want to check whether "hear" is an organ? Did you check that you have labelled three joints?

Whole class dialogue (10 min): *on the quality of feedback given.* Questions for reflection:

- What are some differences between the feedback given by Teacher A and Teacher B?
- How would the feedback differ if it was given in the whole class (oral) or to the individual student (oral or written)?

Individual activity (10 min): *Reading about the differences between summative and formative assessment.* Read the following:

Some common characteristics and differences between summative and formative feedback are:

Summative Feedback	Formative Feedback

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1. Indication of accurate or inaccurate (tick or cross).
2. Usually accompanied by a grade or mark.
3. Usually provided a day or two after students have handed in their work.

1. Positive comments to describe work that is done well (descriptive, with reference to success criteria).
2. Would indicate to student what they need to improve on, if necessary, OR encourages students to develop their thinking beyond the current success criteria
3. Feedback is given as soon as possible.

Formative feedback is more helpful for students' learning because it gives them pointers for the future. Like sharing objectives and criteria with pupils, it also **gives the learners responsibility for developing their own thinking and skills**. Sharing this responsibility is a key element of interactive teaching and it reduces the pressure on students.

Educator note

Highlight to the teachers:

- formative feedback **assists students' learning**
- the words in formative feedback communicate **respect for students and their work, and position students to be in control** of what they need to improve on (particularly the weaker students)

Note if teachers have any concerns about giving formative feedback. For instance,

- giving individual feedback during whole class teaching
- insufficient time

Some suggestions to resolve the concerns are:

- provide feedback based on commonly-made errors to the whole class, with reference to success criteria
- identify students who are able to successfully complete the task to assist other students
- provide written feedback

If there is time, consider these questions:

- Can summative feedback and formative feedback be given concurrently?
- How could that help students' learning?

Break: Ask participants to take a 3-4 minute break. They can do whatever they like in the workshop room like walk for a bit, stretch, drink water, sing a song together etc, but should be asked to stay in the room as you do not want to lose the momentum or be delayed in restarting. Start again promptly after 4 minutes. You could play some music while participants relax, and stop the music to indicate that it's time to return to their seats. They might want to change places after the break too.

5 Giving formative feedback

Read the Science question below and the responses from two students.

Lesson Objective: We are learning ways of preventing being infected by malaria.

Success Criteria: I will be successful if I can write at least two correct ways of preventing the malaria infection, communicating clearly and in some detail.

Question: Imagine you are going to visit someone in an area that is known to be infested with mosquitoes. Describe two ways to avoid being infected by malaria.

Sample student's response:

Mary: I will avoid getting bitten by mosquitoes because malaria is very unpleasant.

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Mulenga: As mosquitoes bite particularly at night, I will make sure I sleep in rooms that have a good mosquito net or wear a long-sleeved shirt. If I can plan in advance, I will visit a doctor to take some preventive medicine.

Whole class dialogue (5 min): *Whole group brainstorm on what feedback to give the students.* As a group, brainstorm:

- What will be my feedback to Mary? Why?
- What will be my feedback to Mulenga? Why?

Role play (5 min) *teacher-student feedback in pairs.* Break into pairs, assign roles (teacher, Mary/Mulenga), and do a role play for 5 minutes. The person playing the teacher gives the feedback (based on the brainstorm you have just done), and the other participant (playing first Mary and then Mulenga) responds to the teachers comments or keeps a note of how the feedback makes them feel. Then swap roles and role play again.

Educator note

Encourage participants to provide different formative feedback to each of the students. This may involve:

- i. Acknowledge Mary's attempt to respond to the question - prompt her to elaborate more on how he/she could avoid being bitten by mosquitoes.
- ii. Give full credits to Mulenga for her response through positive affirmation that comments on how she has addressed the success criteria (eg she has highlighted important strategies, clearly stated, nicely detailed). Also consider challenging her by encouraging her to think of another preventive way of being infected by malaria or whether she knows what preventive drug can be used.

It is expected that participants' feedback will evolve during the brainstorm. This will happen if you reinforce the points below through modelling them yourself.

Educator note

Limit the time to 5 minutes.

Whole group dialogue (5 min): *Whole group discussion on teacher-student role plays.* Come back together as a group. Discuss the role plays. Was it easier to give feedback to Mary or Mulenga? How did you feel when you were receiving feedback? Make a note of any particular points that you could use in the future when giving feedback to students.

While giving formative feedback (individually or in whole class):

- always **begin with what is good** about students' work or which success criteria have been met and appreciate students' responses
- ask students to **reflect on which criteria was/were not met** before you tell them.
- ask students **what they could do next time**/could have done this time to meet the success criteria
- **suggest some points** on which students could act **immediately**/in near future
- for high achievers suggest some points that can be achieved beyond the success criteria

Educator note

Ask participants to pay particular attention to the words that they use - sensitive language that guides students for further action/effort is best. The feedback should be directed at students' responses or work and NOT at the students themselves.

Related resources

This **Zedupad** resource *Fred the Fly learns about Malaria* (see link below) is an informative interactive resource with multiple choice questions on malaria prevention and a drag and drop activity at the end that could be used as part of a formative assessment. If you decide to use the resource, remember to plan in advance of the lesson what the success criteria will be and how you are going to provide feedback to the students.

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http://www.zedupad.com/zambian_school_lessons.php

6 ICT practice: Different-tasks group work with ICT and activity planning

👤 Different-tasks group work (20 min) *on becoming an expert.* As we discussed in the ICT practice in the first session of this unit, you now have an opportunity to deepen your skills in your chosen application. Divide into the same pairs as last time and continue developing the skills in your chose application. What is the idea that you are developing? In the last session of this Unit, you will be able to present what you have developed, so make notes, and work towards a particular item, such as a spreadsheet, a GeoGebra file etc.

7 Connecting with overarching goals of the programme

👤 Open space (10 min). It's now time for the "open space", that gives you an opportunity to discuss issues that have arisen, and to relate those to the broader context of the programme. Do not just gloss over this section, but make time to raise issues, and probe the progress that you are making. You could use this space to:

- Remind yourselves of the of the Most Significant Change Technique, and e.g. collect more of your stories.
- Discuss your assessment portfolios: Is there anything that you are unsure about? Is it going well? What could be done better?
- Check on the work with the classroom assistants: Is this going well? Are there any tensions? Any observations or tips you can share?
- Reviewing individual ICT practise (such as typing practise).
- If you are preparing a presentation for other teachers, you could work on the presentation (about what you have been learning, stories emerging from MSC).
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- You could discuss any other issues that have arisen.

You will find notes and summaries of various techniques and concepts on our reference page, and you might want to refer to those for clarification during this activity if needed.

8 Follow-up activities

👤 Agreeing follow-up activities (5 min).

Part A: Update the electronic version of "my assessment inventory". Open your file from your 'files area' on your desktop. Fill it in and save it again. Remember to bring the paper inventory to every session and make an entry in the electronic inventory every week.

Your success criteria for all Formative Feedback homework below are:

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- identifying evidence where the student performed well and appreciating that performance
- identifying evidence where the student could improve and giving practical tips for improving
- suggesting a higher target for high achieving students

Part B: For any topic that you are teaching this week, display the learning objective and success criteria. Then randomly choose a student's work and assess it with the whole class with reference to the success criteria. You can watch Helen's video clip again as an example for this homework. Record your experience on the dictaphone.

Part C: For a topic that you teach this week, give oral formative feedback to two students who (a) perform well and (b) struggle in the lesson. Record answers to the following questions on the dictaphone:

- What feedback did you give to each student?
- Why did you give that feedback?
- What difference did your feedback make to your students' learning?

Part D: Give written feedback to a few students in your class this week. Record your observations of the experience and students' learning on the dictaphone.

If possible, take pictures of the written work and your feedback with a digital camera. Upload it onto the server. Otherwise, bring the samples of your written feedback in the next workshop session.

Educator note

In the next session, these follow-up activities will be reviewed. If you are using this session on its own, you can have a look at the review of follow-up activities here.

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Total time: 120 (min)

Activities in this session:

- **Whole group discussion**(15 min).
- **Individual work** (5 min) *updating assessment inventory.*
- **Observing, thinking, reflecting** (10 min): *Video clips involving students in assessing their own learning.*
- **Whole group discussion** (10 min) *on formative assessment video.*
- **Whole group discussion** (10 min) *on giving written feedback.*
- **Whole class dialogue** (10 min): *on the quality of feedback given.*
- **Individual activity** (10 min): *Reading about the differences between summative and formative assessment.*
- **Whole class dialogue** (5 min): *Whole group brainstorm on what feedback to give the students.*
- **Role play** (5 min) *teacher-student feedback in pairs.*
- **Whole group dialogue** (5 min): *Whole group discussion on teacher-student role plays.*
- **Different-tasks group work** (20 min) *on becoming an expert.*
- **Open space**(10 min).
- **Agreeing follow-up activities**(5 min).

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- Video/Judith division group talk.m4v (local play / download options)
- Video/Judith division demo and scoring.m4v (local play / download options)
- Video/Formative Assessment in Schools.mp4 (local play / download options)
- Video/Secondary improvement marking.mp4 (local play / download options)

4.3 - Formative feedback

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Session 4.4 - Peer and self-assessment

4.4 - Peer and self-assessment

Learning intentions and objectives.

In this session you will learn about:

- **peer and self-assessment** as AfL methods that promote independent learning, communication and support in the classroom
- combining the use of two self-assessment measures - inventory and traffic lights
- strategies for peer and self-assessment such as two stars and a wish/thinking hats/checklist

Success criteria.

To meet the learning intentions you will:

- give examples of how you could use inventory and traffic lights in the classroom
- read about peer and self-assessment and formulate your ideas during discussion
- peer assess each others homework
- role play peer assessment between students working at different paces
- try out some strategies for peer and self-assessment in the classroom

ICT components.

In this session you will continue consolidating the ICT skills you have learnt so far, and apply them in the classroom. You will be able to apply AfL techniques in conjunction with ICT classroom use as well.


1 Review of follow-up activities from last session

Edit this review section (http://oer.educ.cam.ac.uk/w/index.php?title=OER4Schools/Formative_feedback/review_of_follow_up&action=edit)

Educator note

If you are running a professional learning programme which follows these sessions in sequence, then you should do the review of follow-up activities relating to the previous session (Formative feedback). The 'review of follow-up activities' for that session is available here, and also shown below in the session text. However, if you are following selected sessions in a different order, then you should use the reflection appropriate to the previous session you did.

The review of the follow-up activities for this session (to be done at the start of the next session) is available here.

 **Individual work** (5 min) *updating assessment inventory*. Update the assessment inventory that you started in session 4.1 (use the template File:My assessment inventory.doc). Add the date in the fourth row and describe your current understanding of assessment by identifying different kinds or elements of assessment. Then record the assessment measures that you have used. Please take care that you mention only the measures that you **have used yourself** and not the measures that you know of but have not tried.

Educator note

As this activity is repeated every week, avoid spending more than 4-5 minutes on it. Ask participants to start filling up the inventory as soon as they arrive for the workshop if there is any waiting time for everybody to get together.

4.4 - Peer and self-assessment

Individual work (5 min): *Filling out a table on formative feedback use.* Working on your own, fill out the table below to indicate quickly what kind of formative feedback you have given to your students in your lessons in the past week. First, record whether you gave this feedback by answering 'yes' or 'no'. If your answer is 'yes' then write the topic of the lesson. After that answer 'yes', 'no' or 'not sure' for whether it was easy to do and whether it was helpful for your students' learning.

Type of Formative Feedback	Did you give this feedback?	Topic?	Easy to do?	Helpful for learning?
1. Provide whole-class oral formative feedback.				
2. Provide different formative feedback to two students (one performing well and the other struggling).				
3. Provide written formative feedback to students or individual student.				

Whole group dialogue (5 min) *on formative feedback use.* As a group, discuss the following questions:

- Which type of formative feedback did you find most challenging to give to your students? Why do you think so?
- How did the two students (one performing well and the other struggling) respond to your formative feedback? Why?
- Which type of formative feedback was most helpful for your students? In what way(s) has it been helpful for your students?

Educator note

Highlight to the teachers that for formative feedback to work, they must first believe that success in learning is dependent on students' effort in trying to get better at what they are doing. That is the whole point of formative feedback. After this, it is important to practise formative feedback using appropriate words to encourage the students.

The teachers may come to realise that the words that they use in their feedback may sometimes be very discouraging for the students (especially if they have previously been labelled as slow learners). The teachers should be sensitive to how well the students are responding to their feedback. Teachers need to believe that given time and using formative feedback regularly, ALL students are capable of learning much better.

- Did you make use of the Open Office Impress application to order images for any of your lessons last week? For which topic did you use it? Did you find it useful for AfL i.e. were you able to identify students who need less/more support for the sequencing topic? Describe the support that you provided especially in relation to formative feedback.
- Did you face any issues with technology, with finding appropriate pictures or with carrying out the activity, while using OpenOffice Impress. How did you resolve them? Discuss any unresolved issues with your peers.


2 Use of inventory and traffic lights for self-assessment

Observing, thinking, reflecting (5 min): *Use of traffic lights.* Inventory and Traffic Lights are both self-assessment measures. You have learned the use of both these measures during the sessions in Unit 4. Using the traffic light cards that you have available at your school (or whatever equivalent you are using), show your comfort level with use of these two measures. For this exercise, the different colours of the traffic lights are as follows:




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- **RED** means “I’m not confident about using the two measures for self-assessment.”
- **ORANGE** means “I’m not quite sure about using the two measures for self-assessment. I need a little more clarification.”
- **GREEN** means “I understand fully how to use the two measures for self-assessment.”

 **Whole class dialogue** (10 min): *Whole group discussion on traffic lights.* Discuss your experiences of using these measures by reflecting on the questions below:

- What are the advantages of using inventory as a self-assessment measure?
- Do you think it can be useful for your own students? Why/Why not?
- What could be some of the topics for which you could use inventory as a self-assessment measure?
- Why do you think that you are able to self-assess using the inventory and traffic lights?
- Do you think your students can self-assess themselves on a particular topic without giving them any help? Why is that so?
- Just as you have done in this activity, could you combine the use of inventory and Traffic Lights for self-assessment in your class?
- What could be the problems in carrying out any or both of the self-assessment measures? How will you resolve them?

3 Video watching on peer and self assessment

 **Individual activity** (5 min) *Background reading.* Peer and self-assessment is another AfL strategy that ‘promotes independent learning, communication and support in the classroom.’ (Afl Guidance, p 26). Read the following text that is summarised from the Afl Guidance notes (here or see below) You can also listen to the first part of the text:

Abel - AfL background text:

AUDIO

Abel - AfL background text.mp3

The description of the video

Abel - AfL background text.mp3, 1:23,(Series: OER4Schools audio, episode N/A)

Background reading

Peer and Self-Assessment

Evidence shows that students can learn to be skilled assessors whose feedback and grades are valid and reliable. Peer assessment and self-assessment are much more than learners simply marking their own or each other’s work. To improve learning, self-assessment must engage learners with the quality of their work and help them reflect on how to improve it. Peers can provide valuable feedback so that learners can learn from and support each other. (Assessment Reform Group, 2002)

Peer and self-assessment are useful for classes in which the student-teacher ratio is high. The practical constraints of the teacher’s time within these classes imply that it is difficult for the teachers to give quality feedback to each pupil. In such cases peer and self-assessment help to give every student indications about how their learning can progress.

Background reading

Peer and self-assessment are also useful because they:

- help students develop valuable skills of making and defending judgements
- considerably increase the amount of feedback which students receive on their work, thus increasing motivation

4.4 - Peer and self-assessment


- create a classroom environment in which students take responsibility for their own learning
- engage students in constructive work independently, thereby allowing teachers to help students who need more support
- can be less intimidating than a teacher's critical comments (when not given using sensitive language)

Two popular means of peer and self-assessment are:

- encouraging students to give formative feedback based on success criteria. These are mainly qualitative in nature and involve looking for evidence for each success criteria in student's work
- deciding a marking scheme on the basis of which students can give marks to each other. For example, every step of a mathematics problem can carry specific marks, which students can use to assess each other summatively

In this session we focus on the first method of qualitative assessment and feedback.

Assessment Reform Group, (2002), *Assessment for learning: 10 principles* (London, Assessment Reform Group).

 **Observing, thinking, reflecting** (5 min): *Watch video clips on peer assessment.* Now watch two clips on peer assessment, and be prepared to discuss the following questions afterwards:

- What is your understanding of the usefulness of peer and self-assessment?
- In the videos you have seen both primary and secondary school students assessing each other's work. What preparation do you think the teacher has done before giving the peer assessment task to the students?
- How can you implement peer assessment in your classrooms?
- What issues do you think you will have to deal with implementing peer assessment? Discuss how you will resolve these issues? (some issues could be: student readiness for both giving and receiving feedback, availability of coloured pens (highlighters) etc.)
- Does peer and self-assessment imply less teacher's responsibility?
- What kind of problems can you anticipate if you try to introduce peer and self-assessment in your class?

VIDEO

Primary peer assessment

Primary peer assessment from Teachers TV (play full)


About this video, 01:45, link to YouTube (<http://www.youtube.com/watch?v=yxcL0g0ikrU&list=PLtf3oOEbE-EXgP2iN30V3UhCd8x54FGyO>) (local play / download options)(Series: Video from other organisations, episode N/A)

VIDEO

Secondary Peer Assessment.

Secondary Peer Assessment (clip)

About this video, 01:08, link to YouTube (<http://www.youtube.com/watch?v=R1wDooiTEg4&list=PLtf3oOEbE-EXgP2iN30V3UhCd8x54FGyO>) (local play / download options)(Series: Video from other organisations, episode N/A)

 **Whole class dialogue** (10 min) *on the videos using the questions above.*


Educator note

Draw teachers' attention to the occurrences of peer and self assessment in the clips. They occur whenever students are given opportunity to offer one another feedback about their work or think about the quality of their own work. The feedback should incorporate reference to learning objective, success criteria and ways to improve.


It is likely that teachers will express some reservation about using peer and self-assessment in the class. The initial training of students in the use of peer/self assessment might seem to be time-consuming, but teachers report that in the long term the use of peer/self assessment in the classroom does help students to gain ownership of their learning. Most important of all, it may be able to engage the students to help one another.

The learning process for every students can hasten as students become more independent and supportive of each other's work. Teaching and learning in fact can become more meaningful and efficient.

4 Strategies for peer and self-assessment

 **Individual activity** (5 min): *Reading about peer and self-assessment strategies.* Teachers have developed several ways of introducing peer and self-assessment in their classrooms. Read the following examples and think about how useful they may be in your classroom. We will make use of these strategies in the next activity and you will use some of them in the classroom with your students after the session.

Strategy	Description									
A Star (or two stars) and a Wish	Ask students to point out a positive aspect of the work of his/her friend and to express a wish about what their friend might do next time to improve on an aspect of the work.									
De Bono's Thinking Hats	Ask students to imagine wearing different coloured hats as a guide to give feedback to their friends or for themselves: Yellow Hat: List the good points of the work Black Hat: List the weaknesses in the work Green Hat: List other way(s) of doing the work									
Checklist	<p>Checklist facilitate peer- and self-assessment by focusing student's attention on specific success criteria that they need to consider when looking at their own their friend's responses to questions. Here is a example below:</p> <p>Learning intentions: Recognise numerator/denominator and equivalent fractions.</p> <table border="1"> <thead> <tr> <th>Success Criteria</th> <th>Yes/No</th> <th>Comments (or suggestions for improvement)</th> </tr> </thead> <tbody> <tr> <td>I can recognise numerator and denominator</td> <td></td> <td></td> </tr> <tr> <td>I can recognise and name equivalent fractions</td> <td></td> <td></td> </tr> </tbody> </table>	Success Criteria	Yes/No	Comments (or suggestions for improvement)	I can recognise numerator and denominator			I can recognise and name equivalent fractions		
Success Criteria	Yes/No	Comments (or suggestions for improvement)								
I can recognise numerator and denominator										
I can recognise and name equivalent fractions										

 **Same-task group work** (10 min): *in pairs, assess each others homework on formative feedback.* You were asked to bring examples of your written formative feedback from the homework in the last session. Exchange these examples with a peer participant. Assess their work by using any one or more of the above-mentioned strategies. Remember the success criteria mentioned for giving formative feedback were:

- **identifying evidence where the student performed well and appreciating that performance**
- **identifying evidence where the student could improve and giving practical tips for improving**
- **suggesting a higher target for high achieving students**

Give each other peer feedback about how your colleague can improve their formative feedback.

4.4 - Peer and self-assessment

Some tips for written feedback to young learners:

- develop some routines for feedback such as: smiley faces and stars for appreciation, question mark where you think improvement is needed and exclamation mark for caution about incorrect understanding etc.
- if available, use different coloured pens for feedback where learners understand the meaning of each colour

Educator note

Visit each group to make sure that the participants are using one of the strategies mentioned above for peer assessment.

Encourage the two members of a pair to choose different strategies as they assess each other's work.

5 Practice using peer and self-assessment



Same-task group work (10 min) in pairs: Role play two students engaged in a peer assessment activity.

- This is a role play activity. You and your partner will be role playing two students - one who is a 'faster' learner and the other a 'slower' learner. Decide on which student you want to role play.
- Imagine that you have both been taught a lesson on equivalent fractions with the following learning objective and success criteria:

Topic: Equivalent Fractions

Learning Objective	Success Criteria
To recognise and name equivalent fractions	<ul style="list-style-type: none"> ▪ Use objects or diagrams to show equivalent fractions. ▪ Show examples of equivalent fractions ▪ Write a story using equivalent fractions

- Imagine that the teacher now poses these three questions that you must try to do on your mini boards:
 1. Draw two diagrams to show an equivalent fraction to $\frac{3}{4}$.
 2. List four examples of equivalent fractions to $\frac{3}{4}$.
 3. Write or tell a short story that makes use of equivalent fractions.
- Take some time to answer the questions, while taking on the role of the 'faster' student or 'slower' student.
- Still taking on the role of the student, use the checklist below to do a self-assessment of your work. Share your work with your partner and do a peer assessment of each other's work.

Success Criteria	Yes	No	Not Sure
I can draw two diagrams showing equivalent fractions.			

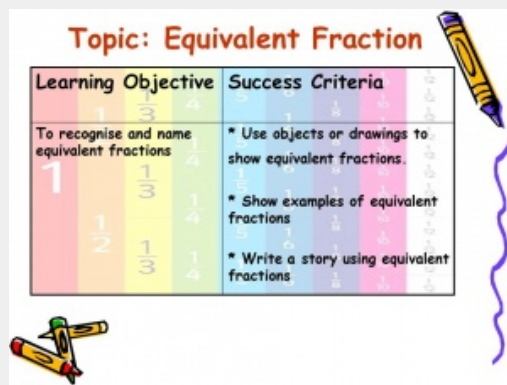
4.4 - Peer and self-assessment

I can list four examples of equivalent fractions.			
I can write or tell a short story using equivalent fractions.			

Educator note

Refer to the document displaying PowerPoint slides on fractions (either Fractions.odp (<http://oer.educ.cam.ac.uk/w/images/a/a6/Fractions.odp>) (info) (<http://oer.educ.cam.ac.uk/wiki/File:Fractions.odp>) for OpenOffice Impress or Fractions.ppt (<http://oer.educ.cam.ac.uk/w/images/9/9b/Fractions.ppt>) (info) (<http://oer.educ.cam.ac.uk/wiki/File:Fractions.ppt>) for MS PowerPoint). You can print the document for distribution to teachers OR show the PowerPoint during the session.

The slides are an example of how Impress/PowerPoint can be prepared to show exemplars of good solutions. Teachers can make use of such exemplars to guide students to do peer and self-assessment. The Impress/PowerPoint slides can help to engage students' learning (e.g. colourful slides and the ability to click from one slide to another quickly).



However, it is also possible to make use of a blackboard for the purpose of showing sample solutions.

Bring to the participants' attention that the three questions in the above activity have been deliberately designed to cater to different students' learning styles and pace of working. It is expected that for older basic school students or secondary students:

- most students should be able to write or draw examples of equivalent fractions.
- some students will be able to apply what they learn about equivalent fractions in daily life through telling or writing a story.


The peer and self-assessment process should help the students to discuss what is difficult or easy for them to do.

Whole class dialogue (10 min) *on peer assessment role play.* Questions for reflection:


- How did you find the whole process of self-assessment and peer assessment as students?
- Did you find that you (as a student) were able to assess others and themselves accurately and in a friendly and useful way?
- Did you respond well to your friend's assessment of your work?
- If you had been changing partner for the different pair activities, did you find that you were more comfortable pairing up with a particular person for peer assessment? Why do you think so and what implications can there be for setting up successful peer assessment?
- Now taking on the role of a teacher, what kind of preparation do you think you need to do to help your students to try out peer and self-assessment?
- What are some ways you can check that the students have given accurate and good peer and self-assessment?

6 ICT practice: Different-tasks group work with ICT and

activity planning

 **Different-tasks group work** (20 min) *on becoming an expert*. As we discussed in the ICT practice in the first session of this unit, you now have an opportunity to deepen your skills in your chosen application. Divide into the same pairs as last time and continue developing the skills in your chosen application. What is the idea that you are developing? In the last session of this Unit, you will be able to present what you have developed, so make notes, and work towards a particular item, such as a spreadsheet, a GeoGebra file etc.

7 Connecting with overarching goals of the programme

 **Open space** (10 min). It's now time for the "open space", that gives you an opportunity to discuss issues that have arisen, and to relate those to the broader context of the programme. Do not just gloss over this section, but make time to raise issues, and probe the progress that you are making. You could use this space to:

- Remind yourselves of the of the Most Significant Change Technique, and e.g. collect more of your stories.
- Discuss your assessment portfolios: Is there anything that you are unsure about? Is it going well? What could be done better?
- Check on the work with the classroom assistants: Is this going well? Are there any tensions? Any observations or tips you can share?
- Reviewing individual ICT practise (such as typing practise).
- If you are preparing a presentation for other teachers, you could work on the presentation (about what you have been learning, stories emerging from MSC).
- Remind those who are doing audio diaries, to upload them.
- You could discuss any other issues that have arisen.

You will find notes and summaries of various techniques and concepts on our reference page, and you might want to refer to those for clarification during this activity if needed.

8 Follow-up activities

 **Agreeing follow-up activities** (5 min).

Part A: Update the electronic version of "My assessment inventory.doc

(http://oer.educ.cam.ac.uk/w/images/ffd/My_assessment_inventory.doc) ^(info)

(http://oer.educ.cam.ac.uk/wiki/File:My_assessment_inventory.doc)". Open your file from your 'files area' on your desktop. Fill it in and save it again. **We will be self-assessing the inventories at the beginning of the next session** so ensure that you bring the completed paper inventory (all five rows should now be filled in) to the next session and that the electronic version is up to date.

Part B: For a topic that you teach this week, try to introduce at least one strategy of peer assessment and one for self-assessment. Record answers to the following questions on the dictaphone:

- Which peer and self-assessment strategy did you try?
- Did you find that it has worked well for you and for your students?
- How will you prepare yourself better to introduce peer and self-assessment in future lessons?

Educator note

In the next session, these follow-up activities will be reviewed. If you are using this session on its own, you can have a look at the review of follow-up activities here.

9 Acknowledgment

We thank Toni Glasson for allowing us to make use of sections (p. 77-110) of her book, *Improving Student Achievement: A Practical guide to Assessment for Learning*, Curriculum Corporation 2009 (ISBN: 9781742003078)

Educator note

At the end of each session, we provide an overview of the activities in this session, together with their suggested timings. Although this appears at the end of the session (for technical reasons), you should keep an eye on this throughout the session, to make sure that you are pacing the workshop session appropriately!

Total time: 120 (min)

Activities in this session:

- **Individual work** (5 min) *updating assessment inventory.*
- **Individual work** (5 min): *Filling out a table on formative feedback use.*
- **Whole group dialogue** (5 min) *on formative feedback use.*
- **Observing, thinking, reflecting** (5 min): *Use of traffic lights.*
- **Whole class dialogue** (10 min): *Whole group discussion on traffic lights.*
- **Individual activity** (5 min) *Background reading.*
- **Observing, thinking, reflecting** (5 min): *Watch video clips on peer assessment.*
- **Whole class dialogue** (10 min) *on the videos using the questions above.*
- **Individual activity** (5 min): *Reading about peer and self-assessment strategies.*
- **Same-task group work** (10 min): *in pairs, assess each others homework on formative feedback.*
- **Same-task group work** (10 min) *in pairs: Role play two students engaged in a peer assessment activity.*
- **Whole class dialogue** (10 min) *on peer assessment role play.*
- **Different-tasks group work** (20 min) *on becoming an expert.*
- **Open space**(10 min).
- **Agreeing follow-up activities**(5 min).

If you have printed this session for offline use, you may also need to download the following assets:

- Video/Primary peer assessment.mp4 (local play / download options)
- Video/Secondary Peer Assessment clip.mp4 (local play / download options)
- Fractions.odp (<http://oer.educ.cam.ac.uk/w/images/a/a6/Fractions.odp>)
- Fractions.ppt (<http://oer.educ.cam.ac.uk/w/images/9/9b/Fractions.ppt>)
- My assessment inventory.doc (http://oer.educ.cam.ac.uk/w/images/f/fd/My_assessment_inventory.doc)

Retrieved from "http://oer.educ.cam.ac.uk/w/index.php?title=OER4Schools/Peer_and_self-assessment&oldid=21133"

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Session 4.5 - Review of AfL and lesson pacing

4.5 - Review of AfL and lesson pacing

Learning intentions and objectives.

In this session you will learn about:

- self assessment and review as a way of consolidating learning about AfL
- ways to ensure lessons are paced appropriately and adapted to learners' needs

Success criteria.

To meet the learning intentions you will:

- complete a review document about what has been learnt and tried out for AfL
- watch two videos and analyse the pace of the lesson shown

ICT components.

In this session you will continue consolidating the ICT skills you have learnt so far, and apply them in the classroom. You will be able to apply AfL techniques in conjunction with ICT classroom use as well.

1 Review of follow-up activities from last session

Edit this review section (http://oer.educ.cam.ac.uk/w/index.php?title=OER4Schools/Peer_and_self-assessment/review_of_follow_up&action=edit)

Educator note

If you are running a professional learning programme which follows these sessions in sequence, then you should do the review of follow-up activities relating to the previous session (Peer and self-assessment). The 'review of follow-up activities' for that session is available here, and also shown below in the session text. However, if you are following selected sessions in a different order, then you should use the reflection appropriate to the previous session you did.

The review of the follow-up activities for this session (to be done at the start of the next session) is available here.


 **Whole group dialogue** (10 min) *on peer and self-assessment use*. As a group, discuss the following:

- What peer or self-assessment strategy did you try out this week and what topic was it on?
- Do you think that peer and self-assessment may only work for teaching certain topics? Why?
- Did you find that it has worked well for you and for your students? Did some students respond better to peer or self-assessment than others? Why?
- How will you prepare yourself further to introduce peer and self-assessment in future lessons?

Educator note

Peer and self-assessment is something that students need to get used to and practice. You may find that there is some resistance to using such techniques, for instance because teachers found that students were writing cheeky comments, that were not helpful to their peers. However, think back to introducing whole class dialogue and group work. It also took children time, before such ways of working became effective. It is just like this with peer and self-assessment. So do encourage the teachers to persevere, and to share solutions to challenges encountered.

2 Review of AfL

 **Individual activity** (5 min): *Individual work.* You have learnt quite a lot about how assessment can support students' learning (AfL) and some activities that you can carry out in lessons.

If you have been updating your assessment inventory regularly you should have at least five rows of entries. These serve to remind you of:

- what you have understood of an aspect of AfL each week and
- how you have tried to carry out AfL measures in your lessons

Self-assess your completed inventory now using this criteria and if there are any gaps you can fill them in with the help of your peers.

Educator note

Give participants a few minutes to fill in any gaps as this will help with the next part of the activity.

At the end of the review activities ask participants to comment on how useful they found their inventory in helping them to get a clear picture of what they have learnt about AfL.

- Did they complete it in enough depth?
- Did they keep it up to date as new techniques were learned?
- Did they practise each of the new techniques as they were introduced?
- What are the benefits of keeping track of your learning in this way?

Referring to your inventory, complete the following questionnaire to review how much you have learnt and tried to practise AfL in your classrooms. Circle the choice that best represents how you feel about each topic in this unit. There are no right or wrong answers!

4.1 Assessment for Learning (AfL)			
How much do I know about the difference between AfL and what I used to think of 'assessment' as?	very much	somewhat	not much
How interested am I to learn more about AfL?	very much	somewhat	not very
4.2 Learning objectives and success criteria			
How much do I know about learning objectives and success criteria?	very much	somewhat	not much
How skilled am I at using learning objectives and success criteria?	very much	somewhat	not very
How often do I make use of learning objectives and success criteria	routinely	sometimes	not often
How interested am I to learn and improve on using learning objectives and success criteria?	very much	somewhat	not very
4.3 Formative feedback			
How much do I know of formative feedback?	very much	somewhat	not much
How skilled am I at giving formative feedback?	very much	somewhat	not very

4.5 - Review of AfL and lesson pacing

How often do I give formative feedback?	routinely	sometimes	not often
How interested am I to learn and improve on giving formative feedback	very much	somewhat	not very
4.4 Peer and self-assessment			
How much do I know of peer and self-assessment?	very much	somewhat	not much
How skilled am I at making use of peer and self-assessment in the class?	very much	somewhat	not very
How often do I make use of peer and self-assessment in the class?	routinely	sometimes	not often
How interested am I to find out more and improve on making use of peer and self-assessment?	very much	somewhat	not very

You can print this content on a separate sheet here:

[OER4Schools/4.5_Review_of_AfL_and_lesson_pacing/questionnaire](https://www.oer4schools.org/4.5_Review_of_AfL_and_lesson_pacing/questionnaire) .

Same-task group work (10 min) *in pairs*: *Sharing your responses to the review activity*. Share your responses with another partner teacher and reflect on whether there are any similarities or differences in the entries. Each pair of teachers will report to the whole group on the similarities and differences of your responses. Try to explain to the whole group why there could be these similarities or differences.

Whole class dialogue (10 min): *Reviewing the responses*. As a group, review the responses of each pair of teachers and identify if there are any conclusions that are common to the other pairs of teachers. Identify in particular if there are any particular topics of assessment that will require more follow-up. What are some specific ways that you may require more support and assistance? Can your peers help you?

Educator note

The facilitator may like to record on the blackboard or a large sheet of paper what each pair of teachers have mentioned to remind the group what has been said.

If you are participating in our facilitators programme, please collect the data, and submit it for review.

3 Lesson pacing: Your experience

Individual activity (10 min) *Individual work*.

1. Think of a lesson which took more time than you had planned or less time than you had planned. On your mini-blackboard or sheet of paper write reasons for why you think this happened?
2. Also consider what are some ways to ensure that you can pace lessons effectively such that you have sufficient time and learner engagement is maintained – for example, students get bored if they are not gainfully occupied and have to wait a long time for assistance or for peers to complete a task. Have you ever noticed this happening?

Same-task group work (10 min) *in pairs followed by whole group discussion*. Compare your responses with another partner teacher and report to the group on your responses. Write down three strategies that you would like to try in your classroom and keep this safely with your other OER4schools materials. Choose one or two of these to commit to trying out this week to maintain the pace of your lesson and ensure that all students are actively engaged throughout.

Educator note

The facilitator may like to record what lesson pacing strategies each pair of teachers has suggested, to remind the group what has been said. You could do this on the blackboard, a large sheet of paper, or using a computer and projector. These could be some possible responses for over-running of a lesson:

- too much information in one lesson,
- unrealistic estimation of what children know/do not know,
- inappropriate concept about timing,
- too much repetition of the same concept, and
- not keeping an eye on the time left and re-adjusting the lesson accordingly

As part of the group work, brainstorm how this can be avoided. Here are some examples for improving lesson pacing:

- hang a wall clock that both you and students can see [or use timer on a netbook],
- avoid repetition when it is not required (e.g. do not tell each group individually, but address the whole class with common instructions)
- assign timings to different parts of the lesson plan, revise after teaching so it is more accurate next time, keep trialling this until your accuracy improves,
- do not wait for the slowest learner to finish, and make sure that the pace of the slowest learner does not determine pace for everybody: every child should be active (consider what other tasks high capability learners can do like design problems for peers, and how they can progress).
- have activities, or materials such as storybooks, on which students can work on their own after finishing their work,
- use fast workers as classroom assistants (they could even develop resources for you such as making traffic lights, creating maths problems that other children could solve, making charts that you would like to display for the lesson next week etc).

4 South African videos on lesson pacing

In this session, we are watching video that was produced in a school near Cape Town in South Africa. The school is located in a township, and the class is a Grade 7 class, with about 40 students. The teacher (Noxolo) planned a mathematics activity day on making three-dimensional shapes out of paper, so that the learners could get hands-on experience of building and understanding those shapes. We will return to this lesson in the unit on enquiry and project-based learning.

 **Observing, thinking, reflecting** (10 min): *South African videos on lesson pacing*. Watch the two clips below, showing

1. How the teacher, Noxolo, tries to find out what students know about polygons **prior** to her teaching the topic (see first video) and
2. Noxolo responding to the students **after** she observes them working in groups on polyhedra (see second video).

Before you watch the clips, read the questions below (in your own time), and consider them as you are watching the clips:

- Why do you think Noxolo has made the effort to ask so many questions to the whole class and individual students?
- Do you think the majority of the students know what the terms polygon and polyhedron mean?
- Imagine if Noxolo had directly told the class at the beginning of the lesson the definition of a polygon and polyhedron, how different would the learning for the students be? Would she know whether her students are learning?
- Do you think that Noxolo has paced her lesson effectively? (Was she in a hurry to teach the topic or did she take too much time to repeat certain ideas?)
- Do you think that effective lesson pacing will always result in avoiding over-running or under-running of a lesson? Why?

Bear these questions in mind as you watch the video:

VIDEO**Checking prior knowledge**

4.5 - Review of AfL and lesson pacing

Checking learners' prior knowledge. In this clip Noxolo checks the learners' prior knowledge, and probes the students' answers (rather than just telling them right or wrong). Through questioning, she clarifies the learners' understanding.

About this video, 2:11, link to YouTube (<http://www.youtube.com/watch?v=49L8id4OnGk&list=PLtf3oOEbE-EVv3Rab6pumZhO4BI3Dg7JI>) (local play / download options)(Series: 3D shapes, episode 01)

VIDEO

Assessing understandings

Assessing students' understanding and acting on those observations. Noxolo has observed that the students are struggling with naming shapes. She interrupts the group work to address the issue.

About this video, 1:10, link to YouTube (http://www.youtube.com/watch?v=RZPIK1l_2hQ&list=PLtf3oOEbE-EVv3Rab6pumZhO4BI3Dg7JI) (local play / download options)(Series: 3D shapes, episode 16)

After watching the videos, share some of your responses as a group.

Educator note

As the clips are short, and not shown in the context of the lesson, you may have to provide some guidance for the participants to draw out the key points. For instance,

- The teacher says "I can see that you are struggling with naming shapes." indicating that she has made an observation about how her class is learning, that she is now acting on through whole class dialogue.
- The teacher probes the answers further ("You say yes, why do you say yes?").
- The teacher uses questioning to assess prior knowledge.
- The teacher is clarifying common misconceptions.

It may not be possible for the teacher participants to comment on the pacing of Noxolo's lessons without seeing the entire footage of the lesson. The facilitator can highlight to the participants that Noxolo used a combination of teaching strategies in this lesson to ensure that the lesson pacing is according to the learning pace of the majority of the students – finding out what the majority of students understand through a series of inquiry questions, group work and direct teaching.

Highlight to the teachers that the pacing of the lesson needs to consider how much students are learning from their teaching. The teacher needs to balance delicately what he/she wants to teach (that is according to a lesson plan or what is in his/her mind) with an understanding of how much the students are learning there and then. It may be the case that MORE time is required than they expect, particularly if the majority of students do not seem to be following their lessons.

5 Reflection on lesson pacing and making connections

 **Whole class dialogue** (10 min): *Reflection on lesson pacing and making connections.*

Adapting to learners' needs

You have learnt about what good pacing is about, which is to help as many of your students as possible to understand and keep up with your teaching in the classroom. No matter how good your initial lesson plan is, it is highly likely you will have to adjust your pacing or even totally change your teaching strategy, especially if you have been listening to students' responses and checking what students have learnt. For example, if Noxolo knows that most students know the meaning of the terms polygon and polyhedron, she will have to teach her lesson in a different way. There could be different ways to know whether to adjust the pacing *during* a lesson.

Now discuss these two questions below on making connections between what you have learnt about differentiation

4.5 - Review of AfL and lesson pacing

through group work and AfL, and lesson pacing:

Question 1: What did you learn about differentiation in the group work unit that might help with lesson pacing?

Educator note

When we talk about differentiation, we mean **differentiation by task, not by learners**. Stress the point that learners may work at different paces in different subjects or even different lessons in the same subject, depending on, for example, how confident they are with the material. "Slow learners" are not always slow learners and fast learners likewise, so these labels are not necessarily helpful.

Question 2: What did you learn about AfL measures that might help with lesson pacing?


Educator note

One thing relevant here is: assess what children know at the beginning, assess whether they've understood after an activity or task before deciding to explore the topic in more depth or not – and again, **re-adjust the lesson according to what students know**. It is not a good idea to rigidly "stick to the script".


Allow time for participants to raise other points too.

Write down your main take-away messages about lesson pacing, group work and AfL in your assessment inventory.

6 ICT practice: Different-tasks group work with ICT and activity planning

 **Different-tasks group work** (20 min) *on becoming an expert*. Have you become an expert at using a particular application? Have you developed a nice idea that you can show to your fellow participants? Now is the time to share! Share what you have developed with others. Given that you have worked in pairs, split up. First, one person of the pair remains with your computer (and your idea), and the other person is free to go around. For the first ten minutes, this person goes around, looking at what other groups have done. After 10 minutes, you swap roles.

7 Connecting with overarching goals of the programme

 **Open space** (10 min). It's now time for the "open space", that gives you an opportunity to discuss issues that have arisen, and to relate those to the broader context of the programme. Do not just gloss over this section, but make time to raise issues, and probe the progress that you are making. You could use this space to:

- Remind yourselves of the of the Most Significant Change Technique, and e.g. collect more of your stories.
- Discuss your assessment portfolios: Is there anything that you are unsure about? Is it going well? What could be done better?
- Check on the work with the classroom assistants: Is this going well? Are there any tensions? Any observations or tips you can share?
- Reviewing individual ICT practise (such as typing practise).
- If you are preparing a presentation for other teachers, you could work on the presentation (about what you have been learning, stories emerging from MSC).
- Remind those who are doing audio diaries, to upload them.
- You could discuss any other issues that have arisen.

4.5 - Review of AfL and lesson pacing

You will find notes and summaries of various techniques and concepts on our reference page, and you might want to refer to those for clarification during this activity if needed.

8 Focus on assessment portfolios

Submission of an assessment portfolio containing at least one piece of material (with notes) from each unit is a key part of completing the OER4Schools programme.


- Further assessment portfolio guidance for use during discussion and in your own time.

Educator note

You may want to adapt this section to your particular needs.

As we have done before with other units, you could review all sessions in the current unit, and discuss what participants have found most useful.

You could also consider asking the participants to do an assessment of their progress so far, by adding to their portfolio, as detailed below.

 **Individual activity** (10 min): *Start work on assessment portfolios and continue in your own time.* Reflect on your progress so far by adding to your assessment portfolio. This portfolio should include your “best” pieces of work (e.g. completed activity template or lesson template, concept map, etc) from what you’ve done so far this year. These should be quality items that illustrate what you have learnt, and what you feel you have implemented successfully.

You may already have material in your workshop materials that you can dig out or draw on. It can be one technique (eg. traffic lights or no hands up) or a whole lesson.

As part of this assessment portfolio, reflect on each item. You could do an audio reflection for this, if you have access to an audio recorder. At the start of each reflection, state clearly which item you are talking about (eg. “my class discussion about how diseases are transmitted”, or my “concept map on parts of a plant”), and then discuss the following questions:

- Why have you chosen the item?
- What does it illustrate? For example, what new technique did you decide to trial and how did you apply it in your lesson? How well did it work in practice?
- What did you learn from that about what works or doesn’t work to support interactive teaching and learning?

We encourage you to include your progress on developing new computer skills, but please do this through showcasing your new knowledge about interactive teaching techniques rather than just including computer skills by themselves – so your chosen activities or examples of learning about interactive teaching may or may not involve computer use.

9 Follow-up activities

 **Agreeing follow-up activities** (5 min).

- Do a final update of your assessment inventory on any AfL measures you have tried out this week.
- As above, commit to one or two techniques that you will try out this week to maintain the pace of your lesson and ensure that all students are actively engaged throughout.
- Try out the sequencing activity in class. (Try to find your own images for a forthcoming lesson topic. You can find pictures that are open resources, i.e. Creative Commons licensed, at <http://www.flickr.com/search/advanced/>, see here [Finding CC licensed images on Flickr](#) to get some help.) Bear in mind AfL measures, and try them out during the lesson.
- Prepare/complete your assessment portfolio.

4.5 - Review of AfL and lesson pacing

Educator note

In the next session, these follow-up activities will be reviewed. If you are using this session on its own, you can have a look at the review of follow-up activities here.

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Unit 5 - Enquiry-based learning and project work



AUDIO

Practical enquiry-based activities

Priscillah tells us about her students' willingness to be involved in practical enquiry-based activities undertaken as part of the OER4Schools programme.

Priscillah speaking about students' attitudes to enquiry-based learning.mp3, 01:04,(Series: OER4Schools audio, episode 01)

The unit introduces how to work in an “enquiry-based” way, for instance learning through project work and in-depth, open-ended investigations. We explore a way of teaching and learning that encourages students to take the initiative to pose questions and explore their curiosity about the world around them, through a process of enquiry.

Unit 5 Enquiry-based learning and project work

5.1 - Introduction to enquiry-based learning		
<p>In this session you will learn about:</p> <ul style="list-style-type: none"> De Bono's PMI (positive/minus/interesting) technique to encourage analytical thinking the aims and process of enquiry-based learning preparing for enquiry-based learning through a series of lessons and a 'project day' or 'field trip' for mathematics or science classes 	<p>To meet the learning intentions you will:</p> <ul style="list-style-type: none"> apply DeBono's PMI technique to the fictitious scenario of plants being able to walk watch videos of different teachers introducing enquiry-based lessons and discuss in groups, decide on a suitable topic area for extended project work and plan an outline (to include learning objectives) 	<p>The ICT components you will focus on are</p> <ul style="list-style-type: none"> online simulations how to use these in the context of EBL
5.2 - Starting the enquiry-based learning process		
<p>In this session you will learn about:</p> <ul style="list-style-type: none"> posing real and productive questions to get the most from enquiry-based learning different ways to start off an enquiry-based learning lesson (e.g. brainstorm) preparing for an enquiry-based learning session through a series of lessons and a 'project day' or 'field trip' for maths or science classes 4 levels of enquiry involving different amounts of student independence: <ul style="list-style-type: none"> demonstrated enquiry structured enquiry problem-solving enquiry independent enquiry 	<p>To meet the learning intentions you will:</p> <ul style="list-style-type: none"> play a questioning game to practise using open and real questions continue to plan a 'project day' or 'field trip' taking into account the four main parts of an enquiry based learning lesson: <ul style="list-style-type: none"> posing productive questions finding resources/doing an experiment interpreting information reporting findings do a PMI activity on the 4 levels of enquiry watch a sequence of videos focusing on the nature of the questions used by the teacher 	<p>In this session you will continue to apply the ICT skills you have learnt so far for EBL, and to think about how they help you implement EBL in the classroom.</p>
5.3 - Collecting and interpreting information: Part one		
<p>In this session you will learn about:</p> <ul style="list-style-type: none"> using short enquiry tasks to introduce the idea of enquiry based learning to your students collecting and interpreting data in an enquiry-based lesson the importance of recording the results of enquiries collecting accurate and reliable data preparing for an enquiry-based learning session through a series of lessons and a 'project day' or 'field trip' for maths or science classes 	<p>To meet the learning intentions you will:</p> <ul style="list-style-type: none"> review a short perimeter and area enquiry task on Geogebra complete a simple data collection exercise on personal profiles watch a video as a stimulus for discussion on encouraging students to record their findings during enquiries watch a video sequence illustrating a procedural error and refine resources and data collection process to minimise such errors 	<p>The ICT components you will focus on are</p> <ul style="list-style-type: none"> GeoGebra, perimeter and area. <p>Also, as in the previous session, you will continue to apply the ICT skills you have learnt so far for EBL, and to think about how they help you implement EBL in the classroom.</p>
5.4 - Collecting and interpreting information: Part two		
<p>In this session you will learn about:</p> <ul style="list-style-type: none"> making predictions during enquiries dealing with unexpected outcomes similarities between the scientific method and enquiry based learning 	<p>To meet the learning intentions you will:</p> <ul style="list-style-type: none"> watch a video sequence as a stimulus for discussion on encouraging students to make predictions during enquiries watch a video sequence of students recording data and discuss the level of guidance 	<p>The ICT components you will focus on are</p> <ul style="list-style-type: none"> GeoGebra, perimeter and area. <p>Also, as in the previous session, you will continue to apply the ICT skills you have learnt so far for EBL, and to think about how they help you implement EBL in the classroom.</p>

Unit 5 Enquiry-based learning and project work

<ul style="list-style-type: none"> ▪ collecting accurate and reliable data ▪ preparing for an enquiry-based learning session through a series of lessons and a 'project day' or 'field trip' for maths or science classes 	<p>provided by the teacher</p> <ul style="list-style-type: none"> ▪ do an activity to correctly organise the steps in the scientific method 	<p>apply the ICT skills you have learnt so far for EBL, and to think about how they help you implement EBL in the classroom.</p>
5.5 - Presenting findings of enquiries		
<p>In this session you will learn about:</p> <ul style="list-style-type: none"> ▪ what to look out for in presenting data and findings for an EBL lesson ▪ how to present the results of an EBL activity ▪ how EBL activities can be carried out more seamlessly in 'everyday' lessons 	<p>To meet the learning intentions you will:</p> <ul style="list-style-type: none"> ▪ watch three examples of student presentations and discuss stimulus questions as a whole group ▪ present in groups the results of an enquiry using presentation rubric as guidance ▪ reflect on what you have learned about EBL using an inventory based on the material covered in this unit 	<p>In this session you will continue to apply the ICT skills</p> <p>you have learnt so far for EBL, and to think about how they help you implement EBL in the classroom.</p>

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Session 5.1 - Introduction to enquiry-based learning

"You can't teach people everything they need to know. The best you can do is position them where they can find what they need to know when they need to know it."

Seymour Papert, MIT

5.1 - Introduction to enquiry-based learning

Learning intentions and objectives.

In this session you will learn about:

- De Bono's PMI (positive/minus/interesting) technique to encourage analytical thinking
- the aims and process of enquiry-based learning
- preparing for enquiry-based learning through a series of lessons and a 'project day' or 'field trip' for mathematics or science classes

Success criteria.

To meet the learning intentions you will:

- apply DeBono's PMI technique to the fictitious scenario of plants being able to walk
- watch videos of different teachers introducing enquiry-based lessons and discuss
- in groups, decide on a suitable topic area for extended project work and plan an outline (to include learning objectives)

ICT components.

The ICT components you will focus on are

- online simulations
- how to use these in the context of EBL

Resources needed.

Resources needed for this session:

- large white piece of paper
- different colours of markers or coloured pens
- computer/laptop/netbook and internet

1 Review of follow-up activities from last session

Edit this review section (http://oer.educ.cam.ac.uk/w/index.php?title=OER4Schools/Peer_and_self-assessment/review_of_follow_up&action=edit)

Educator note

If you are running a professional learning programme which follows these sessions in sequence, then you should do the review of follow-up activities relating to the previous session (Peer and self-assessment). The 'review of follow-up activities' for that session is available here, and also shown below in the session text. However, if you are following selected sessions in a different order, then you should use the reflection appropriate to the previous session you did.

The review of the follow-up activities for this session (to be done at the start of the next session) is available here.

5.1 - Introduction to enquiry based learning

Whole group dialogue (10 min) *on peer and self-assessment use.* As a group, discuss the following:

- What peer or self-assessment strategy did you try out this week and what topic was it on?
- Do you think that peer and self-assessment may only work for teaching certain topics? Why?
- Did you find that it has worked well for you and for your students? Did some students respond better to peer or self-assessment than others? Why?
- How will you prepare yourself further to introduce peer and self-assessment in future lessons?

Educator note

Peer and self-assessment is something that students need to get used to and practice. You may find that there is some resistance to using such techniques, for instance because teachers found that students were writing cheeky comments, that were not helpful to their peers. However, think back to introducing whole class dialogue and group work. It also took children time, before such ways of working became effective. It is just like this with peer and self-assessment. So do encourage the teachers to persevere, and to share solutions to challenges encountered.

Educator note

By now the facilitator should appreciate the importance of pacing each session well by making good use of time-management techniques. This unit, like many of the others, will involve participants in many discussion, hands-on and planning activities. You may need to intervene and move things on if participants are spending too much time on an activity (in relation to the time you have available). Or you may decide that they can benefit from continuing an activity longer than anticipated, if you judge that most/all participants are still gaining new knowledge/experience from that activity. Please take note of our recommendations about whether each activity is crucial or optional. This should help you to decide on whether to spend more or less time on it.

2 A Taste of Enquiry-Based Learning

In this unit we will explore a way of teaching and learning that encourages students to take the initiative to pose questions and explore their curiosity about the world around them, through a process of enquiry.



Whole class dialogue (5 min): *Positives, Minuses, Interesting.* In this Positives, Minuses, Interesting (PMI)^(a) activity there are no correct answers. Doing a PMI activity involves considering the positive, negative and interesting points related to a specific scenario. It was originally developed by Edward de Bono, father of the “thinking skills” movement. It encourages learners to look at both sides of a situation and also to be creative when considering the interesting possibilities.

Consider the following imaginary scenario: **Plants can now walk in our world!**

(It is important to realise that plants do not need to move because they make their own food by photosynthesis – animals have to move in order to forage for food.)

What would be some positives, minuses or interesting points you can think of, if this scenario was actually true?


5.1 - Introduction to enquiry based learning

Educator note

Possible responses:

- P (positives): the plant could move to where there is more light or water
- M (minusses): the plant would waste energy by moving
- I (interesting): we have to be sensitive and aware of plants walking on the roads and in our houses - there is a huge potential for creativity here as students explore the outrageous possibility of having plants walking around and the consequences that this may bring


For further examples, navigate to: <http://www.azteachscience.co.uk/resources/continuing-professional-development/bright-ideas-in-primary-science.aspx>

 **Whole class dialogue** (10 min) *on enquiry-based learning*. You may have heard of “enquiry-based learning” (EBL) being practised in other subjects (e.g. geography) or in higher grades through farming or industry projects. For instance, you may have heard of teachers bringing their students outside the classroom to learn about commercial and subsistence farming. The quotes below show two Zambian teacher's thoughts about enquiry-based learning; read the text, then offer your own understanding of EBL as a group.

Abel: *To me, Enquiry-based learning is a flexible, student-centred method of teaching and learning. It engages learners with a complex problem or scenario that is open-ended to allow a variety of responses or solutions. Its success depends on the guidelines teachers give about how students can be involved in self-directed enquiry. This way of teaching caters to different abilities of students and encourages them to learn on their own, even beyond schooling. This is what life-long learning should be. It may also help students to develop leadership skills as they manage complex projects with their friends.*

Agness: *Enquiry-based learning reminds me of projects focusing on industry or farming, where a teacher can take the learners out of the classroom to experience and analyse the actual farming process, what vegetables are grown within the area or how cotton is processed into a fabric and then designed into a dress. Such a form of learning is stimulating for the students and encourages them to be actively involved in asking questions and seeking out new ideas or evidence.*

3 What is Enquiry-Based Learning?

 **Observing, thinking, reflecting** (20 min) *Video and discussion*. Watch the following six clips showing three different teachers trying to introduce some form of enquiry in the classroom. Think about these questions as you are watching and discuss them when you have finished watching all of the clips:

1. Did the three different teachers introduce the lesson in a way that is similar or different from a usual maths or science lesson in your classroom? How?
2. Do you think that such a way of 'setting up' the lesson can engage the students productively over time? Why? Do you think your own students will enjoy this kind of lesson?
3. What questions did the teachers pose to arouse the curiosity and interest of the students?
4. What kinds of classroom organisation or resource are needed to support this way of teaching?
5. What new skills do you think your students might need to enable them to work in this way?

Try to focus on these specific questions above rather than on the teaching style of the teacher (e.g. the classroom

5.1 - Introduction to enquiry based learning

management/mannerism)!

Teacher 1/Clip 1: An activity on 3D shapes.

VIDEO

Introducing a net diagram activity

Introducing an activity. Noxolo is setting up the activity for students to identify which net diagram goes with which and finding the properties of each (faces/vertices/edges).

About this video, 4:45, link to YouTube (<http://www.youtube.com/watch?v=85rx0MuHCC0&list=PLtf3oOEbE-EVk3Rab6pumZhO4BI3Dg7JI>) (local play / download options)(Series: 3D shapes, episode 10)

Teacher 2/Clips 2 - 5: The Power of 2: What would you choose?

VIDEO

Introducing a problem with a story

Pindi introduces the problem ("The powers of two"). She begins the lesson by telling a story. She asks the students which option they would choose: A fixed amount of money, or a smaller amount which doubles every week. Learners give their opinion.

About this video, 2:35, link to YouTube (<http://www.youtube.com/watch?v=RHqgMlrgO0A&list=PLtf3oOEbE-EUiU1hoHKpNvELUqIFTB7Ac>) (local play / download options)(Series: Exponentials, episode 01)

VIDEO

Classroom management

Classroom management. Pindi asks the learners to go to the school hall to continue the investigation.

About this video, 1:56, link to YouTube (<http://www.youtube.com/watch?v=JYJg2RTcRnw&list=PLtf3oOEbE-EUiU1hoHKpNvELUqIFTB7Ac>) (local play / download options)(Series: Exponentials, episode 18)

VIDEO

Graph group work

Group work activity on drawing the graph. Pindi shows the use of the "ruler" to a group.

About this video, 1:04, link to YouTube (http://www.youtube.com/watch?v=Oe3dC_E7Jd4&list=PLtf3oOEbE-EUiU1hoHKpNvELUqIFTB7Ac) (local play / download options)(Series: Exponentials, episode 23)

VIDEO

Whole group work

Pindi asking the groups to come together with their work, so that the work can be compared and discussed.

About this video, 0:33, link to YouTube (http://www.youtube.com/watch?v=InekUQCP_hs&list=PLtf3oOEbE-EUiU1hoHKpNvELUqIFTB7Ac) (local play / download options)(Series: Exponentials, episode 21)

These four clips show Pindi introducing a problem involving exponentials and then taking the students to the school hall to draw the graph. Why do you think they went to the school hall?

5.1 - Introduction to enquiry based learning

Teacher 3/Clip 6: How can we learn mathematics through using used plastic bottles for building a house?

VIDEO

The impact of inquiry based learning

The impact of inquiry based learning on students and teacher

About this video, 7:55, link to YouTube (<http://www.youtube.com/watch?v=17pW9ahYTck&list=PLtf3oOEbE-EXgP2iN30V3UhCd8x54FGyO>) (local play / download options)(Series: Video from other organisations, episode N/A)

Additional video clips of ways to introduce EBL lessons

The previous video-watching activity could be run as a group activity rather than a whole class one, with groups watching different videos and reporting back their thoughts on them along with an outline of their contents. These additional clips could then be used to augment the previous clips. The clips may also be useful during private reflection after the session to give additional insights into how to start off an enquiry, with participants bearing the questions in mind.

Teacher 4/Clips 7 and 8

These clips show a Zambian teacher introducing the topic of air with a view to doing various enquiry-based learning activities with the students. In the clips she is arousing their curiosity by asking, 'Why do trees shake?'

VIDEO

Agness asks students to discuss why trees shake

Why do trees shake?

About this video, 1:34, link to YouTube (http://www.youtube.com/watch?v=bUubcPpq3hQ&list=PLtf3oOEbE-EX4BiGaW_aPC9zvnVyB5Kor) (local play / download options) (Video filmed in 2012, at CBS.)(Series: Agness Air, episode 02)

VIDEO

Agness invites all groups to participate in discussion

Each group gives their answers to question 'why do trees shake?'

About this video, 1:05, link to YouTube (http://www.youtube.com/watch?v=jC1vjserZao&list=PLtf3oOEbE-EX4BiGaW_aPC9zvnVyB5Kor) (local play / download options) (Video filmed in 2012, at CBS.)(Series: Agness Air, episode 03)

Later on, she does the following demonstration:

VIDEO

Agness Air A08


Agness Air A08

About this video, 3:13, link to YouTube (http://www.youtube.com/watch?v=-5tkLYxb-LI&list=PLtf3oOEbE-EX4BiGaW_aPC9zvnVyB5Kor) (local play / download options) (Video filmed in 2012, at CBS.)(Series: Agness Air, episode 08)


There are a number of different enquiry questions that could be asked using the 'jar over a lit candle' demonstration as a starting point. Have a think about what some of these might be.

Educator note

Facilitator may like to highlight that there is a spectrum of practices of enquiry-based learning: from one that is very teacher-directed (teacher chooses the questions and organises the activities) to one that is more student-directed (teachers provides only a stimulus picture and students decide what more they would like to find out. If there is time, ask participants to discuss what would be the most appropriate form of enquiry-based learning for their classrooms currently. Most likely it will be the former rather than the latter - which is fine to start with!

 **Whole class dialogue** (10 min) - *continuation of previous discussion*. Continue the whole group discussion, augmenting the definition of enquiry-based learning to make it your own.

4 Benefits of Enquiry-Based Learning

 **Observing, thinking, reflecting** (10 min) *on benefits of EBL*. Read the following summary texts on the benefits of EBL and think about whether you are convinced by the claims of the authors? Make notes or annotations on the page if you have a paper copy and want to do so.

Background reading**Enquiry-based learning helps *students* to be:**

- inquisitive and curious about things that they experience in their everyday lives
- able to pose problems, ask questions, and recognise issues that they would like to explore
- able to develop an understanding that knowledge changes over time as people challenge, shape and contribute to it
- responsible for deciding what they learn and how they learn it
- confident that they too can challenge, shape and contribute to knowledge
- aware that there are always multiple perspectives for looking at, analysing and understanding things
- able to propose solutions to problems and questions, and to know how to pursue these solutions.


Enquiry-based teaching supports *teachers* to be:

- open to students' ideas about the processes and directions of their learning
- keen to learn about how ideas and knowledge are produced in subjects other than their own
- able to research topics and make connections between ideas
- interested in students' lives and cultures
- able to challenge students to critique, expand and build upon the knowledge they have from their own experiences and ideas.

(Taken from: <http://www.enquiringminds.org.uk/>)

Impact on learning. Enquiry-based teaching and learning have been shown to **increase motivation and interest** of learners and teachers, and can **significantly increase achievement on standardised tests**. The increased focus required of the learners to discuss and be involved in practical work means that there will be less emphasis on writing down factual information only. On the whole, students will be involved in more higher order thinking and this increases the level of challenge of learning for all the learners.

(Taken from "Bright Ideas in Primary Science" evaluation in 16 schools:
<http://cs3.brookes.ac.uk/schools/education/rescon/azsttp.html>)

 **Whole class dialogue** (10 min) *on issues and concerns on EBL*. The benefits of enquiry have been outlined but what are the **issues or concerns** that might arise? How can these be addressed?

Educator note

5.1 - Introduction to enquiry based learning

The facilitator should make use of the opportunity to discuss with the participants what are some challenges in making use of EBL. It may be the case that some participants would choose to focus on the negatives - lack of suitable venues, managing students, lack of time, unwilling to plan for lessons that will span across days. It will be helpful to discuss their concerns while at the same time to direct their attentions to the possibilities and strengths of EBL.

5 Planning an outdoor activity



Same-task group work (10 min). Each group of 3-4 participants should have access to the following material:

- large white piece of paper
- different coloured markers/pens

Imagine that you are very interested in bringing your students outside the classroom to learn certain maths or science concepts using an authentic 'real-life' approach. Up to now, the ideas have just been 'lingering' in your mind. You are curious to know of the possibilities and what other participants think about it! Let's call this learning experience a "field trip" or "project day".

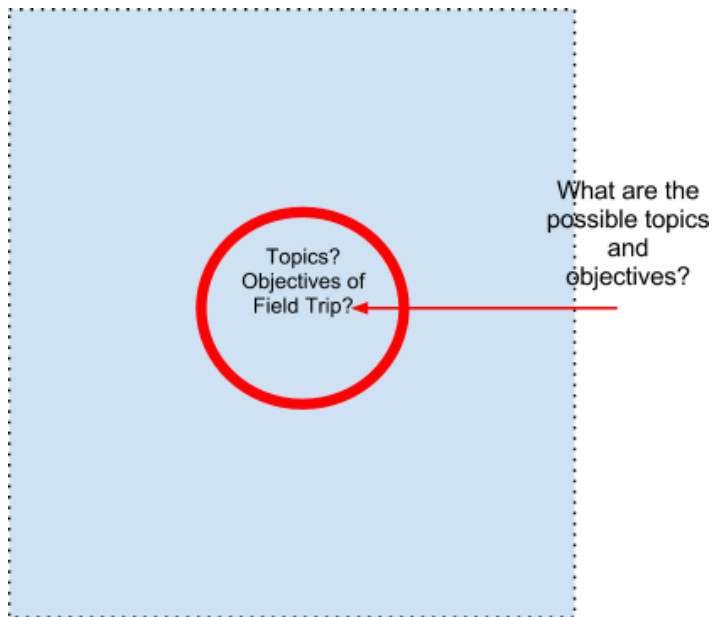
Nominate a leader in your group who will read out the instructions and facilitate the group work by writing down the ideas on the sheet of white paper.



5.1 Identify Possible Objectives

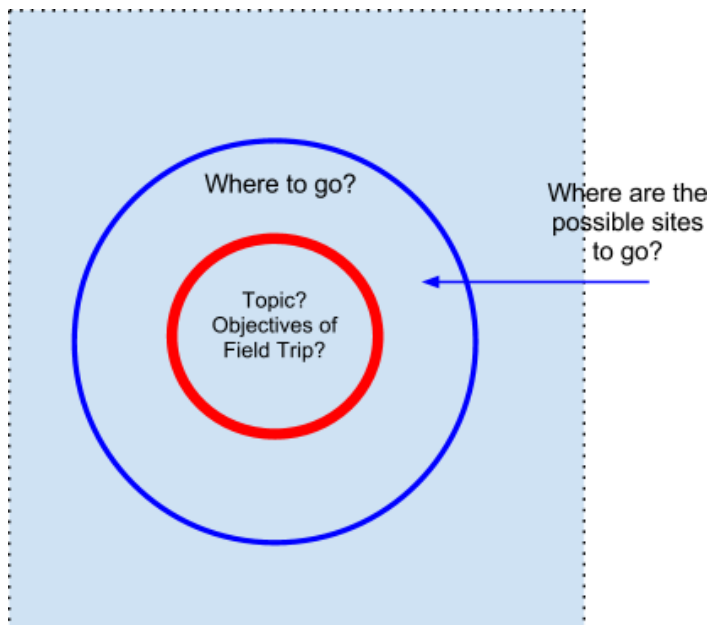
Take a coloured marker/pen and write "Objectives of Field Trip" in the centre of the paper. Now circle it, as shown in the illustration below. Brainstorm on **one or two maths and science topics** that you would like to focus on and write within the circle. Write down as well **what are the possible lesson objectives** of the field trip – to help all of you to focus on generating more ideas later.

5.1 - Introduction to enquiry based learning



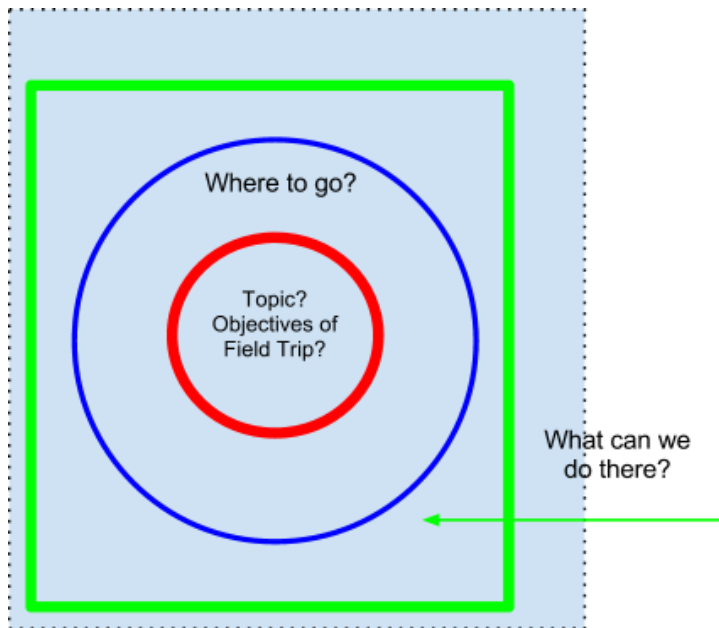
5.2 Identify Possible Sites of Learning

Use a different colour marker/pen and draw a bigger circle around the previous circle. Write down “Where to go?” at the top of the circle. Brainstorm and write down within the bigger circle, **where are the possible sites** you could bring your students to learn about the maths/science concepts outside the classroom. You may need to consider the practical issues of whether the site is safe for the students and whether it is easy to bring a class of students to that particular venue. (You can choose the school grounds if you want or it may in fact take place just within your classroom!) Also, consider whether the sites will be able to help students learn the objectives of your lessons.



5.3 Advancing Ideas of Possible Activities

Draw a rectangle around the previous shapes (outside the outer circle) using a different coloured marker/pen. As shown in the illustration, brainstorm and write down within the rectangle, **what can we do at the various sites?** Again, consider the safety and convenience issues, and whether the activities can actually serve to help students achieve the learning objectives (or whether the classroom will be actually be much better!)



5.4 Mapping and Presentation of Possible Ideas

Try to follow the different paths of ideas by connecting the ideas in different logical ways:

On our field trip which I intend to help the students to learn _____ (topic and objective of field trip?), we could bring the students to _____ (where to go?) where we can _____ (do what?).

In your group, try to come up with as many different ideas as possible and decide on **what are the ideas** that you feel would be most workable/not so workable. State your reasons for saying so. Identify some resources that you will need to prepare for the field trip.

Present your outcomes to the rest of the participants. It will be helpful to be **as specific as possible** so for instance, “a lesson on a science topic on plants in the school field outside the classroom for students to explore the plants there” will be much too vague!


Educator note

The facilitator should highlight to the participants that they themselves have gone through a structured enquiry-based activity in a group setting, to help them find out about the possible ways to organise a field trip for their students.

Compare the activities that were developed. Are those actually enquiry-based activities or do they have the potential to become them? Are the questions sufficiently open-ended and rich? Which of the other features of enquiry that we have identified do they have? If none, why? If so, ask them to consider why they think this is an enquiry-based learning activity?

How possible would it be for their students to make use of EBL? Do they think that such a method of learning will be well-received by the students and their parents?

6 ICT practice: Making use of ICT in Enquiry-Based Learning

 **Same-task group work** (20 min) on *making use of ICT in EBL*. Go to the ‘Balancing Act’ simulation by following the link below. Play with the simulation for a few minutes and think about how you might use it in an EBL lesson. Can you come up with one or two enquiry questions that could be investigated using the simulation? Discuss with your colleagues how students would record their answers to these questions.

5.1 - Introduction to enquiry based learning

<http://phet.colorado.edu/en/simulation/balancing-act>

If time permits, think about reviewing the two gold star rated resources (Teaching Ideas) that accompany the simulation to see how they could be good exemplars for your EBL lesson.

Balancing Act Homework Activity 1 and 2.pdf

(<http://phet.colorado.edu/files/activities/3585/Balancing%20Act%20Homework%20Activity%201%20and%202.pdf>)

Balancing Act_Sample_Lesson.pdf

(http://phet.colorado.edu/files/activities/3485/Balancing%20Act_Sample_Lesson.pdf)

These are some possible extension activities you can choose to do in your own time:


1. Study other simulations that have been developed in the web page:

<http://phet.colorado.edu/en/simulations/category/new>

2. Come up with some headings under which to review the simulations and resources that this website pages could offer for an EBL lesson. For instance, you could assess the simulations and resources in terms of:

- the level of enquiry they promote
- ways of extending/differentiating the level of enquiry
- how user friendly is it for yourself and students
- how engaging will it be for the students
- the relevance to your teaching subjects or curriculum in general

7 Connecting with overarching goals of the programme

 **Open space** (10 min). It's now time for the "open space", that gives you an opportunity to discuss issues that have arisen, and to relate those to the broader context of the programme. Do not just gloss over this section, but make time to raise issues, and probe the progress that you are making. You could use this space to:

- Remind yourselves of the of the Most Significant Change Technique, and e.g. collect more of your stories.
- Discuss your assessment portfolios: Is there anything that you are unsure about? Is it going well? What could be done better?
- Check on the work with the classroom assistants: Is this going well? Are there any tensions? Any observations or tips you can share?
- Reviewing individual ICT practise (such as typing practise).
- If you are preparing a presentation for other teachers, you could work on the presentation (about what you have been learning, stories emerging from MSC).
- Remind those who are doing audio diaries, to upload them.
- You could discuss any other issues that have arisen.

You will find notes and summaries of various techniques and concepts on our reference page, and you might want to refer to those for clarification during this activity if needed.

8 Follow-up activities

 **Agreeing follow-up activities** (5 min).

Part 1: PORTFOLIO. Continue collecting evidence for your OER4Schools portfolio by keeping track of your planning and implementation of an enquiry project, and reflecting on what you are learning as you go through the unit. Collect paper/electronic documents to show the whole process, beginning in this workshop session and throughout Unit 5. Please include copies (e.g. photographs/photocopies) of student work throughout the stages they go through (not just finished outcomes). Your reflections can be oral using the dictaphone, you don't need to write them out, but please remember to include challenges you faced as well as benefits of new approaches you trialled.

5.1 - Introduction to enquiry based learning

As we are nearing the end of the year's programme, we would also like to return to the '**most significant change**' technique and ask you to use your portfolio to create a story illustrating the biggest change you feel you have made in your thinking and practice over the year.

Part 2: Start planning for an enquiry-based 'project day' or 'field trip' for your own classroom and share your ideas in the next session. The questions (similar to the small group activity just now) below should be a useful starting point for your planning. Remember that the project or field trip should allow the students to explore an enquiry idea in some depth (and not just answer some closed and surface questions).

1. What is a suitable topic for the grade(s) of your students?
2. What are suitable lesson objectives/success criteria?
3. Where would be a suitable venue for the event?
4. What kind of overall enquiry question or task could you pose? Can you phrase some further sample questions that ask learners what they know/think about some aspects of your chosen topic? What might they then like to know/find out? (Remember what 'open-ended' and 'deep' questions are (see Unit 2 on questioning and table below).

As your planning progresses, consider how you think your enquiry project might be extended to do this.

1. Can you make use of the OpenOffice spreadsheet to create a database on the possible resources that you require for such an event?
2. Consider also what are some administrative requirements you need to attend to to organise such an event (e.g. Do you need permission from an authority/parents? Do you need to invite a specialist speaker to talk about the topic?)

Part 3: Complete the ICT tutorials. Consider and be ready to share in the next session how the OpenOffice spreadsheet and/or GeoGebra can be a useful tool for enquiry-based lessons.

Educator note

In the next session, these follow-up activities will be reviewed. If you are using this session on its own, you can have a look at the review of follow-up activities here.

9 Additional reading for part 2 of the follow-up activities

Guiding questions to help you plan an enquiry task

'Open-ended' Questions	'Deep' Questions
<p>Questions have many answers.</p> <p><i>Examples:</i></p> <p><i>What could be the consequences of water contamination? How does a balanced diet help us? How could we use flowers of plants? Suggest ways to prevent spread of malaria in your community?</i></p>	<p>Questions elicit relations between ideas and extended ideas.</p> <p><i>Examples:</i></p> <p><i>What would happen if only inorganic fertilizers are used for growing plants? What connections do you see between climate of a region and its vegetation? Why is the water in the nearby pond not safe for drinking?</i></p>

These questions will according to Dr Benjamin Bloom be 'higher-level' thinking questions. The levels ("taxonomy") of questions that Bloom has developed form a framework used by many teachers across the world to develop questions that help students progress from concrete to abstract thinking. You may remember it was introduced in the VVOB handout "Questioning the questions" as part of the homework for Session 4.1. The taxonomy classifies learning into six progressive levels of complexity and abstraction:

1. Knowledge – students should: describe; identify; recall.
2. Comprehension – students should: translate; review; report; restate.

5.1 - Introduction to enquiry based learning

3. Application – students should: interpret; predict; show how; solve; try in a new context.
4. Analysis – students should: explain; infer; analyse; question; test; criticise.
5. Evaluation – students should: assess; compare and contrast; appraise; argue; select.
6. Creation – students should: design; create; arrange; organise; construct.

On this scale, knowledge is the lowest-order thinking skill and creation is the highest. Enquiry-based learning aims to help students learn to analyse, evaluate and create.

10 Acknowledgements

We thank YouthLearn Initiative at Education Development Center ([http://www.youthlearn.org/learning/planning/lesson-planning/how-inquiry/how-inquiry inquiry](http://www.youthlearn.org/learning/planning/lesson-planning/how-inquiry/how-inquiry%20inquiry)) and Futurelab (http://www.enquiringminds.org.uk/terms_of_use/) for kindly allowing us to use the material from their website. We also thank Professor Katja Maaß for permission to use the Primas video on the impact of inquiry-based learning on students and teachers.

Educator note

At the end of each session, we provide an overview of the activities in this session, together with their suggested timings. Although this appears at the end of the session (for technical reasons), you should keep an eye on this throughout the session, to make sure that you are pacing the workshop session appropriately!

Total time: 120 (min)

Activities in this session:

- **Whole group dialogue** (10 min) *on peer and self-assessment use.*
- **Whole class dialogue** (5 min): *Positives, Minuses, Interesting.*
- **Whole class dialogue** (10 min) *on enquiry-based learning.*
- **Observing, thinking, reflecting** (20 min) *Video and discussion.*
- **Whole class dialogue** (10 min) - *continuation of previous discussion*
- **Observing, thinking, reflecting** (10 min) *on benefits of EBL.*
- **Whole class dialogue** (10 min) *on issues and concerns on EBL.*
- **Same-task group work**(10 min).
- **Same-task group work** (20 min) *on making use of ICT in EBL.*
- **Open space**(10 min).
- **Agreeing follow-up activities**(5 min).

If you have printed this session for offline use, you may also need to download the following assets:

- Video/Noxolo 3Dshapes 1.2-10.m4v (local play / download options)
- Video/Pindi exponentials 2.1-1.m4v (local play / download options)
- Video/Pindi exponentials 2.3-18.m4v (local play / download options)
- Video/Pindi exponentials 2.4-23.m4v (local play / download options)
- Video/Pindi exponentials 2.4-21.m4v (local play / download options)
- Video/The impact of inquiry based learning on students and teacher.mp4 (local play / download options)
- Video/Agness Air A02.m4v (local play / download options)
- Video/Agness Air A03.m4v (local play / download options)
- Video/Agness Air A08.m4v (local play / download options)

Retrieved from "http://oer.educ.cam.ac.uk/w/index.php?title=OER4Schools/Introduction_to_enquiry_based_learning&oldid=21258"

Categories: OER4S CPDCCEPrimaryTeacher Education

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Session 5.2 - Starting the enquiry-based learning process

"You can't teach people everything they need to know. The best you can do is position them where they can find what they need to know when they need to know it." Seymour Papert, MIT

5.2 - Starting the enquiry-based learning process

Learning intentions and objectives.

In this session you will learn about:

- posing real and productive questions to get the most from enquiry-based learning
- different ways to start off an enquiry-based learning lesson (e.g. brainstorm)
- preparing for an enquiry-based learning session through a series of lessons and a 'project day' or 'field trip' for maths or science classes
- 4 levels of enquiry involving different amounts of student independence:
 - demonstrated enquiry
 - structured enquiry
 - problem-solving enquiry
 - independent enquiry

Success criteria.

To meet the learning intentions you will:

- play a questioning game to practise using open and real questions
- continue to plan a 'project day' or 'field trip' taking into account the four main parts of an enquiry based learning lesson:
 - posing productive questions
 - finding resources/doing an experiment
 - interpreting information
 - reporting findings
- do a PMI activity on the 4 levels of enquiry
- watch a sequence of videos focusing on the nature of the questions used by the teacher

ICT components.

In this session you will continue to apply the ICT skills you have learnt so far for EBL, and to think about how they help you implement EBL in the classroom.

1 Review of follow-up activities from last session

Edit this review section (http://oer.educ.cam.ac.uk/w/index.php?title=OER4Schools/Introduction_to_enquiry_based_learning/review_of_follow_up&action=edit)


Educator note

If you are running a professional learning programme which follows these sessions in sequence, then you should do the review of follow-up activities relating to the previous session (Introduction to enquiry based learning). The 'review of follow-up activities' for that session is available here, and also shown below in the session text. However, if you are following selected sessions in a different order, then you should use the reflection appropriate to the previous session you did.

The review of the follow-up activities for this session (to be done at the start of the next session) is available here.


5.2 - Starting the enquiry based learning process

Review of homework: The project day or field trip

 **Whole group discussion** (5 min) *on project day ideas*. Share briefly any ideas about a 'project day' or 'field trip':

1. What is a suitable topic and for which level of students?
2. What is a suitable lesson objective/success criteria?
3. Where would be a suitable venue for the event?
4. What kind of questions could you pose? Can you phrase some sample questions that ask learners what they know/think about some aspects of your chosen topic? What might they like to know/find out?

Review of homework: Use of ICT in Enquiry-Based Learning (EBL)

 **Whole group discussion** (10 min) *on ICT use in EBL*. Discuss how the use of OpenOffice spreadsheet and/or Geogebra can be a useful tool for teachers to make use of EBL. You may like to refer to the resource databases you have created for homework to suggest your insights.

Watch this clip of Abel, a Maths teacher in Zambia, demonstrating the relationship between area and perimeter. Think about how GeoGebra can be useful for this lesson.

VIDEO

Fixed area vs a changing perimeter

Abel demonstrates the concept of a fixed area vs a changing perimeter.

About this video, 7:9, link to YouTube (<http://www.youtube.com/watch?v=8G3dB-tSuUs&list=PL827432C8560941C6>) (local play / download options)(Series: Abel rectangles, episode 07)

Educator note

Abel demonstrated how the area is kept constant by using the same piece of paper and rearranging its strips. The number of times a piece can be 'cut' and 'rearranged' in Geogebra could be infinite! Students could explore in Geogebra how changing the shape of any other figures (e.g. triangles) in different ways (while not changing the area), would affect the perimeter.

Now watch how Abel talked about why he thought the use of Geogebra would be helpful for his lesson. Was his view similar or different to yours? Do you think your students can make use of Geogebra for this kind of enquiry lesson?


VIDEO

Group discussion on the formula for finding area of rectangle

Abel questions a group on the formula for area and how to relate it to a rectangle drawn on the netbook.

About this video, 2:24, link to YouTube (<http://www.youtube.com/watch?v=VI6EbwZJCAM&list=PL827432C8560941C6>) (local play / download options)(Series: Abel rectangles, episode 15)

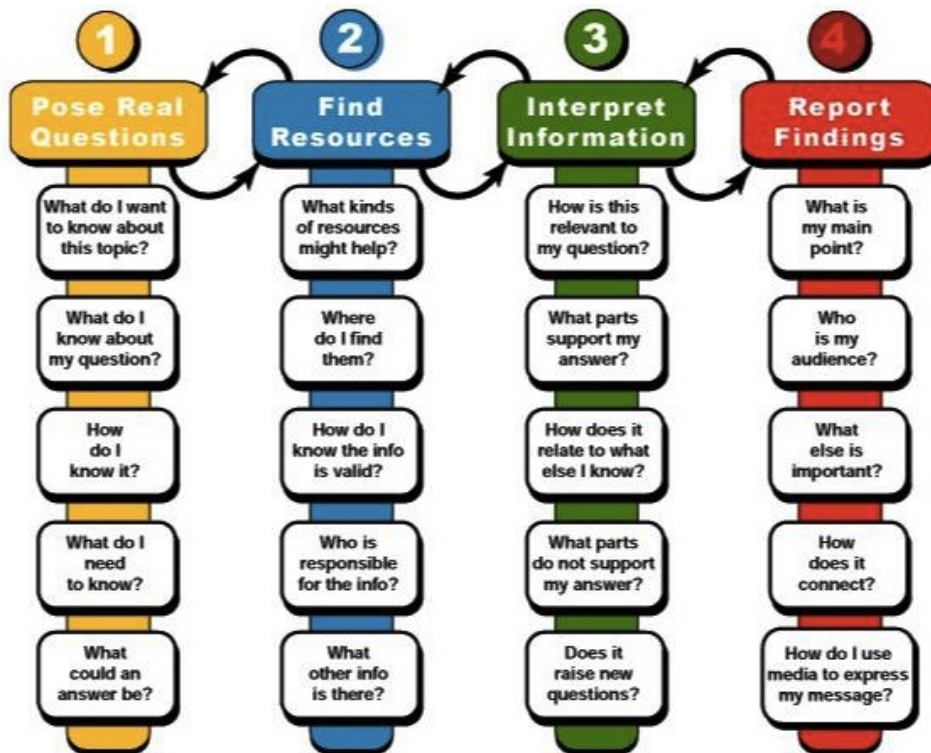
2 Overview of Enquiry-Based Learning (EBL)

 **Observing, thinking, reflecting** (10 min): *Reading about EBL*. The essence of EBL is asking good investigative questions and that the students participate in the planning, researching and presentation of responding to these questions through projects and activities. It may be the case that the field trip activity you have thought about earlier can be a catalyst event for helping students to think about good enquiry questions!

Teachers can take many approaches to crafting an enquiry-based lesson, but Dr. Cornelia Brunner of the Center for

5.2 - Starting the enquiry based learning process

Children and Technology (<http://cct.edc.org/>) breaks it into four main parts: Posing Real Questions, Finding Relevant Resources, Interpreting Information and Reporting Findings.



(<http://www.youthlearn.org/learning/planning/lesson-planning/how-inquiry/how-inquiry>)

Same-task group work (10 min): *discussion in small groups*. Get into your previous group of 3-4 teachers again (as in last week's 'Planning an outdoor' activity). Look through the questions in the diagram above in each of the four parts of the enquiry process. Think about how useful they are for the field trip you are planning to organise.

Discuss these questions:

1. What questions will you select to use during the field trip? Did you use some of them already in your homework planning task?
2. How will you structure the field trip such that students can go through the four main steps of enquiry learning?
3. You will realise that for the students to complete the whole process of enquiry, **it cannot easily happen within a single lesson!** (Although you can do a mini-enquiry in one lesson.) How does this challenge your current thinking and practice of teaching?

Background reading

The following further set of questions can be useful to help you plan the 'project' or 'field-trip' day:

- Will there be shared lesson objectives for all the students or would it differ considerably depending on what enquiry task is chosen?
- How will the enquiry tasks support enquiry, questioning, thinking and discussion?
- Will the tasks constitute a project or activity extending over and between lessons? If not, how can this be arranged?
- If so, will students do anything in between lessons? Will this involve research? Will parents/guardians or other family/community members be involved?
- Will the tasks be undertaken by
 - individuals (perhaps cooperating by sharing equipment and helping each other with both technical issues and the task) - could enquire as a group but not strictly co-enquiry!
 - groups (collaboratively planning and developing ideas, conducting the work, learning to compromise and giving feedback)
 - or the whole class working together collaboratively?
- How will students record what they learned?
- If groups, will there be group presentations to the class?
- If groups, will different groups investigate different aspects of the topic and then share their knowledge with the class?
- What criteria will the class use to assess the outcomes of their enquiry? How will you ensure

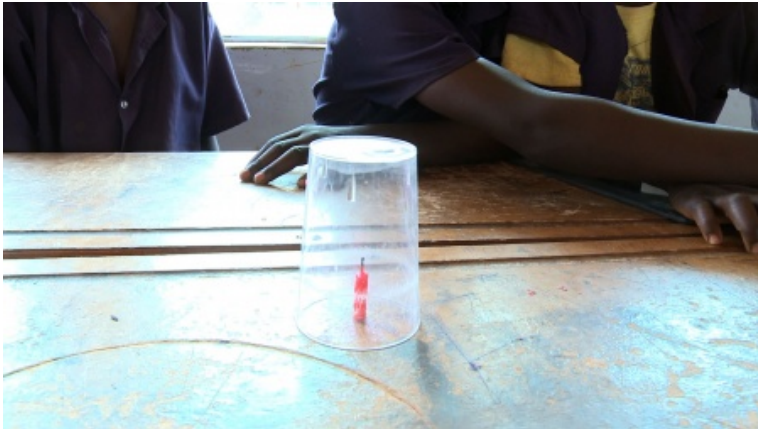
5.2 - Starting the enquiry based learning process

- that any criticism is constructive and sensitive? How will the group be encouraged to take on board constructive feedback?
- How will students assess their own work?

3 Posing Real and Productive Questions

In this section, we introduce the idea that it is important students know what a good enquiry question is and are willing to pose them. We suggest that it is very important for the teachers in the first stage of an enquiry-based lesson to help students to pose **real questions and productive questions** i.e. *questions that are worth answering*. Ultimately, these will be questions that when answered will move the student's learning forward and deepen their understanding.

👤 **Whole class brainstorm** (5 min) *on asking questions*. Look at the following image and come up with as many enquiry type questions as you can relating to it. (Hint - think about the variables.) Record the questions on the blackboard/on a large piece of paper/on ether pad for use later:



👤 **Observing, thinking, reflecting** (5 min): *posing questions that are worth asking* **Real questions** are:

- questions that students are curious and very interested to answer or particularly interested to pose (rather than just pursuing what the teachers want them to answer).
- questions that generally do not lead to simple yes/no answers (or just one possible answer). Instead, they are open-ended in nature to stimulate discussion and invite further investigation.
- questions that must ultimately be answerable through enquiry. Questions like "What colour is God?" or "Can I become a national leader?" are valid questions, but they are partially belief-based and not normally subject to the scientific methods that are at the root of enquiry-based learning in the current context. Similarly, questions that are highly personal (that are based on opinion), typically do not lend themselves to an enquiry for science and maths topics. (It is possible in other subjects and require other techniques of enquiry).

Some possible real questions coming from students may be: Why is the colour of the sky blue?, Why is the colour of the sea different at different points of the day in different places?, How do I actually see colours around us? How many soccer balls can fit in our classroom? A sample design task they might engage with is "Design a new school on the same site as yours and for the same number of students as your school."

Productive questions can be used by the teacher to help students think about a problem in a desired direction. These types of questions are open enough to give opportunities for students to consider new ways of thinking. They usually involve questions like:

- What differences and similarities do you see between these objects (or situations)?
- Why do you think these results are different from the other experiment?
- In your opinion, what would happen if...?
- How do you think you could go about...?
- How might you explain...?
- How can we be sure...?
- How many...?
- What is the temperature...?

5.2 - Starting the enquiry based learning process

The “In your opinion...?” and “What/why do you think...?” are very important here as they do not ask the student for the right answer, rather they ask what the student is thinking. In this way, teachers can progress and support the students’ enquiries. Teachers may use productive questions to help students delve more deeply into their chosen enquiry area with the hope that once students have become open to thinking this way they can begin to ask productive questions of their own.

If teachers decide to give students the option of searching for good enquiry questions, they must help them identify and refine their questions for exploration and help them realise when a question is not appropriate for a given enquiry project. The process of refining questions includes helping students identify what they know and don’t know about the subject, identifying sub-questions that may be part of the larger question and, most importantly, formulating hypotheses about what the answer might be at an early stage.

Look back at the list of questions from the brainstorm on the candle with jar over it image and try to classify them using your knowledge of the following question types:

- real
- productive
- closed
- open
- surface
- deep

Educator note

You may like to help participants to recall their learning on questioning in Session 2.2. The following background text is from that session.

Background reading

Closed versus Open questions:

- *Closed questions are factual and focus on a correct response. Some examples are: Name the different parts of a plant? What are the five nutrients that must be present in a balanced diet? How many sides does a triangle have? What is the formula for calculating perimeter of a square? How many planets are there in the solar system? Name two sources of renewable energy.*
- *Open questions have many answers. Some examples are: What could be the consequences of water contamination? How does a balanced diet help us? How could we use flowers of plants? Suggest ways to prevent spread of malaria in your community?*


Surface versus Deep questions:

- *Surface questions elicit one idea or some ideas. For example, What is the difference between organic and inorganic fertilizers? What is the use of carbohydrates in a balanced diet? Which part of the sugar cane plant is used for eating? Which features of a cactus plant are useful for its survival in desert regions?*
- *Deep questions elicit relations between ideas and extended ideas. For example, What would happen if only inorganic fertilizers are used for growing plants? What connections do you see between climate of a region and its vegetation? Why is the water in the nearby pond not safe for drinking?*

‘What if’ and ‘Why’... questions can help you delve deeper into pupils’ thinking.

It is likely that real and productive questions need to be “open” or “deep” as well!

4 A questioning game


 **Game** (10 min) *about real and productive questions.* This game is about learning to ask open and real questions. The idea is that you go round your group, and practice questioning.

5.2 - Starting the enquiry based learning process

To start with, decide on a topic to pose questions about to your colleagues. One person starts with an open-ended question that can be either real or productive. The next person could either comment on the previous question (e.g. how can we answer that question? Is it possible to find answers to that question?) or respond with a related open-ended question. This goes on as long as there is no repeating of a previous question. For example, the topic might be on light:

- Teacher A: Why is it important to have light?
- Teacher B : What would happen if there is no light?
- Teacher C: Where/when do you think light is used in particular?
- Teacher D: Who or what do you think particularly need light?
- Teacher E: How does light help or not help people?
- Teacher A: How does light come about?
- Teacher B: What kind of process is involved in seeing light?
- Teacher C: What is the speed of light?
- Teacher D: I think the previous question does not lead to a productive discussion since it only has one correct answer, so how about changing it to: 'How do we find out about the properties of light such as the speed?'

So now, choose topic, and start asking questions! After you have gone round the group once or twice (depending on the size of the group) you might want to do another round with another topic.

 **Observing, thinking, reflecting** (10 min) *on bigger and smaller questions.* You will realise that some of the questions are 'bigger' than the rest in terms of the possibilities that the question can be 'broken down' into 'smaller' ones. It is probably easier to respond to the 'smaller' sub-questions than the 'bigger ones'. Therefore, responding to the smaller questions will give clues to answering the bigger questions. Bigger questions might frame a whole enquiry whereas smaller, sub-questions might collectively structure that enquiry.

Examples:


- Why is it important to have light? ('bigger' question)
- What would happen if there is no light? ('smaller' question)
- Where/when do you think light is used? ('smaller' question)
- Who or what do you think particularly need light? ('smaller' question)

It will be useful for the questions to be written out on the board so that everyone can see how the questions evolve (and to see the 'size' of each question) as each person poses a question.

Educator note

Highlight to the teachers that such a process of posing, refining and sizing of questions is by itself a useful enquiry activity for students. We are inviting them to pose questions and think about what kind of investigation needs to take place to respond to the questions. It may be the case that some questions seem rather 'straightforward' so posing further probing questions like 'how do you know' or 'why do you think so' will be helpful to further deepen the thinking process of the students.

5 Posing real and productive questions - video watching

 **Observing, thinking, reflecting** (10 min) *on posing real and productive questions* Watch the following clip on Abel trying to get students to understand the relationship of area and perimeter. Pay attention to the questions he posed:

- What other questions could be asked to elicit the students' ideas on the concept of area?
- How might a 'think pair share' approach to the class discussion have affected students' learning?
- Consider the question, 'How do/can we measure area?'. How might this question be developed into a useful enquiry activity for students?

VIDEO

Whole class discussion on the meaning of area

Abel questions students on their knowledge and understanding of the concept of area.

5.2 - Starting the enquiry based learning process

About this video, 3:08, link to YouTube (<http://www.youtube.com/watch?v=H6WYAHknklo&list=PL827432C8560941C6>) (local play / download options)(Series: Abel rectangles, episode 02)

Continue to watch in the next clip, how Abel set up the class for students to explore the relationship of area and perimeter. What kind of probing questions did he use to help students in their learning?

VIDEO

Instructions for the interactive task

Abel starts with whole class dialogue, giving instructions for starting the investigation. (1:16) Abel then works with one of the groups, clarifying the concepts of area and perimeter, as well as how to work with these in Geogebra. The group is still stuck, and (3:30) Abel solicits help from other students to help this group, asking them to explain details of Geogebra (relating to perimeter and area). (4:11) Students explore Geogebra through peer learning.

About this video, 4:32, link to YouTube (<http://www.youtube.com/watch?v=8tDOD4oKaRc&list=PL827432C8560941C6>) (local play / download options)(Series: Abel rectangles, episode 04)

The next clip shows how the students made use of Geogebra in their enquiry process. How do you think such an approach of learning would be helpful for the students? Do you think it helped them to become more engaged and confident? Why do you think so?

VIDEO


Geogebra group work

A group of students jointly progress on their task to investigate the relationship between area and perimeter of rectangles.

About this video, 2:03, link to YouTube (<http://www.youtube.com/watch?v=qHDLHlzBo1U&list=PL827432C8560941C6>) (local play / download options)(Series: Abel rectangles, episode 06)

What can you say about how confident the students seem in using this new technology?

6 Four Levels of Enquiry

 **Whole class dialogue** (5 min) *on the four levels of enquiry* Read the following examples of teachers trying to start an enquiry-based learning lesson for a maths topic on angles of polygons. According to Douglas Llewellyn, the different approaches of enquiry-based teaching require teachers and students to play different roles in the enquiry-based learning process.







Teacher A: Demonstrated Enquiry

Teacher introduced new concepts of properties of polygons by showing the pupils different pictures of polygons and asking them to describe what they see (see table below). She explained or demonstrated the sum of angles for each polygon. Teacher asked students to explain the pattern across the shapes.

Example of Question: What is the sum of the interior angles of a regular polygon with seven sides based on what I have shown you so far?

Students attempted to answer questions which teacher assessed according to whether responses were correct or incorrect. Students took down notes for the topic. The lesson on this topic ended.

5.2 - Starting the enquiry based learning process

Number of sides	Sum of interior angles	Shape
3	180°	
4	$180^\circ + 180^\circ = 360^\circ$	
5	$360^\circ + 180^\circ = 540^\circ$	
6	$540^\circ + 180^\circ = 720^\circ$	
8	$900^\circ + 180^\circ = 1080^\circ$	
10	$1260^\circ + 180^\circ = 1440^\circ$	

Teacher B: Structured Enquiry

Teacher B divided the class into groups and provided pictures of regular polygons for each group to investigate the property of their angles. The teacher provided step-by-step instruction and questions about how the students should be measuring and recording the angles of each polygon onto a table (see below):

Number of sides?	Sum of interior angles?	Shape?	What do you realise about the pattern?

Example of Question: Can you record the number of sides and sum of interior angles of each of the polygon? What kind of pattern can you see?

Teacher assigned roles to each pupil and asked the spokesperson to report on the group's findings at the end of their investigation – which can take up to one or two days.

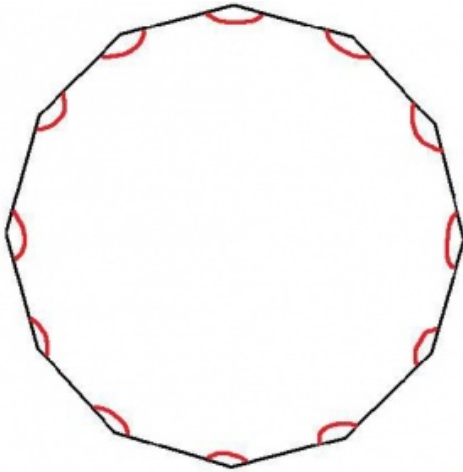
Teacher C: Problem-Solving Enquiry

Teacher posed the following problem for the pupils to investigate in groups. She wanted the pupils to think of ways to find out the interior angles of this regular polygon (see picture below) and to search the internet to find out where in the world such a polygon can exist physically as a building structure or object.

Example of Question: You have come across this rather interesting regular polygon and are interested to find out what would be the total interior angles of it. How can you go about finding this out and be sure that the answer is correct?

5.2 - Starting the enquiry based learning process

Where do you think you can see this polygon in the real world?



Teacher directed students to some resources that they could search online. Teacher asked students to present their findings at the end of their investigation – which may span across two or three days.

Teacher D: Independent Inquiry

Teacher asked each student to think of ways to find the general formula of the interior angle (S) of a regular n -sided polygon : $S = (n - 2) \times 180^\circ / n$

Example of Question: You have come across several regular polygons. Can you work individually to find out a general formula to find the total interior angles of it up to 100 sides?

Students worked on their own to derive a general formula. Teacher asked students to present their findings at the end of their investigation – which may span across two or three days.

7 PMI activity on the Four Level of Enquiry

Same-task group work (15 min): *PMI activity on the four levels of enquiry.* Before having a brief discussion on the differences of the levels of enquiry, it may be helpful to do a PMI (positives, minuses, interesting) activity where you work in groups of two or three and consider the PMIs of each approach. Remember, you can also use a PMI activity to consider the possible pros and cons of a random statement as in the 'Plants can now walk in our World!' statement in 5.1.

Do a PMI activity and come up with something **Positive** about and a **Minus** point about as well as something **Interesting** about, in this case, the enquiry levels/approaches used by Teachers A, B, C and D and/or consider the following questions for discussion:

1. What do you think are the main differences between the levels of enquiry?
2. Where do you see yourself (Teacher A-D?) in terms of conducting an enquiry-based learning activity in your class if you were to teach them today? Why do you say that?
3. Do you think there is a possibility that you will consider using a different approach to start an enquiry-based lesson in your class if you are given some time to plan? What and how will you go about trying?

Educator note

As the facilitator, look closely at what is being suggested as P, M, and I. Critically discuss whether something suggested is really a minus, or whether it could be a Positive, or perhaps just interesting. You might say: "You have put down that students will be challenged as a minus. Is challenging your students a minus? How do we challenge students appropriately?" Also see where suggestions are similar across the four approaches. You might say: "You suggested that this was a Positive for all four teachers - where do you think this is the biggest Positive?"

Here is one way of organising the PMI activity so that all groups consider all 4 levels of enquiry - as represented by Teachers A to D:

- Place a piece of A4 paper with the title: '**Teacher A: Demonstrated Enquiry**' on a desk (desk A) in one corner of the room.

5.2 - Starting the enquiry based learning process

- Then place a second piece of paper with the title: '**Teacher B: Structured Enquiry**' on a desk (desk B) in another corner of the room.
- A third piece of paper with the title: '**Teacher C: Problem-Solving Enquiry**' should be placed on another desk (desk C) in a different corner.
- In the final corner should be placed a piece of paper with the title: '**Teacher D: Independent Inquiry**' on it (desk D).
- Each group starts on a different desk. They will read through the enquiry approach for that Teacher, have a short discussion about the PMI's of the Teacher/enquiry approach and write them down before moving on to the next desk in the A,B,C,D sequence (so A moves to B, B moves to C etc.).

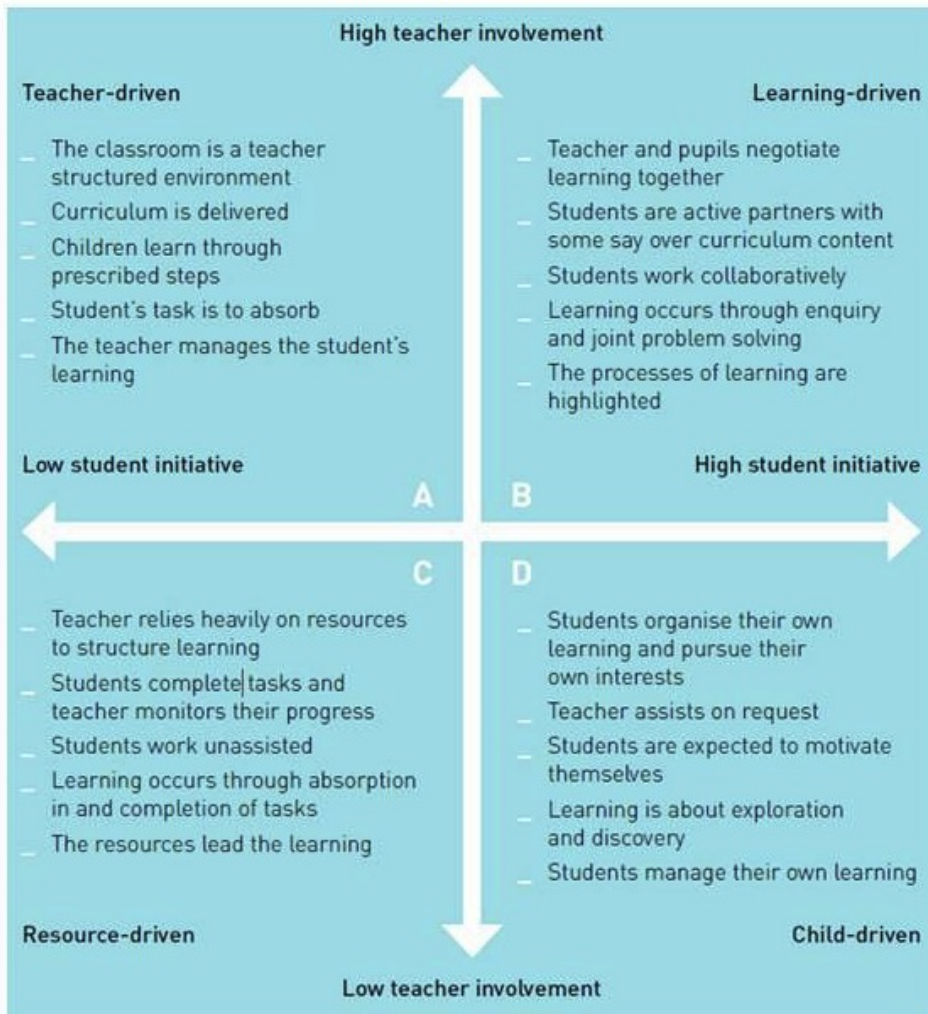
After the first move, there will already be something positive (**P**), something negative (**M**) and an interesting point (**I**) written on the paper now in front of each group. If there are only three groups, the group starting at desk C and moving on to desk D will be greeted with another blank piece of paper. Each group will read through the enquiry approach for that Teacher but they will have to think more deeply about *their* PMIs, moving beyond the obvious (so, they should not repeat what has been written but should extend their thinking, perhaps using those ideas). The third group to arrive at that desk will hopefully be able to use the other groups ideas to delve even deeper. By perpetuating this cycle all groups will get to discuss each of the Teachers with an increasing level of challenge to their thinking.

At the end of the activity, the four pieces of paper could be displayed so that everyone can see what has been written. Another discussion may arise out of this process, but that's enquiry for you!

Another way to do this activity is to move the pieces of A4 paper from group to group. This works well if there are the same number of groups as pieces of paper - Groups each choose from Teachers A, B, C or D, feedback one PMI related to their choice, and then pass their chosen teacher (piece of paper) on for the next group to consider. The next group must come up with a different PMI for that same Teacher. By the end of the activity each of A, B, C and D should have 4 PMI comments. The feedback comments could be written on the board by the facilitator for ongoing discussion or written on the piece of A4 paper and passed on.

There is no single correct way to teach or to conduct an enquiry. Effective teachers are resourceful and have a whole repertoire of teaching strategies which they draw on as appropriate, according to the topic, task, level of student confidence and knowledge. The diagram below shows how levels of teacher support and student independence might vary.

5.2 - Starting the enquiry based learning process



Based on a model of adult-child interaction in classrooms, Pollard et al, Reflective Teaching, Continuum, 2002.

Educator note

The differences between the approaches of the four teachers can be understood based on **differing levels of teacher support or scaffolding (maximum for teacher A)** for the students and **students' independence in their learning (maximum for teacher D)**. While we hope that we can help our students to take up more responsibility and ownership through enquiry-based learning, we trust that the teachers can make appropriate decisions on which level of support or scaffolding is best suited for their students at any point. One thing that can be common across the approaches is that a teacher should always strive to be a co-learner with the students and not assume that he/she already has all the answers. Be prepared for surprises and that the students' questions and findings might be very illuminating indeed!

8 Making use of Enquiry Ideas

5.2 - Starting the enquiry based learning process

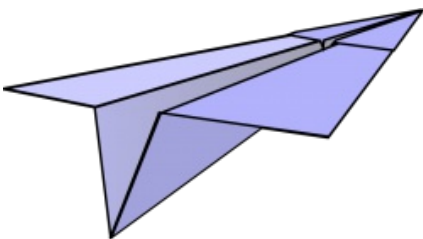


Same-task group work (10 min) *on making use of enquiry ideas* Below are five enquiry ideas (A-E) that could be turned into an enquiry in your class. Please note that these are just *enquiry ideas* which means that you need to go through substantial thinking and planning for the ideas to be introduced in a lesson to engage students in their own enquiry. It may be that you do not find some of the ideas useful at all, in which case you are welcome to come up with your own enquiry ideas to discuss as a group.

Divide yourself into groups of three or four teachers. You should read through all the enquiry ideas and eventually pick one or two ideas for the group activity that you will be working on together in this session and in the next two weeks. As you are reading through these ideas, think about the following:

1. Are the ideas interesting and engaging for my students?
2. Are the ideas relevant to the curriculum? What subject will it be most relevant to introduce them to?
3. What can be an appropriate lesson objective(s) if you do make use of the enquiry ideas?
4. What kind of resources will you need and are they easily accessible to you and your students?
5. How will you introduce the ideas in the first lesson (recall what are some of the ways to present your questions that you have learnt in the previous session) and how many lessons do you think you will need to complete the enquiry process?

8.1 Idea A: Investigating paper airplane design



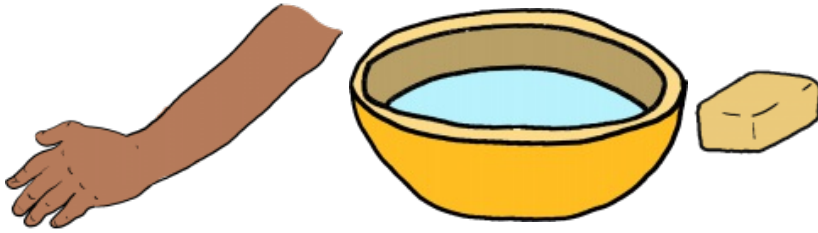
There are many different designs of paper aeroplanes. Some of them have a very plain design but can fly a longer distance whereas others can have rather interesting designs but do not fly as well. What are the factors that affect how far a paper airplane can fly?

You may like to refer to the following web references for more information:

- Examples of airplane designs imitating flying and gliding animals:
 - <http://srel.uga.edu/outreach/kidsdoscience/sci-method-planes/airplane-designs.pdf>
- Examples of airplanes with instructions and videos on how to fold them:
 - <http://www.funpaperairplanes.com>
 - <http://www.origami-resource-center.com/paper-airplane-instructions.html>
- Examples of the actual lessons on investigating the flights of paper airplanes using scientific method as an extended project:
 - http://camillasenior.homestead.com/paper_airplanes.pdf
 - <http://srel.uga.edu/outreach/kidsdoscience/kidsdoscience-airplanes.htm>

Tip: Students could use what they have learned from their enquiry to design their own enhanced airplane.

8.2 Idea B: Investigating the process of hand washing



We have been told that washing of our hands is an important part of maintaining hygiene and preventing the spread of germs and viruses. How do you know that you have spent adequate time washing your hands each time?

- Example of lesson plan on investigating hand washing
 - http://www.bam.gov/teachers/activities/epi_4_hand_wash.pdf
- Example of youtube video on emphasising importance of washing hands
 - <http://www.youtube.com/watch?v=mY8Kx2iW2ls>
 - <http://www.youtube.com/watch?v=tmMGwO4NOVc>
- Video of a Zambian teacher doing this enquiry with her students

VIDEO

Hand washing enquiry

Pupils investigate different methods of hand washing to identify which is the most efficient.

About this video, 3:51, link to YouTube (<http://www.youtube.com/watch?v=M8NJanZa73k&list=PLtf3oOEbE-EUcSFT2JhlnAYng3dj-0cFq>) (local play / download options) (Video filmed in 2012, at CBS.)(Series: Judith body, episode 28)

8.3 Idea C: Investigating the vegetables and trees within our community

What are some of the vegetables and trees that are grown in our community? Why are they being grown here? (e.g. consider tomatoes, rape, onion, cabbage, nimu tree, holy fiso, malaina, mango)

Some possible areas of investigation: location of vegetable/trees (e.g. type of soil and availability of water source like a stream), medicinal properties (e.g. is it used as a traditional medicine?), nutritional properties, economic consideration (e.g. source of fuel/income), ecological and environmental concerns, personal and spiritual values. You might like to select one or two areas of investigation for a start.

- Example of youtube video on tree planting in Zambia
 - <http://www.youtube.com/watch?v=u5gCho1S5oc>
 - <http://www.youtube.com/watch?v=iL5e40UL20l>
 - http://www.youtube.com/watch?v=kGdN8F_igVo
- Example of website on 'treevolution' in Zambia
 - <http://www.greenpop.org/projects/trees-for-zambia/>
- Video of a Zambian teacher doing an enquiry on water retention in different soil types with her students

VIDEO

Soil water retention lesson

Priscillah's class explore the water retention properties of soil types

About this video, 2:54, link to YouTube (http://www.youtube.com/watch?v=7trLKCrtc34&list=PLtf3oOEbE-EU7vLmQI8v_dDSIjFSzoejA) (local play / download options) (Video filmed in 2012, at CBS.)(Series: Priscillah Water Soil, episode 04)

8.4 Idea D: Planning for a trip to the game reserves and Victoria Falls Masaai Mara^K



Imagine you have two overseas visitors who have just arrived in Lusaka^Z Nairobi^K and would like to visit a game reserve near Lusaka^Z Nairobi^K, plus the Victoria Falls^Z Masaai Mara^K and one other interesting site by car. The two visitors only have one day to visit these three places by car. Can you inform the visitors about the distance to these places from Lusaka^Z Nairobi^K city centre? Can you also suggest an itinerary that will take into consideration the shortest distance of travel to and between the three places, starting and ending at Lusaka^Z Nairobi^K city centre? Please state the distance of travelling to each place and the approximate time required to travel.

Example of website on visiting Zambia: <http://www.zambiatourism.com/welcome.htm>.^Z Example of website on visiting Kenya: <http://www.touropia.com>.^K

Make sure that you do consider the practical arrangements for this trip! In the itinerary: decide on the length of your imaginary journey and work out the travelling time, but also think about the practical arrangements: how much luggage (water, food, equipment) will you need to take and how will you be able to carry this? Are there any elderly people or young children in your party, who might need special provision, such as extra food, or more frequent stops?

8.5 Idea E: Investigating my body and how it works

Children are naturally curious about how their bodies work so this is a rich area to draw on for enquiry ideas. A simple and straight forward enquiry into pulse rate and how it varies with exercise requires minimal equipment, just a stopwatch (or a clock with a second hand) and some accurate counting. Students can come up with different types of exercise such as running on the spot/sprinting/going up and down stairs and see how these affect their pulse rate. They could also look at whether or not their pulse rate is different when they are lying down.

Here are some short videos of Zambian teachers working on an enquiry topic centred around how our bodies work:

- lung capacity and how it varies with height/sex/pulse rate/chest circumference

VIDEO

Aggie and class explore lung capacity with a hands-on demonstration using a water bottle

Aggie and her class explore lung capacity and how it varies with height/sex/pulse rate/chest circumference.

About this video, 1:47, link to YouTube (http://www.youtube.com/watch?v=6v0Oag9-_vc&list=PLtf3oOEbE-EXZPwm3rZR9KVKhEtFVFCeu) (local play / download options) (Video filmed in 2012, at CBS.)(Series: Aggie Fitness, episode 01)

- BMI and being healthy

VIDEO

How to use height and weight data to calculate BMI

Judith reiterates the importance of accurate data collection and shows pupils, on the board, how to calculate their BMI. Pupils stick measuring tapes to the wall in preparation for measuring their height.

About this video, 14:01, link to YouTube (<http://www.youtube.com/watch?v=GNXD3X1frXE&list=PLtf3oOEbE-EUcSFT2JhlnAYng3dj-0cFq>) (local play / download options) (Video filmed in 2012, at CBS.)(Series: Judith body, episode 04)

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Related resources

As well as providing an additional context for enquiry work, this substantial **TESSA** resource will help you to develop ways of teaching in a more pupil-centred way and contains useful ideas on how to improve your ability to organise, support and assess practical investigations.

Reading through the case studies will be useful when you are developing your own enquiry ideas, especially case study 3 which emphasises the importance of assessing students' prior understanding and ensuring that they have the necessary skills before embarking on an independent enquiry.



9 Discussion of Enquiry Ideas

Educator note

This activity is optional if small groups need more time to discuss. Also, at this time, draw participants attention to the TESSA resource on investigating distance which can be used as an additional source of information and guidance as we study this unit on enquiry based learning.

Whole class dialogue (10 min) *on enquiry ideas* Nominate one or two representatives from each group to share the enquiry ideas they have discussed in the previous activity. In particular, highlight the reasons for selecting the enquiry ideas that the group has chosen and share ideas on how the teacher should present the enquiry ideas and questions in the first lesson. Share any possible challenges that the teacher may face. The rest of the participants should provide constructive questions or comments to help the group to sharpen their ideas further.

10 ICT practice: Making use of ICT in enquiry-based learning

Different-tasks group work (20 min) *with ICT for EBL*. You now have acquired a large range of ICT skills (images, slideshows, the browser, GeoGebra, spreadsheets, Etherpad for collaborative writing, concept mapping, online simulations, typing). You've also had the opportunity to deepen your knowledge and skills within one particular application. We now turn towards using these applications for EBL.

Think about all the applications you have encountered. How can you use those applications in EBL? Think about the concrete projects that you have developed with these applications and consider:


1. the level of enquiry they promote
2. ways of extending/differentiating the level of enquiry

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3. how user friendly is it for yourself and students
4. how engaging will it be for the students
5. the relevance to your teaching subjects or curriculum in general

Continue to develop some new activities for classroom use, bearing in mind the above list. Develop detailed activity plans and share and test your ideas with other participants. As always, try those activities in the classroom.

11 Connecting with overarching goals of the programme

 **Open space** (10 min). It's now time for the "open space", that gives you an opportunity to discuss issues that have arisen, and to relate those to the broader context of the programme. Do not just gloss over this section, but make time to raise issues, and probe the progress that you are making. You could use this space to:

- Remind yourselves of the of the Most Significant Change Technique, and e.g. collect more of your stories.
- Discuss your assessment portfolios: Is there anything that you are unsure about? Is it going well? What could be done better?
- Check on the work with the classroom assistants: Is this going well? Are there any tensions? Any observations or tips you can share?
- Reviewing individual ICT practise (such as typing practise).
- If you are preparing a presentation for other teachers, you could work on the presentation (about what you have been learning, stories emerging from MSC).
- Remind those who are doing audio diaries, to upload them.
- You could discuss any other issues that have arisen.

You will find notes and summaries of various techniques and concepts on our reference page, and you might want to refer to those for clarification during this activity if needed.

12 Follow-up activities

 **Agreeing follow-up activities** (5 min).

Part A: Small group planning task.

Work with the same small group of colleagues to develop the resources (e.g. worksheets and materials) for one or two enquiry ideas that you have discussed just now that will be necessary to carry on the enquiring process by your students. Bring these resources next week (including the materials like the paper for the paper aeroplane) so that you can start the data collection and interpreting process as a group. Remember that you have time to work on at most two enquiry ideas so please choose the idea(s) that you really want to work on! If you think that you have OTHER ideas that you prefer to work on, that is fine but do ensure that you have thought through the questions we have suggested to you earlier. You may find this document useful as it contains some further enquiry ideas that have been developed by students alongside

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examples of their work:

Part B: Developing Internet search skills

Internet search skills are very important as the internet is typically the first stop to obtaining information on specific news and topics of interest. You may like to direct your students to specific web sites in the early stage of an EBL lesson.

We suggest that you spend some time viewing the following YouTube clips on internet search skills. This can also be done as a group session using a projector, if preferred.

VIDEO

Skimming and scanning the internet

Youtube clip on skimming and scanning the internet.

About this video, 01:34, link to YouTube (<http://www.youtube.com/watch?v=ZkXiB1Lg8po&list=PLtf3oOEbE-EXgP2iN30V3UhCd8x54FGyO>) (local play / download options) Video courtesy of Fusion universal.(Series: Video from other organisations, episode N/A)

VIDEO

Search the internet effectively

Learn how to search the Internet effectively

About this video, 01:59, link to YouTube (<http://www.youtube.com/watch?v=dD8VrUjBkrM&list=PLtf3oOEbE-EXgP2iN30V3UhCd8x54FGyO>) (local play / download options) Video courtesy of Fusion universal.(Series: Video from other organisations, episode N/A)

VIDEO

Learn how to use Google expert

Learn how to use Google expert search

About this video, 01:44, link to YouTube (<http://www.youtube.com/watch?v=glqbLvE75oM&list=PLtf3oOEbE-EXgP2iN30V3UhCd8x54FGyO>) (local play / download options) Video courtesy of Fusion universal.(Series: Video from other organisations, episode N/A)

VIDEO

Google Earth in the classroom

How to use Google Earth in the classroom

About this video, 01:12, link to YouTube (<http://www.youtube.com/watch?v=PZvspeDWpdE&list=PLtf3oOEbE->

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EXgP2iN30V3UhCd8x54FGyO) (local play / download options) Video courtesy of Fusion universal.(Series: Video from other organisations, episode N/A)

After you have looked at the video clips above, please try to search for a video clip on the internet on **Enquiry-based learning & OER use at the Aisha Project School, Zambia**. Can you summarise what the teacher in the clip has said about enquiry-based learning through the use of ICT?

Educator note

When you discuss the homework with the participants, let them know that they can ask you for help in navigating to this site if they have difficulty finding the clip. The clip can be found at <http://vimeo.com/12669204> (and is available offline as Enquiry-based learning at Aisha Project School.mp4).

The clip shows Andreia Santos (<http://aisantos.wordpress.com>) interviewing Brighton Lubasi about the use of open educational resources at the Aisha Project School in Lusaka, Zambia. Brighton explained how they drew on an enquiry-based pedagogy for learning with OER. The interview was carried out during Andreia's visit to Zambia to attend and present at the E-learning Africa Conference in May 2010.

Part C: Notes for planning 'project or field day'

We hope today's session will help you to develop your ideas for an enquiry-based 'project day' or 'field trip'. Be prepared to share any updates of your ideas in the next session (5.3). In the previous session (5.1), we introduced these questions to help you plan for your own EBL 'field trip' or 'project day' so be sure to refer to them:

- What is a suitable topic?
- What is a suitable lesson objective/success criteria?
- Where would be a suitable venue for the event?
- What kind of questions could you pose during the enquiry? Is there a main enquiry question and sub-questions? Can you phrase some sample questions that ask learners what they know/think about some aspects of your chosen topic? Are you giving opportunity for the students to pose their own questions? What might they like to know/find out?
- What specific resources (e.g. worksheets, objects, internet links) have you come up with for the event?
- How can the students make use of ICT to facilitate their enquiry process?
- Consider also what are some administrative requirements you need to attend to organise such an event (e.g. Do you need permission from an authority/parents? Do you need to invite a specialist speaker to talk about the topic?)

The table below summarises the different kind of questions that we have discussed so far.

'Open-ended' Questions	'Deep' Questions	'Real' Questions	'Productive' Questions
<p>Questions have many answers.</p> <p><i>Examples:</i></p> <p><i>What could be the consequences of water contamination? How does a balanced diet help us? How could we use flowers of plants? Suggest ways to prevent spread of malaria in your community?</i></p>	<p>Questions elicit relations between ideas and extended ideas.</p> <p><i>Examples:</i></p> <p><i>What would happen if only inorganic fertilizers are used for growing plants? What connections do you see between climate of a region and its vegetation? Why is the water in the nearby pond not safe for drinking?</i></p>	<p>Questions that students are curious and very interested to answer or particularly interested to pose (rather than just pursuing what the teachers want them to answer).</p> <p><i>Examples should come from the students themselves!</i></p>	<p>Questions help students to delve more deeply into an enquiry area. May be posed by the teacher initially to support and progress students' enquiries.</p> <p><i>Examples:</i></p> <p><i>Probing questions starting with "in your opinion", "what would happen", why do you think", "how can you be sure" etc</i></p>

Educator note

In the next session, these follow-up activities will be reviewed. If you are using this session on its own, you can have a look at the review of follow-up activities here.

13 References

- Pollard, A., Anderson, J., Maddock, M., Swaffield, S., Warin, J., Warwick, P., 2002. *Reflective teaching: Effective and evidence-informed professional practice*, London: Continuum.
- Llewellyn, D. 2011. *Differentiated Science Inquiry*, Thousand Oaks CA: Corwin.

14 Acknowledgements

We thank YouthLearn Initiative at Education Development Center ([http://www.youthlearn.org/learning/planning/lesson-planning/how-inquiry/how-inquiry inquiry](http://www.youthlearn.org/learning/planning/lesson-planning/how-inquiry/how-inquiry%20inquiry)) and Futurelab (http://www.enquiringminds.org.uk/terms_of_use/) for kindly allowing us to use the material from their website.

Educator note

At the end of each session, we provide an overview of the activities in this session, together with their suggested timings. Although this appears at the end of the session (for technical reasons), you should keep an eye on this throughout the session, to make sure that you are pacing the workshop session appropriately!

Total time: 150 (min)

Activities in this session:

- **Whole group discussion** (5 min) *on project day ideas.*
- **Whole group discussion** (10 min) *on ICT use in EBL*
- **Observing, thinking, reflecting** (10 min): *Reading about EBL.*
- **Same-task group work** (10 min): *discussion in small groups.*
- **Whole class brainstorm** (5 min) *on asking questions.*
- **Observing, thinking, reflecting** (5 min): *posing questions that are worth asking*
- **Game** (10 min) *about real and productive questions.*
- **Observing, thinking, reflecting** (10 min) *on bigger and smaller questions.*
- **Observing, thinking, reflecting** (10 min) *on posing real and productive questions*
- **Whole class dialogue** (5 min) *on the four levels of enquiry*
- **Same-task group work** (15 min): *PMI activity on the four levels of enquiry.*
- **Same-task group work** (10 min) *on making use of enquiry ideas*
- **Whole class dialogue** (10 min) *on enquiry ideas*
- **Different-tasks group work** (20 min) *with ICT for EBL.*
- **Open space** (10 min).
- **Agreeing follow-up activities** (5 min).

If you have printed this session for offline use, you may also need to download the following assets:

- Video/12 13 Abel 2 4 rectangles 1-desktop.m4v (local play / download options)
- Video/12 13 Abel 2 4 rectangles 5-desktop.m4v (local play / download options)
- Video/Abel Clip 2.m4v (local play / download options)
- Video/Abel Clip 4.m4v (local play / download options)
- Video/Geogebra-group-interaction.m4v (local play / download options)
- Video/Judith.m4v (local play / download options)
- Video/Priscillah Water Soil A04.m4v (local play / download options)

5.2 - Starting the enquiry based learning process

- Video/Aggie lung capacity.m4v (local play / download options)
- Video/Judith body A04.m4v (local play / download options)
- Video/How to scan and skim sources on the Internet.mp4 (local play / download options)
- Video/Learn how to search the Internet effectively.mp4 (local play / download options)
- Video/Learn how to use Google expert search.mp4 (local play / download options)
- Video/How to use Google Earth in the classroom.mp4 (local play / download options)

Retrieved from "http://oer.educ.cam.ac.uk/w/index.php?title=OER4Schools/Starting_the_enquiry_based_learning_process&oldid=21277"

Categories: OER4S CPDCCEPrimaryTeacher EducationOER4Schools ZambiaOER4Schools Kenya

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Session 5.3 - Collecting and interpreting information: Part one

5.3 - Collecting and interpreting information: Part one

Learning intentions and objectives.

In this session you will learn about:

- using short enquiry tasks to introduce the idea of enquiry based learning to your students
- collecting and interpreting data in an enquiry-based lesson
- the importance of recording the results of enquiries
- collecting accurate and reliable data
- preparing for an enquiry-based learning session through a series of lessons and a 'project day' or 'field trip' for maths or science classes

Success criteria.

To meet the learning intentions you will:

- review a short perimeter and area enquiry task on Geogebra
- complete a simple data collection exercise on personal profiles
- watch a video as a stimulus for discussion on encouraging students to record their findings during enquiries
- watch a video sequence illustrating a procedural error and refine resources and data collection process to minimise such errors

ICT components.

The ICT components you will focus on are

- GeoGebra, perimeter and area.

Also, as in the previous session, you will continue to apply the ICT skills you have learnt so far for EBL, and to think about how they help you implement EBL in the classroom.

Resources needed.

Resources needed for this session:

- Papers of different sizes (at least two pieces of paper for each teacher),
- Different coloured pens (at least one for each teacher),
- Computer/laptop/netbook and the Internet.

AUDIO

Student motivation

Priscillah tells us about her surprise that even students who would normally be disengaged during lessons were able to draw correct conclusions during an enquiry into soil amounts/types and water retention.

Priscillah speaking about student motivation during a science investigation.mp3, 01:33,(Series: OER4Schools audio, episode 01)

1 Review of follow-up activities from last session


5.3 - Collecting and interpreting information

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Educator note

If you are running a professional learning programme which follows these sessions in sequence, then you should do the review of follow-up activities relating to the previous session (Starting the enquiry based learning process). The 'review of follow-up activities' for that session is available here, and also shown below in the session text. However, if you are following selected sessions in a different order, then you should use the reflection appropriate to the previous session you did.

The review of the follow-up activities for this session (to be done at the start of the next session) is available here.

 **Small group activity:** (20 min) *review of homework*. Get into your small group of last week's 'making use of enquiry ideas A-E' activity to discuss your homework tasks. You will remain in these small groups for most of the activities for this session.

Homework A: Small group planning task (5 mins)

Spend a few minutes discussing with your colleagues the resources you have developed (on enquiry ideas A-E) that you will be using later. You may like to consider some final editing of the resources (e.g. worksheet) or to make sure that you have all the items required (e.g. papers for paper aeroplane) to carry out the investigation later.

Homework B: Developing internet search skills (5 mins)

Discuss briefly with each other any new discoveries you have made when using Google. If you have managed to search for the video clip on the internet on **EBL & OER use at the Aisha Project School, Zambia**, share with each other what you have learnt from the teacher on enquiry-based learning through the use of ICT.

Homework C: Planning 'project or field day' (10 mins)

Share in your small groups, any new ideas about the 'project day' or 'field trip':

1. Topic/level of students.
2. Lesson objective/success criteria.
3. Venue for the event.
4. Sample questions that ask learners what they know/think about some aspects of your chosen topic.
5. Possible resources that you can make use of for this event.
6. Use of ICT (if applicable).

2 Further tasters of EBL: Investigating perimeter

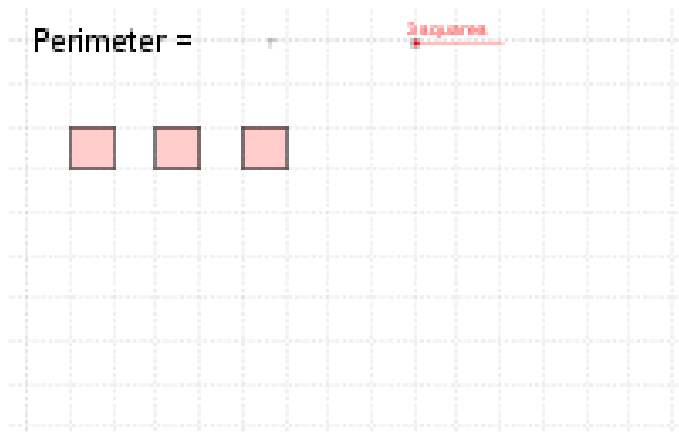
 **Same-task group work** (15 min) *on investigating perimeter*.

Working in your small groups of three to four participants, complete the following activity (the applet will open in another window when you click on it) which uses GeoGebra. In this activity, we would like you to experiment with drawing figures with different numbers of squares (you can click and drag them into position) and observing how the perimeter changes.

Take some time to explore the applet and think about the type of enquiry that it lends itself to (demonstrated enquiry/structured enquiry/problem-solving enquiry/independent enquiry) and how you might use it with your students. Do you think the results table is a useful addition to the applet? Share your findings with the other participants and share whether such an activity can be used in the class as a taster of what EBL is about.

- variety of perimeters with fixed area

5.3 - Collecting and interpreting information



Background reading

You may like to refer to the following guidance notes for some ideas on how to make use of the variety of perimeters with fixed area GeoGebra resource:

1) Overview

After learning the concepts of perimeter and area, it is easy for students to think that figures with larger perimeters would also have larger areas, and vice versa. This applet helps teachers to explore with students the variety of the perimeters of a figure formed by several congruent squares touching side by side. Together with the complementary applet Variety of areas with fixed perimeter, teachers can clarify with students that a figure with a larger area may have a smaller perimeter, and areas and perimeters are two different concepts.

2) Learning Objectives

- Recognise that figures with the same areas could have different perimeters.
- Recognise the strategy of minimising the perimeters of figures with the same areas.

3) Teaching Approach

An enquiry teaching approach is expected. Students are asked to arrange 3 to 9 squares to form different figures and find their possible perimeters. Teacher then guide students to express their strategies of getting the largest and smallest perimeter with a certain number of squares.

4) Teacher's Note

For each number of squares, ask students to record the possible perimeters in the table of the applet. Guide students to focus on the change of the perimeter when a square is dragged to a new position. Discuss with students the strategy of minimizing the perimeter, especially for 4 and 9 squares.

Educator note


Note that while the instructions for the task are short, it will take some time to complete the task. Make sure you limit the time appropriately, so that there's enough time for the remainder of the workshop.

The following task may be used as an alternative if preferred or if there is no GeoGebra resource:

Investigating volume and surface area of paper boxes

Each group of participants should have access to papers of different sizes. Each participant should fold a paper box using each of the papers. Use an appropriate method to measure the area of paper and volume of the paper box. Would the size of the paper affect the volume of the paper box? Or would it be dependent on how you fold the paper? What is your initial 'best guess' or hypothesis? How will you go about finding out whether your guess or hypothesis is correct? Share your findings with the other participants and whether such an activity can be used in the class as a quick taster of what EBL is about.

3 Simple data collection exercise


 **Same-task group work** (10 min) *on data collection* This is a fast and simple activity in which you (or your students) fill in the blanks, and you learn more about each other. On a piece of paper, draw a simple profile of yourself (forehead, nose, mouth, and chin). You and your group members should choose at least four items from the following list of possible information about each other, and write them inside the profile using coloured pens:

- Name
- Favourite time of day
- Favourite colour
- Favourite sport
- Favourite subject
- Something I did that I'm proud of
- Birthplace
- Something that makes me laugh
- Favourite food
- Favourite animal
- Favourite song

You can post the profiles in the classroom or create a display section in a suitable venue in your school along with your picture (or your students' pictures). For another variation, you can use a spreadsheet, to consolidate a particular aspect of the profile of the class (e.g. favourite time of day, favourite food). These can be shown on a regular basis as 'data' from your class. (e.g. My classmates all like to eat 'nsima'){}{Kenya My classmates like *ugali*}

Now try to come up with some interpretation of the data from all the profiles in your group. This is a great way to get to know each other and also the group as a whole.

4 Collecting and recording data

 **Whole class dialogue** (10 min) *on data collection*. Data collection is an essential part of many EBL activities. It is important that data is carefully and accurately collected. Otherwise, the interpretations and conclusions you draw from your enquiry can be very misleading. For instance, you would not want your profile in the previous activity to contain any mistakes about yourself. Some common methods of data collection include:

- Reading reference material in a library or on the Internet
- Conducting an interview
- Using questionnaires
- Doing an experiment.

Discuss with each other whether you are familiar with each of these data collection activities.

It is important to give students ownership of how they prefer to collect and record their findings by giving them options to choose from. It is also important for teachers to discuss with them the reasons for collecting or recording findings, because they may not understand why they need to collect or record findings in a particular way.

Now watch a video clip on Nixolo helping students to collect data in her EBL lesson and bear in mind the following questions:

1. Why do you think it is important for students to record their findings during the enquiry process?
2. Are the students in the clip motivated to record their findings?
3. Can you think of ways to help the students engage with the recording information part of the enquiry process?

VIDEO

Recording findings

Recording information during an enquiry. Noxolo encourages a group to record their findings. She checks who in

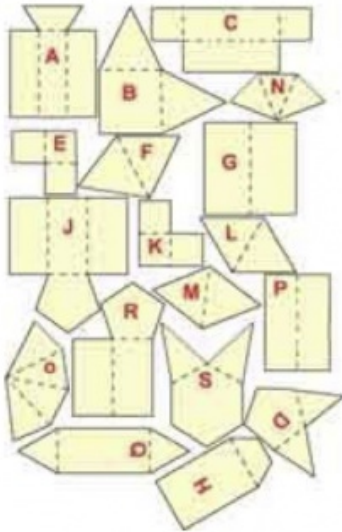
5.3 - Collecting and interpreting information

the group is supposed to keep the records of the investigation.

About this video, 0:40, link to YouTube (<http://www.youtube.com/watch?v=uWMBFq39bUo&list=PLtf3oOEbE-EVvk3Rab6pumZhO4BI3Dg7Jl>) (local play / download options)(Series: 3D shapes, episode 13)

Discuss the questions as a whole group and record any interesting or useful observations in your notes for this session. Here is a copy of the worksheet that the students in the video are completing:

3D - Cut Nets Investigation - Polyhedra



1. Cut out all the pieces from the other sheet.
2. The broken lines are FOLD lines, do not cut them.
3. Sort the pieces and find 9 pairs that go together to make the nets of 9 polyhedra.
4. Carefully fold the pieces on the broken lines.
5. Make your 9 polyhedra with your partner using sticky tape to fix the edges together where they meet.
6. Decide on the name of each polyhedron and write the name in the table below.
7. Count the number of **FACES**, **EDGES** and **VERTICES** of each polyhedron and fill in the table.
8. Add the number of faces and the number of edges and write this in the last column of your table.
9. Can you spot a pattern or rule?
10. Does the same rule apply to other polyhedra?

Pieces	Name of polyhedron	Number of faces F	Number of edges E	Number of vertices V	F + V
EK					

Educator note

Students in the video are recording information on polyhedra such as number of sides/faces/vertices etc. By recording these in a table next to the name of the polyhedra (which they have build as part of the investigation) the students will hopefully be able to see patterns emerging both within each data set and between data sets.

5 Information gathering and data collection

Recall the five enquiry ideas (A-E) that were discussed in the last session.

Background reading

Enquiry ideas

Idea A: Investigating paper airplanes

There are many different designs for paper airplanes. Some of them have a very plain design but can fly a longer distance whereas some can have a rather interesting design but not fly as well. *What are the factors that affect how far a paper airplane can fly?*

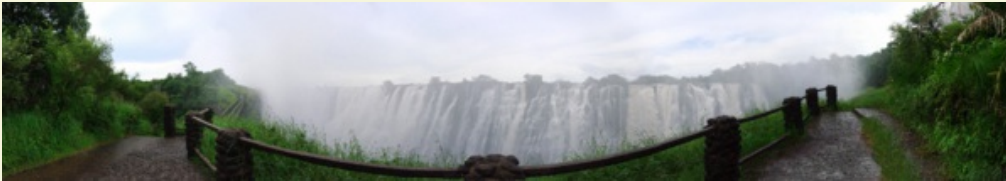
Idea B: Investigating the process of hand washing

We have been told that washing of our hands is an important part of maintaining hygiene and preventing the spread of germs and viruses. *How do you know that you have spent adequate time washing your hands each time?*

Idea C: Investigating the vegetables and trees within our community

What are some of the vegetables and trees that are grown in our community and why are they being grown here? (e.g. consider tomatoes, rape, onion, cabbage, nimu tree, holy fiso, malaina, mango) Some possible areas of investigation: location of vegetable/trees (e.g. type of soil and availability of water source like stream), medicinal properties (e.g. is it used as a traditional medicine?), nutrition properties, economic consideration (e.g. source of fuel/income), ecological and environmental concerns, personal and spiritual values.

Idea D: Planning for a trip to the game reserves and Victoria Falls Masaai Mara^K



Imagine you have two overseas visitors who have just arrived in Lusaka Nairobi^K and would like to visit a game reserve near Lusaka Nairobi^K, plus the Victoria Falls Masaai Mara^K and one other interesting site by car. The two visitors only have one day to visit these three places by car. Can you inform the visitors about the distance to these places from Lusaka Nairobi^K city centre? Can you also suggest an itinerary that will take into consideration the shortest distance of travel to and between the three places, starting and ending at Lusaka Nairobi^K city centre? Please state the distance of travelling to each place and the approximate time required to travel.

Example of website on visiting Zambia: <http://www.zambiatourism.com/welcome.htm>.^F Example of website on visiting Kenya: <http://www.touropia.com>.^K

Make sure that you do consider the practical arrangements for this trip! In the itinerary: decide on the length of your imaginary journey and work out the travelling time, but also think about the practical arrangements: how much luggage (water, food, equipment) will you need to take and how will you be able to carry this? Are there any elderly people or young children in your party, who might need special provision, such as extra food, or more frequent stops?

Idea E: Investigating my body and how it works


Children are naturally curious about how their bodies work so this is a rich area to draw on for enquiry ideas. For example:

- pulse rate and how it varies with exercise
- lung capacity and how it varies with height/sex/pulse rate/chest circumference
- BMI and being healthy

Get back into the groups that you formed to work on a few of these ideas during the last session. We will assume your group has been able to develop one or two of these ideas into enquiry-based lesson(s) and you now want your students

5.3 - Collecting and interpreting information

to start collecting data to answer the enquiry questions.

 **Same-task group work** (10 min) *on data collection* Discuss in your groups the following questions:

1. What form of data collection will the students need to work on? Do they need to identify sources of information or conduct some sort of experiment or calculation?
2. If it is a form of experiment or calculation, do they have the necessary skills or knowledge to conduct the experiment or calculation? How will they record their results? How will I make sure to integrate ICT into this process? Would the use of a spreadsheet help students to keep track of and if necessary further process results?
3. If it involves identifying sources of information, where do they find the information? How do they know the information is valid and how can they access the information?
4. What other ways of finding information are there?
5. Consider whether or not it might be useful for students to make a prediction of what they think the outcome might be.

Educator note

In the next session we will consider making predictions and hypotheses again and build on the introduction given here. Encourage students to look up the NRICH article linked to below - they may even want to spend some time exploring the site for some useful mathematics enquiry ideas.

Background reading

Making predictions

Simply put:

- a *hypothesis* is an explanation of why something is happening (or will happen) and so is a good starting point for investigation/argument/further observations/tests
- a *prediction* is a statement of what you think will happen before it does so


It is possible to make a prediction based on a hypothesis or without a hypothesis.


You can read about hypotheses in more detail in this NRICH article on understanding hypotheses (<http://nrich.maths.org/6178>).

Encouraging students to make predictions about the outcomes of their enquiries allows them to exercise higher order thinking skills as they must think about the many possibilities that might occur/exist.

Educator note

An enormous amount of valuable, deep and exciting information is available on the Internet, but an enormous amount of total nonsense, falsities, half-truths and unsupported theories is also out there. Your students have to learn to distinguish between the two, but you cannot give them hard-and-fast rules. Everything that comes out of an established publishing source isn't good information, and everything that comes from a personal home page isn't bad information. The kinds of things that students ask may be answerable only by other people, perhaps only by a knowledgeable person other like a teacher, parent, medical specialists, etc.

 **Same-task group work** (5 min) *on collecting data for analysis*. After the discussion, assess if the resources that you have prepared so far would be adequate for the students to embark on the data collection process (whether it is in the form of experiment or enquiring through the Internet/asking people). If not, make some changes or consider creating additional worksheets or perhaps a spreadsheet for the students. If you would like your students to make a prediction and/or form a hypothesis, make this clear on your worksheet. You should make sure that you have included an ICT element in each of your enquiry ideas.

 **Observing, thinking, reflecting** (5 min): *Video sequence and discussion*.

Imagine that you are the students who are going through the data collection process.

Watch the following video sequence of some students collecting data for an enquiry into BMI and being healthy (Idea E). The students have been collecting data independently and the teacher has noticed a problem.

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VIDEO**Collecting accurate data**

Judith shows pupils again how to measure their height accurately, emphasising the importance of using the correct method and paying attention to detail. Using a straight tape measure that starts at the floor (at zero), Marsha measures 1.45m.

About this video, 1:04, link to YouTube (http://www.youtube.com/watch?v=QEHf_4Pc-AI&list=PLtf3oOEbE-EUcSFT2JhlnAYng3dj-0cFq) (local play / download options) (Video filmed in 2012, at CBS.)(Series: Judith body, episode 06)

VIDEO**Checking for anomalous results**

Judith draws the pupils' attention to differing height measurements for the same pupil. Using this tape measure, Marsha measures 1.29m.

About this video, 0:51, link to YouTube (<http://www.youtube.com/watch?v=lxLPe9WqSK4&list=PLtf3oOEbE-EUcSFT2JhlnAYng3dj-0cFq>) (local play / download options) (Video filmed in 2012, at CBS.)(Series: Judith body, episode 07)

VIDEO**Collecting data for the BMI enquiry**

Judith guides pupils to help each other to discover the source of an error when measuring height.

About this video, 1:44, link to YouTube (<http://www.youtube.com/watch?v=nIDIXTzEZAQ&list=PLtf3oOEbE-EUcSFT2JhlnAYng3dj-0cFq>) (local play / download options) (Video filmed in 2012, at CBS.)(Series: Judith body, episode 08)

Try to anticipate where these types of problems (procedural errors) might occur as you collect data for your 'idea' in the following activity. It is likely that you will need to refine your data collection procedure in a similar way that you have just refined your resources in the previous part of this activity.

Background reading

As an aside: Once your students are used to working in the spirit of enquiry you can pose short enquiry problems to be solved for homework or at various stages of a lesson. For example, the teacher in the above clip might have asked the students to work out a solution to the problem of the measuring tape not starting at the floor with the proviso that the solution should not include measuring Martha again or moving the measuring tape. The answer of course is to measure the gap between the tape and the floor and add this to Martha's incorrect height measurement. By giving the students a few minutes to discuss the problem in groups of three or four, they may have come up with this (or perhaps another even better) solution - students can sometimes surprise us with their ingenuity. Once the size of the gap has been worked out, this result can be added to all other measurements carried out using that tape - the students will see this as a worthwhile exercise because it means that they don't have to measure everyone who used that tape again!


Same-task group work (10 min) *collecting data for analysis.*

- **Now go ahead and complete the experiment or data gathering part of your chosen enquiry.** Try to come up with joint predictions and/or hypotheses and make sure that everyone in your group plays an active part in collecting the data.
- By the end of the workshop, you should have the full data set and findings that you could share with the other groups next week.

Some post-activity questions for discussion (if there is time):

1. What other kinds of challenges can you anticipate your students will face when completing this phase of the enquiry-based learning lesson?
2. How can you support your students as they face these challenges?
3. Does the use of ICT in your activity support students' learning?

6 ICT practice: Making use of ICT in enquiry-based learning


 **Different-tasks group work** (20 min) *with ICT for EBL*. You now have acquired a large range of ICT skills (images, slideshows, the browser, GeoGebra, spreadsheets, Etherpad for collaborative writing, concept mapping, online simulations, typing). You've also had the opportunity to deepen your knowledge and skills within one particular application. We now turn towards using these applications for EBL.

Think about all the applications you have encountered. How can you use those applications in EBL? Think about the concrete projects that you have developed with these applications and consider:

1. the level of enquiry they promote
2. ways of extending/differentiating the level of enquiry
3. how user friendly is it for yourself and students
4. how engaging will it be for the students
5. the relevance to your teaching subjects or curriculum in general

Continue to develop some new activities for classroom use, bearing in mind the above list. Develop detailed activity plans and share and test your ideas with other participants. As always, try those activities in the classroom.

7 Connecting with overarching goals of the programme

 **Open space** (10 min). It's now time for the "open space", that gives you an opportunity to discuss issues that have arisen, and to relate those to the broader context of the programme. Do not just gloss over this section, but make time to raise issues, and probe the progress that you are making. You could use this space to:

- Remind yourselves of the of the Most Significant Change Technique, and e.g. collect more of your stories.
- Discuss your assessment portfolios: Is there anything that you are unsure about? Is it going well? What could be done better?
- Check on the work with the classroom assistants: Is this going well? Are there any tensions? Any observations or tips you can share?
- Reviewing individual ICT practise (such as typing practise).
- If you are preparing a presentation for other teachers, you could work on the presentation (about what you have been learning, stories emerging from MSC).
- Remind those who are doing audio diaries, to upload them.
- You could discuss any other issues that have arisen.

You will find notes and summaries of various techniques and concepts on our reference page, and you might want to refer to those for clarification during this activity if needed.

8 Follow-up activities

 **Agreeing follow-up activities** (5 min).

Educator note

Participants should set concrete days for their GeoGebra day, as well as for the project day. Part 1 of the

5.3 - Collecting and interpreting information

investigation should be carried out between 5.4 and 5.5. As you go through the homework, explicitly discuss days or lessons which teachers can set aside for this.

Part A: Try out in your classroom the same mini-GeoGebra enquiry as in the first taster EBL activity above, with learners working in mixed groups of 3-4 around a computer. Consider the following question: how did your students respond to the open nature of this task? What other observations can you make that will help you evaluate the use of GeoGebra to explore this topic. Note down the responses and observations. In the next session you will share this with the others.

Part B: Continue to work on planning for a 'project day' or 'field trip' and share any development of ideas in the next session. It may be that you have introduced some form of EBL whether in the form of a mini EBL (as in Part A of this homework) or the 'project or field day'. Be ready to share the positive, minus and interesting (PMI) points that you have noted so far when introducing EBL in your classrooms. The following additional set of questions can be considered for thinking and sharing of PMI, if you have already started to make use of EBL in your lessons:

- How are the students involved in framing the enquiry tasks and questions? (e.g. could groups or individuals generate and record ideas about "what I/we want to know"? Or in the case of a whole class investigation, could the class vote on which enquiry is the most interesting yet feasible to pursue?)
- Are the tasks open-ended enough so that students could also take some responsibility for how they develop, rather than just producing an answer or a solution? (open-ended tasks can still contain guidance)
- Can students conduct an experiment, search for information or resources themselves?
- Can students interpret the information or data themselves?
- Can you persuade students to ask more questions without feeling shy or stupid?
- Can you show students that you can be a learner alongside them?
- Are the resources - inside and outside the classroom, human/material/digital - sufficient and accessible to all of them?
- Can you, and the rest of the class, give comments or criticisms that are constructive and sensitive? Can the group be encouraged to take on board constructive feedback?
- Are the students motivated to suggest more enquiry ideas of their own?

Educator note

In the next session, these follow-up activities will be reviewed. If you are using this session on its own, you can have a look at the review of follow-up activities here.

Educator note

At the end of each session, we provide an overview of the activities in this session, together with their suggested timings. Although this appears at the end of the session (for technical reasons), you should keep an eye on this throughout the session, to make sure that you are pacing the workshop session appropriately!

Total time: 120 (min)

Activities in this session:

- **Small group activity:** (20 min) *review of homework.*
- **Same-task group work** (15 min) *on investigating perimeter.*
- **Same-task group work** (10 min) *on data collection*
- **Whole class dialogue** (10 min) *on data collection.*
- **Same-task group work** (10 min) *on data collection*
- **Same-task group work** (5 min) *on collecting data for analysis.*
- **Observing, thinking, reflecting** (5 min): *Video sequence and discussion.*
- **Same-task group work** (10 min) *collecting data for analysis.*
- **Different-tasks group work** (20 min) *with ICT for EBL.*
- **Open space**(10 min).
- **Agreeing follow-up activities**(5 min).

If you have printed this session for offline use, you may also need to download the following assets:

- Video/Noxolo 3D shapes 1.3 AfL3 recording.m4v (local play / download options)
- Video/Judith body A06.m4v (local play / download options)

5.3 - Collecting and interpreting information

- Video/Judith body A07.m4v (local play / download options)
- Video/Judith body A08.m4v (local play / download options)

Retrieved from "http://oer.educ.cam.ac.uk/w/index.php?title=OER4Schools/Collecting_and_interpreting_information&oldid=21130"

Categories: OER4S CPDCCEPrimaryTeacher EducationOER4Schools ZambiaOER4Schools Kenya

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Session 5.4 - Collecting and interpreting information: Part two

5.4 - Collecting and interpreting information: Part two

Learning intentions and objectives.

In this session you will learn about:

- making predictions during enquiries
- dealing with unexpected outcomes
- similarities between the scientific method and enquiry based learning
- collecting accurate and reliable data
- preparing for an enquiry-based learning session through a series of lessons and a 'project day' or 'field trip' for maths or science classes

Success criteria.

To meet the learning intentions you will:

- watch a video sequence as a stimulus for discussion on encouraging students to make predictions during enquiries
- watch a video sequence of students recording data and discuss the level of guidance provided by the teacher
- do an activity to correctly organise the steps in the scientific method

ICT components.

The ICT components you will focus on are

- GeoGebra, perimeter and area.

Also, as in the previous session, you will continue to apply the ICT skills you have learnt so far for EBL, and to think about how they help you implement EBL in the classroom.

Resources needed.

Resources needed for this session:

- Computer/laptop/netbook and the Internet.


1 Review of follow-up activities from last session

Edit this review section (http://oer.educ.cam.ac.uk/w/index.php?title=OER4Schools/Collecting_and_interpreting_information/review_of_follow_up&action=edit)

Educator note

If you are running a professional learning programme which follows these sessions in sequence, then you should do the review of follow-up activities relating to the previous session (Collecting and interpreting information). The 'review of follow-up activities' for that session is available here, and also shown below in the session text. However, if you are following selected sessions in a different order, then you should use the reflection appropriate to the previous session you did.

The review of the follow-up activities for this session (to be done at the start of the next session) is available here.

 **Small group activity** (20 min). Get into your small group of last week's 'making use of enquiry ideas A-E' activity to discuss your homework tasks.

Part A: (5 mins) You were asked to try out a mini-GeoGebra enquiry lesson in your class. Discuss in your small groups

the following questions:

- How did your students respond to the open nature of this task?
- Did you feel confident with teaching using GeoGebra? Why or why not?
- What other observations can you make that will help you evaluate the use of GeoGebra?

Part B: (15 mins) Invite colleagues to share how their extended enquiry-based learning (EBL) lessons are going. They could do this by giving PMIs of **at least two** of the following considerations of a successful EBL lesson:

- Nature of enquiry tasks (e.g. are they open-ended enough so that students could also take some responsibility to research and find ways to investigate different enquiry ideas, rather than just producing an answer or a solution?).
- Students' involvement in framing enquiry tasks and questions (e.g. can you persuade students to ask more questions without feeling shy or stupid?).
- Students' engagement and competence in conducting an experiment, searching for information or resources themselves.
- Students' engagement and competence in interpreting the information or data themselves.
- Teacher's role as a guide and co-learner with the students.
- Availability and accessibility of resources (e.g. Internet).


2 More on making predictions

Recall from the previous session that:

- a *hypothesis* is an explanation of why something is happening (or will happen) and so is a good starting point for investigation/argument/further observations/tests
- a *prediction* is a statement of what you think will happen before it does so

and that it is possible to make a prediction based on a hypothesis or without a hypothesis.

We know that encouraging students to make predictions about the outcomes of their enquiries allows them to exercise higher order thinking skills as they must think about the many possibilities that might occur/exist.

 **Whole class dialogue** (15 min) *on making predictions.*

- What other positive consequences could there be of students predicting the outcomes of their enquires?
- What are the potential drawbacks of encouraging students to make predictions?

Here are some video clips of students working on making predictions for the outcome of an enquiry that they will soon do. Watch a few of them now (begin watching the first one from 1:34) and the rest in your own time after the session. Notice how motivated the students are and how they support and encourage each other. Think about the following questions and discuss them as a group if you have time:

- What do you think the teachers role is during this stage of the enquiry process?
- How could you ensure that all students are actively involved in making predictions?
- What strategies could you have in place to make sure that any misconceptions uncovered at this stage would be picked up and dealt with?

VIDEO

Observation of small group completing lung capacity worksheet together

Small group working together to discuss and complete lung capacity worksheet

About this video, 4:35, link to YouTube (<http://www.youtube.com/watch?v=dO4MtfkZ-0I&list=PLtf3oOEbE-EXZPwm3rZR9KVKhEtFVFCeu>) (local play / download options) (Video filmed in 2012, at CBS.)(Series: Aggie Fitness, episode 06)

VIDEO

Small group discusses how to measure lung capacity displacement

Small group working together to guess lung capacity displacement

About this video, 1:48, link to YouTube (http://www.youtube.com/watch?v=U0RHAR_06_o&list=PLtf3oOEbE-EXZPwm3rZR9KVKhEtFVFCeu) (local play / download options) (Video filmed in 2012, at CBS.)(Series: Aggie

Fitness, episode 07)

VIDEO

Group revises original estimates of lung capacity

Small group decides to adjust their guesses on lung capacity

About this video, 0:51, link to YouTube (<http://www.youtube.com/watch?v=m0U98XGk1g&list=PLtf3oOEbE-EXZPwm3rZR9KVKhEtFVFCeu>) (local play / download options) (Video filmed in 2012, at CBS.)(Series: Aggie Fitness, episode 08)

VIDEO

Small group discusses how many millilitres are in a litre

Small group discussion on how many millilitres make up a litre

About this video, 2:36, link to YouTube (http://www.youtube.com/watch?v=WH4_07JJF3Y&list=PLtf3oOEbE-EXZPwm3rZR9KVKhEtFVFCeu) (local play / download options) (Video filmed in 2012, at CBS.)(Series: Aggie Fitness, episode 09)

3 The scientific method

 **Same-task group work** (10 min) *on collecting and interpreting data.* Having collected your data in the previous session you should now be ready to analyse or find solutions to respond to appropriately during the enquiry.

Students often enjoy collecting data but are more reluctant when it comes to analysing it; they are not always sure where to begin.

Where should you begin and how will you proceed with this section of the enquiry?



The following are the steps in the scientific method as usually followed in many scientific investigations and enquiries. **They are not in the right order.** Working in small groups, arrange the steps in the right order by putting the numbers 1-8 next to them.

- Data is analysed.
- The investigation is done (using whatever equipment/materials you have chosen) and data is collected.

- *A hypothesis is formed - this is usually a best guess based on what's already known.*
- Results are communicated.
- A question or a problem is posed.
- Conclusions are reached.
- *Research is done to find out what is already known about the topic.*
- *A very detailed step-by-step experimental procedure is designed to test the hypothesis – this is the scientific enquiry or investigation and must take into account all variables affecting the experiment.*

Educator note

Here are the steps (in order) in the scientific method as usually followed in many scientific investigations and enquiries:

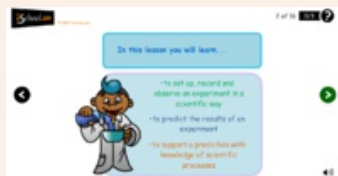
- A question or a problem is posed.
- *Research is done to find out what is already known about the topic.*
- *A hypothesis is formed - this is usually a best guess based on what's already known.*
- *A very detailed step-by-step experimental procedure is designed to test the hypothesis – this is the scientific enquiry or investigation and must take into account all variables affecting the experiment.*
- *The investigation is done (using whatever equipment/materials you have chose to use) and data is collected.*
- Data is analysed.
- Conclusions are reached.
- Results are communicated.

You should observe that the steps are very similar to the EBL steps. The steps in italics should be a particularly helpful reminder to what enquiry activities you have carried out, in the context of a scientific investigation method.


Related resources

This interactive audio visual resource from **iSchool** will help you present the scientific method to your students in an interesting and fun way. It takes the students through an experiment on water vapour, highlighting the steps in the scientific method. You may wish to design an enquiry based learning task around measuring evaporation - you might be surprised at some of the suggestions your students come up with on how to do it; maybe one of them will come up with the idea of using a plastic bag like in the video.

Click on the link to go straight to the video: <http://ischool.zm/marketinglessons/Grade%206/1061006/index.html>



4 Data handling - drawing graphs

 **Whole class dialogue** (15 min) on data handling videos. The following sequence of videos shows a South African teacher preparing her students to draw a graph of some data and offers some insight into what can go wrong when students are working independently on data handling.

VIDEO

Helping a learner with questioning

Pindi examines one of the learners pieces of work. The learner has produced a graph that is too small, so Pindi asks questions to help. A small supporting handout is given with the questions on

About this video, 00:37, link to YouTube (<http://www.youtube.com/watch?v=Eqq-TTHe3bU&list=PLtf3oOEbE->

EXzbYerRxYC4SZI9EnR6hLJ) (local play / download options) Video produced in conjunction with AIMSSEC (<http://aimssec.aims.ac.za/>).(Series: Graphs, episode 06)

The teacher reminds the students of work they had done on this enquiry in a previous lesson. She has planned for them to do quite a lot of graph drawing as part of this enquiry on exponentials.

- Why does the teacher remind the students of what they had done previously?
- What are the benefits to the students of the teacher drawing the table on the chalk board?
- Do you think it was a good idea to leave the table blank? Why?

VIDEO

Addressing incorrect work

Pindi has stopped the class to quickly address the problem she saw where learners had produced graphs that did not fit correctly on the paper. Learners are encouraged to share ideas and then make alterations

About this video, 00:45, link to YouTube (<http://www.youtube.com/watch?v=shJ-u4PuIJM&list=PLtf3oOEbE-EXzbYerRxYC4SZI9EnR6hLJ>) (local play / download options) Video produced in conjunction with AIMSSEC (<http://aimssec.aims.ac.za/>).(Series: Graphs, episode 07)

One of the things that teachers worry about when doing enquiry based activities in the classroom is the unpredictable nature of the work that students may produce. Watch the following video and discuss the ways that you might react when a student produces an interesting but unexpected graph.

VIDEO


Learner's graph not quite right

A learner has finished plotting points on their graph and has managed to fit them to the page neatly, however the graph does not quite look correct.

About this video, 00:33, link to YouTube (<http://www.youtube.com/watch?v=5trqjQH-Ccl&list=PLtf3oOEbE-EXzbYerRxYC4SZI9EnR6hLJ>) (local play / download options) Video produced in conjunction with AIMSSEC (<http://aimssec.aims.ac.za/>).(Series: Graphs, episode 05)

Educator note

Try to encourage participants to use the opportunity as a learning one for the whole class. This student has inadvertently discovered the beauty of a log graph, and that is to be celebrated! This is one of the benefits of EBL, there is plenty of room for creativity!

 **Same-task group work** (10 min) *on recording meaningful results.* Students will often need a lot of guidance if they are to record meaningful results. Have a look at the following student worksheet and discuss in your groups the level of guidance that a student may require when completing such a sheet.

Consider the following:

- How might the worksheet be improved?
- Is there any other information that you think should be on the sheet that currently is not?
- What background work would you aim to cover before expecting students to be able to complete the worksheet?

If you have time, draw up a new improved worksheet in your group and share it with members of other groups.

Name: EDWARD NDUKWE Date: 24th October 2017

Grade: Six B

My height: 1.36 m My height squared: _____ m²
 $1.36 \times 1.36 = 1.849$

My weight: 30 kg

My BMI: 18.22 kg/m²

Pulse	Measurement (15 sec)		Pulse rate (per min)		Average
	1	2	1	2	
Lying down	24 x 4	21 x 4	96	84	4842 104
Standing	23 x 4	21 x 4	92	84	10.97
Immediately after exercise	13 x 4	12 x 4	52	48	4.33
2 mins after exercise	15 x 4	17 x 4	60	68	408

Educator note

Students were measuring their pulse before and after exercise. They recorded it after 15 seconds and multiplied this by four to give the number of beats per minute. It is clear from the worksheet that this particular student needs help with how to work out the average pulse rate. The information on how to do this could have been added to the worksheet. Similarly there is no formula on the sheet for working out the BMI. Encourage participants to think about these things when they are recording and analysing their data for the enquiry activities (A-E) and when they are presenting their findings.

Same-task group work (15 min) on analysing data.

Before you carry on to analyse the data that you collected during the last session, discuss these questions with the other members of your group:

1. What is your 'best guess' at this point in time? Why?
2. How do you know that you can 'trust' the data that has been collected? Why?
3. What is the best way to make sense of the data so that you are able to find some solutions to the enquiry?
4. Thinking back to the videos in the previous session of the students measuring their height, how might inaccurate results affect their BMI calculation/hypothesis/conclusion?

Make a start on analysing your data in this session. Between this session and the next, continue to analyse your data and be ready to present your findings to your colleagues during the next session. You should arrange a time to get together with the other members of your group or alternatively divide up the tasks relating to the analysis and presentation between you now. You will also have a short time to finalise your presentation at the beginning of the next session.


Background reading

Is your data reliable?

The analysis of the data involves responding to the questions above. These questions help you evaluate your guesses, and assess whether the data collected is **valid** (i.e. whether it can actually answer the enquiry questions) or **reliable** (i.e. whether the data comes from a rigorous and trustworthy method of data collection cf. the discrepancies in measuring height highlighted in the videos). If you do not think the data fulfils the qualities of validity and reliability, then you should immediately highlight the problem and try to find out why this could have happened. It may be that you need to rethink or repeat the data collection process. If you are satisfied with the data collected, you can then go ahead to make sense of the data so that you are able to present a solution, or different solutions, to the rest of the participants next week.

Remember, to **ensure that the data collected is reliable**. It may be necessary to repeat the experiment a number of times. Averages can then be calculated if further processing is needed - for example in the paper airplane enquiry. To ensure that the data is valid, make sure to consider all the possible variables and which ones to control.

5 ICT practice: Making use of ICT in enquiry-based learning


 **Different-tasks group work** (20 min) *with ICT for EBL*. You now have acquired a large range of ICT skills (images, slideshows, the browser, GeoGebra, spreadsheets, Etherpad for collaborative writing, concept mapping, online simulations, typing). You've also had the opportunity to deepen your knowledge and skills within one particular application. We now turn towards using these applications for EBL.

Think about all the applications you have encountered. How can you use those applications in EBL? Think about the concrete projects that you have developed with these applications and consider:

1. the level of enquiry they promote
2. ways of extending/differentiating the level of enquiry
3. how user friendly is it for yourself and students
4. how engaging will it be for the students
5. the relevance to your teaching subjects or curriculum in general

Continue to develop some new activities for classroom use, bearing in mind the above list. Develop detailed activity plans and share and test your ideas with other participants. As always, try those activities in the classroom.

6 Connecting with overarching goals of the programme

 **Open space** (10 min). It's now time for the "open space", that gives you an opportunity to discuss issues that have arisen, and to relate those to the broader context of the programme. Do not just gloss over this section, but make time to raise issues, and probe the progress that you are making. You could use this space to:

- Remind yourselves of the of the Most Significant Change Technique, and e.g. collect more of your stories.
- Discuss your assessment portfolios: Is there anything that you are unsure about? Is it going well? What could be done better?
- Check on the work with the classroom assistants: Is this going well? Are there any tensions? Any observations or tips you can share?
- Reviewing individual ICT practise (such as typing practise).
- If you are preparing a presentation for other teachers, you could work on the presentation (about what you have been learning, stories emerging from MSC).

- Remind those who are doing audio diaries, to upload them.
- You could discuss any other issues that have arisen.

You will find notes and summaries of various techniques and concepts on our reference page, and you might want to refer to those for clarification during this activity if needed.

7 Follow-up activities

Agreeing follow-up activities (5 min).

Educator note

The next session is the final session of the unit and as such it will be slightly longer than usual to allow for all participants to present some enquiry findings to the rest of the group. They will be presenting material on the enquiry activities (A-E) that they have been working on over the past few sessions as well as on the extended project/field trip.

Part A Tidy up and make sense of the data for the group enquiry activities you have worked on in this session. Decide on what would be the best way to present your ideas (e.g. charts, OpenOffice presentation) and be ready to present them at the next session.

Part B Carry out Stage 1 of your 'project day' or 'field trip'. You could do this across a couple of lessons (or the longer sessions which we have arranged for in the timetable), or by setting half a day aside for this.

Educator note

In the next session, these follow-up activities will be reviewed. If you are using this session on its own, you can have a look at the review of follow-up activities here.

Educator note

At the end of each session, we provide an overview of the activities in this session, together with their suggested timings. Although this appears at the end of the session (for technical reasons), you should keep an eye on this throughout the session, to make sure that you are pacing the workshop session appropriately!

Total time: 120 (min)

Activities in this session:

- **Small group activity**(20 min).
- **Whole class dialogue** (15 min) *on making predictions.*
- **Same-task group work** (10 min) *on collecting and interpreting data.*
- **Whole class dialogue** (15 min) *on data handling videos.*
- **Same-task group work** (10 min) *on recording meaningful results.*
- **Same-task group work** (15 min) *on analysing data.*
- **Different-tasks group work** (20 min) *with ICT for EBL.*
- **Open space**(10 min).
- **Agreeing follow-up activities**(5 min).

If you have printed this session for offline use, you may also need to download the following assets:

- Video/Aggie Fitness A06.m4v (local play / download options)
- Video/Aggie Fitness A07.m4v (local play / download options)
- Video/Aggie Fitness A08.m4v (local play / download options)
- Video/Aggie Fitness A09.m4v (local play / download options)
- Video/Pindi Graphs3-10.mp4 (local play / download options)
- Video/Pindi Graphs3-12.mp4 (local play / download options)

- Video/Pindi Graphs3-8a.mp4 (local play / download options)

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Session 5.5 - Presenting findings of enquiries

5.5 - Presenting findings of enquiries

Learning intentions and objectives.

In this session you will learn about:

- what to look out for in presenting data and findings for an EBL lesson
- how to present the results of an EBL activity
- how EBL activities can be carried out more seamlessly in 'everyday' lessons

Success criteria.

To meet the learning intentions you will:

- watch three examples of student presentations and discuss stimulus questions as a whole group
- present in groups the results of an enquiry using presentation rubric as guidance
- reflect on what you have learned about EBL using an inventory based on the material covered in this unit

ICT components.

In this session you will continue to apply the ICT skills you have learnt so far for EBL, and to think about how they help you implement EBL in the classroom.


1 Review of follow-up activities from last session

Edit this review section (http://oer.educ.cam.ac.uk/w/index.php?title=OER4Schools/Collecting_and_interpreting_information_part_2/review_of_follow_up&action=edit)

Educator note

If you are running a professional learning programme which follows these sessions in sequence, then you should do the review of follow-up activities relating to the previous session (Collecting and interpreting information part 2). The 'review of follow-up activities' for that session is available here, and also shown below in the session text. However, if you are following selected sessions in a different order, then you should use the reflection appropriate to the previous session you did.

The review of the follow-up activities for this session (to be done at the start of the next session) is available here.

 **Small group activity** (30 min). Get into your small group of last week's 'making use of enquiry ideas A-E' activity to discuss your homework tasks.

Part A: (5 mins) You were asked to tidy up and make sense of the data for the group enquiry activities (A-E) for presentation this week. Spend some time discussing who will be presenting and to finalise what resources (e.g. charts, models, maps) your group will need for the presentation.


Part B: (20 mins) Some of your colleagues may have carried out the beginning stage of a 'field' or 'project' day in their class. Invite these colleagues to share how their extended enquiry-based learning (EBL) lessons are going. They could do this by giving PMIs of **at least two** of the following considerations of a successful EBL lesson:

- Nature of enquiry tasks (e.g. are they open-ended enough so that students could also take some responsibility to research and find ways to investigate different enquiry ideas, rather than just producing an answer or a solution?).
- Students' involvement in framing enquiry tasks and questions (e.g. can you persuade students to ask

5.4 - Presenting findings of enquiries

- more questions without feeling shy or stupid?).
- Students' engagement and competence in conducting an experiment, searching for information or resources themselves.
- Students' engagement and competence in interpreting the information or data themselves.
- Teacher's role as a guide and co-learner with the students.
- Availability and accessibility of resources (e.g. internet).

2 Presenting findings: Watching some examples

 **Whole class dialogue** (30 min) *on presenting findings* You will be watching a few video clips on students presenting their work after some research and preparation of an enquiry topic. Consider the questions that follow whilst watching the video clip and discuss them as a whole group afterwards.

Video A: Grade 7 Zambian students in Abel's class presenting outcomes of their GeoGebra enquiry on the relationship between area and perimeter (spend 10 mins)

Consider these questions as you watch:

1. What kind of feedback would you give the students?
2. Would it be useful if the students presented some reflections on their work (as well as their solutions)? What kind of reflections could you ask them to include?
3. Could there be other ways for the students to present their work? What kind of preparation would they need and how could you assist them?

VIDEO

Students presenting work on area and perimeter

Students present outcome of findings of GeoGebra investigation on rectangles with the same area but different perimeters.

About this video, 1:21, link to YouTube (<http://www.youtube.com/watch?v=v8itDWlhRdw&list=PL827432C8560941C6>) (local play / download options)(Series: Abel rectangles, episode 09)

Educator note

The teachers should emphasise at each stage of the enquiry that students' investigation is a **journey** and that finding new information is exciting, especially when unexpected. The final presentation stage is an integral part of an enquiry activity which contrasts with traditional pen and paper assessment methods. The emphasis should be on telling a particular audience the personal story of the "**learning journey**", rather than just recounting and reporting the facts as in a test paper. The objective is not just to state the answer but to share how the students arrived at a particular finding(s) and what OTHER possible enquiry questions may have arisen from this current enquiry activity.

Video B: Secondary school students from various countries presenting their recommendations on basic rights of education for a child during a Project Citizen National Finals, sponsored by the U.S. Embassy (10 mins)

Consider these questions as you watch:

1. What do you notice about the fluency and confidence of the presentations?
2. How can you help your students to be more fluent and confident in their presentations?

VIDEO

Project Citizen Student Presentations

Project Citizen Student Presentations

About this video, 3:00, link to YouTube (<http://www.youtube.com/watch?v=5kbOBo15Hkl&list=PLtf3oOEbE->

5.4 - Presenting findings of enquiries

EXgP2iN30V3UhCd8x54FGyO) (local play / download options)(Series: Video from other organisations, episode N/A)

Educator note

Do not be overly concerned if your students have gaps in their basic skills like reading or spelling in their first few presentations. You can point it out if you feel it's necessary but the most important aspect of the enquiry approach is to help the students to become motivated to find out answers about what they are curious about the world around them. Notice that the students who present in this video clip have demonstrated poise, confidence and a lot of passion!

We should hope that your students would be equally excited to present their learning journey and the affirmation they receive from you and their classmates should energise them further in making more enquiries on their own.

Related resources

The **Zedupad** resource *Discrimination: women and girls* (see link below) could be used with your students to explore some of the issues particular to women and girls around the basic right to an education. It tells the story of Mary who is being denied an education.

Slide 14 asks the following questions:

- Why doesn't Mary go to school?
- Why does her father send her brothers to school?
- Is this fair?
- What human rights is she being denied?



http://www.zedupad.com/zambian_school_lessons.php

Video C: American secondary students presenting their findings on cyber-bullying to a panel of professionals in a Project Citizen State Showcase (10 mins)

Consider these **questions** as you watch:

1. What do you notice about the way that the students organise themselves to present their findings? Is it effective? Why?
2. What do you notice about the resources that the students have prepared for the presentations? Is it effective? Why?

VIDEO**The Problem Project Citizen State Showcase KIDS**

Panel 1 The Problem Project Citizen State Showcase KIDS

About this video, 2:40, link to YouTube (<http://www.youtube.com/watch?v=RnNcgSISR6c&list=PLtf3oOEbE-EXgP2iN30V3UhCd8x54FGyO>) (local play / download options)(Series: Video from other organisations, episode N/A)


Educator note

It takes a lot of time and practice for a group student presentation to reach this level of quality. The facilitator should point out that even though this is an older group of students presenting, it should not be impossible for

5.4 - Presenting findings of enquiries

their students to be able to prepare the necessary resources and allocation of different roles through extended time of preparation. The key here is time for preparation! Do not expect your students to be able to come up with a good presentation unless you have shown them good examples of a good presentation and also, give them the time to prepare and try out different presentation formats! For example, they might 'storyboard' the presentation (plan it out step-by-step, using drawings or notes where helpful) before doing it live.

3 Modes of presentation

 **Whole class dialogue** (10 min) *on modes of presentation* In all of the video clips you have seen, students present through speaking to the class and using visual props / displays of their work. What other means of presentation can they use, for more variety and to capture different kinds of outcomes? Which of these are feasible in your context?

Educator note

Presentations can take place through posters, dance, role play, cartoons, photograph sequences, charts and graphs, mind maps etc. Encourage the participants to think laterally about different options. Some may even involve audience participation?!


VIDEO

Explanation of randomly selecting pupils to present

Pindi explains how she will randomly select the pupils using strips of paper which have ticks or crosses on them. Pupils are given two more minutes to ensure that everyone in their group is able to present the work.

About this video, 01:07, link to YouTube (http://www.youtube.com/watch?v=93p_JdnR7IE&list=PLtf3oOEbE-EXzbYerRxYC4SZI9EnR6hLJ) (local play / download options) Video produced in conjunction with AIMSSEC (<http://aimssec.aims.ac.za/>). (Series: Graphs, episode 10)

4 Presenting findings - Criteria of assessment

 **Whole class dialogue** (20 min) *on criteria of assessment* You have watched and discussed the different considerations of what a good presentation may entail. List all the criteria that you think your students should be informed about, when they prepare and eventually present their enquiry findings.

Educator note

The facilitator should write down all the suggestions on the blackboard or a sheet of paper

Now look at this example of an assessment rubric for class presentation:

<http://drsaraheaton.files.wordpress.com/2010/12/presentation-grading-rubric4.pdf>

An assessment rubric like the one you have seen above provides the criteria for assessment and the list of descriptors of performance at the different levels.


Discuss these questions:

1. Do you agree with the list of criteria and the descriptors of performance for a presentation?
2. Are they appropriate for use in your class?
3. How would you revise the assessment rubric for use in your class?

5.4 - Presenting findings of enquiries


4. How useful such an assessment rubric is for your students in terms of:
 - i. Helping them to be aware of the criteria and standards of presentations that you expect from them.
 - ii. Providing feedback to them during their preparation and after their presentation.
 - iii. Discussing with them what are exemplars of a 'good' or 'bad' presentations.
 - iv. How can the assessment rubric be used for the other stages of EBL activity?

5 Presenting findings – group presentation

 **Whole class dialogue** (30 min): *group presentation* Have a go now at presenting your enquiry findings (for activities A-E) that you have worked on together in your small groups for the past weeks. Ensure that you present HOW you arrived at your conclusions. Decide on the maximum time that you would allow each group to present (we suggest 5-8 mins) and allocate a time-keeper. At the end of each presentation, allow the audience to ask questions for clarification (we suggest 3-5 mins).

The audience should make use of the assessment rubric above (or any revised version of the criteria and descriptors) to provide constructive feedback on the strength of the presentation and what areas could be improved on (as we will expect learners to do in the classroom).


6 ICT practice: Making use of ICT in enquiry-based learning

 **Different-tasks group work** (20 min) *with ICT on various topics.*

Classroom use of

- Geogebra
- slideshows
- (optional) concept mapping software

7 Connecting with overarching goals of the programme

 **Open space** (10 min). It's now time for the "open space", that gives you an opportunity to discuss issues that have arisen, and to relate those to the broader context of the programme. Do not just gloss over this section, but make time to raise issues, and probe the progress that you are making. You could use this space to:

- Remind yourselves of the of the Most Significant Change Technique, and e.g. collect more of your stories.
- Discuss your assessment portfolios: Is there anything that you are unsure about? Is it going well? What could be done better?
- Check on the work with the classroom assistants: Is this going well? Are there any tensions? Any observations or tips you can share?
- Reviewing individual ICT practise (such as typing practise).
- If you are preparing a presentation for other teachers, you could work on the presentation (about what you have been learning, stories emerging from MSC).
- Remind those who are doing audio diaries, to upload them.
- You could discuss any other issues that have arisen.

You will find notes and summaries of various techniques and concepts on our reference page, and you might want to refer to those for clarification during this activity if needed.

8 Follow-up activities

 **Agreeing follow-up activities** (5 min).

8.1 Part A

You should try out a mini-EBL lesson (if you have not already done so) and proceed on to complete the more extended EBL '**field or project day**'; this is where your students will **complete their enquiries, analyse their findings and present them** to the class. The presentation session needs careful handling if the learning outcomes are to be fully achieved.

[Resource] Note that the site <http://www.our-africa.org/zambia/climate-agriculture> may be useful for the project on what crops are grown.

Conducting the enquiry / Data collection

Please ensure that students' work throughout the enquiry is documented. You could use a digital camera to photograph both the students doing their activities and the outcomes.

Ask them to record what they are doing throughout, using separate sheets of paper where applicable rather than subject notebooks, so that these can be collated at the end and photocopied. These records can feed into your **portfolio**.

Presentations:

- Ensure that your students present their findings in the form of their **learning journey** (ie. WHY and HOW they have arrived at their conclusions? How much evidence is there for their claims?), rather than just presenting a particular solution.
- They should be able to **reflect** on how they may approach the enquiry task differently next time and how they this task has prompted them to think of other enquiry topics or questions. Encourage your students to make use of **different presentation formats** (e.g. role play, skit, song and dance presentation) and resources (e.g. charts/tables/diagrams, actual models, notes for the audience, series of images).
- Highlight to the audience that they should be **listening** and watching their classmates' presentations and be ready to raise questions and comments. Both peers and you, the teacher, should provide constructive **feedback that is related to the assessment criteria**.
- If possible, video record or at least audio **record some of the presentations**. The workshop facilitator or another colleague may be able to help you do this.

The reporting stage can be followed by a '**consolidation**' stage where the pupils are encouraged to use the information they have gained to further advance their knowledge and understanding. This kind of reflective discussion, where the group outcomes are shared, can be very useful. (*from TESSA Key Resource: "Using investigations in the classroom"*)

8.2 Part B

The full sets of **reflection questions** on your own planning and implementation of EBL lessons are listed below. You may like to take some time to make use of the questions to reflect on how successfully you think you have managed to capture the 'spirit' of enquiry in your class in the last few weeks. Please make a full audio reflection for Parts B and C using your dictaphone.

Watch the following clip to review what EBL is about:

VIDEO

Inquiry-Based Learning

Inquiry-Based Learning for curriculum and instruction class

About this video, 03:25, link to YouTube (<http://www.youtube.com/watch?v=sLQPXd8BiIA&list=PLtf3oOEbE-EXgP2iN30V3UhCd8x54FGyO>) (local play / download options)(Series: Video from other organisations, episode N/A)

5.4 - Presenting findings of enquiries

You might still have some concerns about whether EBL will really work in your classroom. What are your concerns and what are some take-away messages for yourself? How will you proceed to use/adapt EBL more seamlessly in your future lessons?

Planning Stage

- Will there be shared lesson objectives or would it differ considerably depending on that enquiry work is chosen?
- How will the enquiry tasks support enquiry, questioning and discussion?
- Will the tasks constitute a project or activity extending over and between lessons? If not, how can this be arranged?
- If so, will students do anything in between lessons? Will this involve research? Will the parents or other family/community members be involved?
- Will the tasks be undertaken by
 - individuals (perhaps cooperating by sharing equipment and helping each other with both technical issues and the task) - could enquire as a group but not strictly co-enquiry!
 - groups (collaboratively planning and developing ideas, conducting the work, learning to compromise and giving feedback)
 - or the whole class working together collaboratively?
- How will students record what they learned?
- If groups, will there be group presentations to the class?
- If groups, will different groups investigate different aspects of the topic and then share their knowledge with the class?
- What criteria will the class use to assess the outcomes of their enquiry? How will you ensure that any criticism is constructive and sensitive? How will the group be encouraged to take on board constructive feedback?
- How will students assess their own work?

Implementing Stage

- How are the students involved in framing the enquiry tasks and questions? (e.g. could groups or individuals generate and record ideas about "what I/we want to know"? Or for a whole class investigation, could the class vote on which enquiry is the most interesting yet feasible to pursue?)
- Are the tasks open-ended enough so that the students also could take some responsibility for how they develop, rather than just producing an answer or a solution? (open-ended tasks can still contain guidance)
- Can students conduct experiment, search for information or resources themselves?
- Can students interpret the information or data themselves?
- Can you persuade students to ask more questions without feeling shy or stupid?
- Can you show students that you can be a learner alongside them?
- Are the resources - inside and outside the classroom, human/material/digital - sufficient and accessible to all of them?
- Can you and the rest of the class give comments or criticisms that are constructive and sensitive? Can the group be encouraged to take on board constructive feedback?
- Are the students motivated to suggest more enquiry ideas of their own?

8.3 Part C

(after the final enquiry stage is implemented)

You have learnt quite a lot about EBL and have had gone through a full cycle of EBL with your colleagues in the past few weeks. Write down your thoughts on EBL (based on the reflection questions, concerns and any other take-away messages) and a few ideas on what you would like to try out for your future planning and implementation of EBL in your class. This can be one of the documents to be filed in your portfolio.

Referring to what you have written down, complete the following questionnaire to review how much you have learnt and tried to practise EBL in your classrooms. Circle the choice that best represents how you feel about each topic in this unit. There are no right or wrong answers! You may be inspired to write down some further thoughts on learning about and trying out EBL in the future **after** you have completed the questionnaire.

5.1 Introduction to EBL			
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5.4 - Presenting findings of enquiries

How much do I know about the benefits of EBL?	very much	somewhat	not much
How interested am I to learn more about EBL?	very much	somewhat	not very
5.2 Starting the enquiry process			
How much do I know about the different parts or sections of EBL?	very much	somewhat	not much
How much do I know about the different levels of EBL?	very much	somewhat	not much
Do I know which level of EBL I am most comfortable to try out in my class?	Yes	Not sure	No
How skilled am I at posing good enquiry questions?	very much	somewhat	not very
How often do I encourage my students to pose good enquiry questions?	routinely	sometimes	not often
How interested am I to learn and improve on making use of good enquiry questions as stimuli to engage my student's learning?	very much	somewhat	not very
5.3 Collecting and Interpreting Information in Enquiries			
How much do I know about the various ways of collecting information in EBL?	very much	somewhat	not much
How much do I know about the appropriate analysis of information?	very much	somewhat	not very
How confident am I in giving good feedback to the students on their collection and interpretation of information in EBL?	very much	somewhat	not very
How interested am I to learn more about collection and interpretation of information for EBL?	very much	somewhat	not very
5.4 Presenting Findings of Enquiries			
How much do I know about the different modes of presentation of findings in EBL?	very much	somewhat	not much
How much do I know about the different criteria and descriptors for assessing a presentation?	very much	somewhat	not very
How confident am I in giving good feedback to the students on their presentations?	very much	somewhat	not very
How interested am I to find out more on different modes of presentation?	very much	somewhat	not very
How interested am I to find out more on using criteria and descriptors for assessing all the parts or sections of EBL?	very much	somewhat	not very
5.1-5.4 Use of ICT to support EBL			
How much do I know about using ICT to support the various parts of EBL?	very much	somewhat	not very

5.4 - Presenting findings of enquiries

How interested am I to find out more on using ICT to support EBL?	very much	somewhat	not very
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Educator note

In the next session, these follow-up activities will be reviewed. If you are using this session on its own, you can have a look at the review of follow-up activities here.

Educator note

At the end of each session, we provide an overview of the activities in this session, together with their suggested timings. Although this appears at the end of the session (for technical reasons), you should keep an eye on this throughout the session, to make sure that you are pacing the workshop session appropriately!

Total time: 155 (min)

Activities in this session:

- **Small group activity**(30 min).
- **Whole class dialogue** (30 min) *on presenting findings*
- **Whole class dialogue** (10 min) *on modes of presentation*
- **Whole class dialogue** (20 min) *on criteria of assessment*
- **Whole class dialogue** (30 min): *group presentation*
- **Different-tasks group work** (20 min) *with ICT on various topics.*
- **Open space**(10 min).
- **Agreeing follow-up activities**(5 min).

If you have printed this session for offline use, you may also need to download the following assets:

- Video/Abel Clip 5.m4v (local play / download options)
- Video/Project Citizen Student Presentations.mp4 (local play / download options)
- Video/Panel 1 The Problem Project Citizen State Showcase KIDS.mp4 (local play / download options)
- Video/Pindi Graphs3-17.mp4 (local play / download options)
- Video/Inquiry-Based Learning for curriculum and instruction class.mp4 (local play / download options)

Retrieved from "http://oer.educ.cam.ac.uk/w/index.php?title=OER4Schools/Presenting_findings_of_enquiries&oldid=21312"

Categories: OER4S CPDCCEPrimaryTeacher Education

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Unit 6 - Into the future



This unit reviews the programme, and continues to make connections between the various interactive practices introduced throughout the programme. It also offers an introduction to action research and communities of practice, through which teachers can continually evolve their teaching practice.

6.1 - Programme review and action research

<p>In this session you will learn about:</p> <ul style="list-style-type: none"> ▪ becoming reflective educators ▪ teacher leadership ▪ lesson study ▪ action research <p>and do some preparation for</p> <ul style="list-style-type: none"> ▪ final portfolios ▪ most significant change stories 	<p>To meet the learning intentions you will:</p> <ul style="list-style-type: none"> ▪ review the units of study in the OER4Schools programme with a partner, highlighting challenges and successes ▪ get items for final portfolio ready for submission ▪ do some think/pair/share activities to determine how reflective an educator you are 	<p>In this session, you will review the ICT components across the programme, and discuss those.</p>
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Session 6.1 - Programme review and action research

6.1 - Programme review and action research

Learning intentions and objectives.

In this session you will learn about:

- becoming reflective educators
- teacher leadership
- lesson study
- action research

and do some preparation for

- final portfolios
- most significant change stories

Success criteria.

To meet the learning intentions you will:

- review the units of study in the OER4Schools programme with a partner, highlighting challenges and successes
- get items for final portfolio ready for submission
- do some think/pair/share activities to determine how reflective an educator you are

ICT components.

In this session, you will review the ICT components across the programme, and discuss those.


1 Review of follow-up activities from last session

Edit this review section (http://oer.educ.cam.ac.uk/w/index.php?title=OER4Schools/Presenting_findings_of_enquiries/review_of_follow_up&action=edit)

Educator note

If you are running a professional learning programme which follows these sessions in sequence, then you should do the review of follow-up activities relating to the previous session (Presenting findings of enquiries). The 'review of follow-up activities' for that session is available here, and also shown below in the session text. However, if you are following selected sessions in a different order, then you should use the reflection appropriate to the previous session you did.

The review of the follow-up activities for this session (to be done at the start of the next session) is available here.

 **Small group activity** (25 min). Get into your small group of last week's 'making use of enquiry ideas A-E' activity to discuss your homework tasks.

All the participants should have tried out a mini-EBL lesson or have organised an extended EBL 'field or project day'. Check with each other that you have the following documentation that should be included in your portfolio:

1. Students' recordings (on sheets of paper) of their data collection, analysis, findings and any other presentation documents (e.g. models, charts, pictures) and audio/video recordings of students' presentations.
2. Your audio reflections of the planning and implementation of all parts of the EBL mini-lesson, field trip or project day.

6.1 - Programme review and action research

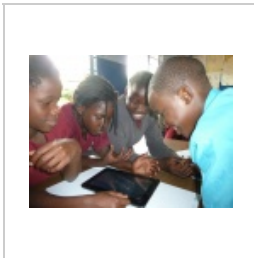
3. Your written reflections about EBL, major take-away messages (e.g. using PMI to think about the planning and implementation of EBL) and ideas on what you would like to try out for your future planning and implementation of EBL in your class.

4. Questionnaire on how much you have learnt and tried to practise EBL in your classrooms.

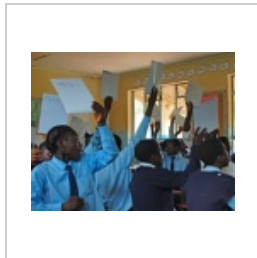
Spend about 5 minutes scanning through all the homeworks (in the form of some of the documents listed above) that have been completed by yourself and your colleagues.

Discuss as a small group, what you feel has gone well and what are some areas for improvement in the planning and process of EBL. As far as possible, make use of the evidence in the documents to support your views. Nominate a spokesperson to present to the bigger group your group's assessment on how successfully you feel you have learnt and tried out EBL in the last three or four weeks. Your group should also provide a recommendation of how you would help OTHER teachers in the school get to know and learn about EBL.

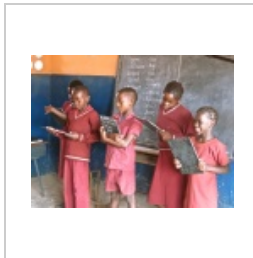
2 Reviewing across units



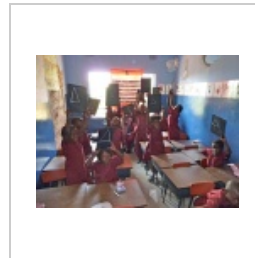
Unit 1 - Introduction to interactive teaching and the use of ICT



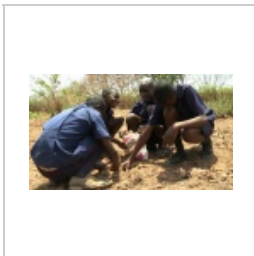
Unit 2 - Whole class dialogue and effective questioning



Unit 3 - Group work



Unit 4 - Assessment for learning and lesson pacing



Unit 5 - Enquiry-based learning and project work

 **Observing, thinking, reflecting** (20 min): *Individual reflection and pair sharing*

Congratulations for coming this far in your learning journey which has brought you to discover and develop interactive teaching. We have challenged you to think about how your teaching can be pedagogically interactive so that you will think of ways and means of engaging your students (rather than them being passive consumers of content). In doing so, you have been asked to try out new ideas - some might have worked better than others and some others may have indeed seemed rather strange at first! We hope that by doing so you have discovered new ways of approaching and responding to student learning.

We would like you to look quickly through the list of units you have explored in the past months. After that, spend about five minutes responding to these two questions:

- Can you think of a particular unit(s) or session(s) that you have found MOST challenging for yourself? Consider why it has been most challenging for you.
- Which unit(s) do you feel you have benefited from the most (i.e. which unit really opened your mind to the possibilities!) and which unit would you like to learn more about and why?

6.1 - Programme review and action research

It would be very helpful if you can quickly make notes of your thoughts on paper. Spend about five minutes taking turns to share your responses with another participant. Listen and write down what your colleague has said and ask questions to clarify if you are not sure what he/she is saying. In the last ten minutes, each participant could quickly share what their partner has told them to the bigger group.

Introduction to OER4Schools

- 0.1 - Overview
- 0.2 - Detailed outline
- 0.3 - How to use this resource
- 0.4 - An introduction to facilitating the OER4Schools programme
- 0.5 - Further links and pointers
- 0.6 - Table of contents
- 1.1 - What is interactive teaching? An introduction to the interactive Zambian classroom
- 1.2 - Introduction to interactive teaching with ICT
- 1.3 - Activity planning and reflection
- 1.4 - ICTs in interactive teaching
- 1.5 - Effective use of ICT
- 1.6 - Leadership for Learning

Unit 2 - Whole class dialogue and effective questioning

- 2.1 - Introduction to whole class dialogue and effective questioning
- 2.2 - Questioning
- 2.3 - More on questioning
- 2.4 - Concept mapping
- 2.5 - Engaging the community
- 3.1 - Group work: Same task and different tasks group work
- 3.2 - When to use group work and how to manage it
- 3.3 - Mixed pace group work with and without ICT
- 3.4 - Talking points and effective group work
- 3.5 - Review of group work
- 3.6 - Designing interactive lesson plans

Unit 4 - Assessment for learning and lesson pacing

- 4.1 - Introduction to Assessment for Learning
- 4.2 - Learning objectives and success criteria
- 4.3 - Formative feedback
- 4.4 - Peer and self-assessment
- 4.5 - Review of AfL and lesson pacing
- 5.1 - Introduction to enquiry-based learning
- 5.2 - Starting the enquiry-based learning process
- 5.3 - Collecting and interpreting information: Part one
- 5.4 - Collecting and interpreting information: Part two
- 5.5 - Presenting findings of enquiries

Unit 6 - Into the future

6.1 - Programme review and action research

7 - Appendices

- 7.1 - List of concepts, methods and techniques for reference.
- 7.2 - A session template for making your own sessions


8 - Induction sessions

- 8.1 - A workshop for school leaders
- 8.2 - A workshop for OER4Schools programme facilitators
- 8.3 - OER4Schools Taster Session - eLA 2013
- 8.4 - Mobile Learning Week 2014
- 8.5 - eLearning Africa 2014
- 8.6 - Faculty of Education Workshop May 2014

Educator note

This is very important reflection time for all participants. They should keep a record of their own responses that can be filed in their portfolio. It is also important to keep a record of all the participants' responses so that we can use this information to help improve the course content and delivery of this workshop. All the written notes of what has been shared with the group should be collected by the facilitator.

3 Preparing final portfolios

 **Individual work** (15 min) on items for final portfolios.

Educator note

The facilitator should just check that participants understand what to do and assess what progress they have already made. Do not spend time on assembling the portfolios themselves - the teacher should have done (and be doing this) outside the workshop.

To obtain the full OER4Schools programme certificate, we would like you to present three more examples of new practices for your final portfolios. These should concentrate on Units 5 and 6. You don't need to write a lot about the techniques themselves:

- Present as much student work, lesson plans/materials as you can, so we can see clearly what went on in the lessons and *how you applied the techniques* (mention which ones you used and why/how).
- Submit your *reflections on your learning from this classroom application*, either by typing them (bullet points are quite sufficient, it need not be an essay!) and/or by doing an audio reflection where you think really hard about how your practice and thinking have changed over the course of the year, referring to examples wherever possible. If your paperwork doesn't make it completely clear what you and the students did, then elaborate on this too. Note that if you type something you don't need to speak it too – audio and written reflections should be complementary.
- See whether you can apply e.g. a Leadership for Learning lens or perhaps the thinking hats to your reflections, to help you structure them.
- The final part of the portfolio is a most significant change story (see below) recorded as an audio reflection, including any related paperwork, electronic or other materials.

Do not hesitate to dwell too on the *challenges and pitfalls* you experienced and *how you overcame them*. It's very unlikely that every new technique would work brilliantly the first time you tried it; there will always be adjustments to make, so please describe that process too and be self-critical. For example, were your talking points and questions open-ended enough or did some of them have “right answers”? If some learners did not participate fully or respond as you had hoped they would, what could you do next time to try and address this? If you think something needs adapting for certain learners, suggest this.

These should be *individual reflections*; although you've worked closely with colleagues and have jointly planned some activities, you have trialled them in your own classroom and it is your individual responses that we are interested in here please. Have a look at some portfolio reflections and comments on them below to guide you.

The traffic lights activity worked very well because it made me as a teacher know whether my teaching was understood or not by seeing the most colour of cards which were displayed. If most of them displayed green then I concluded that teaching and learning took place. If most of displayed red cards, again I could tell that proper learning hasn't taken place. I thought of using other methods to achieve the objectives of learning and teaching i.e. I could emphasise more during conclusion and give home work or give remedial work sometimes as peer assessment.

What I learnt from the usage of traffic lights is that during teaching and learning pupils concentrate. This is so because there is no pupil who feels happy displaying a red card all the time. During interactive teaching and learning, pupils in groups work very hard through collaboration in order to get correct answers and display green cards. This activity applies to all subjects whether using ICT or non-ICT. The only challenges are usually that those who don't understand concepts fast then feel shy to show the red card. However, they are encouraged. In all it is a very good activity to use when learning and teaching.

Judith



I used traffic lights when we were doing some revision work in social and development studies on the different types of writing in the bible in my grade five class. The learning objective was that learners should be able to understand what the different types of writing in the bible are. The learners sat in groups sizes of three to four with mixed abilities.

The lesson was introduced by asking the learners to say the meanings of the traffic lights found on the roads. Thereafter the class monitors helped me to share out the traffic lights. Each learners were given three different traffic lights with different colours. Then I explained to the learners how to use them. I ask the learners to say why the bible was written in different types. The learners flashed out the traffic lights and I pointed to a learner who had lifted the orange light so that he can be free to express himself and to my surprise he gave a correct answer. I ask the second question and learners lifted different types of colours this time around. I pointed out the ones with red. I wanted to find out what they did not understand. Afterwards, I pointed out the ones with green to say their answer, so that they can explain to their fellow learners why they gave out the answers they gave. In the end I pointed out the ones with red lights to try and explain what they had learnt from the other learners who flashed out green. At the end of the lesson I was able to assess my learners if they had learnt something from the lesson. Because they were able to say out correct things. I feel that traffic lights support interaction among learners because learners were able to share out ideas with both learners and the teacher. It increases participation among learners in a way that all learners learnt not to sit idle. Learners are free to express themselves if they are not very clear about something. In the end they get the help needed unlike before were some learners who did not understand used to feel shy to speak out. As a teacher I think it has helped me to understand the progress of my learners. I am also able to give my learners the attention needed. All in all it captures the minds of the learners and acts as a voice for those learners who are too shy to express themselves.

Celestina

Celestina, your use of traffic lights in the lesson on the types of writing in the Bible was really innovative and the report was detailed; it was particularly encouraging to hear that learners explained to and learned from each other during the activity. Traffic lights could be a very individual form of feedback but in your classroom it also supported collaborative learning.

Priscillah, you explained very articulately in your own words what the benefits were of the different approaches you used. It was really helpful to see the actual prompt that you used for cumulative talk and the students' responses listed. Could you do the same for talking points and enquiry? In the final portfolio we'd like to see more evidence of **how you applied the approaches in your classroom**. Please include some lesson or activity plans as your portfolio didn't include that this time, and was quite short, so you'll need to present more evidence next time please.


4 Identifying most significant change

AUDIO

Priscillah tells us about how making use of the brainstorming technique has been a most significant change for her.

Priscillah tells us about how making use of the brainstorming technique has been a most significant change for her.

Priscillah speaking about brainstorming.m4a, 01:36,(Series: OER4Schools audio, episode 01)

 **Same-task group work** (10 min) *in pairs* Have a discussion with a partner about what you each feel is the “most significant change” you have made in your own practice through involvement in the OER4schools programme (all 6 units). Tell your partner a **story about how this change came about**, detailing what was the stimulus for it, why you decided to make a change, what you and your learners did, and what kinds of change you observed. What is the **evidence for the change** that you could present if, for example, you were talking to the principal of another school and wanted to convince them that the programme led to some changes in your practice?

This activity is a kind of rehearsal; as part of the process of creating your final portfolio, we would like you to make an *audio reflection that tells the story of such a significant change (it can be the same one)*.

Educator note


Facilitator should circulate and ensure that participants have understood what the story should contain and that they need to describe and present evidence for the change.

5 Reflective educators

Many great teachers and philosophers like Socrates and Heidegger have emphasised the importance for students and teachers to reflect. Reflections in the educational context, involve thinking about our past, present and future teaching and learning experiences. Unfortunately, most of us are not thoughtful enough to differentiate these three stages or the relationships between our thoughts and actions. Consider this quote:

You who do not think deeply about the future do not appreciate the results and outcomes of your current actions. You who do not reflect critically on the past are not readying yourself for improvement. You who do not think of what you are doing in the present cannot see what to do next. (Adapted from Schmuck, 2006)

Heidegger has pointed out that our minds are prone to wandering between past, present and future. The most challenging type of reflection is thinking about your current actions and about your thinking, shifting between ‘thinking about doing’ and ‘doing the thinking’.

 **Think-Pair-Share** (10 min) *on what you are doing now* Have a go at thinking about what are you doing now. Are you really thinking of the present or are you thinking of what you need to do next after this workshop or what has happened prior to coming here? What is the implication for your students? Are they usually ‘present’ in your class? How do you know or not know if they are? Spend a few moments thinking about these questions before sharing your ideas with another participant.


Educator note

Walk around the groups of pairs and try and get a sense of how many of the participants are thinking of the present. More than half the group? Less than half the group? Is it similar or different to a typical classroom situation? Could you have correctly predicted the participants responses by their non-verbal reactions? Reflecting well on students' learning in the present requires you to be sensitive and insightful about the non-verbal reactions of the students. Going back to the LfL principle of 'focusing on learning', it will be just as important to study the non-verbal reactions of the students during your class (e.g. facial expression, 'awake-ness', looking around) as it is to listen to their verbal reaction.

A reflective educator seeks to be aware of his/her identity as a teacher and most importantly, what he/she believes strongly and is acting on. A reflective educator asks questions like:

1. What am I doing now? Why am I doing that?
2. What do I believe in about teaching and learning?
3. Am I practising what I believe in? Why and why not?
4. Am I a role model for my students to imitate (e.g. being a life-long learner)?

In the course of this programme, we have encouraged you to be self-reflective by asking many questions. We do understand that some of these questions take time to respond to or it may be years before a 'belief' in teaching and learning can develop.

 **Think-Pair-Share** (10 min) *on self-awareness as a teacher* You can develop a keener self-awareness by answering the questions above. Some of them may require a lengthy contemplation and we encourage you to write in your own personal journal or record your thoughts using a dictaphone later.

For the moment, share with your partner your thoughts about the following:

1. Why did you choose to be a teacher (your past)?
2. What is it about teaching that you really enjoy now (your present)?
3. What classroom practice would you like to improve on in the next few months for yourself (your future)?

We would like each participant to be prepared to share what **their partner** has answered for the third question above.

Although reflections on the past, present and future are very important skills for a reflective educator, these may not be adequate to solve problems or meet certain challenges in the classrooms. Each of us has a limited capacity to change a practice or to find new practices that will work for ourselves. Your reflections can be significantly enhanced by systematic collection and analysis of data from your students, and working together with the rest of your colleagues. By using a suitable **research method**, you can move beyond just focusing on yourself, to engage your students and colleagues in deliberation on how to improve their teaching and learning experiences in the classroom. **Action research** and **lesson study** are two methods that can help you to develop professionally: to improve elements of your practice or to address wider issues beyond an individual's classroom. You were briefly introduced to lesson study in session 1.5 when you analysed the following video through a Leadership for Learning lens. You will learn about action research in this session.

Background reading

You can watch the lesson study video again now if you have time, thinking about the following:

The video clip shows the highlights of a lesson study (also known as research study) going on in an American primary school classroom. Lesson study is another form of ongoing professional development activity whereby teachers come together to decide on an area of teaching or learning that they would like to understand and improve on, in order to help students learn better. The teachers observe learners in a class being taught by one of their colleagues and collect specific, detailed data for discussion with the lesson study group later. In this video clip, the teachers want to find out whether the students are able to recall and retell the sequence of a story read to them by their teacher.

- What techniques did the teachers use to capture details about the lesson as it progressed?
Can you think of any other ways you could capture details of the *study lesson*?
- Are you likely to feel comfortable/uncomfortable talking to other teachers about the progress that students make in their lesson in this context?
- Can you think of any particularly 'sticky' bits of the curriculum that could benefit from the lesson

study treatment? Perhaps the students at your school have always struggled with working out averages or percentages in mathematics or a specific concept such as combustion in science? Or maybe you would like the focus of your lesson study to be embedding some of the interactive teaching techniques that you have been learning about on this course?

VIDEO

Research lesson debrief

Lesson Study: Research Lesson and Debrief

About this video, 3:15,

- ⚠ (http://www.youtube.com/watch?v=nDksU13FZtc&list=(http://www.youtube.com/watch?v=nDksU13FZtc&list=)
- Some part "<nowiki> (http://www.youtube.com/watch?v=nDksU13FZtc&list=)...</nowiki>" of the query was not understood.
 - Some use of "<nowiki>[[</nowiki>" in your query was not closed by a matching "]"
 - Some subquery has no valid condition.

link to YouTube]

(local play / download options)(Series: Video from other organisations, episode N/A)

As you begin to identify, through reflection, the areas of your practise that would benefit from the fine-tuning that lesson study brings, start to formulate your ideas in collaboration with your colleagues. You might find it helpful to think of lesson study in this way - 'it's about piecing together multiple observations to give something greater than can be achieved by any one individual, no matter how reflective they are.'

Educator note

Allow for a brief discussion during the session and **record individual responses to the final question** as these may form the basis of (an) enquiry/enquires to be conducted at a later date in the form of action research/lesson study. Further details on the methodologies of action research and lesson study are provided for individual reading after the workshop. Encourage participants to think about what is important to them, something that they would like to make a positive change to. Ideas may be wide ranging from overarching concerns such as 'how to increase parental involvement', 'investigating the attitudes to/of girls studying mathematics', 'how to use more ICT effectively in my classroom', to ideas linked to specific curriculum practices e.g. 'how to teach fractions better', etc. Broader themes such as 'students as active learners' or 'students as individuals' can also provide the basis for your research.

6 Reflective educators in times of change

In their book *Change in Schools* (1987), Hall and Hord wrote about the concerns of teachers who face the challenge of trying out new practices in their classroom. They found that when asked to change their practices, they are concerned first about themselves ('Can I carry out the new practice?'), later they become concerned with others ('Will my students react well? What will their parents say?') and finally they become concerned with the results ('Will the new practice really lead to better teaching and learning experiences?').

Focus on Self	Focus on Others	Focus on Results
Can I change my practice?	What do the others think of my new practice?	What can my students do now as a consequence of my new practice?

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Do I feel comfortable with the new practice?	What are others' non-verbal and verbal reactions to my new practice?	What lasting effects have I had on my students?
Is this what my career will be about? (by constantly adapting, changing and learning new practices)	Are they generally positive or negative towards my new practice?	What long-lasting contributions can my students make to improve the community, country and the world?
Is this congruent with my beliefs and goals of teaching?	How does it mesh with beliefs, practices and expectations in my school and community?*	What long-lasting contributions can I make to improve the community, country and the world?*

Note that the above questions were devised by the OER4schools team and are not part of the original article.

Think-Pair-Share (10 min) *on the questions* Find another partner for this activity. Think about these questions that Hall and Hord have proposed. Do you agree they are relevant to you and if so, at what stage do you think you are now? What would be the implications for your other colleagues in the school? What are your teaching beliefs and goals now that you could be a different teacher (or the same!) from before you have gone through this OER4Schools programme? Share your thoughts with your partner.

Educator note

We have already started the participants thinking about these questions through the LfL framework encountered in sessions 1.5 and 2.5. The questions serve to reveal some of the gaps or dissonances between what the teachers believe in and what is actually happening in the school or classroom. Such dissonances should prompt teachers to want to try out or change their practices through a systematic process of inquiry. It is important that teachers have a go at clarifying their beliefs and goals of teaching and learning first before moving on to doing any kind of AR.

7 Many forms of teacher leadership

You have learnt about the various aspects of leadership through the Leadership for Learning lens metaphor. As a reflective teacher, you may not be leading in the form of teaching and learning within the classroom, but taking on different leadership roles in the school.

“Teacher leadership is the process whereby a teacher can clarify their values, develop a personal vision of improved practice and then act strategically to set in motion a process where colleagues are drawn into activities such as self-evaluation and innovation. This is truly about [developing] a culture of shared responsibility for reform and the outcomes for all students.” (Frost 2012, p.211)

In the US, a set of ‘model standards’ for teacher leaders has actually been produced and it states that “they need recognised responsibilities, authority, time to collaborate and support from school administrators to assume leadership roles.” (Teacher Leadership Exploratory Consortium 2011, p.12)

Whole class dialogue (10 min) *on being a leader* Are you a leader or a follower? Perhaps you are a leader in one context and a follower in another? Do you/could you inspire others? Consider the following teacher leader roles. Can you identify these teacher leaders in your school?

- head teacher
- subject coordinator
- workshop facilitator
- classroom teacher
- curriculum specialist

6.1 - Programme review and action research

- learning facilitator
- mentor
- counsellor

You may be surprised to see yourself, the 'classroom teacher' in the list. There are many roles that classroom teachers can assume to support school and student success. The international teacher leadership project, a case of international action research, explored the idea of teacher leadership and educational reform with the following as a central concept:

'..the idea that teachers, regardless of their level of power and organisational position, can engage in the leadership of enquiry-based development activity aimed at influencing their colleagues and embedding improved practices in their schools.'

Could you see yourself in a particular teacher leadership role? You may realise you have different strengths of 'leadership' which may not reside in one role. This is the role(s) that we would like you to consider as you embark on your action research at the end of these workshops.

Educator note

Initiate a brief discussion after allowing participants a few moments to read the first two quotes. Allow participants some time to formulate their responses. The subject of teacher leadership is huge and we are really only offering a glimpse here. Nonetheless, it can be a useful exercise just to think about the possibilities. If time allows, ask the participants what they perceive as the barriers to becoming a teacher leader and make a note of these for further consideration.

8 Very brief introduction to action research (AR)

Listen to a Zambian teacher talking about a mathematics research project that she was involved with:

AUDIO

Priscillah tells us about a mathematics research project that she became involved with after taking part in the OER4Schools programme.

Priscillah tells us about a mathematics research project that she became involved with after taking part in the OER4Schools programme.

Priscillah speaking about her research.mp3, 02:25,(Series: OER4Schools audio, episode 01)

Whole class dialogue (10 min) on action research

As an extension of the individual reflection activity, we are now proposing a valuable research method that can help a group of teachers come together to reflect and suggest possible improvement of their practice. This research method is called **Action Research (AR)**. Take about 5 minutes to read the text below and discuss briefly as a group the questions below:

- **'What is AR?'** It is part of practice of a group of reflective teachers to think about their practices and seek improvement. It is a **cycle** of investigation, application / implementation, systematic reflection, evaluation (see diagram under 'Background Reading' below). An iterative process of data collection and analysis is integral to this kind of research, rather than linear. It is a *critical* process of reflection on past and present actions. It gathers evidence to support claims for future actions.
- **'What is the goal of AR?'** It is aimed at changing as well as understanding practice in real educational settings. It often involves a trial-and-improvement approach to practical problem-solving by the teacher themselves.

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- **'Who does AR?'** It involves those directly affected by the research (teachers in this case) as collaborators or leading investigators in researching their own practice. Interpretation is from their perspective. A professional researcher may be a collaborator or advisor/consultant.
- **'Why do AR?'** Many problems and solutions in classroom teaching are complex in nature and there is no 'quick fix'. AR researchers suggest that the reflection and solutions coming from the teachers themselves are very valuable. Doing AR well in a school creates a research culture whereby teachers actively reflect and intervene on a problem, its causes and suggest possible solutions.
- **'What are the steps of AR?'** There are different types of action research. Here we are introducing a **participatory AR model** that is suitable for improving practice in a collaborative way within a group of teachers. This begins with the group of teachers reflecting and discussing on the past, present and future possibilities of a particular teaching practice. The steps and illustrative examples for each step are outlined in the following background text:

Background reading

Participatory action research - steps and examples

1. The group of teachers lists hopes and concerns for a 'newer' practice (based on certain beliefs and goals of teaching and learning). This may address a problem that teachers have observed of an 'older' practice. It is important to note that the identification of any 'problem' must take reference from teachers' initial reflection and investigation (rather than being told by an external party).

- *E.g. A group of teachers came together to discuss their observations that their grade three students cannot master the multiplication skills, despite their best attempts at explaining the concept to them. They reflected on their teaching method which was essentially writing down the multiplication table on the board. No other teaching resources or materials were used.*

2. After a literature review and/or reflecting on possible revisions of practice, teachers propose and try out the new practice and observe the preliminary effects on the students.

- *E.g. Teachers searched on the internet for articles on why students have problems learning multiplications and found out that students at year three need to play with concrete materials in learning multiplication before they can think about the symbolic meaning of symbolic representations like the 'multiplication table'. They brought small plastic containers and paper clips. They decided that they will get students to explain a multiplication operation, such as 3×4 through placing paper clips into the containers. They would like the students to think of the x in a multiplication problem as meaning "groups of." So 3×4 is "3 groups of 4."*

3. Teachers investigate and identify a suitable data collection method to track students' learning.

- *E.g. Teachers produced suitable worksheet and design task for students to try out the materials and explain the multiplication operations. They observed the interactions of the students and how they played with the material. At the end of the lesson, they asked students to complete a small quiz on multiplication.*

4. The teachers analyse what the data mean.

- *E.g. Teachers discussed on what they had observed in the students' interactions. They compared the results of the quiz with the students' initial results (prior to the lesson).*

5. Reflect and identify ways of improving practice.

- *E.g. Teachers observed that only some of the students were able to correctly explain the concept of multiplication using the materials. They observed that these students were more successful in attempting the quiz. The rest of the students seemed to be lost and were simply following what their peers were telling them to do and write. This second group of students did not make any improvement from their earlier results.*

6. Fine-tune the practice or try a different new practice.

- *E.g. Teachers decided that some students need to spend more time with the concrete objects on their own. They decided in the next few lessons they would split the class into those students who needed more help from them and those who could carry on with written multiplication work on their own. They designed more hands-on activities for the slower-learner group.*

The sequence is cyclical as in after the final step, it should be able to return back to Step 1 (see diagram). It is important that throughout the research process teachers are actively involved in making decisions of investigation and evaluation.

6.1 - Programme review and action research



[Diagram is reproduced from an online resource at <http://www.llas.ac.uk/projects/2837> by kind permission of John Canning of LLAS Centre for Languages, Linguistics and Area Studies.]

This form of research involves a democratic process so that all teachers are actively examining a current action in order to change and improve it – through a structured and collaborative form of reflection. It takes into account the teachers' beliefs, aspirations, reality of school and wider societal expectation. It is action which is researched, changed and re-researched by the teachers themselves. Thus it aims to help teachers to be actively involved in reflection, and to be able to determine the purposes and outcomes of their own inquiry. The research process could include the students as well as other stakeholders in the community (e.g. parents, volunteers). (Wadsworth, 1998)

Whole class dialogue (10 min) *on teaching and learning practices* Think about a new teaching and learning practice that you have learnt in these past months. How will participatory AR support your ongoing learning and updating of this new practice? OR Think about a problem you would like to address together or a new form of interactive practice you would like to develop. How will AR support you?

What kind of support will you need to carry out AR? What methods will you use to collect evidence? What are your main concerns about using AR?

Educator note

There are actually many different models of AR and it is impossible to go through the details in 10 minutes. Try to encourage the participants to think about the possibilities and the constraints of AR and also to think about what else they might like to know or find out about action research. Draw their attention to the additional resources in section 11 for further guidance.

9 ICT practice: Review

Whole group dialogue (10 min) *on ICT*. Spend some time discussing what you have learnt about using ICT in the classroom. What were your favourite applications? What were your favourite uses? Where did it really help students? What could be done better?

10 Final ACTIVITY: Preparing a presentation

Same-task group work (15 min) *on preparing a presentation* As a final task in this unit (and the programme!), we would like you to work in a group of 3-4 participants to plan for a **5 minutes** presentation on the highlights of your learning journey in the OER4Schools programme. You will be delivering this presentation on another day (to be determined at a later date). You will use the remaining time to plan for this presentation. You should ensure that

6.1 - Programme review and action research

everyone gets to share their views and to plan for a presentation that will really represent the group's shared vision of the professional learning that has taken place and the follow-ups next year.

These are some possible ideas to help you plan for this presentation:

1. You can draw ideas from the reflection tasks that you have done in this session and from your portfolios.
2. You might choose to highlight and describe a particular unit that the group feels best captures the spirit of the entire OER4Schools programme.
3. You can describe a few contrasting activities you have learnt and tried out in your classrooms, in terms of how you have found some success in trying out in the classrooms or not quite meeting your expectations (e.g. the use of ICT in the classrooms).
4. It might be that you choose to speak mainly about your students' reactions when you tried out activities in your classrooms.
5. You might choose to do the presentation through a single LfL lens eg. through the 'focus on learning' lens

Whatever you choose to include in your group presentation, bear the following points in mind:

- It should not describe theory only, but instead give **concrete lesson examples of theory applied to practice**.
- Play to the strengths of your various group members and deliver a presentation that will provide a flavour of what the OER4Schools programme has been like for the next cohort of teachers or to any other observers
- The presentation should be no more than **5 minutes long** - so you need to choose wisely what you would like to include!
- It should be a short sequence that is presented by a number of speakers (no more than 3), each speaking for no more than 1-2 minutes (time it in advance to ensure you do not overrun!)
- It is a whole group presentation so all members of the group should be involved in its preparation, even if they are not speaking on the day
- Be prepared to answer questions from audience at the end of the presentation

Educator note

The facilitator should be prepared to provide a short introduction to the presentation, speaking briefly about what his/her role has been throughout the course and perhaps to field questions at the end of the presentation.

11 Final Homework: Preparing a presentation

The final homework involves you working as a group to prepare for the final presentation. We expect that you should be meeting at least once or twice before the presentation to discuss the final details of 'who says what' and/or 'who does what'. We also encourage you to make use of relevant materials to accompany your presentations (e.g. charts, students' works, pictures etc). Think of the possibilities of making use of creative means (e.g. artwork, songs/music, dance presentation, role-play or a skit) to put across your ideas. **But remember you only have 5 minutes!**

Educator note

In the next session, these follow-up activities will be reviewed. If you are using this session on its own, you can have a look at the review of follow-up activities here.

12 Additional resources

6.1 - Programme review and action research

This online video provides a useful overview of the lesson study process, highlighting its cyclical nature:

<http://youtu.be/g48DAG4hJd4>

This extensive pdf document on lesson study is excellent for providing a deeper insight into the process and has some useful case studies and example lesson plans:

<http://www.cimt.plymouth.ac.uk/papers/lessonstudy.pdf>

13 References

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Educator note

At the end of each session, we provide an overview of the activities in this session, together with their suggested timings. Although this appears at the end of the session (for technical reasons), you should keep an eye on this throughout the session, to make sure that you are pacing the workshop session appropriately!

Total time: 155 (min)

Activities in this session:

- **Small group activity**(25 min).
- **Observing, thinking, reflecting** (20 min): *Individual reflection and pair sharing*
- **Individual work** (15 min) *on items for final portfolios.*
- **Same-task group work** (10 min) *in pairs*
- **Think-Pair-Share** (10 min) *on what you are doing now*
- **Think-Pair-Share** (10 min) *on self-awareness as a teacher*
- **Think-Pair-Share** (10 min) *on the questions*
- **Whole class dialogue** (10 min) *on being a leader*
- **Whole class dialogue** (10 min) *on action research*
- **Whole class dialogue** (10 min) *on teaching and learning practices*
- **Whole group dialogue** (10 min) *on ICT.*
- **Same-task group work** (15 min) *on preparing a presentation*

If you have printed this session for offline use, you may also need to download the following assets:

- Video/Lesson Study - Research Lesson and Debrief.mp4 (local play / download options)

Retrieved from "http://oer4schools.cam.ac.uk/w/index.php?title=OER4Schools/Programme_review_and_action_research&oldid=20406"

Categories: OER4S CPDCCEPrimaryTeacher Education

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7 - Appendices

7.1 - List of concepts, methods and techniques for reference.

7.2 - A session template for making your own sessions

In this session you will learn about:

- how to make your own session.
- So start by replacing this text with the learning objectives for your own session.

To meet the learning intentions you will:

- make your own session.
- Again, replace this text by your own success criteria.

The ICT components you will focus on are

- nothing in particular, but as you use the template, you can say here what ICTs will be used, and what participants learn.

Classroom based activities (with your students, after this session): ...

- Say here what will do the following week, with your students in class.

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Appendix 7.1 - List of concepts, methods and techniques for reference.

7.1 - List of concepts, methods and techniques for reference.

Description.

This chapter summarises various concepts, methods, and techniques of the OER4Schools programme.

1 Most significant change technique

MSC is a form of participatory monitoring and evaluation. It is participatory because many project stakeholders are involved both in deciding the sorts of change to be recorded and in analysing the data. It is a form of monitoring because it occurs throughout the program cycle and provides information to help people manage the program. It contributes to evaluation because it provides data on impact and outcomes that can be used to help assess the performance of the program as a whole.

Essentially, the process involves 'searching' for project impact through:

- collection of significant change (SC) stories emanating from the field level
- systematic selection of the most significant of these stories by panels of designated stakeholders or staff
- collective reading of the stories aloud and regular and often in-depth discussions about the value of reported changes

When the technique is implemented successfully, whole teams of people begin to focus their attention on programme impact. You can find out more about the MSC technique here: <http://www.mande.co.uk/docs/MSCGuide.pdf>

(To view wiki page for this technique, click here.)

2 No hands up

This is a useful technique to encourage all students to remain attentive and to participate interactively during lessons. The teacher poses a question for the students to think about and tells them, either before or after asking the question, that there should be 'no hands up' as everyone is expected to participate. The teacher then calls on a random student to answer the question. Staging questioning this way can motivate students and keep them focused on the shared input as well as giving less confident children the chance to share their ideas.

Here are the steps:

1. Students listen to a question or a discussion point and are given wait time to formulate their responses. The teacher can introduce the technique either before or after posing the question.
2. Following the wait time, the teacher asks a random student for a response.
3. When further questions are asked in the session, the teacher reminds the students that there should be 'no hands up' and that they may be asked for a response at any time.

Tips for using the technique successfully:

- warn students that this is a 'no hands up' session
- establish a friendly, supportive, non-judgemental atmosphere using positive body language and reaffirming phrases
- remind students to listen to what other students have said as they may have to adjust their response accordingly

Appendix 1.1 - Techniques

- praise students for active listening, for making a contribution and for respecting the contributions made by others
- differentiate questions to give students the best chance of a positive outcome

Giving students 'wait time' has been shown to significantly improve the quality of their responses.

(To view wiki page for this technique, click here.)

3 Brainstorming

This is a useful interactive teaching technique that allows all participants to make a contribution without fear of judgement from others.

Here are the steps:

1. Students listen to a question/idea/concept posed by the teacher - these should be open-ended with no specific right answers in order to generate a range of responses.
2. Students offer their ideas when the teacher asks them one by one - it is not necessary for students to raise their hands as everyone is encouraged to make a contribution.
3. All ideas are recorded by the teacher where everyone can see them.

After the brainstorm session the ideas can be further processed in line with the plan for the rest of the lesson.

Tips for using the technique successfully:

- establish a friendly, supportive, non-judgemental atmosphere for brainstorming
- remind students to listen to what other students have said to make sure that they don't repeat any replies
- try to keep the activity pacy, adapting the length of the brainstorm session to match the flow of ideas
- praise students for active listening and for respecting the contributions made by others
- the technique works well at the beginning of a new topic as a way of finding out students' prior knowledge

(To view wiki page for this technique, click here.)

4 Cumulative talk

Cumulative talk is co operative talk and can lead to knowledge construction through the sharing of ideas. It is limited from an educational point of view in that it does not produce critically grounded knowledge. Its real value is that it promotes group/whole class harmony whilst allowing ground rules for the more meaningful exploratory talk to become established. It also has the added benefit of allowing pupils to increase in confidence as they speak without being challenged at first.

Cumulative talk is talk in which...

- Everyone simply accepts and agrees with what other people say.
- Children do use talk to share knowledge, but they do so in an uncritical way.
- Children repeat and elaborate each other's ideas, but they don't evaluate them carefully.

The following document outlines the three types of talk that children are mostly engaged with in the classroom and provides examples: Three kinds of talk

(http://thinkingtogether.educ.cam.ac.uk/resources/5_examples_of_talk_in_groups.pdf).

(To view wiki page for this technique, click here.)

5 Magic microphone

This is a useful technique to encourage students to speak out in the classroom. The teacher poses a question for the students to think about before initiating the use of a prop which is passed around the room. The prop is a tool that the students can use independently to make talk equitable. It could be any small item such as a ball or a bean bag that can be easily passed from one student to another. The student who is holding the prop has permission to speak. When they have finished speaking they then pass the 'magic microphone' on to another willing participant.

Appendix 1.1 - Techniques

Here are the steps:

1. Students listen to a question or a discussion point and are given wait time to formulate their responses. The teacher can introduce the technique either before or after posing the question.
2. Following the wait time, the prop is passed to a student who is willing to say out loud what their response is to the question.
3. The prop (or 'magic microphone') is then passed around the room from student to student with all students who get the prop speaking their responses out loud. A student who does not wish to speak simply passes the prop on to another who does.

Tips for using the technique successfully:

- establish a friendly, supportive, non-judgemental atmosphere using positive body language and reaffirming phrases
- remind students to listen to what other students have said as they may have to adjust their response accordingly
- try to keep the activity pacy, encouraging students to quickly pass the prop between themselves
- praise students for active listening, for making a contribution and for respecting the contributions made by others
- manage the movement of the 'magic microphone' and draw together points from the talk/discussion, paraphrasing them if necessary

(To view wiki page for this technique, click here.)

6 Think-Pair-Share

This technique encourages cooperative learning by peer interactivity. Teachers should cue the progress from one step to the next. In the primary classroom, hand signals for each step can be developed with the students and these can be used along with verbal cues.

Here are the steps:

1. **Think** - Students listen to a question (this may be an open-ended question to which there are many answers) or a presentation and are given 'think time' to formulate their responses.
2. **Pair** - Following the 'think time', students work together with a partner, sharing ideas, discussing, clarifying and challenging.
3. **Share** -The pair then share their ideas with another pair, or with the whole class. Students should be prepared to share their partner's ideas as well as their own.

Tips for using the techniques successfully:

- Allowing students time to think, sometimes referred to as 'wait time' has been shown by researchers to improve the quality of their responses. Talking through ideas with a partner first before sharing them with a wider audience allows for those ideas to be elaborated on and refined.
- When using this activity in the classroom it is not necessary to take feedback from all groups every time. This would be quite time consuming and may not be particularly edifying. Teachers can walk around and listen to the students talking in their pairs and perhaps call on those that they know will have something interesting to contribute. Whilst all students should be given the opportunity to contribute during lessons it is not necessary to give everyone that opportunity in every activity.

Strategy for keeping track of who has contributed during activities/lessons:

By putting a little dot next to the names of the students in the class list for a particular lesson (or the register) you can easily keep track of those students that have been called on during that lesson and incorporate that into your planning.

(To view wiki page for this technique, click here.)

7 Horseshoe seating arrangement

This seating arrangement where students sit with each other in the shape of a

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This seating arrangement, where students sit with or without their chairs in the shape of a horseshoe (like the dots in the horseshoe picture) is best used during whole class dialogue for example during cumulative talk. It creates a more 'intimate' classroom environment that helps to provide students with the security they need to take risks with their talk. Everyone can see each other easily and this encourages peer co-operativity. Teachers can stand outside the horseshoe and guide the activity from there or they can join in with the seating arrangement and be an equal contributor. Ideally the open part of the horseshoe would be orientated towards the board if the teacher (or the students) are intending to write anything on the board during the activity.

You may need to experiment a number of times before you find the best way of arranging the desks and/or chairs. Desks would not be needed for a cumulative talk activity but they may be needed if the activity chosen involves students writing. Younger children may be happy to sit in a horseshoe arrangement on the floor and a space can be cleared by pushing the desks and chairs to the sides of the classroom.

Tips for using this arrangement:

- make sure you have tried the arrangement out first before trying it with students and decide on the best orientation
- give simple straight-forward instructions as to how the students should move their desks and/or chairs into the arrangement
- explain to students that you are using this seating arrangement as it will make it easier for everyone to see each other and contribute equally
- encourage students to glance around the horse shoe shape as they speak, addressing their comments to the whole group
- factor in time to both set up and dismantle the horseshoe arrangement- the time taken to do this should decrease as the students become more familiar with the layout and move around the room more efficiently

(To view wiki page for this technique, [click here.](#))



Blue horseshoe

8 Robots/Traffic lights

Traffic lights, also known as robots in southern Africa (or elsewhere as traffic signals, traffic lamps, signal lights, or semaphores), are a useful resource, consisting of three different coloured cards, for everyday use in classrooms in order to assess.

The name "traffic lights" comes from the fact that traffic lights (or robots) are a piece of equipment designed to control traffic flow. Traffic lights have three lights - red, orange and green. These lights signal to drivers what action they should take on the road with each coloured light having a different meaning associated with it: Red means Stop; Orange means Get Ready and Green means Go.

In education, "traffic lights / robots" refers to a set of coloured cards in the classroom, where the colours have meaning as follows:

- a RED card means "I'm stuck. I need some extra help. I don't feel I have progressed."
- an ORANGE card means "I'm not quite sure. I need a little help. I feel I have made some progress."
- a GREEN card means "I understand fully. I'm okay without help. I feel I have progressed a lot."

Use of robots / traffic lights in the classroom:

- While the teachers are teaching, they can ask students to hold up a coloured card to assess if they should proceed to the next topic or not.
- Students can voluntarily show a coloured card indicating their current level of understanding. They can change the coloured card several times during a single lesson. In this way, the student can bring their understanding to the teacher's notice without disturbing other classmates or the flow of the lesson. Teachers can address the student at an appropriate time.
- While working independently in groups, students can display their coloured card on the table to indicate their current status. Teachers can visit the student to provide assistance.



Eventually students are expected to independently use the coloured cards without the teacher's instruction to do so. The coloured cards of the robot^(a)/traffic lights^(a) should become a silent way of communicating in the class.

Displaying cards also reduce students' physical stress of standing in queues or raising their hands while waiting for the teacher's attention.

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What to call robots / traffic lights in the classroom. Bear in mind that students at deep rural schools may have never seen a robot, and may not be familiar with the concept. Also, the name might vary: In Europe, robots are known as traffic lights whilst in Southern Africa they are commonly referred to as robots. Use the name that will be most familiar to the students in your classroom and explain the concept of the coloured lights and their meaning if necessary.

Use of robots / traffic lights in groupwork: While the teacher needs to know who has understood, it doesn't have to always be the teacher who *responds* to red or orange cards. Students working in a group can also help each other. In Unit 3 we emphasise that groupwork is most successful when groups themselves are given responsibility for making sure that all members understand. Robot / traffic lights cards can alert students to the need to assist their peers.

One Zambian teacher's reflection on trying out the technique:

During interactive teaching and learning, pupils in groups work very hard through collaboration in order to get correct answers and display green cards.

The traffic lights activity worked very well because it made me as a teacher to know whether my teaching was understood or not by seeing the most colour of cards which were displayed. If most of them displayed green then I concluded that teaching and learning took place. If most of displayed red cards, again I could tell that proper learning hasn't taken place. I thought of using other approach methods to achieve the objectives of learning and teaching i.e. I could emphasis more during conclusion and give home work or give remedial work sometimes as peer assessment.

Suggested follow-up activity: Do the activity of making robot / traffic lights cards with your students. You can be creative about the use of materials depending on availability.

(To view wiki page for this technique, [click here.](#))

9 Questioning checklist

	Yes	No
I prepare questions as part of my lesson preparation.		
I make sure I use a variety of questions.		
I always count to 3 after posing a question.		
I make sure all students get an opportunity to answer a question.		
I actively engage all students in thinking.		
I use a variety of prompts to encourage further reasoning and answers.		
I use student answers as a start for further (probing) questioning.		
I try to follow the line of thought of a student who gave a wrong answer.		
I involve other students in the discussion after 1 student has given an answer.		

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Use the space at the bottom of the table to add your own statements.



Source:

(To view wiki page for this technique, click here.)

10 Questions you can ask in the classroom

Questions you can ask in class

- Can you guess what will happen?
- Can you give me an example? Can you find an (another) example?
- How does (cause) relate to (event)? or How does this explain ...?
- Is this the same as ...? Is this different from ...?
- Tell me something that is true about ...
- What connections can you see between ...?
- What always seems to happen?
- What other ways are there to ...?
- What do you think is happening?
- What would happen if ...?
- What could be changed if we want...? What would you change so that ...?
- What is wrong with ...?
- What happens when ...?
- What did you observe?
- What do you think about ...?
- What do you think about what X said? Why?
- Why do you think that ...?
- Can you explain that to your partner?
- Can you group these?

Here are some questions classified using Bloom's taxonomy, in order of increasing demand:

Remembering

- What do you remember about ...?
- How would you define ...?
- How would you recognise ...?
- What would you choose ...?
- Describe what happens when ...?
- How is ...?
- Which one ...?
- Why did ...?

Understanding

- How would you clarify the meaning ...?

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- How would you differentiate between ...?
- What did you observe ...?
- How would you identify ...?
- What would happen if ...?
- Can you give an example of ...?

Applying

- How would you develop... to present ...?
- What would be the result if ...?
- How would you present ...?
- How would you change ...?
- Why does ... work?
- Can you develop a set of instructions about ...?
- What factors would you change if ...?

Analysing

- How can you classify ... according to ...?
- How can you compare the different parts ...?
- What explanation do you have for ...?
- Discuss the pros and cons of ...?
- What is the analysis of ...?
- How is ... similar to ...?

Evaluating

- What criteria could you use to assess ...?
- What data was used to evaluate ...?
- What choice would you have made ...?
- What is the most important...?
- How could you verify ...?
- Is there a better solution to ...?
- What do you think about ...?
- Do you think this is a bad or a good thing?

Creating

- What alternative would you suggest for ...?
- What changes would you make to revise ...?
- Predict the outcome if ...?
- What could you invent ...?
- How would you compile the facts for ...?
- If you had access to all resources how would you deal with ...?
- Compose a song about ...
- Design a ... to ...

(To view wiki page for this technique, [click here](#).)

11 Reflective journal questions

For each reflection, first note down the day of the week and the date today, so that you can keep track of your reflections and how your teaching practice evolves over time.

Questions to help you:

1. What subject was the lesson (e.g. maths / science / other) and what was the lesson about (i.e. the topic, e.g. long division)?
2. What interactive technique did you choose to use (ICT-based or not ICT-based)?
3. What resources were used (both ICT and non-ICT)?
4. What did you expect to achieve with the strategy adopted?
5. What were the outcomes? (e.g. What do you think pupils learned about the topic? How can you tell? Any unexpected occurrences?)
6. If ICT was used, do you think the use of ICT in this particular lesson contributed to pupil understanding of subject concepts? How?
7. What difficulties did you encounter?
8. What were the positive aspects of this experience?
9. What did the children get out of the activity? How can you tell?
10. How did you (as the teacher) find out what the children learnt / thought about the activities / got out of them?
11. What did you (as the teacher) get out of it?

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12. Did you find it difficult?
13. Did the activity allow students to meet the learning objective that it was designed to address?
14. What would you do differently next time?

Space for your own questions:

1. _____
2. _____
3. _____
4. _____
5. _____

(To view wiki page for this technique, click here.)

12 Audio diary guidance

OER4schools Audio Diary: Information

The purpose of the audio diary is to register your thoughts and perceptions on the use of interactive teaching and ICTs in your classroom. You should try to do interactive activities in your lessons as frequently as possible and should aim to integrate ICTs in your teaching AT LEAST ONCE A WEEK. Ideally, you ought to RECORD ON THE DICTAPHONE A COUPLE OF TIMES A WEEK, including after every lesson taught using ICTs. If for some reason you did not manage to use ICTs during a particular week, we ask you to record after an interactive lesson so that you still make at least one record a week.

Please speak as clearly as you can when recording the audio diary in order to avoid misunderstandings or loss of information.

OER4schools Audio Diary: Guidance

The questions listed below aim to help you organize your thoughts and observations when integrating ICTs in your lessons. They are meant to be a mere guide to help structure your audio-diary. Therefore, please feel free to include any other information you think is relevant.

1. What is your NAME and GRADE? My name is ...
2. What is the DAY OF THE WEEK AND THE DATE today? Today is Monday the 23rd of January 2012
3. What SUBJECT was the lesson (e.g. maths / science / other) and what was the lesson about (i.e. the topic, e.g. long division)?
4. What INTERACTIVE technique did you choose to use (ICT-based or not ICT-based)?
5. What RESOURCES were used (both ICT and non-ICT)?
6. What did you EXPECT to achieve with the strategy adopted?
7. What were the OUTCOMES? (e.g. What do you think pupils learned about the topic? How can you tell? Any unexpected occurrences?)
8. If ICT was used, do you think the USE OF ICT in this particular lesson contributed to pupil understanding of subject concepts? How?
9. What DIFFICULTIES did you encounter?
10. What were the POSITIVE aspects of this experience?
11. What would you DO DIFFERENTLY NEXT TIME?
12. Were the OER4Schools WORKSHOPS useful in helping you to plan this lesson and to prepare you for the challenges experienced? How? Which one(s) and in what way?
13. **Every two weeks**, please answer this question too: Looking back over the last two weeks, what do you think was the MOST SIGNIFICANT CHANGE in the quality of teaching and learning in your classroom? Why do you think it was significant?
14. Any other comments about how you are getting on with NEW INTERACTIVE TEACHING TECHNIQUES?

(To view wiki page for this technique, click here.)

13 Assessment portfolios

The "Assessment Portfolios" are primarily for formative assessment, and we would highly recommend that you do these, to have a record of your own work. Doing a portfolio is quite different from a traditional exam: portfolios should provide

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evidence of learning, and in particular evidence of having attempted to implement interactive techniques in the classroom, rather than being able to (e.g.) recite the principles of interactive teaching.

For the programme at Chalimbana Basic School, we are also offering certificates as evidence that you have completed the programme successfully. In order to gain a certificate for the OER4Schools programme, teachers will be assessed, and as part of this assessment, we would like you to prepare a simple assessment portfolio, as outlined below. However, even if there is no certificate provided because of the way you are running the programme at your school, you should still do assessment portfolios as these provide evidence that you have completed the programme.

The interim portfolio - at the end of each unit. This portfolio should include your two “best” pieces of work (e.g. completed activity template, concept map, etc) from what you have done within that unit.

Please prepare those two items (and write your name at the top of each sheet); hopefully you already have material in your folders that you can dig out or draw on. It can be an activity outline using one technique (e.g. robots/traffic lights or no hands up) or a (plan for a) whole lesson.

For each piece of work, do an audio reflection. To do this, think about how you would show a teacher in another school what you have been learning through the OER4S programme? What concrete examples would you share with them? How would you show them the range of things you have covered? Suppose then this teacher asked you some questions, e.g. What worked well, what didn't work so well? What would you say to them? Ideally you would make a link between the workshop session and your classroom trial. Tell us where this idea came from, and how you applied it. **We don't want or need evidence - we just want to know, in your own words, what you have learned.**

So to start your audio reflection, state clearly

- the item you are talking about, e.g.
 - “my class discussion about how diseases are transmitted”, or my
 - “concept map on parts of a plant”,

and then discuss the following questions:

- Why have you chosen the item?
- What does it illustrate? For example, what new technique did you decide to trial and how did you apply it in your lesson? How well did it work in practice?
- What did you learn from that about what works or doesn't work to support interactive teaching and learning?

Example:

“I learned about _____ in session _____. I thought that it could be really useful for my pupils during a lesson on _____, I tried it out with my students. The work I have submitted is an example of _____. I have also submitted an example of what the students did. I had initially written this _____ [for the students], and the students then added _____. Students responded differently. Mary had difficulty with it because _____. (E.g. some computer did not work - why did it not work?!) I concluded the lesson with a plenary, and they told me these answers. If I was to do this again, I would do it like this: _____. I would also apply this tool to another lesson on such and such a topic _____ because _____”.

Notes:

- We encourage you to include developing new computer skills but please do this through showcasing your new knowledge about interactive teaching techniques rather than just including computer skills by themselves – so your chosen activities or examples of learning about interactive teaching may or may not involve computer use.
- Please do not feel that you need to write a lot about the techniques themselves this time. Anything that is written already in the resource text can just be referred to, rather than needing to be repeated.
- What can I submit? You can submit concept maps, lesson plans, activity templates, collections of images, ... e.g. for cumulative talk, you would submit the classroom activity that went with it. Go through your homework throughout the course, and see what you made.

We emphasise that the portfolio we have asked you to prepare is not to test you, and certainly not to see whether you “know about techniques” (say whether you yourself can remember what “robots/traffic lights” are). Instead, it is an opportunity for you to showcase what you have achieved, what you have learned, and how your thinking and practice have moved on. (That is to say: What your experience of using robots/traffic lights in the classroom was.)

We do not need “paper evidence”! Your own recollection and thoughts are enough evidence for your own learning. Additional material is simply to support the audio reflection and make it easier to understand.

The type of work you submit does not need to be unique - it's ok for several people to submit e.g. mindmaps, even on the same topic. Because these are your own, and because you have used them in your classroom, they will be different, and tell a learning story about you.

Note: We will need you to submit the work as requested (copies of the two items plus uploading a reflection to the server) in order to award certificates at the end of the year.

FINAL PORTFOLIOS. To obtain the full OER4Schools programme certificate, you then collate the two items that you

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have prepared from each unit.

Present as much student work and lesson plans/materials as you can, so we can see clearly what went on in the lessons and how you applied the techniques (mention which ones you used and why/how). Then submit your reflections on your learning from these, either by typing them (bullet points are quite sufficient, it need not be an essay!) and/or by doing an audio reflection where you think really hard about how your practice and thinking have changed over the course of the year, referring to examples wherever possible. If the paperwork doesn't make it completely clear what you and the students did, then elaborate this too (as you helpfully did last time). Note that if you type something you don't need to speak it too – audio and written reflections should be complementary not duplicating. See whether you can apply e.g. a Leadership for Learning lens or perhaps the thinking hats to your reflections, to help you structure them.

Don't hesitate to dwell too on the challenges and pitfalls you experienced and how you overcame them. It's very unlikely that every new technique would work brilliantly the first time you tried it, there will always be adaptations to make, so please describe that process too and be self-critical. For example, were your talking points and questions open-ended enough or did some of them have "right answers"? If some learners did not participate fully or respond as you had hoped they would, what did you or what could you do next time to try and address this? If you think something needs adapting for certain learners, suggest this.

Educator note

Make a concrete plan with dates, for when the various portfolios should be submitted by.

(To view wiki page for this technique, click [here](#).)

14 Netbook familiarisation

Netbook familiarisation activity

Take the school netbooks to your class - making sure that they are carried and used according to the rules set by the school.

The pupils work in mixed ability groups (with computers distributed evenly). Groups do not need to progress at the same speed: There will be faster groups and slower groups. However, the faster groups should be helping the slower groups. If a fast group has managed to do something, their task is to split up and help others to reach the same stage!

Activity:

- Exploration of turning on a computer.** Allow pupils to figure out how to turn them on (find the power button). The pupils should be discussing in the groups. Encourage them e.g. by making analogies with other electrical devices. If they are stuck, show one group, and ask that group to show others. When they have managed to turn on the computers, they should observe what happens: the login screen comes up. Remember that faster groups should help slower groups.
- Exploration of the login screen.** Ask groups: What do you need to do next? What do the parts of the netbook do? Can you give names to the parts? Give them plenty of time to discover and press things on the netbook (with the password screen up), without telling them. They can't really break anything if they are careful. Let them help each other and discuss with each other what they are finding out.
- Logging in.** When groups have figured out how to type text, tell one group about the username and password, and see whether they can enter them. When they have managed to do so, they should immediately help other groups to reach the same stage.
 - username: *classroom*
 - password: *student*
- Exploration of the desktop.** They now need to apply their new knowledge: "click" on "username" *classroom*, and "enter" the "password" *student*. They now see the desktop. When a group is ready to move to the next stage, the teacher demonstrates how to open a web browser (to that group). Ask the students to do the same. Again, the students find out what happens. Don't worry if they can't open the web browser - let them try to open whatever applications they like. Then after a while repeat the instructions about opening a web browser to the same group. Again, get the groups to help each other find how to open the browser. They should immediately share anything they find out with the whole class.



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This activity is an example of enquiry-based learning, which we will cover in much greater detail later in the OER4Schools programme.

(To view wiki page for this technique, click here.)

15 Typing practice with students

This activity would follow on from the basic netbook familiarisation.

Key points:

- Some computer use relies on conceptual understanding (such as understanding the terms "application", "window" etc). Student need practical experience, but the main concepts are understood conceptually.
- There are other skills in computer use, which are motor skills (http://en.wikipedia.org/wiki/Motor_skill) (such as using the mouse and typing) that are need to be learned through repetition.

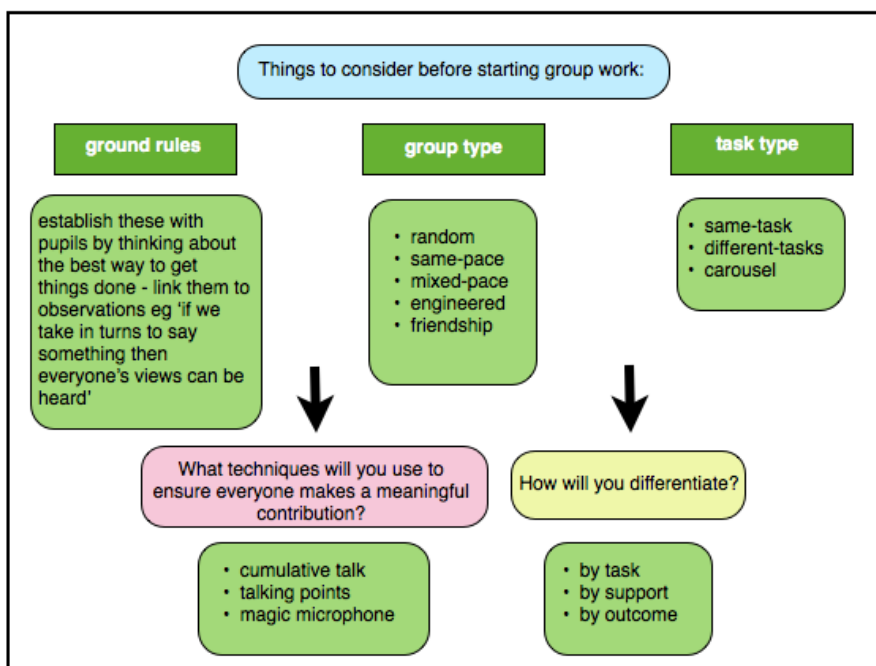
Activity:

- Students do typing practise (individually).
- If there are not enough keyboards for each student to have one, you do carousel-style group work. You can combine developing typing skills with any other activity that requires individual or small group work.
- Make sure you plan your lesson so that every student has got a chance to practise
- Use a typing tutor
- Students can record their scores to see how they improve over time, or to form a league table.

Typing practice in the classroom. You only have a limited number of computers. When you start typing, you can do this in pairs, so that both students understand how the typing tutor program works. However, once students get this, it makes sense to do it as an individual activity. However, students only needs to practise for 10 minutes. Say if you have 12 netbooks, then take a group of 12 students to do typing practise, while your remaining students (perhaps 20-30 or so) do other tasks (also in group work). After a while, you rotate: Some of the students who were doing other tasks now use the typing tutor, while the students previously doing the typing tutor now join in with other group tasks. We will introduce carousel^(a)-style group work properly in session 3.2.

(To view wiki page for this technique, click here.)

16 Group work



17 Group chat with messenger or collaborative writing

Just doing typing practice without an aim can be a bit boring.

Once your students have some basic typing skills, you can use a tool like Pidgeon for group chat, which is a fun way of sending messages, that encourages typing skills. You can also use a collaborative writing tool (such as EtherPad, Google documents, or collaborative editors running on your local network).

You can set a topic to start things off, which can be simple:

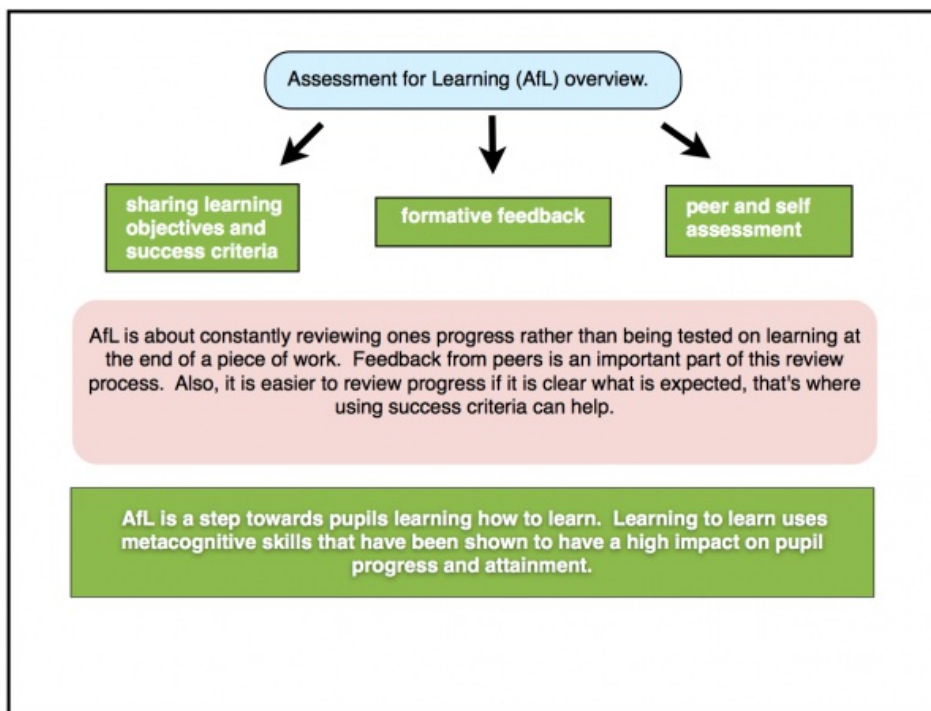
- "Say hello to your friends."
- "Say what you had for breakfast."

and let people start typing!

Depending on the typing skills of your students, you could use ideas from cumulative talk^(a) in this activity (c.f. also here).

(To view wiki page for this technique, click here.)

18 Assessment for Learning



19 Spreadsheet exercises

This activity will orientate you to make use of OpenOffice for creating spreadsheets and databases which can be useful for investigating maths and science problems. You will need to access a computer/laptop/netbook and internet. Access a web browser and navigate to this page: <http://inpics.net/calc.html>

We suggest that you go through some of the exercises on the page in this order:

1. Basic Calculations

- Add (<http://inpics.net/tutorials/calc2/basics13.html>)
- Subtract (<http://inpics.net/tutorials/calc2/basics21.html>)
- Multiply (<http://inpics.net/tutorials/calc2/basics24.html>)
- Divide (<http://inpics.net/tutorials/calc2/basics28.html>)
- Calculate averages (<http://inpics.net/tutorials/calc2/basics31.html>)

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- Find the maximum value (<http://inpics.net/tutorials/calc2/basics35.html>)

2. Formatting Worksheets

- Format text (<http://inpics.net/tutorials/calc2/format2.html>)
- Format cells (<http://inpics.net/tutorials/calc2/format11.html>)
- Adjust columns and rows (<http://inpics.net/tutorials/calc2/format23.html>)
- Print worksheets (<http://inpics.net/tutorials/calc2/format28.html>)

3. Manipulating Data

- Move, copy, and paste (<http://inpics.net/tutorials/calc2/data2.html>)
- Add / delete columns (<http://inpics.net/tutorials/calc2/data12.html>)
- Add / delete rows (<http://inpics.net/tutorials/calc2/data18.html>)
- Employ multiple worksheets (<http://inpics.net/tutorials/calc2/data23.html>)
- Employ AutoFill (<http://inpics.net/tutorials/calc2/data26.html>)
- Insert / delete worksheets (<http://inpics.net/tutorials/calc2/data32.html>)

4. Advanced Calculations

- Create formulas across worksheets (<http://inpics.net/tutorials/calc2/calc2.html>)
- Employ absolute references (<http://inpics.net/tutorials/calc2/calc8.html>)
- Employ the function wizard (<http://inpics.net/tutorials/calc2/calc17.html>)

5. Making Data Visible

- Add notes (<http://inpics.net/tutorials/calc2/vis2.html>)
- Freeze panes (<http://inpics.net/tutorials/calc2/vis5.html>)
- Create charts (<http://inpics.net/tutorials/calc2/vis9.html>)

(To view wiki page for this technique, [click here.](#))

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Categories: OER4S CPDCCEPrimaryTeacher Education

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Appendix 7.2 - A session template for making your own sessions

This page is a template to create your own sessions on this wiki. If you wish to do this,

- get in touch with us to get an account on this wiki. Once you have the account,
- you then create a new wiki page, and copy the wikitext of this page to it.
- You can then use the comments in this page to help you create your session.

Each page starts with a large block, that gives learning objectives, success criteria, and some other information. This allows teachers to get an overview of the session immediately. The block looks like this:

7.2 - A session template for making your own sessions

Learning intentions and objectives.

In this session you will learn about:

- how to make your own session.
- So start by replacing this text with the learning objectives for your own session.

Success criteria.

To meet the learning intentions you will:

- make your own session.
- Again, replace this text by your own success criteria.

ICT components.

The ICT components you will focus on are

- nothing in particular, but as you use the template, you can say here what ICTs will be used, and what participants learn.

Classroom based activities (with your students, after this session): ...

- Say here what will do the following week, with your students in class.

Resources needed.

If special resources are needed, list them here! E.g. things like measurement tapes, calculators, laptops, etc.

Educator note

Throughout your session, you can add special "facilitator notes". They are meant for the facilitator working with a group of teachers. On the wiki, it is easy to view both the "facilitator version" (with notes), and the participants version (without facilitator notes). To see the participants' version of this session click here, and observe how this note disappears. Then come back here to continue.

1 Review of follow-up activities

Edit this review section (http://oer.educ.cam.ac.uk/w/index.php?title=OER4Schools/Techniques/review_of_follow_up&action=edit)

Educator note

If you are running a professional learning programme which follows these sessions in sequence, then you should

do the review of follow-up activities relating to the previous session (Techniques). The 'review of follow-up activities' for that session is available here, and also shown below in the session text. However, if you are following selected sessions in a different order, then you should use the reflection appropriate to the previous session you did.

The review of the follow-up activities for this session (to be done at the start of the next session) is available here.

Educator note

There is no review of follow-up activities from last session available. You can go to the previous session (OER4Schools/Techniques) and create one.


At the beginning of each session, you should review the previous session (if you are running more than one session). If you are developing a set of sessions, you should use a particular template called 'review of follow-up activities' to do this. The wiki text for the "review of the follow up from last time" logically belongs to the previous session, so by using the "review of follow up" template, you will be able to attach this wiki text to the previous session. This process is a little more complicated, so we'll come back to this at the end!

2 Session activity 1: Activities


Each session has a number of sections, and some activities within that. Here are some sample activities:

 **Example** (10 min) *for something*


You can use a number of 'pre-defined' activities, which helps to keep the names of activities the same throughout your session (and the whole resource):


 **Whole group dialogue** (10 min) *about something.*


 **Same-task group work** (30 min): *Topic.*


 **Different-tasks group work** (15 min), *continued from above.*

 **Observing, thinking, reflecting** (2 min) *about something.*

 **Think-Pair-Share** (10 min) *about something.*

 **Cumulative talk** (10 min) *about something.*

 **Magic microphone** (10 min) *about something.*

 **Plan-Teach-Reflect** (10 min) *about something.*

(See list of pre-defined activities here: [Template:Activityexpand.](#))

You basically continue adding activities like this, often covering new topics.

3 Session activity 2: Formatting text

There are a number of templates that you can use for formatting the text. You have already met the "ednote" template, which creates an "educator/facilitator note":

```

{{{ednote|text= Some text }}}

```

as follows:

Educator note

Appendix 1.2 - SessionTemplate

Some text

You can also use speechbubbles (see Category:Speech_bubble_templates), e.g.

```
{{speechbubble|text= Some text }}
```

which creates



some text

You can also add "background reading",

```
{{background|text= some text }}
```

which creates



Background reading

some text

4 Adding resources

4.1 Wikitext

Wiki text can be transcluded, but in the case of worksheets etc that have additional information with them, you should use the "oinc" (OER4Schools Include) template, e.g.

```
{{oinc|OER4Schools/Geogebra exercises}}
```

giving:

This activity will orientate you to make use of GeoGebra to create basic polygons. You will need to access a computer/laptop/netbook and internet. Access a web-browser and navigate to this page:

<http://mathandmultimedia.com/geogebra/>

We will suggest that you go through the exercises in the page in this order:

1. GeoGebra Basic Construction 1 – Constructing an Equilateral Triangle
(<http://mathandmultimedia.com/2009/11/09/geogebra-tutorial-2-constructing-an-equilateral-triangle/>)
2. GeoGebra Basic Construction 2 – Constructing an Isosceles Triangle
(<http://mathandmultimedia.com/2010/03/12/geogebra-construction2-isosceles-triangle/>)
3. GeoGebra Basic Construction 3 – Constructing a Right Triangle
(<http://mathandmultimedia.com/2010/03/26/geogebra-construction3-right-triangle/>)
4. GeoGebra Basic Construction 4 – Constructing a Square
(<http://mathandmultimedia.com/2009/11/10/tutorial-3-constructing-a-square/>)
5. GeoGebra Basic Construction 5 – Constructing a Rectangle
(<http://mathandmultimedia.com/2010/05/28/geogebra-basic-construction-5-rectangle/>)
6. GeoGebra Basic Construction 6 - Constructing a Parallelogram
(<http://mathandmultimedia.com/2010/07/23/geogebra-tutorial-parallelogram/>)
7. GeoGebra Basic Construction 7 – Constructing a Rhombus
(<http://mathandmultimedia.com/2011/01/09/geogebra-construction-7-rhombus/>)
8. GeoGebra Basic Construction 9 – Constructing a Kite
(<http://mathandmultimedia.com/2011/09/08/geogebra-basic-construction-9-kite/>)

You can print this content on a separate sheet here: [OER4Schools/Geogebra exercises](#).

4.2 Files such as pdf, or OpenOffice

If an activity requires resources, you can add them using the *file* template:

```

{{{File|Activity template.pdf}}}

```

to give: Activity template.pdf (http://oer.educ.cam.ac.uk/w/images/9/92/Activity_template.pdf)^(info) (http://oer.educ.cam.ac.uk/wiki/File:Activity_template.pdf). (Do not use `[[File:...]]`. Unlike `[[File:...]]` the `{{File|...}}` template links directly to the file, while the link to the info page is added as superscript. This makes it easier and less confusing for the user to obtain the file. Also by using `{{File|...}}` an entry is made in the session summary, alerting the facilitator to the need to download and potentially print this file for participants.)

4.3 Videos

You can also add videos. Start by locating the video you would like to add on our video page, and once you have found the video you would like to include, simply transclude the video page, e.g.

```

{{{ : Video/Abel_Clip_4.m4v }}}

```

to give

VIDEO

Instructions for the interactive task

Abel starts with whole class dialogue, giving instructions for starting the investigation. (1:16) Abel then works with one of the groups, clarifying the concepts of area and perimeter, as well as how to work with these in Geogebra. The group is still stuck, and (3:30) Abel solicits help from other students to help this group, asking them to explain details of Geogebra (relating to perimeter and area). (4:11) Students explore Geogebra through peer learning.

About this video, 4:32, link to YouTube (<http://www.youtube.com/watch?v=8tDOD4oKaRc&list=PL827432C8560941C6>) (local play / download options)(Series: Abel rectangles, episode 04)

Sometimes videos have additional information attached, to them, such as background information, questions for reflection, or a transcript. In the case of the above video, it would be

```

{{{ : Video/Abel_Clip_4.m4v/background }}}
{{{ : Video/Abel_Clip_4.m4v/reflection }}}

```

to give background information:

About this video

In this clip, the teacher (Abel) gives an introduction to group work task (on area and perimeter with GeoGebra), then students do group work. The teacher support students in group work, but the students find it difficult to follow the teachers explanations. Towards the end of the clip, the teacher then asks some students to come over, to explain the issue to the group in their own words.

In Abels' class, peer learning takes place spontaneously, because he has set up the conditions for learning, and in particular a safe environment, enabling children to help each other. In his class, during group work, children often get up and help their peers.

and questions for reflection:

Questions for reflection

- What is the role of the teacher during group work in this clip?
- How does a teacher know when to intervene?
- How can a teacher encourage peer support during group work? Would Abel's technique of bringing in older pupils or faster learners to help their peers aid a teacher with a large class?
- How did the use of ICT help the learners' enquiry?


(both of which formatted additionally with the "background" template).

4.4 Audio


Audio materials are included in the same way as video materials. An example with a transcript is available here: [Video/Priscillah_speaking_about_brainstorming.m4a](#). You can use the transcript template to format transcripts:

So, but what I would say as, you know, the most significant change, is maybe the same issue of brainstorming. Though I wasn't comfortable with mentioning to them, to say "now we are brainstorming", I really benefited from that. That's a very, very good concept to be used as you are teaching, because you don't just go into a room or a classroom and then say today we are talking about this, and you start to telling them this, but no. For example, today we are going to talk about food. Food is this, that, that, you know you tell them just everything. One thing you should realise as teachers, is that children have something up there, you know. You don't just kid them with information, they know something about a particular thing that you give them. So I really made it a point that everytime I introduced a topic, I used the same brainstorming. I let them brainstorm, so that I know where to start from. What is it that the children know about a particular topic. I remember one time I was teaching about Aids. I simply said "can you write, I'm going to give you five minutes to think about things that you know about Aids". They brought in a lot of issues you know. Oh Aids is transmitted like that, Aids stands for this that, you know. So all those really taught me a lot of things, I realised to say children know something. So when I tell them to brainstorm, they should be able to tell me what they know about a particular topic, and then as a teacher, I will know where to start from. And like that, they don't forget easily.

5 Session activity 3: ICT-based activity


 **Same-task group work** (30 min). In each session, we always include an ICT-based activity. Have a look at our programme, to see what sort of activities we included. They should always relate to a concrete classroom activity which would be done as part of the 'follow-up activities'. Initially, all teachers might do the same activity, but as they develop their skills, they could do different activities. We always do this in small groups though, to allow discussion

6 Session activity 4: Classroom activity planning

 **Same-task group work** (30 min). We always allow for time during the meeting to actually plan. If you just ask teachers to plan in their own time, this may well not happen. We do this as group work (maybe same task, maybe different task), so that teachers can discuss.

7 Connecting with overarching goals of the programme

We are drawing on LfL and the MSC technique in the programme, and there are also other over-arching things that may need to be discussed. So we always add a slot called "Connecting with overarching goals of the programme" where these can be discussed. You can use the "Activity for connecting with overarching goals" to use the standard text, or make your own.

 **Open space** (10 min). It's now time for the "open space", that gives you an opportunity to discuss issues that have arisen, and to relate those to the broader context of the programme. Do not just gloss over this section, but make time to raise issues, and probe the progress that you are making. You could use this space to:

- Remind yourselves of the of the Most Significant Change Technique, and e.g. collect more of your stories.
- Discuss your assessment portfolios: Is there anything that you are unsure about? Is it going well? What could be done better?
- Check on the work with the classroom assistants: Is this going well? Are there any tensions? Any observations or tips you can share?
- Reviewing individual ICT practise (such as typing practise).
- If you are preparing a presentation for other teachers, you could work on the presentation (about what you have been learning, stories emerging from MSC).
- Remind those who are doing audio diaries, to upload them.
- You could discuss any other issues that have arisen.

You will find notes and summaries of various techniques and concepts on our reference page, and you might want to refer to those for clarification during this activity if needed.

8 Follow-up activities

 **Agreeing follow-up activities** (10 min).

Part A: Use the {{fup|A, B, C}} template to set follow up activities.

Part B:

Part C:

Educator note

In the next session, these follow-up activities will be reviewed. If you are using this session on its own, you can have a look at the review of follow-up activities here.

You should always use the *setting of follow up* template. This allows you to attach the "review" of these follow up activities to the present session (which is where it belongs logically). If you are designing a sequence of sessions, this review can be used automatically at the start of the next session (see the introduction to this session above).

Finally, you use the *activity summary* template, which prints out a list of all activities in this session (together with timings), as well as a list of resources that are needed for this session.

Educator note

At the end of each session, we provide an overview of the activities in this session, together with their suggested timings. Although this appears at the end of the session (for technical reasons), you should keep an eye on this throughout the session, to make sure that you are pacing the workshop session appropriately!

Total time: 187 (min)

Activities in this session:

- **Example** (10 min) *for something*
- **Whole group dialogue** (10 min) *about something.*
- **Same-task group work** (30 min): *Topic.*
- **Different-tasks group work** (15 min), *continued from above.*
- **Observing, thinking, reflecting** (2 min) *about something.*
- **Think-Pair-Share** (10 min) *about something.*
- **Cumulative talk** (10 min) *about something.*
- **Magic microphone** (10 min) *about something.*
- **Plan-Teach-Reflect** (10 min) *about something.*
- **Same-task group work**(30 min).
- **Same-task group work**(30 min).
- **Open space**(10 min).
- **Agreeing follow-up activities**(10 min).

If you have printed this session for offline use, you may also need to download the following assets:

- Activity template.pdf (http://oer.educ.cam.ac.uk/w/images/9/92/Activity_template.pdf)
- Video/Abel Clip 4.m4v (local play / download options)

9 Other materials

E.g. additional forms, or reading, referred to above.

End your session with the "OER4S NextSession" template, which creates navigation links at the bottom of the page!

Retrieved from "<http://oer.educ.cam.ac.uk/w/index.php?title=OER4Schools/SessionTemplate&oldid=19411>"

Categories: OER4S CPDCCEPrimaryTeacher Education

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8 - Induction sessions

8.1 - A workshop for school leaders		
8.2 - A workshop for OER4Schools programme facilitators		
8.3 - OER4Schools Taster Session - eLA 2013		
8.4 - Mobile Learning Week 2014		
The learning intention is for participants to get a good practical overview of the OER4Schools programme, and to evaluate whether the programme could be useful for their sessions.	<p>Success criteria are:</p> <ul style="list-style-type: none"> ▪ Participants are able to select one or more activities and sessions that are useful for them. ▪ Participants are able to evaluate how the programme fits into their own education planning. 	Participants have been asked to bring laptops and tablets where available, so that they are able to browse the resource during the session.
8.5 - eLearning Africa 2014		
The learning intention is for participants to get a good practical overview of the OER4Schools programme, and to evaluate whether the programme could be useful for their sessions.	<p>Success criteria are:</p> <ul style="list-style-type: none"> ▪ Participants are able to select one or more activities and sessions that are useful for them. ▪ Participants are able to evaluate how the programme fits into their own education planning. 	Participants have been asked to bring laptops and tablets (where available) so that they are able to browse the resource during the session.
8.6 - Faculty of Education Workshop May 2014		
The learning intention is for participants to get a good practical overview of the OER4Schools programme, and to evaluate whether the programme could be useful for their sessions.	<p>Success criteria are:</p> <ul style="list-style-type: none"> ▪ Participants are able to select one or more activities and sessions that are useful for them. ▪ Participants are able to evaluate how the programme fits into their own education planning. 	Participants have been asked to bring laptops and tablets (where available) so that they are able to browse the resource during the session.

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Induction session 8.1 - A workshop for school leaders

8.1 - A workshop for school leaders

Learning intentions and objectives.

Success criteria.

ICT components.

1 Interactive teaching and learning

Interactive teaching is becoming more and more popular internationally. Research evidence from different countries shows that this kind of active learning is both motivating and far more effective for learning than direct instruction (“chalk-and-talk” or lecturing).

In particular independent, collaborative or oral work, as well as questioning and whole-class discussion that encourage pupils to grapple with ideas, are effective. They lead to long-term and deeper learning rather than memorising facts (resulting in short-term, superficial learning).


The key to interactive teaching is teachers shifting “from telling to listening” and learners shifting from receiving information to making sense of it for themselves.

The OER4Schools programme explores how we can “listen” to and support learners and what that means in practice.

2 An example of interactive teaching in Zambia

Many African teachers aspire to be interactive teachers. Yet, interactive teaching is not common in the African classroom. However, it can work in this context!

The following clip shows Eness, a teacher in a community school near Lusaka interacting with a Grade 3 class. Watch the clip of her class discussion about *Is a bat a bird?*

 **Observing, thinking, reflecting** (5 min): *Watch a video of a whole class discussion.* Read the following questions for reflection, and then watch the video.

- What have you noticed?
- How are the learners taught?
- How do you think they will react to the homework task?
- Is this classroom different from yours?
- What is interactive teaching?


VIDEO

Whole class discussion

Whole class discussion of ‘Is a bat a bird?’ Teacher sets unresolved problem as homework

About this video, 4:19, link to YouTube (<http://www.youtube.com/watch?v=kY2Ow7PuseI&list=PLF0530A6FEF00D354>) (local play / download options)(Series: Eness Vertebrates,

episode 12)(Transcript available here or via YouTube captions.)

 **Whole class dialogue** (10 min): *Whole group discussion on the whole class discussion video. We asked you look at the following questions:*

- What have you noticed?
- How are the learners taught?
- How do you think they will react to the homework task?
- Is this classroom different from yours?
- What is interactive teaching?

Now discuss these questions as a group.


Educator note

Issues to discuss

- Noisy but productive - A classroom can be noisy and productive at the same time
- **interactive = inter-action (with view to sense making; i.e. purpose of inter-action is to make sense)**
- Children making sense of ideas for themselves, developing their own classifications, relating to what they already know...
- Teacher not telling answer, asking students to investigate for themselves

Facilitator needs to know how to deal with criticisms (such as too noisy, too much chaos, not productive)

The road is long. But it can be done!

 **Whole class dialogue** (10 min) *using PMI* In this activity called “PMI” - “Positives, Minuses, Interesting” there are no correct answers. The PMI involves considering the positive, negative and interesting points related to a specific scenario. It was originally developed by Edward de Bono, father of the “thinking skills” movement. It encourages learners to look at both sides of a situation and also to be creative when considering the interesting possibilities.

Educator note


Possible responses:

- P (positives): the plant could move to where there is more light or water
- M (minusses): the plant would waste energy by moving
- I (interesting): We have to be sensitive and aware of plants walking on the roads and in our houses.

For further examples, navigate to: <http://www.azteachscience.co.uk/resources/continuing-professional-development/bright-ideas-in-primary-science.aspx>

3 The structure of a workshop session


If there is interest in how a workshop session progresses (consisting of a range of activities), you may now want to review Session 1.1, drawing out the generic features of a workshop session. Alternatively, you may want to continue on to the values discussion.

 **Observing, thinking, reflecting** (15 min) *on the structure of a session* Go through the structure of a workshop session:

- Review of follow up activities. At the beginning of each session, you should review the previous session (if you are running more than one session).
- Session activity 1: e.g. Brainstorm on interactive teaching (new topic)
- Session activity 2: Brainstorming in the classroom (new topic)
- Session activity 3: ICT-based activity
- Session activity 4: Planning
- Discussion of LfL or MSC
- Connecting with overarching goals of the programme
- Agreement of Follow-up activities

4 Values at your school

In order to support interactive teaching at your school, it is important to create a supportive climate at the school. School leaders have a primary role to play in creating the right conditions for learning. We start by looking at the conditions for learning by looking at the values at your school.

 **Whole group dialogue** (30 min) *on school values*

Background reading

“**Talking points**” are deliberately thought-provoking statements for discussion and reasoning in small groups. Research shows that using these is an effective strategy to promote conceptual learning in a target area because

- it helps to structure the group task yet keeps the discussion open-ended. This is because pupils discuss the points but are free to contribute their own understanding /opinion about the point. In other words, the task is well-defined as well as interactive!
- it helps pupils to discuss different aspects of a concept by providing cues and a focus for discussion.

Discuss the following talking points and how true you think they are in the context of your school. For each item give both **(a) reasons for your views** and **(b) concrete examples** of how you implement this. For instance, regarding “Everyone in the school has a voice that is heard”, give examples of how children make input. Also give examples of how you are not implementing this. For instance, you could list ways in which you do not (yet) involve children in decision making and how you might do in future.

In our school:

- Some children or teachers are not treated fairly and do not feel part of a community.
- Everyone in the school has a voice that is heard – senior leaders and administrators, classroom teachers and children themselves share decision making in the school and take responsibility for learning.
- It is important that teachers learn from children.
- We sort out problems by listening to each other and finding solutions together. We speak up when we see that something is wrong.

(Adapted from Index for inclusion, p. 27, Figure 3)

5 Leadership for Learning activities

Leadership for Learning is a way of thinking, doing, communicating, working, and reflecting about educational leadership in schools for the singular purpose of promoting the activity of learning. Leadership for Learning is based on five principles, which are:

1. Focus on learning
2. Conditions for learning
3. Learning Dialogue
4. Shared Leadership
5. Shared Accountability

We now reflect further on the five principles of LfL **with a view to contributing your own ideas** about Leadership for Learning through interactive learning opportunities. **Leadership for learning is happening all around you!** If you know what to look for you will see elements of LfL in classrooms and schools, in your own community, and even in the setting in which you might be working through the programme!

(See Leadership for Learning for more information. Some of the text below draws on the five LfL principles with questions.)

5.1 Focus on Learning

Observing, thinking, reflecting (10 min): *Focus on Learning* Read the text below, in conjunction with the questions for "Focus on Learning" following the text, and then do the activity below.

Background reading

The first principle is 'a focus on learning'. The two key words are 'focus' and 'learning'. To focus means to pay close attention to, to select what is important and to keep it in the foreground. Those who exercise leadership have at times to pay attention to things other than learning. Managing a school requires attention to a host of priorities and it is easy to be distracted by constant demands and other peoples' urgencies. However, while a focus on learning always remains in the background of thinking, whenever possible it has to be brought into the foreground. It comes into the foreground when leadership is able to discriminate between the important and the urgent and knows where the priorities lie. (Adapted from "Leadership for learning: concepts, principles and practice", John MacBeath, April 2010, <http://www.leadershipforlearning.org.uk>)

To reflect further on the "Focus on Learning", consider the following questions:

- Are students the only learners in our school? How about the teachers? Parents? Headteachers?
- Do we think about what is learning about? Is it about memorising and applying certain facts?
- Are we given the opportunities to make decisions on our learning?

Same-task group work (15 min) *on looking at school issues*. Now consider a number of issues at your school. What issues have recently arisen? What issues have been discussed in recent teacher meetings? Perhaps brainstorm and make a list of them, or write them on small cards. Now decide how these issues relate to "Focus on Learning", and regarding "Focus on Learning" decide whether they are important and/or urgent. Go through some of the issues you came up with, and place them into these categories:

Important and urgent	Important but not urgent
Urgent but not important	Not urgent, and not important

You could write this out on a piece of paper, and if you made cards above, they could be placed into this grid. Does everybody agree on where the cards are placed? Remember that we are looking at the issues through the lens of "Focus on Learning", so when we say that something is "important and urgent" we mean "important and urgent with regard to learning at the school".

5.2 Conditions for Learning

Observing, thinking, reflecting (10 min): *Conditions for Learning* Read the text below, in conjunction with the questions for "Conditions on Learning" below.

Background reading


How can you focus on learning when conditions are so bad that simply getting children, and teachers to school is both urgent and important? How can you focus on learning when the priority is to find and manage accommodation, space, resources and contingencies of food, health, weather, and respond to unexpected crises? How can you focus on learning when you have 60 or more children in a class? How can you focus on learning when many teaching staff have little background knowledge of pedagogy?

The physical conditions for learning vary widely in schools, in cities, suburbs, villages and rural areas. Demands, expectations and resourcing also vary widely. The principle, however, remains the same. Leadership in every circumstance has to try to optimise the physical, social and emotional conditions which hinder learning, and has to try and seek out the 'wobble room' for creating a greater learning focus. In this respect the force field tool can be used to analyse what helps and hinders and what may be possible. (Adapted from "Leadership for learning: concepts, principles and practice", John MacBeath, April 2010, <http://www.leadershipforlearning.org.uk>)

Here are some questions you can ask yourself about the conditions for learning:


Appendix 2.1 - Workshop for school leaders

1. What kind of background (e.g. families, age, interests) would be most helpful to support learning?
2. Are we providing a safe environment for learners to take risks, cope with failure and respond positively to challenges? How are we doing that?

 **Whole class brainstorm** (30 min) on *barriers, resources and support*. Brainstorm about the following questions regarding barriers, resources and support. Record answers on board or on a large sheet of paper.

- What barriers to learning and participation arise within the school and its communities (including who they affect)?
- How can barriers to learning and participation be minimised?
- Are any additional resources needed to support learning and participation? If so how can these be mobilised and deployed?

(Adapted from Index for inclusion, p. 40, Figure 12)

 **Observing, thinking, reflecting** (15 min): *Conditions for learning in action* In this clip, the teacher (Abel) gives an introduction to group work task (on area and perimeter with GeoGebra), then students do group work. The teacher support students in group work, but the students find it difficult to follow the teachers explanations. Towards the end of the clip, the teacher then asks some students to come over, to explain the issue to the group in their own words.

In Abels' class, peer learning takes place spontaneously, because he has set up the conditions for learning, and in particular a safe environment, enabling children to help each other. In his class, during group work, children often get up and help their peers.


VIDEO

Students collaborate on GeoGebra investigation on area and perimeter

Introduction to group work, then students doing group work. The teacher supports students in group work, but the students find it difficult to follow the teacher's explanations. Towards the end of the clip, the teacher then asks some students to come over, to explain the issue to the group in their own words.

About this video, 6:56, link to YouTube (<http://www.youtube.com/watch?v=JeCjZW370CQ&list=PL827432C8560941C6>) (local play / download options)(Series: Abel rectangles, episode 05)

5.3 Learning Dialogue

 **Observing, thinking, reflecting** (10 min): *Learning Dialogue* Read the text below, in conjunction with the questions for "Learning Dialogue" below.

Background reading

The force field can be used by any individual to think through the forces acting against you and the assets you have, or the potential assets still unexploited. Even in the most dire of circumstances the best resources are likely to be people. The force field comes into its own as a tool, a 'tin opener' for opening up the dialogue, for extending and challenging the status quo, for trying to think 'outside the box'. It may reveal the hidden resources of staff or of children which have remained untapped and uncelebrated.

"Your school is a place for children to learn. If they do not learn much, you have not fulfilled your first priority. How can you, as headteacher, make sure that the children in your school are learning something new every day?" (Headteachers' Handbook, Ghana Education Service) (Adapted from "Leadership for learning: concepts, principles and practice", John MacBeath, April 2010, <http://www.leadershipforlearning.org.uk>)

Here are some questions about learning dialogue:

1. Do we talk about learning? Are we able to discuss it and reflect on it fruitfully? How do we do that?
2. Do we discuss and find out how we can take the lead to decide what learning should be like in our school? How can we go about doing that?
3. Do we discuss and share the values and understanding of the ways we learn and teach? What are they?

Appendix 2.1 - Workshop for school leaders

Same-task group work (15 min) *with force-field analysis*. Use the "force-field analysis" technique to look at the things that support or hinder learning dialogue. Leaning on a metaphor from physics, force-field analysis is a useful technique for looking at facilitating and constraining forces. Identify the issue, then write down three things that help on the left, and three things that hinder on the right.

-->		<--
Help	The Issue	Hinder
-->		<--

The technique can be extended by

- (a) initially listing all the factors that help and hinder, then identifying the three most important of each,
- (b) showing the strength of the forces by assigning a score to each, from 1 (weak) to 5 (strong).

The next stage is to consider what can be done to

- Add momentum to and capitalise on the favourable forces
- Minimise or overcome the obstacles.

Options for action can be considered in how effective they will be in shifting the balance in favour of the positive forces. (Adapted from the "Blue Book" of the Leadership for Learning project.)

5.4 Shared Leadership

Observing, thinking, reflecting (10 min): *Shared Leadership* Read the text below, in conjunction with the questions for "Shared Leadership" below.

Background reading

When there is a dialogue around the need to ensure that children are learning something new every day learning can become the first priority. When there is dialogue around securing resources and managing change, the capacity for hidden leadership can come to the fore. 'This thing is too heavy for thee; thou art not able to perform it thyself alone'. It is said that a burden shared is a burden halved. It is also said that 1 and 1 can make 3, that is, my idea and your idea when put together can produce a third idea which neither of us had thought of. Another popular saying which strikes the same note - 'All of us is better than one of us' – is a more folksy way of describing the technical term 'synergy' which means 'energy with'. School leaders expend a lot of energy sometimes just to stand still but can replenish and even gain energy through working collaboratively with trusted others.

(Adapted from "Leadership for learning: concepts, principles and practice", John MacBeath, April 2010, <http://www.leadershipforlearning.org.uk>)

Some questions about shared leadership at your school:

1. Are there ways we can participate in learning within the school?
2. Can we see leadership being shared? E.g. by various colleagues and students in the day-to-day running of the school?
3. Do we ourselves take the initiative to take a lead in various learning or research projects? What kind of projects or research can we embark on?

Whole group dialogue (15 min) *on command, consultation, consensus*. Discuss the meaning of command, consultation, consensus, and give examples how these occur in the day-to-day activities of the school. Now imagine a pie. It can be divided into three quadrants to represent the balance of three decision-making processes in your school, district office or circuit supervision. What percentage of those decisions are Command, Consultation, or Consensus?

Educator note

Materials on consensus-based decision making can be found here: <http://www.seedsforchange.org.uk/consensus> If there is a strong interest in consensus-based decision making, the materials could be used.

Also see "hand signals" below.

5.5 Mutual Accountability

Observing, thinking, reflecting (10 min): *Mutual accountability* Read the text below, in conjunction with the questions for "Mutual Accountability" below.

Background reading

When leadership is shared so is accountability. Those in leadership positions ('where the buck stops' as Harry Truman said) are, in some sense, accountable for every action taken, every decision made. Nine times out of ten decisions are never explained or accounted for as that would paralyse initiatives whether in the headteacher's office, the teacher's classroom, the regional headquarters or the Ministry. But where there is an ongoing dialogue and when there is shared leadership, decisions can be reviewed in retrospect and discussed in prospect, so that what one is accountable for, and to whom, and in what way is open to discussion. This strengthens a sense of ownership of staff, creates a feeling of reciprocity and is in itself an important source of professional development. (Adapted from "Leadership for learning: concepts, principles and practice", John MacBeath, April 2010, <http://www.leadershipforlearning.org.uk>)

Some questions about mutual accountability at your school:

1. Do you evaluate yourself?
2. Is the teaching and learning documented in some way?
3. Do we take the initiative to be accountable to ourselves? For instance in ensuring the quality of teaching and learning?

Whole class dialogue (15 min) *with questions starters* Use the 'question starters' below, to investigate scenarios that have various degrees of shared accountability.

6 Activities and techniques for teacher meetings

6.1 Question starts

Dialogue (30 min) *using question starts* Question starts are explained below. Use question starts to initiate some discussion to explore a topic in the teacher meeting.

Background reading

Question Starts (A Visible Thinking routine) - A routine for creating thought-provoking questions

Brainstorm a list of at least 12 questions about the topic, concept or object. Use these question-starts to help you think of interesting questions:

- Why...?
- How would it be different if...?
- What are the reasons...?
- Suppose that...?
- What if...?
- What if we knew...?
- What is the purpose of...?
- What would change if...?

Review the brainstormed list and star the questions that seem most interesting. Then, select one or more of the starred questions to discuss for a few moments.

Reflect: What new ideas do you have about the topic, concept or object that you didn't have before?

(Adapted from the "Blue Book" of the Leadership for Learning project.)

6.2 Increasing participation through handsignals

Read the text below about hand signals. Through hand signals, communication and participation in teachers meetings will be increased. Introduce and explain the hand signals in a teachers' meeting. Practice it for a few weeks, until it becomes second nature.


Background reading

Handsignals can make meetings run more smoothly and help the facilitator see emerging agreements. Three simple signals should suffice:

- **Raise a hand** when you wish to contribute to the discussion with a general point.
- **Raise both hands** if your point is a direct response to the current discussion. This allows you to jump to the head of the queue, so use it wisely and discourage overuse!
- **Silent applause** - when you hear an opinion that you agree with, wave a hand with your fingers pointing upwards. This saves a lot of time as people don't need to chip in to say "I'd just like to add that I agree with..."

(c.f. Facilitation)

6.3 Critical incident analysis

 **Dialogue** (30 min): *Resolve an issue at school using critical incident analysis.* The idea of critical incident analysis is explained below. Read the technique below, and use it to resolve an issue in a teacher meeting using the technique.

Background reading

Critical Incident Analysis is a way of analysing a recent event significant event in order to examine it in detail and learn from the experience.

The group of people involved sit in a circle and firstly go back over the incident in descriptive detail. The aim is to recall the event in terms of what happened, the context, the key players, what preceded and what followed. Everyone will have different perceptions, recollections and angles. This is an important aspect of the exercise and should be recorded in some way. It may hold the key to the way in which people respond, allocate responsibility and decide on a course of action.

- Suspend judgement. Don't allocate blame.
- Don't argue for your construction of the event. Listen to others
- Describe from an objective, disinterested, viewpoint what happened.
- Try to remember the conditions – eg time of day, the weather (was it raining? hot? etc), preceding events
- Who was involved?
- What did different people do? And not do?
- What was said?

Having agreed, as far as possible, what happened, now reflect on questions such as:

- What might have been done differently?
- What were the possible options? (allow for wild ideas)
- Who held the options?
- Why were they not used? (still avoiding blame or judgement)
- What have we learned from the incident?
- What might we do differently next time?

(Adapted from the "Blue Book" of the Leadership for Learning project.)

7 Sample activities

Educator note

Sample activities


Do a range of sample activities (in the sections below), that illustrate how the workshop progresses.

Workshop participants take turns in facilitating the activity, and after each activity there is a reflection on how this went. You may not need to do all of the following activities or all parts of the activities, but only do those which participants find most challenging.

7.1 Introducing cumulative talk - creating a story together

Educator note

Cumulative talk is talk in which all participants agree and add to the previous talk (or sentence).

 **Cumulative talk** (10 min): *Creating a story together* All the participants get up to rearrange the seating. Arrange the group in a horse-shoe seating arrangement^(a) if there is room. If not choose another arrangement allowing participants to see each other. Facilitator starts a story by saying one sentence. All participants then contribute to the story by adding sentences; **these must build on what the previous person has said.**

A good story would:


- be contextually appropriate: for example, use common names of characters and a setting familiar to participants.
- have a theme relevant for participants such as education (girl-child receiving schooling later supports family), importance of forests and wild-life (saving a snake later becomes useful for invention of new medicine), treatment of diseases (steps taken by a family to treat an ill person) etc.,
- be short and have few characters, and
- have a problem which is collectively resolved in the end.

For instance, you could create a story about welcoming a new child to the school, perhaps a child with an impairment or some kind. The facilitator starts by saying: "The other day, I heard my neighbours talking about whether their child should be starting school, because their child has difficulty walking, and they were not sure whether children like that should go to school." (Relates to Index for Inclusion, A1.1 Everyone is welcomed.)

Educator note

Facilitator can introduce the notion of Talk Rules during this activity if needed. Some examples are: "everybody listens when one person talks" because they have to add to that sentence, "respect others' ideas" by adding to rather than changing their idea, "make sure everyone in the group understands", "try to reach consensus in the end" – participants don't need to actually come to agreement but the process of trying gets people to listen to each other. You may want to ask participants to generate their own examples of Talk Rules.

The activity we just did is example of "cumulative talk" where participants build on what the previous person has said ("cumulative talk" is one example of whole class dialogue).

 **Same-task group work** (10 min) *in pairs: Planning cumulative talk in the classroom* Now pair up, and come up with ideas for cumulative talk in the classroom.

- Consider that when this activity is done in the classroom with pupils, themes should be chosen from the curriculum.
- Also consider that the seating arrangement can be modified according to teachers' classrooms such that pupils see each other. Pupils can leave their tables and just move their chairs (or sit outside if the grounds are suitable).

Appendix 2.1 - Workshop for school leaders

As you are planning this activity, ask yourself the following questions:

- Do your students find it easy to talk?
- How can you encourage students to talk?
- Are some students likely to laugh at other students contributions? How can you create safe environments that enable students to take risks?^(Relates to: LfL, 2.4)

Whole class dialogue (10 min) *on the previous activity* Because we have done the above activity as part of this facilitators workshop, now come back together as a group and discuss how the activity went. You could e.g. use PMI to say some plusses, minuses, and interesting things. What would you do the same? What would you do differently? **What questions can you ask, to find out whether the activity was conducted in an interactive way?**

7.2 Reflecting on current questioning practice

Educator note

The idea behind this activity is to make the need for this session explicit.

You will need mini-blackboards and something for display (blackboard/flipchart).

Choose some topics that they are teaching this week (from the curriculum), and display the topics (on blackboard or flipchart). Some examples are:

- the importance of water^(Relates to Index for Inclusion, C1.2),
- living together^(Relates to Index for Inclusion, C1.13),
- transport^(Relates to Index for Inclusion, C1.5),
- types of fertilizers (organic and inorganic) and their advantages or disadvantages^(Relates to Index for Inclusion, C1.1), e.g.
- uses of different parts of a plant^(Relates to Index for Inclusion, C1.8), and
- health^(Relates to Index for Inclusion, C1.6).



Same-task group work (5 min) *in pairs: Coming up with some questions.* Choose a topic from the board. Write five questions on mini-blackboards or paper that you normally ask/would ask the pupils in class?

Educator note

Allow only about 3-5 minutes for this activity so that spontaneous questions are recorded.

After 3-5 minutes, explain the types of questions below and ask the other participants to suggest examples from their mini-blackboard that represent these types. Write these examples on the blackboard or flipchart or ask a volunteer participant to do so. Explain one type of question, ask the other participants for examples, record examples on the board and then mention second type.

Observing, thinking, reflecting (5 min) *Facilitator talk on open and close questions.* Briefly state what open and closed questions are.


Educator note

Ensure that participants do not feel less motivated if their questions are more closed or surface type. To ensure this:

- Refrain from judging questions. Record questions factually without expressing any emotion.
- Mention that all types of questions have value and can be used for different purposes. Closed and surface questions are also important to some extent.
- Maintain positive body language by listening attentively.


Before the session, prepare the workshop room by marking OPEN on one side of the room and CLOSED on the other side. To keep it simple, draw a line on the floor with a chalk and write OPEN and CLOSED!


Appendix 2.1 - Workshop for school leaders

 **Game** (5 min) *on open and closed questions.* Categorise your questions as closed and open questions. For each question, you move to the side of the room marked OPEN if their question is open or to the side marked CLOSED if their question is closed.


Educator note

Make this activity interesting by asking participants to run to their side (OPEN or CLOSED) at the sound of clap and ask the participant who gets there first to clap for the second question, and so on.

 **Whole class dialogue** (10 min): *Reflecting on current practice.* Where are you standing? Is your current practice of generating questions more open or more closed?

 **Whole class dialogue** (10 min) *on the previous activity* Because we have done the above activity as part of this facilitators workshop, now come back together as a group and discuss how the activity went. You could e.g. use PMI to say some plusses, minuses, and interesting things. What would you do the same? What would you do differently? **What questions can you ask, to find out whether the activity was conducted in an interactive way?**

7.3 Developing my practice: Planning an activity

 **Different-tasks group work** (15 min): *Planning in pairs for an activity with open-ended questions.* In the activity template, plan for questioning as part of a lesson that participants will teach in the coming week; the questions will follow the ICT pictures activity. They should list some open and deep questions to ask in the class in order to challenge pupils and get them thinking! Try out some of the points mentioned in page 3 of the handout. **Record specific questions on the template.**

Educator note


Ask participants to focus on the questioning part of the activity. Therefore ask participants to record on the template:

- Pictures and their use - What will they be used for? What is/are the purpose(s)?
- Questions to start the lesson?
- Questions while pupils are looking at the pictures? Clear explanation of task.
- Questions after looking at the pictures? Questions about pupils' thoughts that relate to objectives of the lesson? Questions that summarize pupils' learning?

For example, if the topic is clean water, participants can record:


- Pictures - sources of water that show clean and unclean water.
- Questions to start such as, look at the pictures and identify sources that are safe for drinking.
- Questions while pupils are looking at pictures such as, why is water from this source safe? how does the water get contaminated?
- Questions at the end such as, what can we do in our homes to ensure that the water we drink is clean? What are the effects of drinking unclean water?

They can complete the remaining plan later.

 **Whole class dialogue** (10 min) *on the previous activity* Because we have done the above activity as part of this facilitators workshop, now come back together as a group and discuss how the activity went. You could e.g. use PMI to say some plusses, minuses, and interesting things. What would you do the same? What would you do differently? **What questions can you ask, to find out whether the activity was conducted in an interactive way?**

7.4 Talking points on statements about Leadership for Learning

[Repeat above background text on Talking Points]

 **Whole class dialogue^(a) with talking points^(a)** (15 min): *Discussing statements about Leadership for Learning* Discuss in a small group whether the following statements about Leadership for Learning (talking points) are 'true', 'false' or 'not sure'. **Explain your reasoning in each case.** Then tick ("✓") if your group agrees that they are true, cross

Appendix 2.1 - Workshop for school leaders

("X") if your group agrees that they are false and question mark ("?") if your group is not sure.

- The purpose of a school is for children to learn.
- Learning is about memorising facts.
- When learning, the background of students is unimportant: Because facts are universally true, so learning of facts does not depend on students' backgrounds.
- If parents do not encourage their children to learn, children will not learn anything in school.
- Teachers should have low expectations of students' ability: It is not good for students to be challenged in lessons, because it will make them unhappy. It is better for students to work on very simple problems, that they can solve easily.
- The head teacher knows what's best for the school, and therefore does not need to consult teachers, parents, or students.
- Students do not know what's best for them, so they do not need to be consulted regarding learning or school leadership.

Discuss each talking point mentioned above. Each group should explain their stance on the point, giving their reasons.


Educator note

Expect disagreements amongst groups about certain talking points. This is actually productive for the whole group as it promotes further discussion.


Encourage reasoning for all talking points. Get participants to explain **why** they agree or disagree with something?

Finally explain the concept of talking points: The above points stimulated participants discussion about Leadership for Learning. In the same way, you can use talking points in the classroom, e.g. when discussing a science topic.

Also remind the participants of the idea of "modelling": We use similar techniques in the workshops sessions to what we would use in the classroom.

 **Whole class dialogue** (10 min) *on the previous activity* Because we have done the above activity as part of this facilitators workshop, now come back together as a group and discuss how the activity went. You could e.g. use PMI to say some plusses, minuses, and interesting things. What would you do the same? What would you do differently? **What questions can you ask, to find out whether the activity was conducted in an interactive way?**

7.5 Childrens' ability to learn independently

 **Observing, thinking, reflecting** (5 min) *on group work* In this clip, and group of students jointly solve a problem using GeoGebra. The children did not have a lot of experience of using netbooks, and had just been introduced to the software (GeoGebra) a few lesson ago. They. (Note that time in this clip has been condensed, and the clip is taken from about 10 minutes of interaction. The children thus had a lot more thinking time than what is show in the clip.) Watch the video, and reflect on the following:

- How are the children interacting?
- Do you think the children are learning?
- What are the conditions for learning that enable such an interaction to take place?
- Does it surprise you that the students had not used GeoGebra much before? Does this tell you something about your expectations of childrens' abilities to learn independently, and with ICT?

VIDEO

Geogebra group work

A group of students jointly progress on their task to investigate the relationship between area and perimeter of rectangles.

About this video, 2:03, link to YouTube (<http://www.youtube.com/watch?v=qHDLHzBo1U&list=PL827432C8560941C6>) (local play / download options)(Series: Abel rectangles, episode 06)

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Retrieved from "http://oer.educ.cam.ac.uk/w/index.php?title=OER4Schools/Workshop_for_school_leaders&oldid=19326"

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Induction session 8.2 - A workshop for OER4Schools programme facilitators

8.2 - A workshop for OER4Schools programme facilitators

Learning intentions and objectives.

Success criteria.

ICT components.


1 Introduction

This is a rough outline for a one-day workshop, aimed at facilitators. Typically this would be teachers taking a leadership role at their school. Those teachers would facilitate a programme based on OER4Schools at their school. The present workshop programme could be used to introduce such facilitators to running the OER4Schools programme.

Educator note

If you are facilitating this workshop, ideally you would be familiar with the present programme (ideally through practice). Also refer back to OER4Schools/How to use this resource.

2 The structure of a workshop session

 **Observing, thinking, reflecting** (15 min) *on the structure of a session* Go through the structure of a workshop session:

- Review of follow up activities. At the beginning of each session, you should review the previous session (if you are running more than one session).
- Session activity 1: e.g. Brainstorm on interactive teaching (new topic)
- Session activity 2: Brainstorming in the classroom (new topic)
- Session activity 3: ICT-based activity
- Session activity 4: Planning
- Discussion of LfL or MSC
- Connecting with overarching goals of the programme
- Agreement of Follow-up activities

3 An example session

 **Various activities** (60 min) *on reviewing a workshop session* Go through session 1.1, paying attention to

- the facilitator notes,
- the general structure of the session (see above),

- modelling,
- and using the activity listing at the end (helping with keeping time).

4 Examples of interactive teaching in Zambia

Educator note


Sample activities

Do a range of sample activities (in the sections below), that illustrate how the workshop progresses.

Workshop participants take turns in facilitating the activity, and after each activity there is a reflection on how this went. You may not need to do all of the following activities or all parts of the activities, but only do those which participants find most challenging.

Many African teachers aspire to be interactive teachers. Yet, interactive teaching is not common in the African classroom. However, it can work in this context!

The following clip shows Eness, a teacher in a community school near Lusaka interacting with a Grade 3 class. Watch the clip of her class discussion about *Is a bat a bird?*

 **Observing, thinking, reflecting** (5 min): *Watch a video of a whole class discussion.*

Watch video:

VIDEO


Whole class discussion

Whole class discussion of 'Is a bat a bird?' Teacher sets unresolved problem as homework

About this video, 4:19, link to YouTube (<http://www.youtube.com/watch?v=kY2Ow7Pusel&list=PLF0530A6FEF00D354>) (local play / download options)(Series: Eness Vertebrates, episode 12)(Transcript available here or via YouTube captions.)

Educator note

(Clip shows whole class discussion of 'is a bat a bird?', set unresolved problem as homework)

 **Whole class dialogue** (10 min): *Whole group discussion on the whole class discussion video.*

- What have you noticed?
- How are the learners taught?
- How do you think they will react to the homework task?
- Is this classroom different from yours?
- What is interactive teaching?

Educator note

Issues to discuss

- Noisy but productive - A classroom can be noisy and productive at the same time
- **interactive = inter-action (with view to sense making; i.e. purpose of inter-action is to make sense)**
- Children making sense of ideas for themselves, developing their own classifications, relating to what they already know...
- Teacher not telling answer, asking students to investigate for themselves

Appendix 2.2 - Introductory workshop

Facilitator needs to know how to deal with criticisms (such as too noisy, too much chaos, not productive)

The road is long. But it can be done!

Whole class dialogue (10 min) *on the previous activity* Because we have done the above activity as part of this facilitators workshop, now come back together as a group and discuss how the activity went. You could e.g. use PMI to say some plusses, minuses, and interesting things. What would you do the same? What would you do differently? **What questions can you ask, to find out whether the activity was conducted in an interactive way?**

Whole Group (11 min). In this activity called “PMI” - “Positives, Minuses, Interesting” there are no correct answers. The PMI involves considering the positive, negative and interesting points related to a specific scenario. It was originally developed by Edward de Bono, father of the “thinking skills” movement. It encourages learners to look at both sides of a situation and also to be creative when considering the interesting possibilities.

Educator note

Possible responses:

- P (positives): the plant could move to where there is more light or water
- M (minusses): the plant would waste energy by moving
- I (interesting): We have to be sensitive and aware of plants walking on the roads and in our houses.

For further examples, navigate to: <http://www.azteachscience.co.uk/resources/continuing-professional-development/bright-ideas-in-primary-science.aspx>

5 Practitioner reflection on interactive teaching

Observing, thinking, reflecting (5 min): *Practitioner reflection on interactive teaching.* The key to interactive teaching is *teachers shifting “from telling to listening” and learners shifting from receiving information to making sense of it for themselves.*

How can we “listen” to learners? What does that mean in practice?

Educator note

Facilitator describes own experience of shifting to interactive teaching and how it is different in his/her classroom now...

Evidence for impact of interactive teaching (optional)

Generally we have experienced that teachers welcome interactive ways of teaching. However, it is possible that teachers may object or have major concerns to the interactive teaching shown in the videos as well as what has emerged from this discussion. For instance, they may say that this just will not work in their classroom, that it may not work with large classes, or perhaps that such styles of teaching would not be welcome by parents or head teachers for various reasons.


At this stage, you could introduce interactive teaching as an international trend. Research evidence from different countries shows that this kind of active learning is both motivating and far more effective for learning than direct instruction (“chalk-and-talk” or lecturing). In particular



Appendix 2.2 - Introductory workshop

independent, collaborative or oral work, as well as questioning and whole-class discussion that encourage pupils to grapple with ideas are effective. They lead to long-term and deeper learning rather than memorising facts (resulting in short-term, superficial learning).

The following video clip may help to reinforce the point.


 **Observing, thinking, reflecting** (5 min): Watch a video on one Zambian teacher's experience of interactive teaching.

VIDEO**Agness Tembo speaking at eLearning Africa 2012 in Lusaka, Zambia**

Agness Tembo speaking at eLearning Africa 2012 in Lusaka, Zambia

About this video, 12:34, link to YouTube (<http://www.youtube.com/watch?v=5K2Hh6MajCU&list=PLF1037800CE0E3F9F>) (local play / download options)(Series: Talks, episode N/A)

This two minute clip features Agness Tembo, a Grade 2 teacher from Chalimbana Basic School located in a rural area of Zambia. She is presenting at the e-Learning Africa Conference 2010 her own experiences of participating in Phase 1 of the OER4Schools research project. She talks animatedly about the challenges she faced in introducing both ICT and interactive pedagogy into her (mathematics) teaching for the first time, the benefits to students, and the qualities she needed as a teacher to make the shift successful.

 **Introduction** (5 min) of *Think Pair Share*. This is a technique that encourages cooperative learning by peer interactivity. Here are the steps:

1. **Think** - Students listen to a question (this may be an open-ended question to which there are many answers) or a presentation and are given 'think time' to formulate their responses.
2. **Pair** - Following the 'think time', students work together with a partner, sharing ideas, discussing, clarifying and challenging.
3. **Share** -The pair then share their ideas with another pair, or with the whole class. Students should be prepared to share their partner's ideas as well as their own.

You will now use this technique to help you to formulate your ideas on interactive teaching.


Educator note

Think-Pair-Share^(a):

Teachers should cue the progress from one step to the next. In the primary classroom, hand signals for each step can be developed with the students and these can be used along with verbal cues.

Allowing students time to think, sometimes referred to as 'wait time' has been shown by researchers to improve the quality of their responses. Talking through ideas with a partner first before sharing them with a wider audience allows for those ideas to be elaborated on and refined.

Model the think pair share technique in the following activity, remembering to tell the participants what step they are on, what they should be doing and for how long.

 **Think-Pair-Share** (10 min) *your ideas on the differences between interactive teaching and traditional teaching*

We mentioned that interactive teaching involves moving from "telling" to "listening." What other words do you feel might describe the difference between traditional approaches and interactive teaching? What are the two kinds of classroom like? Think on your own for a minute and then pair up and discuss your ideas with a partner. Write your ideas on the board for all to see. Aim for each person to write a word or phrase for each approach perhaps under the headings 'traditional classroom' vs 'interactive classroom'.

Educator note

Some contrasts people might make (let them suggest their own terms):

- passive - active
- quiet - noisy
- individual - collaborative

Note: these are not value judgments - they can be positive or negative in different circumstances!

Whole class dialogue (10 min) *on the previous activity* Because we have done the above activity as part of this facilitators workshop, now come back together as a group and discuss how the activity went. You could e.g. use PMI to say some plusses, minuses, and interesting things. What would you do the same? What would you do differently? **What questions can you ask, to find out whether the activity was conducted in an interactive way?**

6 Brainstorm on ICT

Whole class brainstorm (5 min) *on ICT* Consider the following questions:

- What does ICT mean to you?
- What different types of ICTs have you heard of?
- What ICTs have you used?
- Which ICTs would you like to use in the classroom?

Educator note

ICT = Information and Communication Technology

Remember to record the brainstorm on the board or a large sheet of paper. Things that may feature are: PCs, laptops, netbooks, tablets, mp3 players, mobile phones, games consoles, web content (images/maps/), software applications etc.

7 Introducing cumulative talk - creating a story together

Educator note

Cumulative talk is talk in which all participants agree and add to the previous talk (or sentence).

Cumulative talk (10 min): *Creating a story together* All the participants get up to rearrange the seating. Arrange the group in a horse-shoe seating arrangement^(a) if there is room. If not choose another arrangement allowing participants to see each other. Facilitator starts a story by saying one sentence. All participants then contribute to the story by adding sentences.

A good story would:

- be contextually appropriate: for example, use common names of characters and a setting familiar to participants.
- have a theme relevant for participants such as education (girl-child receiving schooling later supports family), importance of forests and wild-life (saving a snake later becomes useful for invention of new medicine), treatment of diseases (steps taken by a family to treat an ill person) etc.,
- be short and have few characters, and
- have a problem which is collectively resolved in the end.

Appendix 2.2 - Introductory workshop

For instance, you could create a story about welcoming a new child to the school, perhaps a child with an impairment or some kind. The facilitator starts by saying: "The other day, I heard my neighbours talking about whether their child should be starting school, because their child has difficulty walking, and they were not sure whether children like that should go to school." (Relates to Index for Inclusion, A1.1 Everyone is welcomed.)

Educator note

Facilitator can introduce the notion of Talk Rules during this activity if needed. Some examples are: "everybody listens when one person talks" because they have to add to that sentence, "respect others' ideas" by adding to rather than changing their idea, "make sure everyone in the group understands", "try to reach consensus in the end" – participants don't need to actually come to agreement but the process of trying gets people to listen to each other. You may want to ask participants to generate their own examples of Talk Rules.

The activity we just did is example of "cumulative talk" where participants build on what the previous person has said ("cumulative talk" is one example of whole class dialogue).

Same-task group work (10 min) *in pairs: Planning cumulative talk in the classroom* Now pair up, and come up with ideas for cumulative talk in the classroom.

- Consider that when this activity is done in the classroom with pupils, themes should be chosen from the curriculum.
- Also consider that the seating arrangement can be modified according to teachers' classrooms such that pupils see each other. Pupils can leave their tables and just move their chairs (or sit outside if the grounds are suitable).

As you are planning this activity, ask yourself the following questions:

- Do your students find it easy to talk?
- How can you encourage students to talk?
- Are some students likely to laugh at other students contributions? How can you create safe environments that enable students to take risks? (Relates to: LfL, 2.4)

Whole class dialogue (10 min) *on the previous activity* Because we have done the above activity as part of this facilitators workshop, now come back together as a group and discuss how the activity went. You could e.g. use PMI to say some plusses, minuses, and interesting things. What would you do the same? What would you do differently? **What questions can you ask, to find out whether the activity was conducted in an interactive way?**

8 Reflecting on current questioning practice

Educator note

The idea behind this activity is to make the need for this session explicit. You will need mini-blackboards and something for display (blackboard/flipchart). Choose some topics that they are teaching this week (from the curriculum), and display the topics (on blackboard or flipchart). Some examples are:

- the importance of water (Relates to Index for Inclusion, C1.2),
- living together (Relates to Index for Inclusion, C1.13),
- transport (Relates to Index for Inclusion, C1.5),
- types of fertilizers (organic and inorganic) and their advantages or disadvantages (Relates to Index for Inclusion, C1.1), e.g.
- uses of different parts of a plant (Relates to Index for Inclusion, C1.8), and
- health (Relates to Index for Inclusion, C1.6).




Same-task group work (5 min) *in pairs: Coming up with some questions.* Choose a topic from the board. Write five questions on mini-blackboards or paper that you normally ask/would ask the pupils in class?

Educator note

Allow only about 3-5 minutes for this activity so that spontaneous questions are recorded.

After 3-5 minutes, explain the types of questions below and ask the other participants to suggest examples from their mini-blackboard that represent these types. Write these examples on the blackboard or flipchart or ask a volunteer participant to do so. Explain one type of question, ask the other participants for examples, record examples on the board and then mention second type.


 **Observing, thinking, reflecting** (5 min) *Facilitator talk on open and close questions.* Briefly state what open and closed questions are.

Educator note

Ensure that participants do not feel less motivated if their questions are more closed or surface type. To ensure this:


- Refrain from judging questions. Record questions factually without expressing any emotion.
- Mention that all types of questions have value and can be used for different purposes. Closed and surface questions are also important to some extent.
- Maintain positive body language by listening attentively.


Before the session, prepare the workshop room by marking OPEN on one side of the room and CLOSED on the other side. To keep it simple, draw a line on the floor with a chalk and write OPEN and CLOSED!

 **Game** (5 min) *on open and closed questions.* Categorise your questions as closed and open questions. For each question, you move to the side of the room marked OPEN if their question is open or to the side marked CLOSED if their question is closed.


Educator note

Make this activity interesting by asking participants to run to their side (OPEN or CLOSED) at the sound of clap and ask the participant who gets there first to clap for the second question, and so on.

 **Whole class dialogue** (10 min): *Reflecting on current practice.* Where are you standing? Is your current practice of generating questions more open or more closed?

 **Whole class dialogue** (10 min) *on the previous activity* Because we have done the above activity as part of this facilitators workshop, now come back together as a group and discuss how the activity went. You could e.g. use PMI to say some plusses, minuses, and interesting things. What would you do the same? What would you do differently? **What questions can you ask, to find out whether the activity was conducted in an interactive way?**

9 Developing my practice: Planning an activity

 **Different-tasks group work** (15 min): *Planning in pairs for an activity with open-ended questions.* In the activity template, plan for questioning as part of a lesson that participants will teach in the coming week; the questions will follow the ICT pictures activity. They should list some open and deep questions to ask in the class in order to challenge pupils and get them thinking! Try out some of the points mentioned in page 3 of the handout. **Record specific questions on the template.**

Educator note

Ask participants to focus on the questioning part of the activity. Therefore ask participants to record on the template:


- Pictures and their use - What will they be used for? What is/are the purpose(s)?
- Questions to start the lesson?

- Questions while pupils are looking at the pictures? Clear explanation of task.
- Questions after looking at the pictures? Questions about pupils' thoughts that relate to objectives of the lesson? Questions that summarize pupils' learning?


For example, if the topic is clean water, participants can record:


- Pictures - sources of water that show clean and unclean water.
- Questions to start such as, look at the pictures and identify sources that are safe for drinking.
- Questions while pupils are looking at pictures such as, why is water from this source safe? how does the water get contaminated?
- Questions at the end such as, what can we do in our homes to ensure that the water we drink is clean? What are the effects of drinking unclean water?

They can complete the remaining plan later.

 **Whole class dialogue** (10 min) *on the previous activity* Because we have done the above activity as part of this facilitators workshop, now come back together as a group and discuss how the activity went. You could e.g. use PMI to say some plusses, minuses, and interesting things. What would you do the same? What would you do differently? **What questions can you ask, to find out whether the activity was conducted in an interactive way?**

10 Brief reflection on modelling

 **Same-task group work** (5 min): *Looking through the programme.* You may have already noticed that some activities in our programme were labeled "same-task group work", and other activities were labeled as "different-task group work". Can you recall what they were? Check through your workshop handouts and see what they were.


 **Observing, thinking, reflecting** (5 min): *Facilitator talk on modelling.* You see that we are using very similar approaches in this workshop (such as same-task and different-task group work) as we would use in the classroom. We call this "modelling of classroom practice during professional learning activities".

11 Talking points on statements about group work

Background reading

"Talking points" are deliberately thought-provoking statements for discussion and reasoning in small groups. Research shows that using these is an effective strategy to promote conceptual learning in a target area because

- it helps to **structure the group task yet keeps the discussion open-ended**. This is because pupils discuss the points but are free to contribute their own understanding /opinion about the point. In other words, the task is well-defined as well as interactive!
- it helps pupils to discuss different aspects of a concept by **providing cues for discussion**.
- It **helps to maintain the focus** of discussion.

 **Whole class dialogue^(a) with talking points^(a)** (15 min): *Discussing statements about group work* Discuss in a small group whether the following statements about group work (talking points) are 'true', 'false' or 'not sure'. **Explain your reasoning in each case.** Then tick ("✓") if your group agrees that they are true, cross ("X") if your group agrees that they are false and question mark ("?") if your group is not sure.

- Group work **should** finish in one lesson
- Groups should be formed with the **same** pupils every time
- Teacher should assist pupils for effective group work
- **All** pupils in the group should be active during group work
- Noise is **not acceptable** during group work
- Agreements and disagreements are inevitable during group work
- Mixed pace groups are better than same pace groups
- Group work should **always promote** competition amongst different groups

Appendix 2.2 - Introductory workshop

- Group work by pupils is free time for the teacher
- Effective group work needs planning and preparation by the teacher before the lesson

Discuss each talking point mentioned above. Each group should explain their stance on the point, giving their reasons.

Educator note

Expect disagreements amongst groups about certain talking points. This is actually productive for the whole group as it promotes further discussion.

Encourage reasoning for all talking points. Get participants to explain **why** they agree or disagree with something?

Finally explain the concept of talking points: The above points stimulated participants discussion about group work. In the same way, you can use talking points in the classroom, e.g. when discussing a science topic.

Also remind the participants of the idea of "modelling": We use similar techniques in the workshops sessions to what we would use in the classroom.

Whole class dialogue (10 min) *on the previous activity* Because we have done the above activity as part of this facilitators workshop, now come back together as a group and discuss how the activity went. You could e.g. use PMI to say some plusses, minuses, and interesting things. What would you do the same? What would you do differently? **What questions can you ask, to find out whether the activity was conducted in an interactive way?**

12 Traffic lights

Traffic lights, also known as robots in southern Africa (or elsewhere as traffic signals, traffic lamps, signal lights, or semaphores), are a useful resource, consisting of three different coloured cards, for everyday use in classrooms in order to assess.

The name "traffic lights" comes from the fact that traffic lights (or robots) are a piece of equipment designed to control traffic flow. Traffic lights have three lights - red, orange and green. These lights signal to drivers what action they should take on the road with each coloured light having a different meaning associated with it: Red means Stop; Orange means Get Ready and Green means Go.

In education, "traffic lights / robots" refers to a set of coloured cards in the classroom, where the colours have meaning as follows:

- a RED card means "I'm stuck. I need some extra help. I don't feel I have progressed."
- an ORANGE card means "I'm not quite sure. I need a little help. I feel I have made some progress."
- a GREEN card means "I understand fully. I'm okay without help. I feel I have progressed a lot."

Use of robots / traffic lights in the classroom:

- While the teachers are teaching, they can ask students to hold up a coloured card to assess if they should proceed to the next topic or not.
- Students can voluntarily show a coloured card indicating their current level of understanding. They can change the coloured card several times during a single lesson. In this way, the student can bring their understanding to the teacher's notice without disturbing other classmates or the flow of the lesson. Teachers can address the student at an appropriate time.
- While working independently in groups, students can display their coloured card on the table to indicate their current status. Teachers can visit the student to provide assistance.

Eventually students are expected to independently use the coloured cards without the teacher's instruction to do so. The coloured cards of the robot^(a)/traffic lights^(a) should become a silent way of communicating in the class.

Displaying cards also reduce students' physical stress of standing in queues or raising their hands while waiting for the teacher's attention.

What to call robots / traffic lights in the classroom. Bear in mind that students at deep rural schools may have never



Appendix 2.2 - Introductory workshop

seen a robot, and may not be familiar with the concept. Also, the name might vary: In Europe, robots are known as traffic lights whilst in Southern Africa they are commonly referred to as robots. Use the name that will be most familiar to the students in your classroom and explain the concept of the coloured lights and their meaning if necessary.

Use of robots / traffic lights in groupwork: While the teacher needs to know who has understood, it doesn't have to always be the teacher who *responds* to red or orange cards. Students working in a group can also help each other. In Unit 3 we emphasise that groupwork is most successful when groups themselves are given responsibility for making sure that all members understand. Robot / traffic lights cards can alert students to the need to assist their peers.

One Zambian teacher's reflection on trying out the technique:

During interactive teaching and learning, pupils in groups work very hard through collaboration in order to get correct answers and display green cards.

The traffic lights activity worked very well because it made me as a teacher to know whether my teaching was understood or not by seeing the most colour of cards which were displayed. If most of them displayed green then I concluded that teaching and learning took place. If most of displayed red cards, again I could tell that proper learning hasn't taken place. I thought of using other approach methods to achieve the objectives of learning and teaching i.e. I could emphasis more during conclusion and give home work or give remedial work sometimes as peer assessment.

Suggested follow-up activity: Do the activity of making robot / traffic lights cards with your students. You can be creative about the use of materials depending on availability.

Whole class dialogue (10 min) *on the previous activity* Because we have done the above activity as part of this facilitators workshop, now come back together as a group and discuss how the activity went. You could e.g. use PMI to say some plusses, minuses, and interesting things. What would you do the same? What would you do differently? **What questions can you ask, to find out whether the activity was conducted in an interactive way?**

13 Connecting with overarching goals of the programme

Open space (10 min). It's now time for the "open space", that gives you an opportunity to discuss issues that have arisen, and to relate those to the broader context of the programme. Do not just gloss over this section, but make time to raise issues, and probe the progress that you are making. You could use this space to:

- Remind yourselves of the of the Most Significant Change Technique, and e.g. collect more of your stories.
- Discuss your assessment portfolios: Is there anything that you are unsure about? Is it going well? What could be done better?
- Check on the work with the classroom assistants: Is this going well? Are there any tensions? Any observations or tips you can share?
- Reviewing individual ICT practise (such as typing practise).
- If you are preparing a presentation for other teachers, you could work on the presentation (about what you have been learning, stories emerging from MSC).
- Remind those who are doing audio diaries, to upload them.
- You could discuss any other issues that have arisen.

You will find notes and summaries of various techniques and concepts on our reference page, and you might want to refer to those for clarification during this activity if needed.

Whole class dialogue (10 min) *on the previous activity* Because we have done the above activity as part of this facilitators workshop, now come back together as a group and discuss how the activity went. You could e.g. use PMI to say some plusses, minuses, and interesting things. What would you do the same? What would you do differently? **What questions can you ask, to find out whether the activity was conducted in an interactive way?**

14 Activity summary

Educator note

At the end of each session, we provide an overview of the activities in this session, together with their suggested timings. Although this appears at the end of the session (for technical reasons), you should keep an eye on this throughout the session, to make sure that you are pacing the workshop session appropriately!

Total time: 236 (min)

Activities in this session:

- **Observing, thinking, reflecting** (15 min) *on the structure of a session*
- **Various activities** (60 min) *on reviewing a workshop session*
- **Observing, thinking, reflecting** (5 min): *Watch a video of a whole class discussion.*
- **Whole class dialogue** (10 min): *Whole group discussion on the whole class discussion video.*
- **Whole class dialogue** (10 min) *on the previous activity*
- **Whole Group**(11 min).
- **Observing, thinking, reflecting** (5 min): *Practitioner reflection on interactive teaching.*
- **Observing, thinking, reflecting** (5 min): *Watch a video on one Zambian teacher's experience of interactive teaching.*
- **Introduction** (5 min) *of Think Pair Share.*
- **Think-Pair-Share** (10 min) *your ideas on the differences between interactive teaching and traditional teaching*
- **Whole class brainstorm** (5 min) *on ICT*
- **Cumulative talk** (10 min): *Creating a story together*
- **Same-task group work** (10 min) *in pairs: Planning cumulative talk in the classroom*
- **Same-task group work** (5 min) *in pairs: Coming up with some questions.*
- **Observing, thinking, reflecting** (5 min) *Facilitator talk on open and close questions.*
- **Game** (5 min) *on open and closed questions.*
- **Whole class dialogue** (10 min): *Reflecting on current practice.*
- **Different-tasks group work** (15 min): *Planning in pairs for an activity with open-ended questions.*
- **Same-task group work** (5 min): *Looking through the programme.*
- **Observing, thinking, reflecting** (5 min): *Facilitator talk on modelling.*
- **Whole class dialogue^(a) with talking points^(a)** (15 min): *Discussing statements about group work*
- **Open space**(10 min).

If you have printed this session for offline use, you may also need to download the following assets:

- Video/Eness vertebrates 12.mp4 (local play / download options)
- Video/Agness Tembo at eLA 2010 Zambia.mp4 (local play / download options)

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Induction session 8.3 - OER4Schools Taster Session - eLA 2013

8.3 - OER4Schools Taster Session - eLA 2013

Learning intentions and objectives.

Success criteria.

ICT components.

1 Creating a supportive environment for dialogue

We are now moving on to the topic of this unit, and we start with introducing whole class dialogue. We initially focus on

- Creating a supportive environment for dialogue, and
- Cumulative talk - creating a story together.

2 Introducing cumulative talk - creating a story together

Educator note

Cumulative talk is talk in which all participants agree and add to the previous talk (or sentence).

👤 Cumulative talk (10 min): *Creating a story together* All the participants get up to rearrange the seating. Arrange the group in a horseshoe seating arrangement^(a) if there is room. If not choose another arrangement allowing participants to see each other. Facilitator starts a story by saying one sentence. All participants then contribute to the story by adding sentences.

A good story would:

- be contextually appropriate: for example, use common names of characters and a setting familiar to participants.
- have a theme relevant for participants such as education (girl-child receiving schooling later supports family), importance of forests and wild-life (saving a snake later becomes useful for invention of new medicine), treatment of diseases (steps taken by a family to treat an ill person) etc.,
- be short and have few characters, and
- have a problem which is collectively resolved in the end.


For instance, you could create a story about welcoming a new child to the school, perhaps a child with an impairment or some kind. The facilitator starts by saying: "The other day, I heard my neighbours talking about whether their child should be starting school, because their child has difficulty walking, and they were not sure whether children like that should go to school." (Relates to Index for Inclusion, A1.1 Everyone is welcomed.)

Educator note

Facilitator can introduce the notion of Talk Rules during this activity if needed. Some examples are: “everybody listens when one person talks” because they have to add to that sentence, “respect others’ ideas” by adding to rather than changing their idea, “make sure everyone in the group understands”, “try to reach consensus in the end” – participants don’t need to actually come to agreement but the process of trying gets people to listen to each other. You may want to ask participants to generate their own examples of Talk Rules.

The activity we just did is example of “cumulative talk” where participants build on what the previous person has said (“cumulative talk” is one example of whole class dialogue).

3 Introduction to the lesson (for context)

 **Observing, thinking, reflecting** (10 min) *Video on classification of vertebrates.* In the ongoing OER4Schools sessions, the teachers would already be familiar with Eness' lesson. However, here, just to introduce Eness' lesson itself, let's watch these two videos:

VIDEO

Teacher repeats and clarifies

Teacher repeats and clarifies instructions; she illustrates them with nonsense classifications so students do not copy hers

About this video, 2:43, link to YouTube (<http://www.youtube.com/watch?v=9wDCg4w04JE&list=PLF0530A6FEF00D354>) (local play / download options)(Series: Eness Vertebrates, episode 04)(Transcript available here or via YouTube captions.)


VIDEO

Teacher gives detailed help

Teacher gives detailed help to group: shows ICT use. ("I've never seen a Zebra.")

About this video, 4:04, link to YouTube (<http://www.youtube.com/watch?v=Q2jnT6w2ub0&list=PLF0530A6FEF00D354>) (local play / download options)(Series: Eness Vertebrates, episode 05)

4 Whole class discussion: Creating a supportive environment

 **Observing, thinking, reflecting** (10 min) *Video on classification of vertebrates.* Video clips Eness vertebrates 10 ("Is a boy a mammal?") and 11 ("Is a whale a fish or a mammal?"); lively class discussion about classifying these animals, deliberately chosen to create controversy and to challenge the pupils

VIDEO

Is a boy a mammal?

Eness leads a discussion on 'Is a boy a mammal?'


About this video, 3:51, link to YouTube (<http://www.youtube.com/watch?v=p96CArgf0gY&list=PLF0530A6FEF00D354>) (local play / download options)(Series: Eness Vertebrates, episode 10)

VIDEO**Fish or mammal?**

Class explores the question 'Is a whale a fish or a mammal?'

About this video, 4:31, link to YouTube (<http://www.youtube.com/watch?v=NWV0X9aMYxM&list=PLF0530A6FEF00D354>) (local play / download options)(Series: Eness Vertebrates,

episode 11)


 **Whole class dialogue** (10 min) *on the learning environment and classroom management.*

- Was there a supportive environment for pupil participation and dialogue in this lesson?^(Relates to: LfL, 2) If so, how did the teacher achieve this?
- How did she help students to work out whether the boy and the whale were mammals? Did this discussion move their thinking forward?^(Relates to: LfL, 1)
- What did you think about teacher control and pupil learning in these video clips? How would a horseshoe seating arrangement have impacted on this?
- How would you manage something similar in your classroom? How would you encourage pupil talk without losing too much control?

Educator note


Did participants notice the “wait time” after asking a question before teacher made a further contribution or question? Increasing wait time a little increases thinking time and in turn leads to an improvement in the quality of students' responses.

5 Reflection on what we have learned

 **Whole class dialogue** (10 min): *Reflection on what you have learnt.* Reflection on what you have learned from this session about

- Body language for encouraging dialogue
- Cumulative talk
- Encouraging most pupils to talk
- Withholding feedback sometimes to motivate pupils without fear of “wrong” answers: not evaluating pupil responses, just accepting them
- Forming rules for dialogue
- Managing the tension between control and learners' freedom to contribute

6 Cumulative talk in the classroom

 **Same-task group work** (10 min) *in pairs: Planning cumulative talk in the classroom* Now pair up, and come up with ideas for cumulative talk in the classroom.

- Consider that when this activity is done in the classroom with pupils, themes should be chosen from the curriculum.
- Also consider that the seating arrangement can be modified according to teachers' classrooms such that pupils see each other. Pupils can leave their tables and just move their chairs (or sit outside if the grounds are suitable).

As you are planning this activity, ask yourself the following questions:

- Do your students find it easy to talk?
- How can you encourage students to talk?
- Are some students likely to laugh at other students contributions? How can you create safe environments that enable students to take risks?^(Relates to: LfL, 2.4)

You can use the activity template if you like.

7 Follow-up activities

 **Agreeing follow-up activities** (5 min).

Part A: Try out cumulative talk by asking pupils to create a class story, contributing one line each whenever they are handed the magic microphone by their peers. Use some of the techniques discussed in this session to create a supportive environment, for example: positive body language, enthusiastic tone, listening to each other before speaking and building on what the previous person has said. Encourage any shy children to have a go, and repeat the activity with another topic on other occasion so they get more used to public speaking.

Educator note

In the next session, these follow-up activities will be reviewed. If you are using this session on its own, you can have a look at the review of follow-up activities here.

8 Review of follow-up activities from last session

In the last session, we asked you to try out cumulative talk in the classroom? How did that go?

9 Introduction to questioning

Questioning, offering opportunities for classroom talk, and listening to learner responses are an essential part of interactive teaching. They help teachers to determine

- what learners understand,
- what they misunderstand, and
- what they are actually learning.

10 Reflecting on current questioning practice

Educator note

The idea behind this activity is to make the need for this session explicit.

You will need mini-blackboards and something for display (blackboard/flipchart).

Choose some topics that participants are teaching this week (from the curriculum), and display the topics (on blackboard or flipchart). Some examples are:

- the importance of water^(Relates to Index for Inclusion, C1.2),
- living together^(Relates to Index for Inclusion, C1.13),
- transport^(Relates to Index for Inclusion, C1.5),
- types of fertilizers (organic and inorganic) and their advantages or disadvantages^(Relates to Index for Inclusion, C1.1), e.g.
- uses of different parts of a plant^(Relates to Index for Inclusion, C1.8), and
- health^(Relates to Index for Inclusion, C1.6).



Same-task group work (5 min) in pairs: *Coming up with some questions.* Choose a topic from the board. Write a list of up to five questions on mini-blackboards or paper that you normally ask/would ask the pupils in class?

Educator note

Allow only about 3-5 minutes for this activity so that spontaneous questions are recorded.

After 3-5 minutes, explain what open and closed questions are (see background reading below) and ask the whole group for a couple of example questions of each type for illustration. Write these examples (no more than two of each question type) on the blackboard or flipchart for reference during the game, or ask a volunteer participant to do so. When you are sure that participants have got the idea of the differences between the question types proceed with the game.

During the game, ensure that participants do not feel less motivated if their questions are more closed or surface type. To ensure this:

- Refrain from judging questions. Record/discuss questions factually without expressing any emotion.
- Mention that all types of questions have value and can be used for different purposes. Closed and surface questions are also important to some extent.
- Maintain positive body language by listening attentively.

Before the session, prepare the workshop room by marking OPEN on one side of the room and CLOSED on the other side. To keep it simple, draw a line on the floor with chalk and write OPEN and CLOSED!

To start the game, ask participants to look at the first question (on their respective lists), work out whether it is open or closed and move to the corresponding side of the room. When participants have categorised their first question, take a few examples from each side of the room for clarification that they have been correctly categorised. Participants move on to the second question on their list and categorise it in the same way.


Continue to play the game for five minutes, clarifying that questions have been correctly categorised after each new move, taking examples from different participants each time.

Observing, thinking, reflecting (5 min) *Facilitator talk on open and close questions.*


Game (5 min) on open and closed questions. The facilitator will ask you to categorise the questions on your list, one at a time, as open or closed and to move to the corresponding side of the room. Work through your questions one at a time and categorise them as closed or open when asked to do so. For each question, move to the side of the room marked OPEN if that question is open or to the side marked CLOSED if that question is closed. Be prepared to explain your rationale to the rest of the group.

Educator note

Make this activity interesting by asking participants to run to the appropriate side of the room (OPEN or CLOSED) at the sound of a clap and ask the participant who gets there first to clap when it is time to move again after considering the second question, and so on.

 **Whole class dialogue** (5 min): *Reflecting on current practice.* Where do you stand? Is your current practice of generating questions more open or more closed?

11 Reading about open and closed questions

 **Observing, thinking, reflecting** (5 min): *Reading about open and closed questions.*

Background reading

Closed versus Open questions:

- Closed questions are factual and focus on a correct response. *Some examples are: Name the different parts of a plant? What are the five nutrients that must be present in a balanced diet? How many sides does a triangle have? What is the formula for calculating the perimeter of a square? How many planets are there in the solar system? Name two sources of renewable energy.*
- Open questions have many answers. *Some examples are: What could be the consequences of water contamination? How does a balanced diet help us? How could we use flowers of plants? Suggest ways to prevent the spread of malaria in your community?*

Surface versus Deep questions:

- Surface questions elicit one idea or some ideas. *For example, What is the difference between organic and inorganic fertilizers? What is the use of carbohydrates in a balanced diet? Which part of the sugar cane plant is used for eating? Which features of a cactus plant are useful for its survival in desert regions?*
- Deep questions elicit relations between ideas and extended ideas. *For example, What would happen if only inorganic fertilizers are used for growing plants? What connections do you see between the climate of a region and its vegetation? Why is the water in the nearby pond not safe for drinking?*

'What if' and 'Why'... questions can help you delve deeper into pupils' thinking.

12 Handouts

Questions you can ask in class

- Can you guess what will happen?
- Can you give me an example? Can you find an (another) example?
- How does (cause) relate to (event)? or How does this explain ...?
- Is this the same as ...? Is this different from ...?
- Tell me something that is true about ...
- What connections can you see between ...?
- What always seems to happen?
- What other ways are there to ...?
- What do you think is happening?
- What would happen if ...?
- What could be changed if we want...? What would you change so that ...?
- What is wrong with ...?
- What happens when ...?
- What did you observe?
- What do you think about ...?
- What do you think about what X said? Why?
- Why do you think that ...?

- Can you explain that to your partner?
- Can you group these?

Here are some questions classified using Bloom's taxonomy, in order of increasing demand:

Remembering

- What do you remember about ...?
- How would you define ...?
- How would you recognise ...?
- What would you choose ...?
- Describe what happens when ...?
- How is ...?
- Which one ...?
- Why did ...?

Understanding

- How would you clarify the meaning ...?
- How would you differentiate between ...?
- What did you observe ...?
- How would you identify ...?
- What would happen if ...?
- Can you give an example of ...?

Applying

- How would you develop... to present ...?
- What would be the result if ...?
- How would you present ...?
- How would you change ...?
- Why does ... work?
- Can you develop a set of instructions about ...?
- What factors would you change if ...?

Analysing

- How can you classify ... according to ...?
- How can you compare the different parts ...?
- What explanation do you have for ...?
- Discuss the pros and cons of ...?
- What is the analysis of ...?
- How is ... similar to ...?

Evaluating

- What criteria could you use to assess ...?
- What data was used to evaluate ...?
- What choice would you have made ...?
- What is the most important...?
- How could you verify ...?
- Is there a better solution to ...?
- What do you think about ...?
- Do you think this is a bad or a good thing?

Creating

- What alternative would you suggest for ...?
- What changes would you make to revise ...?
- Predict the outcome if ...?
- What could you invent ...?
- How would you compile the facts for ...?
- If you had access to all resources how would you deal with ...?
- Compose a song about ...
- Design a ... to ...

You can print this content on a separate sheet here: [OER4Schools/Questions you can ask](http://OER4Schools/Questions%20you%20can%20ask).

How do you find out whether your question is open or closed? How do you find out whether your question is surface or deep? Let's first look at some examples:

Background reading

Closed versus Open questions:

- Closed questions are factual and focus on a correct response. *Some examples are: Name the different parts of a plant? What are the five nutrients that must be present in a balanced diet? How many sides does a triangle have? What is the formula for calculating perimeter of a square? How many planets are there in the solar system? Name two sources of renewable energy.*
- Open questions have many answers. *Some examples are: What could be the consequences of water contamination? How does a balanced diet help us? How could we use flowers from plants? Suggest ways to prevent the spread of malaria in your community?*

Surface versus Deep questions:

- Surface questions elicit one idea or some ideas. *For example, What is the difference between organic and inorganic fertilizers? What is the use of carbohydrates in a balanced diet? Which part of the sugar cane plant is used for eating? Which features of a cactus plant are useful for its survival in desert regions?*
- Deep questions elicit relations between ideas and extended ideas. *For example: What would happen if only inorganic fertilizers are used for growing plants? What connections do you see between the climate of a region and its vegetation? Why is the water in the nearby pond not safe for drinking?*

'What if' and 'Why'... questions can help you delve deeper into pupils' thinking.

Here are some questions you can use about your questions!

- Does this question have one correct answer?
- Is there more than one answer to this question?
- Are you using this question to get a student to give you a particular answer?
- Could a student come up with the answer through their own thinking, or is it something that they either know or don't know?
- If the question is answered by somebody, would it be possible for somebody to object to the answer, and come up with a different answer (that can be justified, or one that at least isn't easy to dismiss).

Also try to answer the question yourself: Is it a productive question? You could also test your question on a colleague: Again, how do they answer the question?

Also see OER4Schools/Questions you can ask, and also see Starting the enquiry based learning process regarding "productive questions".

You can print this content on a separate sheet here: [OER4Schools/Open and closed questions](#).

Educator note

At the end of each session, we provide an overview of the activities in this session, together with their suggested timings. Although this appears at the end of the session (for technical reasons), you should keep an eye on this throughout the session, to make sure that you are pacing the workshop session appropriately!

Total time: 90 (min)

Activities in this session:

- **Cumulative talk** (10 min): *Creating a story together*
- **Observing, thinking, reflecting** (10 min) *Video on classification of vertebrates.*
- **Observing, thinking, reflecting** (10 min) *Video on classification of vertebrates.*
- **Whole class dialogue** (10 min) *on the learning environment and classroom management.*
- **Whole class dialogue** (10 min): *Reflection on what you have learnt.*
- **Same-task group work** (10 min) *in pairs: Planning cumulative talk in the classroom*
- **Agreeing follow-up activities** (5 min).

- **Same-task group work** (5 min) *in pairs: Coming up with some questions.*
- **Observing, thinking, reflecting** (5 min) *Facilitator talk on open and close questions.*
- **Game** (5 min) *on open and closed questions.*
- **Whole class dialogue** (5 min): *Reflecting on current practice.*
- **Observing, thinking, reflecting** (5 min): *Reading about open and closed questions.*

If you have printed this session for offline use, you may also need to download the following assets:

- Video/Eness vertebrates 4.mp4 (local play / download options)
- Video/Eness vertebrates 5.mp4 (local play / download options)
- Video/19 Eness 3 vertebrates 10.mp4 (local play / download options)
- Video/19 Eness 3 vertebrates 11.mp4 (local play / download options)

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