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Key Resources

A Blueprint and Toolkit for
School-Based Teacher
Development

SECONDARY



Key Resources

A Blueprint and Toolkit for School-Based Teacher Development: Secondary



COMMONWEALTH *of* LEARNING

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The Commonwealth of Learning (COL) is an intergovernmental organisation created by Commonwealth Heads of Government to promote the development and sharing of open learning and distance education knowledge, resources and technologies.



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The Teacher Education in-Sub-Saharan Africa (TESSA) programme, one of the first major open educational resources (OER) for teacher education, is an important source of OER content that has been adapted for the *Blueprint and Toolkit*.

The TESS-India programme, which built on the TESSA experience, has also been an important source, particularly for this document, the *Key Resources*.

KEY RESOURCE 1:

Planning Lessons

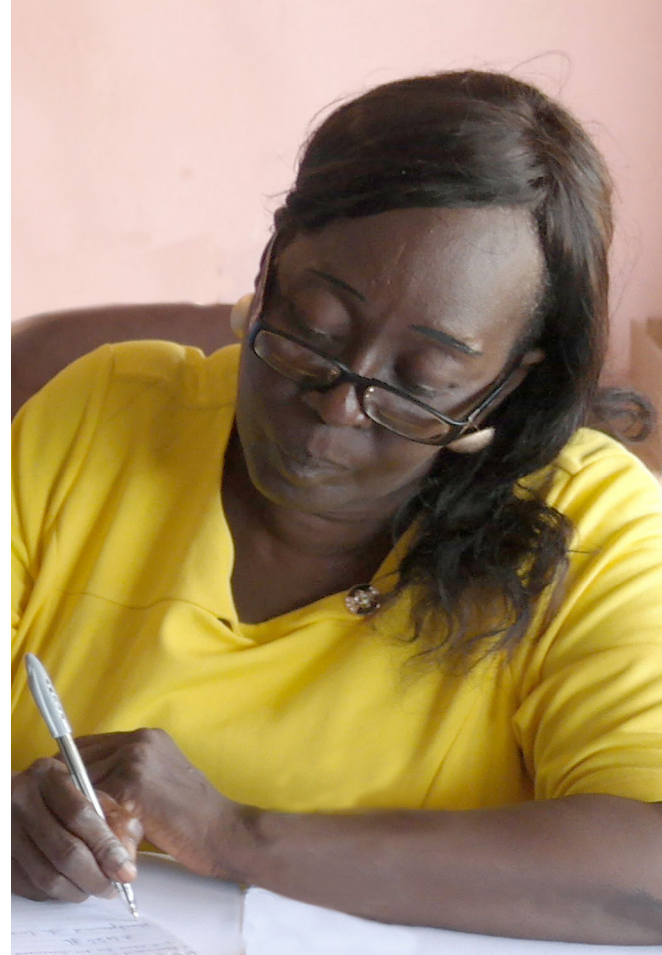
Why Planning and Preparing Are Important

Good lessons have to be planned. Planning helps to make lessons clear and well-timed, meaning that students can be active and interested. Effective planning also includes some in-built flexibility so that you, the teacher, can respond to what you find out about the students' learning as you teach.

Working on a plan for a series of lessons involves knowing the students and their prior learning, what it means to progress through the curriculum, and finding the best resources and activities to help students learn.

Planning is a continual process to help you prepare individual lessons as well as series of lessons, each one building on the last. The stages of lesson planning are:

- being clear about what your students need in order to make progress;
- deciding how you are going to teach in a way that students will understand and how to maintain flexibility to respond to what you find; and
- looking back on how well the lesson went and what your students have learned in order to plan for the future.



Planning a Series of Lessons

When you are following a curriculum, the first part of planning is working out how best to break up subjects and topics in the curriculum into sections or chunks. You need to consider the time available, as well as ways for students to make progress and build up skills and knowledge gradually. Your experience or discussions with colleagues may tell you that one topic will take up four lessons, but another topic will only take two. You may be aware that you will want to return to that learning in different ways and at different times in future lessons, when other topics are covered or the subject is extended.

In all lesson plans, you will need to be clear about:

- what you want the students to learn;
- how you will introduce that learning; and
- what students will have to do and why.

You will want to make learning active and interesting for all the students. Consider what the students will be asked to do across the series of lessons so that you build in variety and interest, but also flexibility. Plan how you can check your students' understanding as they progress through the series of lessons. Be prepared to be flexible if some areas take longer than anticipated or are grasped quickly.

Preparing Individual Lessons

After you have planned the series of lessons, each individual lesson will have to be planned, **based on the progress that students have made up to that point**. You know what the students should have learned or should be able to do at the end of the series of lessons, but you may have needed to re-cap something unexpected or move on more quickly. Therefore, each individual lesson must be planned so that all your students make progress and feel successful and included.

Within the lesson plan, you should make sure that there is enough time for each of the activities and that any resources are ready, such as those for practical work or active group work. As part of planning materials for large classes, you may need to plan different questions and activities for different groups.

When you are teaching new topics, you may need to make time to practise and talk through the ideas with other teachers so that you are confident.

Think of preparing your lessons in three parts:

1 THE INTRODUCTION

At the start of a lesson, explain to the students what they will learn and do, so that everyone knows what is expected of them. Get the students interested in what they are about to learn by allowing them to share what they know already.

2 THE MAIN PART OF THE LESSON

Outline the content based on what students already know. You may decide to use local resources, new information or active methods including group work or problem solving. Identify the resources to use and the way that you will make use of your classroom space. Using a variety of activities, resources and timings is an important part of lesson planning. If you use various methods and activities, you will reach more students because students learn in different ways.

3 CHECK ON LEARNING AND END THE LESSON

Always allow time (either during or at the end of the lesson) to find out how much progress has been made. Checking does not always mean a test. Usually it will be quick and “on the spot” — such as asking planned questions or observing students



presenting what they have learned. However, you must plan to be flexible and to make changes according to what you find out from the students' responses.

A good way to end the lesson can be to return to the goals at the start, allowing time for the students to tell each other and you about their progress with that learning. Listening to the students will make sure you know what to plan for the next lesson.

Reviewing Lessons

Look back over each lesson and keep a record of what you did, what your students learned, what resources were used and how well it went. You can then make improvements or adjustments to your plans for subsequent lessons. For example, you may decide to:

- change or vary the activities;
- prepare a range of open and closed questions; and/or
- have a follow-up session with students who need extra support.

Think about what you could have planned or done even better to help students learn.

Your lesson plans will inevitably change as you go through each lesson, because you cannot predict everything that will happen. Good planning will mean that you know what learning you want to happen and therefore you will be ready to respond flexibly to what you find out about your students' actual learning.

KEY RESOURCE 2:

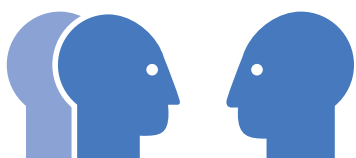
Involving All

The diversity in culture and in society is reflected in the classroom. Students have different languages, interests and abilities. Students come from different social and economic backgrounds. We cannot ignore these differences; indeed, we should celebrate them, as they can become a vehicle for learning more about each other and the world beyond our own experience. All students have the right to an education and the opportunity to learn, regardless of their status, ability and background. Schools and teachers have a very important role in this respect.

We all have prejudices and views about others that we may not have recognised or addressed. As a teacher, you carry the power to influence every student's experience of education in a positive or negative way. Whether knowingly or not, your underlying prejudices and views will affect how equally your students learn. You can take steps to guard against unequal treatment of your students.

Three Key Principles

1 NOTICE



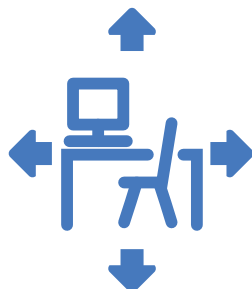
Effective teachers are observant, perceptive and sensitive; they *notice* changes in their students. If you are observant, you will notice when a student does something well, when they need help and how they relate to others. You may also perceive changes in your students that might reflect changes in their home circumstances or other issues. Involving all requires that you notice your students on a daily basis, paying particular attention to students who may feel marginalised or unable to participate.

2 FOCUS ON SELF-ESTEEM



Good citizens have self-esteem, know their own strengths and weaknesses, and have the ability to form positive relationships with other people, regardless of background. They respect themselves and they respect others. As a teacher, you can have a significant impact on a young person's self-esteem; be aware of that power and use it to build the self-esteem of every student.

3 BE FLEXIBLE



If something is not working in your classroom for specific students, groups or individuals, be prepared to change your plans or stop an activity. Being flexible will enable you to make adjustments so that you involve all students more effectively.

Approaches You Can Use All the Time

MODEL GOOD BEHAVIOUR

Be an example to your students by treating them all well, regardless of ethnic group, religion or gender. Treat all students with respect and make it clear through your teaching that you value all students equally. Talk to them all respectfully, take account of their opinions when appropriate and encourage them to take responsibility for the classroom by taking on tasks that will benefit everyone.

HAVE HIGH EXPECTATIONS

Ability is not fixed; all students can learn and progress if supported appropriately. If a student is finding it difficult to understand the work you are doing in class, then do not assume that they cannot ever understand. Your role as the teacher is to work out how best to help each student learn. If you have high expectations of everyone in your class, your students are more likely to assume that they will learn if they persevere.

High expectations should also apply to behaviour. Make sure the expectations are clear and that students treat each other with respect.

BUILD VARIETY INTO YOUR TEACHING

Students learn in different ways. Some students like to write; others prefer to draw mind maps or pictures to represent their ideas. Some students are good listeners; some learn best when they get the opportunity to talk about their ideas. You cannot suit all the students all the time, but you can build variety into your teaching and offer students a choice about some of the learning activities that they undertake.

RELATE THE LEARNING TO EVERYDAY LIFE

For some students, what you are asking them to learn appears to be irrelevant to their everyday lives. You can address this by making sure that — whenever possible — you relate the learning to a context that is relevant to them and that you draw on examples from their own experience.



USE POSITIVE LANGUAGE

Think carefully about the language you use. Use positive language and praise, and do not ridicule students. Always comment on their behaviour and not on them. “You are annoying me today,” is very personal and can be better expressed as “I am finding your behaviour annoying today. Is there any reason you are finding it difficult to concentrate?”, which is much more helpful.

CHALLENGE STEREOTYPES

Find and use resources that show girls in non-stereotypical roles or invite female role models, such as scientists, to visit the school. Try to be aware of your own gender stereotyping; you may know that girls play sports and that boys are caring, but often we express this differently, mainly because that is the way we are used to talking in society.

CREATE A SAFE, WELCOMING LEARNING ENVIRONMENT

All students need to feel safe and welcome at school. You are in a position to make your students feel welcome by encouraging mutually respectful and friendly behaviour from everyone. Think about how the school and classroom might appear and feel like to different students. Think about where they should be asked to sit and make sure that any students with visual or hearing impairments, or physical disabilities, sit where they can access the lesson. Check that those who are shy or easily distracted are where you can easily include them.





Specific Teaching Approaches

Several specific approaches will help you to involve all students. These are described in more detail in other Key Resources, but a brief introduction is given below:

QUESTIONING (SEE ALSO KEY RESOURCE 5)

If you invite students to put their hands up, the same people tend to answer. There are other ways to involve more students in thinking about the answers and responding to questions. You can direct questions to specific students. Tell the class you will decide who answers, then ask students at the back and sides of the room, rather than those sitting at the front. Give students “thinking time” and invite contributions from specific people. Use pair or group work to build confidence so that you can involve everyone in whole-class discussions.

ASSESSMENT (SEE ALSO KEY RESOURCE 8)

Develop a range of techniques for formative assessment that will help you to know each student well. You need to be creative to uncover hidden talents and shortfalls. Formative assessment will give you accurate information rather than assumptions that can easily be drawn from generalised views about certain students and their abilities. You will then be in a good position to respond to the students’ individual needs.

GROUP WORK AND PAIR WORK (SEE ALSO KEY RESOURCES 4 AND 7)

Think carefully about how to divide your class into groups or how to make up pairs, taking account of the goal to include all and encourage students to value each other. Ensure that all students have the opportunity to learn from each other and build their confidence in what they know. Some students will have the confidence to express their ideas and ask questions in a small group, but not in front of the whole class.

DIFFERENTIATION (SEE ALSO KEY RESOURCES 13 AND 14)

Setting different tasks for different groups will help students start from where they are and move forward. Setting open-ended tasks will give all students the opportunity to succeed. Offering students a choice of tasks helps them to feel ownership of their work and to take responsibility for their own learning. Taking account of individual learning needs is difficult, especially in a large class, but by using a variety of tasks and activities it can be done.

KEY RESOURCE 3:

Talk for Learning

Talk is a part of human development that helps us to think, learn and make sense of the world. People use language as a tool for developing reasoning, knowledge and understanding. Therefore, encouraging students to talk as part of their learning will enhance their progress. Talking about the ideas being learned means that:

- those ideas are explored; and
 - reasoning is developed and organized.
- } As such, students learn more.

In a classroom, there are different ways to use student talk, ranging from rote repetition to higher-order discussions. Traditionally, teacher talk was dominant in classrooms and was more valued than students' talk or knowledge. There is now significant evidence that students need to verbalise their learning to make it effective. However, talk for learning is much more than a question-and-answer session between teacher and students. As the teacher, you need to plan lessons so that students can talk more and learn more in a way that makes connections with their prior experience. Most of us want to talk to someone if we want to find something out or we have a problem, and teachers can build on this instinct with well-planned activities.

Planning Talk for Learning Activities

Planning talking activities is not just for Language or Literacy lessons; it is also part of planning Mathematics, Science and other subjects. It can be planned into whole-class, pair or group work, outdoor activities, role play, writing, reading, practical investigations, and creative work.

Even young students with limited literacy and numeracy skills can demonstrate higher-order thinking skills if the task is designed to build on their prior experience and is enjoyable. For example, students can make predictions about a story, an animal or a shape from photos, drawings or real objects. They can list suggestions and possible solutions about problems to a puppet or character in a role play.

Plan the lesson around what you want the students to learn and think about, as well as what type of talk you want them to develop. Some types of talk are exploratory, for example: "What could happen next?", "Have we seen this before?" or "Why do you think that is?" Other types are more analytical, for example weighing up ideas or evidence.

Try to make it interesting, enjoyable and possible for all students to participate in dialogue. Students need to feel comfortable when expressing views and exploring ideas, without fear of ridicule or being made to feel they are getting it "wrong."

Talk for learning gives you the opportunity to:

- listen to what students say;
- appreciate and build on students' ideas; and

- encourage the students to take it further.

Not all responses have to be written or formally assessed, because developing ideas through talk is a valuable part of learning. You should use students' experiences and ideas as much as possible to make their learning feel relevant. The best student talk is exploratory, which means that the students explore and challenge one another's ideas so that they can become confident about their responses. Groups talking together should be encouraged to not just accept an answer, whoever gives it. You can model challenging thinking in a whole-class setting through your use of probing questions, such as "Why?", "How did you decide that?" or "Can you see any problems with that solution?" You can walk around the classroom listening to groups of students and extending their thinking by asking such questions.

Your students will be encouraged if their talk, ideas and experiences are valued. Praise them for their behaviour when talking, listening carefully, questioning one another and learning not to interrupt. Be aware of members of the class who are marginalised and think about how you can make sure they are included. It may take some time to establish ways of working that allow all students to participate fully.

Encouraging Students to Ask Questions

Develop a climate in your classroom where good challenging questions are asked and where students' ideas are respected and praised. Students will not ask questions if they are afraid of how they will be received or if they think their ideas are not valued. Inviting students to ask questions encourages curiosity, asks them to think in a different way about their learning and helps you to understand their point of view.

You could plan some regular group or pair work, or perhaps a "student question time" so that students can raise queries or ask for clarification. You could:

- entitle a section of your lesson "Hands up if you have a question";
- put a student in the "hot seat" and encourage the other students to question that student as if they were a historical figure or fictional character (e.g. Pythagoras or Mirabai);
- play a "Tell me more" game in pairs or small groups;
- give students a question grid with who/what/where/when/why questions to practise basic enquiry;
- give the students some data (such as the data available from the World Data Bank, e.g. the percentage of children in full-time education in different countries), and ask them to think of questions to ask about this data; and/or
- design a "question wall" listing the students' questions of the week.

You may be pleasantly surprised at the level of interest and thinking that you see when students are freer to ask questions and find answers for them. As students learn how to communicate more clearly and accurately, they not only increase their oral and written vocabulary, but they also develop new knowledge and skills.

KEY RESOURCE 4:

Using Pair Work

In daily life, people work alongside, speak and listen to others. This is how people learn. As we talk to others, we discover new ideas and information. In classrooms, if everything is centred on the teacher, then most students do not get enough time to try out or demonstrate their learning, or to ask questions. Some students may only give short answers and some may say nothing at all. In large classes, the situation is even worse, with only a small proportion of students saying anything at all.

Why Use Pair Work?

Pair work is a natural way for students to talk and learn more. It gives them the chance to think and try out ideas and new language. It can provide a comfortable way for students to work through new skills and concepts, and works well in large classes. Pair work is suitable for all ages and subjects. It is especially useful in multilingual, multi-grade classes, because pairs can be arranged to help each other.

Pair work is best when you plan specific tasks and establish routines to manage pairs to make sure that all of your students are included, learning and progressing. Once these routines are established, you will find that students quickly get used to working in pairs and enjoy learning this way.

Tasks for Pair Work

You can use a variety of pair work tasks depending on the intended outcome of the learning. The

task must be clear and appropriate, so that working together helps learning more than working alone. By talking about their ideas, your students will automatically be thinking about and developing them further. Some ideas for pair work tasks are outlined below:

“THINK–PAIR–SHARE”

Students think about a problem or issue themselves and then work in pairs to work out possible answers before sharing their answers with other students. This could be used for spelling, working through calculations, putting things in categories or in order, giving different viewpoints, pretending to be characters from a story, and so on.

SHARING INFORMATION

Half the class are given information on one aspect of a topic; the other half are given information on a different aspect of the



topic. They then work in pairs to share their information in order to solve a problem or come to a decision.

PRACTISING SKILLS SUCH AS LISTENING

One student could read a story and the other ask questions; one student could read a text in English, while the other tries to write it down; one student could describe a picture or diagram while the other student tries to draw it based on the description.

FOLLOWING INSTRUCTIONS

One student could read instructions for the other student to complete a task.

STORYTELLING OR ROLE PLAY

Students could work in pairs to create a story or a piece of dialogue in a language that they are learning.

Managing Pairs to Include All

Pair work is about involving all. Since students are different, pairs must be managed so that everyone knows what they have to do, what they are learning and what your expectations are. To establish pair work routines in your classroom, you should do the following:

- Manage the pairs that the students work in. Sometimes students will work in friendship pairs; sometimes they will not. Make sure they understand that you will decide the pairs to help them maximise their learning.
- To create more of a challenge, sometimes you could pair students of mixed ability and different languages together so that they can help each other; at other times you could pair students working at the same level.
- Keep records, so that you know your students' abilities and can pair them together accordingly.
- At the start, explain the benefits of pair work to the students, using examples from family and community contexts where people collaborate.
- Keep initial tasks brief and clear.
- Monitor the student pairs to make sure that they are working as you want.
- Give students roles or responsibilities in their pair, such as two characters from a story, or simple labels such as "1" and "2", or "A" and "B"). Do this before they move to face each other so that they listen.
- Make sure that students can turn or move easily to sit to face each other.

During pair work, tell students how much time they have for each task and give regular time checks. Praise pairs who help each other and stay on task. Give pairs time to settle and find their

own solutions — it can be tempting to get involved too quickly before students have had time to think and show what they can do.

Most students enjoy the atmosphere of everyone talking and working. As you move around the class observing and listening, make notes of who is comfortable together, be alert to anyone who is not included, and note any common errors, good ideas or summary points.

At the end of the task, you have a role in making connections between what the students have developed. You may select some pairs to show their work, or you may summarise this for them. Students like to feel a sense of achievement when working together. You do not need to get every pair to report back — that would take too much time — but select students who you know from your observations will be able to make a positive contribution that will help others to learn. This might be an opportunity for students who are usually timid about contributing to build their confidence.

If you have given students a problem to solve, you could give a model answer and then ask them to discuss in pairs how to improve their answer. This will help them to think about their own learning and to learn from their mistakes.

If you are new to pair work, it is important to make notes on any changes you want to make to the task, timing or combinations of pairs. This is important because this is how you will learn and how you will improve your teaching. Organising successful pair work is linked to clear instructions and good time management, as well as succinct summarising — this all takes practice.

KEY RESOURCE 5:

Using Questioning to Promote Thinking

Teachers question their students all the time; questions mean that teachers can help their students to learn, and learn more. One study (Hastings, 2003)¹ found that, on average, a teacher spends one-third of their time questioning students. However, of the questions posed, 60 per cent are used to recall facts and 20 per cent are procedural (Hattie, 2012)², with most answers being either right or wrong. But does simply asking questions that are either right or wrong promote learning?

Types of Questions

There are many different types of questions that students can be asked. The responses and outcomes that the teacher wants dictate the type of question that the teacher should use. For example, you might ask students questions in order to:

- guide students toward understanding when a new topic or material is introduced;
- push students to do a greater share of their thinking;
- remediate an error;
- stretch students; or
- check for understanding.

Questioning is generally used to find out what students know, so it is important in assessing their progress. Questions can also be used to inspire, extend students' thinking skills and develop enquiring minds. They can be divided into two broad categories:

Lower-order questions, which involve the recall of facts and knowledge previously taught, often involving closed questions (a “yes/no” answer).

Higher-order questions, which require more thinking. They may ask the students to put together information previously learned to form an answer or to support an argument in a logical manner. Higher-order questions are often more open-ended.

Open-ended questions encourage students to think beyond textbook-based, literal answers, thus eliciting a range of responses. They also help teachers to assess students' understanding of content.

Encouraging and Improving Responses

ENCOURAGING STUDENTS TO RESPOND

Many teachers allow less than one second before requiring a response to a question and therefore often answer the question themselves or rephrase the question (Hastings, 2003). The students only have time to react — they do not have time to think! If you wait for a few seconds before expecting answers, the students will have time to think. This has a positive effect on students' achievement. By waiting after posing a question, there is an increase in:

- the length of students' responses;
- the number of students offering responses;
- the frequency of students' questions;
- the number of responses from less capable students; and
- positive interactions between students.

YOUR RESPONSE MATTERS

The more positively you receive all answers that are given, the more students will continue to think and try. There are many ways to ensure that wrong answers and misconceptions are corrected, and if one student has the wrong idea, you can be sure that many more have as well. You could try the following:

Pick out the parts of the answers that are correct and ask the student in a supportive way to think a bit more about their answer. This encourages more active participation and helps students to learn from their mistakes. The following comment shows how you might respond to an incorrect answer in a supportive way: "You were right about evaporation forming clouds, but I think we need to explore a bit more about what you said about rain. Can anyone else offer some ideas?"

Write all the students' responses on the board and then ask the class to think about them all. Which answers do they think are right? What might have led to another answer being given? This gives you an opportunity to understand the way that your students are thinking and also provides a non-threatening environment for students to correct any misconceptions that they may have.

Value all responses by listening carefully and asking the student to explain further. If you ask for further explanation for all answers, right or wrong, students will often correct any mistakes for themselves, you will develop a thinking classroom and you will really know what learning your students have done and how to proceed. If wrong answers result in humiliation or punishment, then your students will stop trying for fear of further embarrassment or ridicule.

IMPROVING THE QUALITY OF RESPONSES

It is important that you try to adopt a sequence of questioning that doesn't just end with the right answer. Right answers should be rewarded with follow-up questions that extend knowledge and promote further engagement. You can do this by asking for:

- a “how” or a “why”;
- another way to answer;
- a better word;
- evidence to substantiate an answer;
- integration of a related skill; and/or
- application of the same skill or logic in a new setting.

Helping students to think more deeply about (and therefore improve the quality of) their answers is a crucial part of your role. The following skills will help students achieve more:

Prompting requires appropriate hints to be given — ones that help students develop and improve their answers. You might first choose to say what is right in the answer and then offer information, further questions and other clues. (e.g. “So what would happen if you added a weight to the end of your paper aeroplane?”)

Probing is about trying to find out more, helping students to clarify what they are trying to say to improve a disorganised answer or one that is partly right. (e.g. “So what more can you tell me about how this fits together?”)

Refocusing is about building on correct answers to link students’ knowledge to the knowledge that they have previously learned. This broadens their understanding. (e.g. “What you have said is correct, but how does it link with what we were looking at last week in our local environment topic?”)

Sequencing questions means asking questions in an order designed to extend thinking. Questions should lead students to summarise, compare, explain or analyse. Prepare questions that stretch students, but do not challenge them so far that they lose the meaning of the questions. (e.g. “Explain how you overcame your earlier problem. What difference did that make? What do you think you need to tackle next?”)



Listening enables you to not just look for the answer you are expecting, but to alert you to unusual or innovative answers that you may not have expected. It also shows that you value the students' thinking and therefore they are more likely to give thoughtful responses. Such answers could highlight misconceptions that need correcting, or they may show a new approach that you had not considered. (e.g. "I hadn't thought of that. Tell me more about why you think that way.")

Remember, questioning is not about what the teacher knows, but about what the students know. It is important to remember that you should never answer your own questions! After all, if the students know you will give them the answers after a few seconds of silence, what is their incentive to answer?

As a teacher, you need to ask questions that inspire and challenge if you are to generate interesting and inventive answers from your students. You need to give them time to think. If you do this, you will be amazed by how much your students know and how well you can help them progress their learning.

References

¹Hastings, S. (2003) 'Questioning', *TES Newspaper*, 4 July. Available from: <http://www.tes.co.uk/article.aspx?storycode=381755> (accessed 22 September 2014).

²Hattie, J. (2012) *Visible Learning for Teachers: Maximising the Impact on Learning*. Abingdon: Routledge.

KEY RESOURCE 6:

Monitoring and Giving Feedback

Improving students' performance involves constantly monitoring and responding to them, so that they know what is expected and they get feedback after completing tasks. They can then improve their performance through your constructive feedback.

Monitoring

Effective teachers monitor their students most of the time. Generally, most teachers monitor their students' work by listening and observing what they do in class. Monitoring students' progress is critical because it helps them to:

- achieve higher grades;
- be more aware of their performance and more responsible for their learning; and
- improve their learning.

Monitoring will also help you, as a teacher, to decide:

- when to ask a question or give a prompt;
- when to praise;
- whether to challenge;
- how to include different groups of students in a task; and
- what to do about mistakes.

Students improve most when they are given clear and prompt feedback on their progress. Using monitoring will enable you to give regular feedback, letting your students know how they are doing and what they need to do to advance.

One of the challenges you will face is helping students to set their own learning targets, also known as self-monitoring. Students, especially struggling ones, are not used to having ownership of their own learning. But you can help any student to set their own targets or goals for a project, plan out their work and set deadlines, and self-monitor their progress. Practising the process and mastering the skill of self-monitoring will serve them well in school and throughout their lives.

Listening to and observing students

Most of the time, listening to and observing students is done naturally by teachers; it is a simple monitoring tool. For example, you may:

- listen to your students reading aloud;
- listen to discussions in pair or group work;

- observe students using resources outdoors or in the classroom; and/or
- observe the body language of groups as they work.

Make sure that the observations you collect are true evidence of student learning or progress. Only document what you can see, hear, justify or count.

As students work, move around the classroom in order to make brief observation notes. You can use a class list to record which students need more help, and also to note any emerging misunderstandings. You can use these observations and notes to give feedback to the whole class or prompt and encourage groups or individuals.

Giving Feedback

Feedback is information that you give to a student about how they have performed in relation to a stated goal or expected outcome. Effective feedback gives the student:

- information about what happened;
- an evaluation of how well the action or task was performed; and
- guidance as to how they can improve.

When you give feedback to each student, it should help them to know:

- what they can actually do;
- what they cannot do yet;
- how their work compares with that of others; and
- how they can improve.

It is important to remember that effective feedback helps students. You do not want to inhibit learning because your feedback is unclear or unfair. Effective feedback is:

- **focused** on the task and the learning that the student needs to do;
- **clear and honest**, telling the student what is good about their learning as well as what requires improvement;
- **actionable**, telling the student to do something that they are able to do;
- **given in appropriate language** that the student can understand;
- **given at the right time** — if feedback is given too soon, the student will think, “I was just going to do that!”; too late, and the student’s focus will have moved elsewhere and they will not want to go back and do what is asked.

Whether feedback is spoken or written in the students’ workbooks, it becomes more effective if it follows the guidelines given below.

Use praise and positive language

When we are praised and encouraged, we generally feel a great deal better than when we are criticised or corrected. Reinforcement and positive language is motivating for the whole class and for individuals of all ages. Remember that praise must be specific and targeted on the work done, rather than about the student themselves; otherwise it will not help the student progress. “Well done” is non-specific, so it is better to say one of the following:

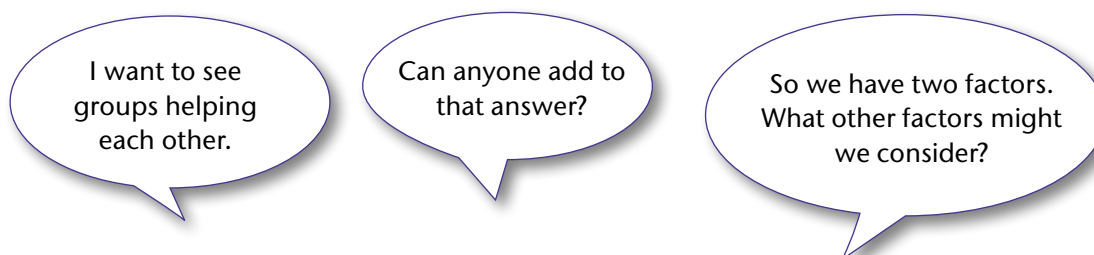


Use prompting as well as correction

The dialogue that you have with your students helps their learning. If you tell them that an answer is incorrect and finish the dialogue there, you miss the opportunity to help them to keep thinking and trying for themselves. If you give students a hint or ask them a further question, you prompt them to think more deeply and encourage them to find answers and take responsibility for their own learning. You can encourage a better answer or prompt a different angle on a problem by saying such things as:



It may be appropriate to encourage other students to help each other. You can do this by opening your questions to the rest of the class with such comments as:



Correcting students with a “yes” or “no” might be appropriate to tasks such as spelling or number practice, but even here you can prompt students to look for emerging patterns in their

answers, make connections with similar answers or open a discussion about why a certain answer is incorrect.

Self-correction and peer correction is effective and you can encourage this by asking students to check their own and each other's work while doing tasks or assignments in pairs. It is best to focus on one aspect to correct at a time so that there is not too much confusing information.

KEY RESOURCE 7:

Using Group Work

Group work is a systematic, active, pedagogical strategy that encourages small groups of students to work together for the achievement of a common goal. These small groups promote more active and more effective learning through structured activities.

The Benefits of Group Work

Group work can be a very effective way of motivating your students to learn by encouraging them to think, communicate, exchange ideas and thoughts, and make decisions. Your students can both teach and learn from others: a powerful and active form of learning.

Group work is more than students sitting in groups; it involves working on and contributing to a shared learning task with a clear objective. You need to be clear about why you are using group work for learning and know why this is preferable to lecturing, pair work or to students working on their own. Thus, group work has to be well-planned and purposeful.

Planning Group Work

When and how you use group work will depend on what learning you want to achieve by the end of a lesson. You can include group work at the start of, the end of or midway through a lesson, but you will need to allow enough time. You will need to think about the task that you want the students to do and the best way to organise the groups.

As a teacher, you can ensure that group work is successful if you plan in advance:

- the goals and expected outcomes of the group activity;
- the time allocated to the activity, including any feedback or summary task;
- how to split the groups (how many groups, how many students in each group, criteria for groups);
- how to organise the groups (role of different group members, time required, materials, recording and reporting);
- how any assessment will be undertaken and recorded (take care to distinguish individual assessments from group assessments); and
- how you will monitor the groups' activities.

Tasks for Group Work

The task that you ask your students to complete depends on what you want them to learn. By taking part in group work, they will learn skills such as listening to each other, explaining their ideas and working co-operatively. However, the main aim is for them to learn something about the subject that you are teaching. Some examples of tasks could include the following:

PRESENTATIONS

Students work in groups to prepare a presentation for the rest of the class. This works best if each group has a different aspect of the topic, so they are motivated to listen to each other rather than listening to the same topic several times. Be very strict about the time that each group has to present and decide on a set of criteria for a good presentation. Write these on the board before the lesson. Students can then use the criteria to plan their presentation and assess each other's work. The criteria could include:

- Was the presentation clear?
- Was the presentation well-structured?
- Did I learn something from the presentation?
- Did the presentation make me think?



PROBLEM SOLVING

Students work in groups to solve a problem or a series of problems. This could include conducting an experiment in Science, solving problems in Mathematics, analysing a story or poem in English, or analysing evidence in History.

CREATING AN ARTEFACT OR PRODUCT

Students work in groups to develop a story, a piece of drama, a piece of music, a model to explain a concept, a news report on an issue, or a poster to summarise information or explain a concept.

Giving groups five minutes at the start of a new topic to create a brainstorm or mind map will tell you a great deal about what they already know, and will help you pitch the lesson at an appropriate level.





DIFFERENTIATED TASKS

Group work is an opportunity to allow students of different ages or attainment levels to work together on an appropriate task. Higher attainers can benefit from the opportunity to explain the work, whereas lower attainers may find it easier to ask questions in a group than in front of the whole class, and will learn from their classmates.

DISCUSSION

Students consider an issue and come to a conclusion. This may require quite a bit of preparation on your part in order to make sure that the students have enough knowledge to consider different options, but organising a discussion or debate can be very rewarding for both you and them.

Organising and Managing Groups

ORGANISING GROUPS



Groups of four to eight are ideal, but this will depend on the size of your class, the physical environment and furniture, and the attainment and age range of your class. Ideally everyone in a group needs to be able to see each other, talk without shouting and contribute to the group's outcome.

Decide how and why you will divide students into groups. For example, you may divide groups by friendship, interest levels or by similar or mixed attainment. Experiment with different ways and review what works best with each class.

Plan any roles you will give to group members (e.g. note taker, spokesperson, time keeper or collector of equipment) and how you will make this clear.

MANAGING GROUPS

You can set up routines and rules to manage good group work. When you use group work regularly, students will know what you expect and find it enjoyable. Initially, it is a good idea to work with your class to identify the benefits of working together in teams and groups. You should discuss what is good behaviour when working in groups and possibly generate a list of "rules" that might be displayed; for example, "Respect for each other," "Listening," "Helping each other," "Trying more than one idea," etc.

It is important to give clear verbal instructions about the group work. These can also be written on the board for reference. You need to:

- direct your students to the groups they will work in according to your plan, perhaps designating areas in the classroom where they will work or giving instructions about moving any furniture or school bags; and
- be very clear about the task and write it on the board in short instructions or pictures. Allow your students to ask questions before you start.

During the lesson, move around to observe and check how the groups are doing. Offer advice where needed if they are deviating from the task or getting stuck.

EXPERT GROUPS

One option is to create “expert groups,” where you give each group a different task (e.g. researching one way of generating electricity or developing a character for a drama). After a suitable time, reorganise the groups so that each new group is made up of one “expert” from all the original groups. Then give them a task that involves collating knowledge from all the experts (e.g. deciding what sort of power station to build or preparing a piece of drama).

ENVOYS

If the task involves creating something or solving a problem, after a while, ask each group to send an “envoy” to another group. They could compare ideas or solutions to the problem and then report back to their own group. In this way, groups can learn from each other.

At the end of the task, summarise what has been learned and correct any misunderstandings that you have seen. You may want to hear feedback from each group, or ask just one or two groups who you think have some good ideas. Keep students’ reporting brief and encourage them to offer feedback on work from other groups by identifying what has been done well, what was interesting and what might be developed further.

Even if you want to adopt group work in your classroom, you may at times find it difficult to organise because some students:

- are resistant to active learning and do not engage;
- are dominant; or
- do not participate due to poor interpersonal skills or lack of confidence.

To become effective at managing group work, it is important to reflect on all the above points, in addition to considering how far the learning outcomes were met and how well your students responded (did they all benefit?). Consider and carefully plan any adjustments you might make to the task, resources, timings or group composition.

Research suggests that learning in groups need not be used all the time to have positive effects on student achievement, so you should not feel obliged to use it in every lesson. You might want

to consider using group work as a supplemental technique, for example as a break between a topic change or a jump-start for class discussion. It can also be used as an ice-breaker or to introduce experiential learning activities and problem-solving exercises into the classroom, or to review topics.

KEY RESOURCE 8:

Assessing Progress and Performance

Why Assess?

Assessing students' learning has two purposes:

- **Summative assessment** (or **assessment of learning**) looks back and makes a judgement on what has already been learned. It is often conducted in the form of tests that are graded, telling students their attainment on the questions in that test. This also helps in reporting outcomes.
- **Formative assessment** (or **assessment for learning**) is quite different, being more informal and diagnostic in nature. Teachers use it as part of the learning process, for example questioning to check whether students have understood something. The outcomes of this assessment are then used to change the next learning experience. Monitoring and feedback are part of formative assessment.

Formative Assessment

Formative assessment enhances learning. This is because, in order to learn, most students must:

- understand what they are expected to learn;
- know where they are now with that learning;
- understand how they can make progress (i.e. what and how to study); and
- know when they have reached the goals and expected outcomes.

You will get the best out of your students if you attend to the four points above in every lesson. Thus, assessment can be undertaken before, during and after instruction.

Assessing *before* the teaching begins can help you identify what the students know and can do prior to instruction. It determines the baseline and gives you a starting point for planning your teaching. Finding out what students already know reduces the chance of re-teaching the students something they have already mastered or omitting something they possibly should (but do not yet) know or understand.

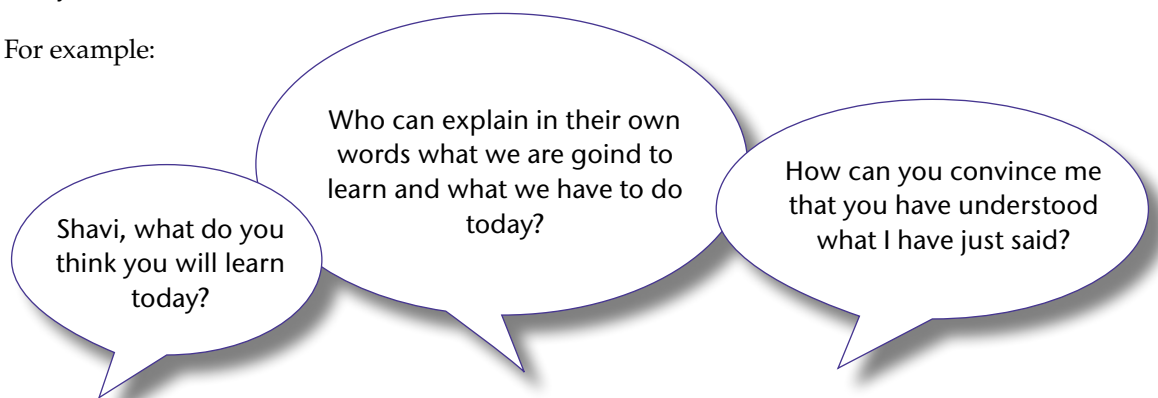
Assessing *during* classroom teaching involves checking if students are learning and improving. This will help you make adjustments in your teaching methodology, resources and activities. It will help you understand how the students are progressing towards the desired objectives and how successful your teaching is.

Assessment that occurs *after* teaching confirms what students have learned and shows you who has learned and who still needs support. This will allow you to assess the effectiveness of your teaching goals.

BEFORE: BE CLEAR ABOUT WHAT YOUR STUDENTS WILL LEARN

When you decide what the students must learn in a lesson or series of lessons, you need to share this with them. Carefully distinguish what the students are expected to learn from what you are asking them to do. Ask an open question that gives you the chance to assess whether they have really understood.

For example:



Give the students a few seconds to think before they answer, or perhaps ask the students to first discuss their answers in pairs or small groups. When they tell you their answer, you will know whether they understand what it is they have to learn.

BEFORE: KNOW WHERE STUDENTS ARE IN THEIR LEARNING

In order to help your students improve, both you and they need to know the current state of their knowledge and understanding. Once you have shared the intended learning outcomes or goals, you could do the following:

- Ask the students to work in pairs to make a mind map or list of what they already know about that topic. Give them enough time to complete it, but not too long for those with few ideas. You should then review the mind maps or lists.
- Write the important vocabulary on the board and ask for volunteers to say what they know about each word. Then ask the rest of the class to put their thumbs up if they understand the word, thumbs down if they know very little or nothing, and thumbs horizontal if they know something.

Knowing where to start will mean that you can plan lessons that are relevant and constructive for your students. It is also important that your students are able to assess how well they are learning so that both you and they know what they need to learn next. Providing opportunities for your students to take charge of their own learning will help to make them lifelong learners.

DURING: MAKE SURE STUDENTS PROGRESS

When you talk to students about their current progress, make sure that they find your feedback both useful and constructive. Do this by:

- helping students know their strengths and how they might further improve;
- being clear about what needs further development; and
- being positive about how they might develop their learning, checking that they understand and feel able to use the advice.

You will also need to provide opportunities for students to improve their learning. This means that you may have to modify your lesson plans to close the gap between where your students are now in their learning and where you wish them to be. In order to do this, you might have to:

- go back over some work that you thought they knew already;
- group students according to needs, giving them differentiated tasks;
- encourage students to decide for themselves which of several resources they need to study so that they can “fill their own gap”; and/or
- use “low entry, high ceiling” tasks so that all students can make progress (i.e. tasks designed so that all students can start the task, but the more able ones are not restricted and can progress to extend their learning).

By slowing the pace of lessons down, very often you can actually speed up learning because you give students the time and confidence to think and understand what they need to do to improve. By letting students talk about their work among themselves, and reflect on where the gaps are and how they might close them, you are providing them with ways to assess themselves.

AFTER: COLLECT AND INTERPRET EVIDENCE, AND PLAN AHEAD

While teaching–learning is taking place and after setting a classwork or homework task, it is important to:

- find out how well your students are doing;
- use this to inform your planning for the next lesson; and
- feed it back to students.

The four key states of assessment are discussed below.

COLLECTING INFORMATION OR EVIDENCE

Every student learns differently, at their own pace and in their own style, both inside and outside school. Therefore, you need to do two things while assessing students:

Collect information from a variety of sources — from your own experience, the student, other students, other teachers, parents/carers and community members.

Assess students individually, in pairs and in groups, and promote self-assessment. Using different methods is important, as no single method can provide all the information you need. Different ways of collecting information about the students' learning and progress include observing, listening, discussing topics and themes, and reviewing written classwork and homework.

RECORDING

Most schools have some sort of reporting system, but this may not allow you to record all aspects of a student's learning. There are some simple ways of doing this that you may like to consider, such as:

- noting down what you observe while teaching–learning is going on in a diary/notebook/register;
- keeping samples of students' work (written, art, craft, projects, poems, etc.) in a portfolio;
- preparing every student's profile; and
- noting down any unusual incidents, changes, problems, strengths and learning evidence.

INTERPRETING THE EVIDENCE

Once information and evidence have been collected and recorded, it is important to interpret the evidence in order to form an understanding of how each student is learning and progressing. This requires careful reflection and analysis. You then need to act on your findings to improve learning, maybe through feedback to students, finding new resources, rearranging groups and/or repeating a learning point.

PLANNING FOR IMPROVEMENT

Assessment can help you to provide meaningful learning opportunities to every student by establishing specific and differentiated learning activities, giving attention to the students who need more help and challenging the students who are more advanced.

KEY RESOURCE 9:

Using Local Resources

Many learning resources can be used in teaching — not just textbooks. If you offer ways to learn that use different senses (visual, auditory, touch, smell, taste), you will appeal to the different ways that students learn.

There are resources all around you that you might use in your classroom to support students' learning. Any school can generate its own learning resources at little or no cost. By sourcing these materials locally, connections are made between the curriculum and your students' lives.

You will find people in your immediate environment who have expertise in a wide range of areas; you will also find a range of natural resources. Using local resources can help you to create links with the community, demonstrate its value, stimulate students to see the richness and diversity of their environment, and perhaps most importantly work towards a holistic approach to student learning — that is, learning inside and outside the school.

Making the Most of the Classroom

People work hard at making their homes as attractive as possible. It is worth thinking about the environment that you expect your students to learn in. Anything you can do to make your classroom and school an attractive place to learn will have a positive impact on your students. There is plenty that you can do to make your classroom interesting and attractive for students. For example, you can:

- make posters from old magazines and brochures;
- bring in objects and artefacts related to the current topic;
- display students' work; and





Using Local Experts

If you are doing work on money or quantities in Mathematics, you could invite market traders or dressmakers into the classroom to come to explain how they use mathematics in their work. Alternatively, if you are exploring patterns and shapes in Art, you could invite local artists into school to talk about their work.

You may also have experts within the school community who can be shadowed or interviewed by students related to their learning. For example, students could speak to the school cook to find out about quantities used in cooking, or ask the caretaker how weather conditions impact on the school grounds and buildings.



Using the Outside Environment

Outside your classroom there is a whole range of resources that you can use in your lessons. You could collect (or ask your class to collect) objects such as leaves, plants, insects, rocks or wood. Bringing these resources in can lead to interesting classroom displays that can be referred to in lessons. They can provide objects for discussion or experimentation such as an activity in classification. Resources such as bus timetables or advertisements that are readily available and relevant to your local community can be turned into learning resources by setting tasks to, for example, identify words, compare qualities or calculate journey times.

Objects from outside can be brought into the classroom — but the outside can also be an extension of your classroom. There is usually more room to move outside and for all students to see more easily. When you take your class outside to learn, they can do activities such as:

- estimating and measuring distances;
- demonstrating that every point on a circle is the same distance from the central point;
- recording the length of shadows at different times of the day;
- reading signs and instructions;
- conducting interviews and surveys;
- locating features relevant to a topic (e.g. solar panels); and
- monitoring crop growth and rainfall.

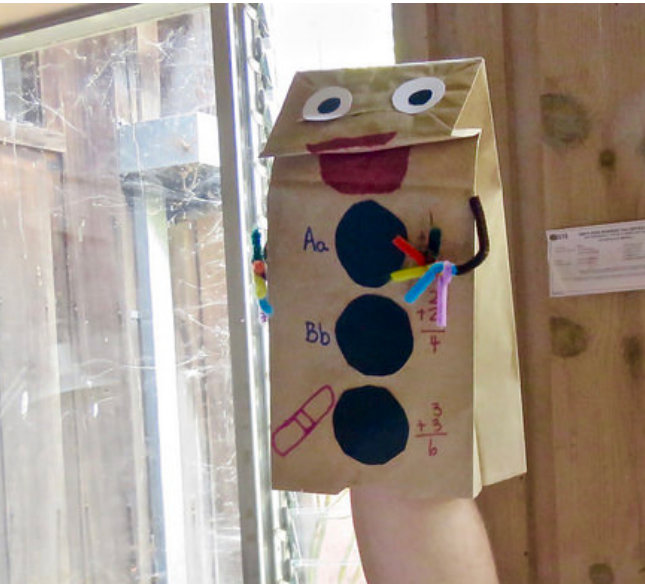
Outside, students' learning is based on reality and their own experiences, and may be more transferable to other contexts.

If your work outside involves leaving the school premises, before you go you need to obtain the school leader's permission, plan timings, check for safety and make rules clear to the students. You and the students should be clear about what is to be learned before you depart.

Adapting Resources

You may want to adapt existing resources to make them more appropriate to your students. These changes may be small, but could make a big difference — especially if you are trying to make the learning relevant to all the students in the class. You might, for example, change place and people names if they relate to another state or country, or change the gender of a person in a song, or introduce a child with a disability into a story. In this way, you can make the resources you use more inclusive and appropriate to your students and their learning.

Work with your colleagues to be resourceful: you will have a range of skills between you to generate and adapt resources. One colleague might have skills in music, another in puppet making or organising outdoor science. You can share the classroom resources you use with your colleagues to help you all generate a rich learning environment in all areas of your school.



KEY RESOURCE 10:

Storytelling, Songs, Role Play and Drama

Students learn best when they are actively engaged in the learning experience. Your students can deepen their understanding of a topic by interacting with others and sharing their ideas. Storytelling, songs, role play and drama are some of the methods that can be used across a range of curriculum areas, including Mathematics and Science.



Storytelling

Stories help us make sense of our lives. Many traditional stories have been passed down from generation to generation. They were told to us when we were young and explain some of the rules and values of the society that we were born into.

Stories are a very powerful medium in the classroom. They can:

- be entertaining, exciting and stimulating;
- take us from everyday life into fantasy worlds;
- be challenging;
- stimulate thinking about new ideas;
- help explore feelings; and
- help to think through problems in a context that is detached from reality and therefore less threatening.

When you tell stories, be sure to make eye contact with students. They will enjoy it if you use different voices for different characters and vary the volume and tone of your voice by whispering or shouting at appropriate times, for example. Practise the key events of the story so that you can tell it orally, without a book, in your own words. You can bring in props such as objects or clothes to bring the story to life in the classroom. When you introduce a story, be sure to explain its purpose and alert students to what they might learn. You may need to introduce key vocabulary or alert them to the concepts that underpin the story. You may also consider bringing a traditional storyteller into school, but remember to make sure that what is to be learned is clear to both the storyteller and the students.

Storytelling can prompt a number of student activities beyond listening. Students could be asked to note down something specific mentioned in the story, draw pictures, recall key events, generate dialogue or change the ending. They could work in groups and use pictures or props to retell the story from another perspective. By analysing a story, students can be asked to identify fact from fiction, debate scientific explanations or phenomena, or solve mathematical problems.

Asking the students to devise their own stories is a very powerful tool. If you give them structure, content and language to work within, the students can tell their own stories, even about quite difficult ideas in Mathematics and Science. In effect, they are playing with ideas, exploring meaning and making the abstract understandable through the metaphor of their stories.

Songs

The use of songs and music in the classroom may allow different students to contribute, succeed and excel. Singing together has a bonding effect and can help to make all students feel included because individual performance is not in focus. The rhyme and rhythm in songs makes them easy to remember and helps language and speech development.

You may not be a confident singer yourself, but you are sure to have good singers in the class that you can call on to help you. You can use movement and gestures to enliven the song and help to convey meaning. You can use songs you know and change the words to fit your purpose. Songs are also a useful way to memorise and retain information — even formulas and lists can be put into a song or poem format. Your students might be quite inventive at generating songs or chants for revision purposes.





Role Play

Role play is when students are given a role to act out in a small scenario. No script is provided, but it is important that students are given enough information by the teacher to be able to assume the role. They speak and act in that role, adopting the behaviours and motives of the character they are playing. The students enacting the roles should also be encouraged to express their thoughts and feelings spontaneously.

Role play has a number of advantages, because it:

- explores real-life situations to develop understanding of other people's feelings;
- promotes development of decision-making skills;
- actively engages students in learning and enables all students to make a contribution; and
- promotes a higher level of thinking.

Role play can help younger students develop confidence to speak in different social situations, for example, pretending to shop in a store, provide tourists with directions to a local monument or purchase a ticket. You can set up simple scenes with a few props and signs, such as "Café," "Doctor's Surgery" or "Garage." Ask your students, "Who works here?", "What do they say?" and "What do we ask them?", and encourage them to interact in role in these areas, observing their language use.

Role play can develop older students' life skills. For example, in class, you may be exploring how to resolve conflict. Rather than use an actual incident from your school or your community, you can describe a similar but detached scenario that exposes the same issues.

Assign students to roles or ask them to choose one for themselves. You may give them planning time or just ask them to role-play immediately. The role play can be performed to the class, or students could work in small groups so that no group is being watched. Note that the purpose of this activity is the experience of role playing and what it exposes; you are not looking for polished performances or actor awards!

It is also possible to use role play in subjects such as Science and Mathematics. Students can model the behaviours of atoms, taking on characteristics of particles in their interactions with each other or changing their behaviours to show the impact of heat or light. In Mathematics, students can role-play angles and shapes to discover their qualities and combinations.

Drama

Using drama in the classroom is a good strategy to motivate most students. Drama develops skills and confidence, and can also be used to assess what your students understand about a topic. A drama about students' understanding of how the brain works could use pretend telephones to show how messages go from the brain to the ears, eyes, nose, hands and mouth, and back again. Or a short, fun drama on the terrible consequences of forgetting how to subtract numbers could fix the correct methods in young students' minds.

Drama often builds towards a performance to the rest of the class, the school or to the parents/carers and the local community. This goal will give students something to work towards and motivate them. The whole class should be involved in the creative process of producing a drama. It is important that differences in confidence levels are considered. Not everyone has to be an actor; students can contribute in other ways (e.g. organising, costumes, props, stage hands) that may relate more closely to their talents and personality.

It is important to consider why you are using drama to help your students learn. Is it to develop language (e.g. asking and answering questions), explore subject knowledge (e.g. the environmental impact of mining) or to build specific skills (e.g. team work)? Be careful not to let the learning purpose of drama be lost in the goal of the performance.



KEY RESOURCE 11

Using Brainstorming and Mind Maps to Explore Ideas

Brainstorming

WHAT IS BRAINSTORMING?

Brainstorming is a group activity that generates as many ideas as possible on a specific issue or problem, then decides which idea(s) offers the best solution. It involves creative thinking by the group to think of new ideas to address the issue or problem they are faced with. Brainstorming helps students to:

- understand a new topic;
- generate different ways to solve a problem;
- be excited by a new concept or idea; and
- feel involved in a group activity that reaches agreement.

HOW TO SET UP A BRAINSTORMING SESSION

Before starting a session, you need to identify a clear issue or problem. This can range from a simple word like “energy” and what it means to the group, or a question such as “How can we develop our school environment?” To set up a good brainstorm, it is essential to have a word, question or problem that the group is likely to respond to. In very large classes, questions can be different for different groups. Groups themselves should be as varied as possible in terms of gender and ability.

There needs to be a large sheet of paper that all can see in a group of between six and eight students. The ideas of the group need to be recorded as the session progresses so that everyone knows what has been said and can build on or add to earlier ideas. Every idea must be written down, however unusual. Before the session begins, you need to make the following rules clear:

- Everyone in the group must be involved.
- No one criticises anyone else’s ideas or suggestions.
- Unusual and innovative ideas are welcomed.
- Lots of different ideas are needed.
- Everyone needs to work as quickly as possible.

- Summarise for the class what they have done well.
- Ask them what they found useful about the activity. What did they discover in the brainstorming that they didn't realise before?

WHAT IS MIND MAPPING?

WHEN TO USE A MIND MAP

HOW TO MAKE A MIND MAP

- Try a mind map out on your own before trying it with your class. You could use it as a demonstration.

```

graph TD
    WATER[WATER] --- SOURCES[Sources]
    WATER --- LIKE[What Water is Like]
    WATER --- BELIEFS[Cultural Beliefs]
    WATER --- DANGERS[Dangers]
    WATER --- USES[Uses]

    SOURCES --- UNDERGROUND[UNDERGROUND]
    SOURCES --- SURFACE[SURFACE]
    SOURCES --- AIR[AIR]
    UNDERGROUND --- Wells[Wells]
    UNDERGROUND --- Springs[Spring]
    UNDERGROUND --- Boreholes[boreholes]
    UNDERGROUND --- Igloos[Igloos]
    UNDERGROUND --- Ichibi[Ichibi]
    SURFACE --- Oceans[oceans]
    SURFACE --- Seas[Seas]
    SURFACE --- Lakes[lakes]
    SURFACE --- Pools[pools]
    SURFACE --- Rivers[rivers]
    SURFACE --- Streams[streams]
    SURFACE --- Tanks[tanks]
    SURFACE --- Canals[Canals]
    SURFACE --- Reservoirs[Reservoirs]
    SURFACE --- Dams[Dams]
    AIR --- Clouds[Clouds]
    AIR --- Rain[rain]
    AIR --- Mist[mist]
    AIR --- Fog[Fog]
    AIR --- Hail[hail]
    AIR --- Snow[snow]
    AIR --- Spray[spray]
    AIR --- Steam[Steam]

    LIKE --- Liquid[water originates usually as a liquid]
    LIKE --- Ice[ice]
    LIKE --- NoColour[no colour]
    LIKE --- NoSmell[no smell]
    LIKE --- NoShape[No shape of its own]
    LIKE --- SticksToThings[sticks to things]
    LIKE --- FeetWet[Feet wet]

    BELIEFS --- Bathing[bathing]
    BELIEFS --- Internia[internia]
    BELIEFS --- Sayings[sayings]
    BELIEFS --- OneHand[one hand washes the other]
    BELIEFS --- Ancestors[ancestors + rivers]
    BELIEFS --- Sangomas[sangomas]
    BELIEFS --- Rain[acid rain]
    BELIEFS --- Drowning[drowning]
    BELIEFS --- WithElectricity[with electricity]
    BELIEFS --- Floods[floods]
    BELIEFS --- Erosion[erosion]
    BELIEFS --- Pathicles[pathicles]
    BELIEFS --- PutOutFire[put out fire]
    BELIEFS --- ToMakeElectricity[to make electricity]
    BELIEFS --- HydroElectric[hydro electric]
    BELIEFS --- Steam[steam]
    BELIEFS --- BuildingCement[building cement]
    BELIEFS --- Cleaning[cleaning]
    BELIEFS --- Transport[transport]
    BELIEFS --- Cooking[cooking]
    BELIEFS --- Mining[mining]
    BELIEFS --- FactoriesAndIndustry[Factories and Industry]
    BELIEFS --- WashingWashing[washing]
    BELIEFS --- Cooler[cooler]
    BELIEFS --- Toilet[toilet]
    BELIEFS --- Flushing[flushing]
    BELIEFS --- Drought[drought]
    BELIEFS --- Garden[garden]
    BELIEFS --- Drink[drink]
    BELIEFS --- Home[Home]
    BELIEFS --- Bathing[bathing]
    BELIEFS --- Steam[steam]
    BELIEFS --- Looking[looking]
    BELIEFS --- Pool[pool]
    BELIEFS --- Sew[sew]
    BELIEFS --- Sewer[sewer]
    BELIEFS --- Boats[boats]
    BELIEFS --- Swimming[swimming]
    BELIEFS --- Pleasure[pleasure]
    BELIEFS --- Nature[nature]
    BELIEFS --- ToLive[to live]
    BELIEFS --- Plants[Plants]
    BELIEFS --- ToMakeFood[to make food]
    BELIEFS --- Animals[Animals]
    BELIEFS --- ToDrink[to drink]
    BELIEFS --- ToLiveIn[to live in]
    BELIEFS --- RottenFood[rotten food]
    BELIEFS --- Birt[birt]
    BELIEFS --- ToWash[to wash]
    BELIEFS --- Solvent[solvent]

    DANGERS --- Bathing[bathing]
    DANGERS --- Internia[internia]
    DANGERS --- Sayings[sayings]
    DANGERS --- OneHand[one hand washes the other]
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    DANGERS --- Steam[steam]
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    DANGERS --- Sewer[sewer]
    DANGERS --- Boats[boats]
    DANGERS --- Swimming[swimming]
    DANGERS --- Pleasure[pleasure]
    DANGERS --- Nature[nature]
    DANGERS --- ToLive[to live]
    DANGERS --- Plants[Plants]
    DANGERS --- ToMakeFood[to make food]
    DANGERS --- Animals[Animals]
    DANGERS --- ToDrink[to drink]
    DANGERS --- ToLiveIn[to live in]
    DANGERS --- RottenFood[rotten food]
    DANGERS --- Birt[birt]
    DANGERS --- ToWash[to wash]
    DANGERS --- Solvent[solvent]

    USES --- Bathing[bathing]
    USES --- Internia[internia]
    USES --- Sayings[sayings]
    USES --- OneHand[one hand washes the other]
    USES --- Ancestors[ancestors + rivers]
    USES --- Sangomas[sangomas]
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    USES --- Floods[floods]
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    USES --- Pathicles[pathicles]
    USES --- PutOutFire[put out fire]
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    USES --- HydroElectric[hydro electric]
    USES --- Steam[steam]
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    USES --- Cleaning[cleaning]
    USES --- Transport[transport]
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    USES --- Mining[mining]
    USES --- FactoriesAndIndustry[Factories and Industry]
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    USES --- Toilet[toilet]
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    USES --- Drought[drought]
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    USES --- Steam[steam]
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    USES --- ToMakeFood[to make food]
    USES --- Animals[Animals]
    USES --- ToDrink[to drink]
    USES --- ToLiveIn[to live in]
    USES --- RottenFood[rotten food]
    USES --- Birt[birt]
    USES --- ToWash[to wash]
    USES --- Solvent[solvent]
  
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KEY RESOURCE 12

Using Explaining and Demonstrating to Assist Learning

Explaining

Explaining is the giving of understanding to another. Demonstrations are ways of assisting the explanation process by using artefacts or other methods to show students something so that they understand it better.

An explanation used in a lesson can help students to understand:

- **concepts or ideas**, including those that are new or unfamiliar to students (e.g. density, volume);
- **cause and effect** (e.g. rain is caused by air cooling, a flat battery means a car will not start);
- **processes** (e.g. how things work, how people and animals behave); and
- **relationships** between people, things and events (e.g. the role of grandparents in a family, why flies are insects and spiders are not, the common features of important festivals).

FOUR KEY FEATURES OF EXPLANATIONS

To explain well, you, as the teacher, have to understand the subject matter (what is to be taught) well. When explaining new concepts or ideas, four key features will help you structure and sequence your explanation:

- **Labels and names:** These are the actual words used to name the concept (e.g. “crop,” “reptile,” “electricity,” “ambition”).
- **Attributes:** There are two kinds, namely:
 - “must have” features, which are essential parts of the concept (e.g. “wings” [bird], “thorax” [insect])
 - “may have” features that may occur, but not always (e.g. some but not all birds are brown, some but not all insects have hard shells).
- **Examples:** These are either actual examples that meet the criteria (e.g. pigeons are examples of birds) or non-examples that help define the actual criteria (e.g. dragonflies are not birds).
- **Rules:** This is the full definition, listing the “must have” attributes and their relationship to each other. (e.g. Insects have six legs, a head, thorax and abdomen, two antennae and two or four wings.)

Demonstrating

How explaining is done is just as important as having good subject knowledge. Just giving out information is not enough. Demonstrating an idea or a concept in a practical way often assists student learning. This can be done by:

- using pictures, diagrams, models, specimens and artefacts to show what you mean;
- getting students themselves to examine the subject of your explanation (e.g. students have a specimen of a plant in front of them as you explain about the structure of a plant);
- enabling all students to see clearly what you are explaining. A demonstration provides the link between “knowing about” and “being able to do.” Let the students experiment in small groups by handling, drawing, discussing, watching and experimenting. Demonstrations are most effective when they are accurate, when students are able to see clearly and understand what is going on, and when brief explanations and discussion occur during the demonstration.
- asking for feedback from the students about their understanding of what they have seen.

SUMMARY

Always remember that to avoid students being confused by your explanations or demonstrations, you need to involve them fully to check that they understand what you are saying and doing. Important points to be aware of are:

- asking students questions to find out what they already know and understand;
- finding out about misconceptions that are holding them back and which need to be “unlearned”;
- using small groups to exchange ideas and understanding about the topic you are explaining or demonstrating;
- asking students to explain to you and to each other what they understand about the current topic; and
- being prepared to use different words with different students to make your explanations clearer.

When explaining or demonstrating to really assist learning, you need to:

- include the four key features named above;
- focus on clarity and a sequence to your explanation;
- check understanding as you go along, through questions and discussion;
- use effective teaching aids for your demonstrations that everyone is able to see; and
- involve students in your explanations.

KEY RESOURCE 13:

Working with Large Classes

Note: Some of the ideas below could be applied to teaching classes of any size, but they are particularly relevant to large classes.

Top 20 ideas for teaching large classes

- 1 Plan ahead and prepare thoroughly; problems can be magnified in large classes, but they can also be dealt with effectively.

- 2 Maximise classroom space by removing unnecessary furniture, and use space outside the classroom for learning and activities. Ask the students for suggestions on arranging the classroom in a comfortable way.

- 3 Do everything possible to get to know your students. A positive relationship with your students means they will be more willing to actively participate in class.

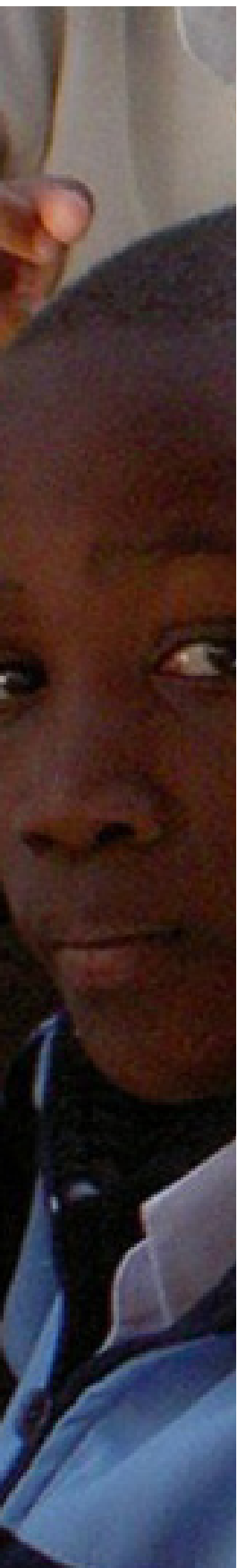
- 4 However large the class, give opportunities for students to individually introduce themselves to the class.

- 5 Move around the class when talking. This engages students, and it can reduce the physical and social distance between you and them.

- 6 Be natural and personal in class and outside of it — be yourself!

- 7 Tell the students you will be available before and after class to answer any questions they might have.

- 8 Keep track of frequently asked questions or common mistakes. Use these to develop lessons and help students avoid making mistakes.



9

Be aware of the class. If you notice or even feel that there is something wrong, ask a student what is going on. Invite small groups of students to visit you to discuss important class issues. When necessary, involve students and use positive discipline to deal with misbehaviour.

10

Check the content of your lessons and the knowledge and skills of your students, to identify those students that need your special attention.

11

Recognise the attention span of students is limited: 15 minutes of lecture followed by an activity and then additional lecture if needed is ideal. Determine what information can be delivered in forms other than lecture and develop these methods. For instance, group work, role play, student presentations, reading outside class, and in-class writing can be excellent ways to vary classroom routine and stimulate learning.

12

Develop a formal lesson plan to organise your teaching. This is a way to monitor whether or not your students understand what is being taught and a chance for you to think about what to do next and how to improve your teaching. In your plan, identify what topic is to be taught, the learning objectives, teaching methods, classroom arrangement, main activities, resources and assessment methods.

13

Explain to your students exactly how and why you are teaching in a certain way. For example: "The reason I give quizzes at the end of class is to check your understanding."

14

Develop a visual display of the day's topics and learning objectives (such as a list on the board). This will make following the flow of the class much easier for you and the students. Plan for a clear beginning, middle and end to the class.

15

Use prompts to develop students' question-and-answer skills, and count to ten after you ask a question to give time for the student(s) to answer.

The background of the page features a collage of images. On the left, there is a large, faded image of a young woman with dark hair, looking towards the camera. On the right, there is a vertical strip showing a close-up of a young man's face, looking slightly to the side. The overall tone is educational and focused on student learning.

16

Give assignments that really assess whether or not your students are learning what you are teaching. Can they explain the process they used to solve a problem, and can they apply what they are learning to everyday life? Give clear and thorough instructions for all assignments.

17

Develop a portfolio system or other ways to keep track of student performance — both successes and areas needing improvement — and to identify those students who require extra attention.

18

Develop exams that really tell you if your students have learned and can apply what you have taught them, not just what they remember.

19

Give prompt feedback on assignments and exams. Involve your students in the grading process to give faster feedback.

20

Reflect on your teaching. Discuss with your colleagues and students how your class can be improved. Visit the classes of colleagues who are also teaching many students, and exchange ideas and materials. Above all, view the challenge of teaching a large class as an opportunity, not a problem!

KEY RESOURCE 14:

Working with Multi-Grade Classes

External

What counts in teaching is not the size of the class, nor the age or grade of the students in it, but the quality of the teaching. This Key Resource includes some suggestions for teaching classes with students of different grades. If you have not already done so, you might also find it helpful to look at **Key Resource 13: Working with Large Classes**.

Active Learning Strategies for Multi-Grade Classes

The following teaching strategies are for whole class or mixed-grade groups:

ROUND

Each student has a two- or three-minute opportunity to express their point of view on a given topic while others listen. For older students, the topic can be controversial or thought-provoking, such as “Education is valuable for my daily life.” For younger students, choose a simple topic, such as “What I like about school.” This activity will provide you with a range of viewpoints to consider when delivering your lessons, as well as building a sense of “safe participation” and confidence among your students.

BRAINSTORMING

Ask students to think individually about an issue or problem (e.g. “Why is water becoming scarce?” or “How can we improve our school?”) and to list its possible causes. Stress that people working together can create more than an individual alone.

SIMULATIONS AND GAMES

Ask students to role-play a situation (e.g. “What would you do if you were confronted by a bully?”). By creating situations that are momentarily real, your students can practise coping with stressful, unfamiliar or complex situations.

PEER TEACHING

Randomly select students to find out about a specific topic and then teach the basics of the material to a partner, group or the entire class.

Involve Your Students

The classroom is for everyone. Students can be very helpful in managing the classroom’s physical space, and it helps them to develop a sense of responsibility.

Involve your students in developing classroom rules! Ask them to identify what behaviours are acceptable and what behaviours are not acceptable. Make only a few rules that emphasise appropriate behaviour. Remember that penalties should be consistent with the nature of the misbehaviour and based on positive discipline to help your students to learn good behaviour.

Encourage “experts” from the community to come to class to talk about special skills and knowledge. You can even ask older students in the class to act as peer teachers and to work with different grade-based groups.

Group Work

In a large class, students working in pairs or larger groups can help each other and learn from each other. You will often want students from the same grade to work together, but sometimes you can mix up the grades to encourage peer learning.

Group exercises give students an opportunity to meet and work with one another, a good step towards building a sense of community. In daily life, working with others is an important skill. Giving your students more opportunities to work together can help them develop this skill and releases you to work with groups of students of different grades.

Small-group work encourages students who may be reluctant to participate in a large-class setting to participate more. Co-operative learning also helps to hold students’ attention — a special concern for large classes — and to increase student thinking.

MULTI-GRADE TEACHING AND GROUP WORK

When designing your group exercises (or even individual exercises), the task that the students are to complete should be specific and clear to the group. This does not necessarily mean the group is all of the same grade. Variations of a similar task, such as completing some or all of a worksheet, solving a similar problem but at different levels or answering specific questions selected from a range on the board, will keep your students focused.

DEVELOPMENT EXERCISES

Place a group of students in a real or simulated situation and ask them to solve a problem. This can be the same problem for all grades, but the response might be different. Alternatively, write a question or statement with mistakes in it on pieces of paper that you stick up around the room. These mistakes can be structural (such as grammatical errors) or mistakes in interpretation (such as errors in judgement or in the use of facts) specific to a grade group. In Mathematics, for example, you can give different groups of students a “story problem” involving numerical interpretation to solve; in Science, you can ask all the groups, whatever the grade, to classify a group of seemingly unrelated objects into categories and justify why they chose these categories.

TOPIC EXPLORATION EXERCISES

Assign each grade group a specific topic to study (research), and give them access to resources they can use to learn about it. These resources can be books, or they can be people in the community who have knowledge about how to do a special activity.

SIMPLE EXERCISES

These exercises focus on developing a particular skill, such as drawing, editing, quick problem-solving, etc. In mixed-grade groups, the students practise and are given feedback by their fellow group members. At the end of the exercise, volunteers demonstrate their new skills for the class.

EVALUATION OF GROUP WORK

Require some type of group product for exercises that can be graded. (Remember: grading ten papers or projects is much easier than grading 60.)

Carefully observe the groups and their members. Praise individual participation as well as the quality of group work.

Occasionally, require an individual product based on group work, such as a one-minute paper about an issue learned from the exercise, a short quiz or an oral presentation by randomly selected group members. This rewards students who were actively involved in group learning and discourages “freeloading” or the non-participation of some group members.

Sometimes, use self- and peer evaluations at the end of an exercise; for instance, give each student in a group a “score card” and ask them to grade themselves and anonymously grade each of their group members. This method is especially helpful for judging how well the members of a large class participate, where it can be difficult for you to evaluate all individuals personally.

Assessment Strategies for Multi-Grade Classes

The following assessment strategies help give effective feedback and summative evaluations within a manageable workload for mixed-grade classes:

GIVING FEEDBACK

To identify which students need more personalised feedback and to manage the paperwork, use the “portfolio” method. A portfolio is a file, such as a manila folder, containing samples of a student’s assignments, such as essays, stories and reports; illustrations, pictures, maps and diagrams. Students’ non-curricular activities can also be recorded, such as taking responsibility in a classroom activity.

The material in a portfolio is organised in chronological order with each item containing a date and the context in which it was produced. It follows the student’s successes rather than failures.

Once the portfolio is organised, you and the students can evaluate their individual achievements. At least twice every semester or term, review the whole range of work to identify those students who need more individual attention.

CREATE EXAMS THAT “LOOK” FAMILIAR TO STUDENTS

Exam questions should be in the same form as those that you used in quizzes, homework assignments, lectures or discussions.

CONDUCT REVIEW SESSIONS

Set aside class time to conduct review sessions, either with the entire class or in groups. One third of the session time can be spent in a short lecture revising the major points of a topic, and then the remaining time for students' questions and/or a short practice exercise.

DEVELOP EXAMS THAT DEMONSTRATE LEARNING ACHIEVEMENT

Together with standard multiple-choice exams, develop the following:

- Add short essay questions. Control the length of responses by providing students with a limited amount of space for answers (an "answer box").
- Ask students to answer questions using diagrams, flow charts or pictures. These are short and easy to grade, but can be very informative about students' analytical skills.
- For some multiple-choice questions, ask the student to choose the correct answer and then provide a one- or two-line explanation of how they got that answer.
- Give group examinations; the same grade can be assigned to all members of the group, based on the "group product" they produce. For individuals, ask group members to anonymously grade each other, and then assign the average of the group's grade to each student.
- Ask students to write their own examination questions and answers based on your class lectures and activities. These can be used on actual tests.

GIVE PROMPT FEEDBACK ON ASSIGNMENTS

- Ask students to do assignments in groups.
- Assign a short in-class assignment for individual students and ask them to bring you their completed assignments when they finish. You can grade these on the spot and give them instant feedback. To avoid a line at your desk, ask your students to take numbered pieces of paper when they have finished their work and to come to your desk for feedback when their number is called.
- Ask older students in upper grades to help you grade younger students' assignments.
- Occasionally students can exchange their assignments and they can grade each other's work.
- Give out an answer sheet so students can assess their own work, or set aside class time to go through the answers to the homework with the entire class.

KEY RESOURCE 15

Being a Resourceful Teacher in Challenging Conditions

Many teachers work in difficult contexts. They may have large classes. They may have few resources. The students in these contexts are not likely to have resources at home to compensate for limited school resources.

A group of teachers working in such circumstances recently brainstormed suggestions about how to be resourceful despite such difficult conditions. They came up with many ideas and decided that the following seven were most useful:

1. Make maximum use of the local environment as a teaching aid. All schools have an environment that can be exploited for discussion, investigations and sources of classroom data.
2. Make maximum use of the local community as a teaching aid. Families and others are an important source for stories, for remembering what things were like in the past, and for having opinions on everyday issues.
3. Exploit the communication systems currently in place. Nearly all communities now have access to radio or television. Use the systems available to stimulate debate and discussion.
4. Make teaching aids from materials around the school. Old boxes, magazines, newspapers and even plastic bottles can be turned into teaching aids (e.g. one of the teachers in the discussion group described how she had built a model of a volcano using such materials; the model could be opened out to show the “inner workings” of the volcano).
5. Co-operate with other schools, directly or by exchange of letters. This can be highly motivating for students and it opens up all sorts of possible exchanges of information (e.g. exchanges of information between urban and rural schools can lead to interesting comparisons).
6. Let the school become a resource for the local community: one teacher described how mothers joined in the reading classes and thus improved their own literacy.
7. Set up a school garden: plants can be grown in even a small area. Students of all ages can benefit from participating in the planning, planting, growing and use stages in the development of a garden.

KEY RESOURCE 16

Thinking about inclusive education

This Key Resource should be used in conjunction with Key Resource 2 – Involving all, and Key Resource 13 – Working with large classes.

What is meant by inclusion?

There have been many books and articles written about what is meant by ‘inclusion’ in the context of schools and education, but it is fair to say that at a fundamental level it could be described like this:

The process whereby teachers, schools and education systems deliberately consider how to adjust their practices, processes, environments and structures to meet the needs of all learners to enable them to benefit from the best quality of education available in any given context.

It is worth highlighting key points from this definition.

- Inclusion is a ‘process’. It progresses via small steps. Every teacher can ask themselves ‘how can I make my teaching a bit more inclusive this week?’ The answer might be as simple as getting to know their students better, asking a pupil why they seem nervous to answer questions in class, moving a pupil with poor hearing to a seat closer to the front, or using a greater range of visual and concrete artefacts in lessons.
- It is a ‘deliberate’ process. All schools have students with a range of learning needs and many will have students with disabilities in classrooms.. But a child’s presence in a classroom, no matter how severe their need is not inclusion unless an attempt is being made to ensure better learning for that child.
- It is about the providers of education considering how they can adjust to meet the needs of the learner, not about how the learner needs to adjust to meet the needs of the school.
- It is the responsibility of the whole school and the education system more broadly. Teachers will be far more effective if they work collectively, with the support of the senior leaders. Schools will be more effective if the system develops processes to ensure better inclusive practice. For example, requiring that all schools are built to be accessible, that exams are provided in various formats, checking that the curriculum meets the needs of the learner, and providing training in inclusive education.

A model to help teachers and schools think about better inclusive education.

The provision of inclusive education in the classroom and school can be thought of at three levels (in some literature these are called 'waves').

The first level is based on the idea that for all students, with or without special education needs and disabilities, appropriate teaching is simply the same as general good teaching for any child (see Key Resource 2 – Involving all). Students with special needs will benefit from a skilful inclusive teacher.

Through active assessment of the achievement of the class, a teacher might notice that despite this good quality teaching, students are still not achieving as well as should be expected. At this stage the teacher, usually working with the support of colleagues and talking with the student/s might decide that a different way of working or extra support is needed in the class (level 2 interventions).

If after implementing this additional support the teacher believes the student is still not achieving as expected, the teacher – with the support of the school – may wish to access support and advice from more specialist sources (level 3 interventions). Even at this level the student remains the responsibility of the class teacher until, if necessary and possible, the student moves to some sort of specialist provision outside of the school.



Credit: Deepti Samant Raja/ World Bank

The table below seeks to illustrate this idea of operating at progressive ‘levels’ of support.

The school, through the class teacher remains responsible for the assessing the students’ progress and ensuring that that everything possible is being done to support them in their learning. (For example, a pupil should not have to leave a school if they do not have access to braille.)	Level 1 Good quality teaching for all provided by the class teacher, supported by fellow teachers and senior leaders. For example: - Representing ideas and concepts via different media: written/visual/audio. Getting to know students as individuals. - Well-structured, purposeful pair and group work. - Regularly revising key knowledge and concepts. - Displaying key words and pictures related to topics. - A welcoming atmosphere that rewards effort. - Modelling good practice. - The use of concrete objects and experiences whenever possible, relating subject content to the experiences of students’ lives. - Demonstrating and practicing good exam technique for the subject. See the other Key Resources for further ideas.
	Level 2 For further ideas to work at Level 2 and 3 explore the various OERs in KR 18. - Providing simple, locally made teaching aids if necessary (e.g. a writing frame/enlarged print). - Moving students to the most appropriate part of the classroom (so they can maximise use of hearing/vision and are minimally distracted by others). - Working closely with parents and other teachers. - Pairing a student with a peer supporter. - Providing extra time in exams as allowed by the exam council. - Switching the time of a lesson (for example move agriculture to the first lesson so that a pupil with albinism is less affected by the sun).
	Level 3 - The teacher, with the support of the senior leadership, arranges for assessment by specialists – e.g. audio/visual. - Liaises with the appropriate authorities for the provision of specialist resources (e.g. braille material/mobility equipment). - School makes links with special schools to share expertise.

EXAMPLE

Look at this example from the Teachers Handbook. Can you identify the various levels in the ways that the teacher and school are supporting this student?

Wafula, an English teacher, chose to use a set-book video in his lesson to have his students do character identification. He realised that one of his students who is hard of hearing was unable to follow the lesson appropriately. To support the student, he sought assistance from the school’s ICT officer, who customised the video to have captions. This enabled the student to read every spoken word and he was able to join



in all the activities. Wafula realised that this was something that he could easily do for himself and so ensures that captions were on each time he used a video in the future. He also realised, after talking to the pupil and his family that the hearing impairment was significant and, with the support of the school head, arranged for a proper hearing assessment from the local clinic. Eventually the student was given some hearing aids.

KEY RESOURCE 17

Managing common inclusivity challenges

This Key Resource should be used in conjunction with Key Resource 2 – Involving all, Key Resource 13 – Working with large classes, and the Key Resource 16 – Thinking about inclusive education. It was developed by lecturers from the Kenyan Institute of Special Education (KISE).

Common inclusivity challenges and teaching strategies

All classes will include students with a range of needs. Some will work faster than others, some will need more support, some will find the discipline of learning challenging and some will have particular special needs. Common challenges for teachers include:

- a very large class
- students with poor learning behaviours
- low literacy and numeracy levels in given subjects
- visual impairments
- hearing impairments
- physical disabilities.

A VERY LARGE CLASS

Many classes have a large number of students, often in a relatively small space. The teacher can:

- concentrate on a few students in each lesson, making sure that over time, they assess and support everyone
- move around the room
- set tasks to do in groups and pairs so they have opportunity to observe students working
- provide opportunities for peer support.

Level 2 interventions may include:

- teachers sharing information about students to help each other get to know them
- teachers sharing resources and ideas for collaborative tasks.

STUDENTS WITH POOR LEARNING BEHAVIOURS

Students misbehave for many reasons. A teacher can:

- talk to individuals and try to understand the root of their poor behaviour.
- provide a variety of activities and ensure all students have the opportunity to succeed
- praise good behaviour
- ignore poor behaviour.
- use individual charts for behaviour modification.
- agree with students a set class-rules and make sure they understand the consequences of non-compliance.
- relate the learning to everyday life so that students can see the relevance of what they are learning.
- be consistent in the application of sanctions

Level 2 interventions may include:

- Involve the students' parents in finding a solution
- Work as a whole school to develop a clear behaviour policy which everyone uses and understands

Level 3 interventions may include:

- Organising practice guidance and counselling for particularly troubled individuals.

LOW LITERACY AND NUMERACY LEVELS IN GIVEN SUBJECTS

Students who are unable to read fluently will struggle to access the curriculum. Likewise, difficulties in numeracy can hold students back in some subjects. All subject teachers have a responsibility to support students' basic literacy and numeracy to help them succeed.

All teachers can:

- devise activities which enable them to check literacy and numeracy levels
- organise the class so that good readers support those who find it more difficult
- organise the class so that those who are confident in number work can support others
- use shared reading activities in which good readers take it in turns to read aloud
- encourage students to solve problems in groups or pairs
- emphasise new subject-specific vocabulary – use a 'word wall' and activities to help students understand the meaning of technical words
- use simple vocabulary where possible

- structure work carefully so students move from 'simple' to 'complex'
- use a variety of teaching aids
- encourage students to use maths in their everyday life.

Level 2 interventions could include:

- providing extra classes (before or after school) for targeted students which teachers take it in turns to lead
- organising peer tutoring with Form 4 students supporting Form 1 students
- regular communication between teachers to devise resources and share knowledge of individuals
- helping parents to understand how they can support literacy at home.

VISUAL IMPAIRMENTS

Visual impairments may be obvious, but in some cases may be undiagnosed. They can vary from short-sightedness to total blindness. All teachers can:

- observe their students carefully so that they will notice if a particular student is struggling
- pair the student with a buddy to help them in the class
- make sure they sit in an appropriate place in the classroom
- use physical artefacts to support teaching
- make sure that the classroom is as accessible as possible with spaces between desks and students bags all stored at the front
- provide a magnifying glass
- shared reading – reading aloud in class.

Level 2 interventions could include:

- working with colleagues to share resources and information
- working with parents to understand the student as well as possible.

Level 3 interventions could include:

- assessment by an external agency
- the provision of glasses and/or resources in braille.

HEARING IMPAIRMENTS

Hearing impairments may vary in seriousness and may not be immediately obvious. If a teacher suspects that a student cannot hear very well, they can:

- observe students carefully to understand their needs
- make sure the student sits at the front and can see the teacher's face
- use a buddy system
- make sure the classroom is visually stimulating
- use pictures and diagrams to explain ideas
- use the chalkboard as much as possible
- use a variety of teaching approaches including role-play and drama.

Level 2 interventions may include:

- working together to share resources to support visual learning
- thinking about the acoustics in the school
- working with parents to understand how to support the student.

Level 3 interventions may include:

- a professional hearing assessment
- the provision of hearing aids
- support from a sign language expert.

PHYSICAL DISABILITIES

Physical disabilities could cover a very wide range of particular needs. However, there are some general guidelines that all teachers can follow. Teachers can:

- talk to the student and find out what they can and can't do, and what they feel comfortable with being asked to do
- observe the student carefully. Try and do more of the things they feel comfortable with
- make sure the classroom is physically safe – aisles are free from bags and resources are placed so students can reach them easily.
- use a buddy system. Perhaps ask the other students to take turns in supporting the disabled student.

Level 2 interventions may include:

- working with the parents to better understand the students' needs

- working with other teachers to support each other. For example, swapping rooms if one room is more suitable for a disabled student, sharing resources and sharing practices
- ensuring that all areas of the school are accessible for the students.

Level 3 interventions may include:

- employing extra staff to support disabled students for example with eating and using the toilet
- getting a medical assessment of the student from a health professional, alongside advice for teachers.

KEY RESOURCE 18

Open Educational Resources (OER)

What are Open Educational Resources?



Open Educational resources (or OER) are resources with a special copyright license. Usually, if an author publishes a book or some educational materials, people who want to use that book or the materials have to buy them and, having bought them, are not allowed to make copies for wide distribution, or make small alterations and re-publish the materials. The author receives royalties (money) according to how many copies are sold.

OER have a 'creative commons' (CC) copyright license (see <https://creativecommons.org>). OER are free to

the user and the terms of a creative commons licenses are different from traditional copyright licenses. Authors do not receive any payment for the resources. See the end of this document for more information on the types of license.

USING OER

OER are available in many different forms – print, video, photographs and audio. The advent of the internet means they are much more readily available now than ever before.

SELECTING OER

OER represent an opportunity for educators in areas where resources are scarce. Suddenly a wealth of free material is available and can be used to support learning.

However, the quality of OER cannot be guaranteed. Some repositories (online spaces where OER are available) have quality assurance mechanisms, but some do not. It is up to the users to judge for themselves whether the resources meet their needs and will support learning.

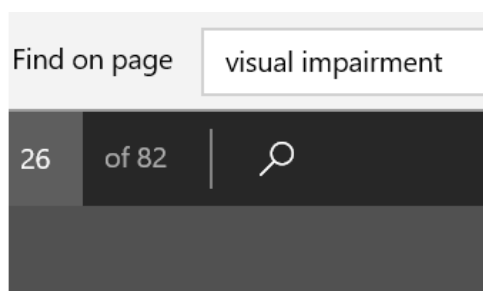
OER are also equally available to teachers and to learners. This has the potential to change the relationship between teachers and their students. Traditionally teachers are the custodians of resources, choosing what to make available to learners and controlling access. In an environment in which teachers and learners have access to OER (i.e. any educational institution with internet connectivity), the role of the teacher (or teacher educator) is different. They need to facilitate the use of OER by highlighting recommended resources and teaching learners (and teachers), to be critical reviewers of information that they find themselves.

CRITERIA FOR CRITICALLY REVIEWING OER

Here are some criteria you can use to critically review OER repositories (adapted from the Open University course, Creating Open Educational Resources):

- findable – it can be in multiple locations, making it easy to locate
- clearly described, so that you can quickly assess whether it will be useful for you and/or your teacher learners
- clearly licensed (usually through Creative Commons), which tells you if you can adapt the OER and other conditions of use
- from a source you trust
- used/recommended by people like you
- easy to modify for your students
- free-standing, so it does not assume knowledge of other resources and is easier to integrate into a course or learning episode
- pedagogically appropriate to your context and needs.

SEARCHING OER



Some of the resources are very large so you will need to use the contents page or search facility to find the sections you are interested in. For example, when the OER 'TESSA Inclusive Education Toolkit' is opened you have the choice of two formats: a pdf, or a Word document. If you open it as a pdf you will find a magnifying glass symbol in the top left part of the screen. This opens a search box which you can then type your key word or phrase into (in this case

"visual impairment").

This will then direct you to the parts of the text where the phrase "visual impairment" is found.

If you open the document as a Word file you can do a similar search by going to the 'Home' menu on the tool bar and then clicking on the 'Find' button at the right-hand side of the Home tool bar.

Use speech marks if searching for a phrase. For example, "*Inclusive Education*". This will find all the occasions when that phrase is used. If you type in *Inclusive Education*, it will find all the times when either word is used and thus you will get many 'hits' which are not of interest to you.

OER for Inclusive teaching

Working together the Kenyan Institute for Special Education (KISE), the Commonwealth of Learning (CoL) and The Open University, UK (OU) have identified resources that will support inclusive teaching. Some of the top recommendations are listed here.

Recommended OERs – these are recommended because they have been specifically written for contexts such as Kenya where there are fewer resources available than in better-resourced countries, or because they have content which can be readily be adapted.

- [TESSA Inclusive Education Toolkit](#)

The ‘TESSA Inclusive Education Toolkit’ provides lots of resources, case studies and exercises that are particularly useful for developing better inclusive practice at Levels 1 and 2 (see Key Resource 17 – Managing common inclusivity challenges).

- [The Girl’s Access to Education \(GATE\) Disability Directory](#)

This directory was developed to help student teachers consider ways to support inclusive education in schools in Sierra Leone but the information in them is sourced from a variety of other OER. It has the advantage of being a very concise set of documents and is a good starting point. There are some broad topics (e.g. ‘Involving a pupil’s family in supporting learning’) and then some more targeted ones (e.g. ‘Cerebral palsy’). They are found by scrolling down the page that opens.

- [Inclusive Education in Low-Income Countries: A resource book for teacher educators, parent trainers and community development workers](#)

This is an excellent resource written with the African context in mind. It is a large document but has a very good contents list and also links to various YouTube videos (on page 11) that show initiatives in Tanzania: these could make excellent discussion points for school-based team meetings.

- [INEE Pocket Guide to Supporting Learners with Disabilities](#)

[This resource is written for teachers working in emergency settings such as refugee camps, but it has lots of ideas for improving inclusive practice that are useful anywhere. It also has the advantage of being written in very simple and accessible language.](#)

- [Inclusive Education where there are few resources](#)

A useful resource with examples of more inclusive practice in various stages of education from all over the world. It also has examples of inclusive practice for groups who can find themselves excluded for a variety of social reasons: minorities, nomads, refugees etc. There is a clear contents page.

- [Embracing Diversity: Toolkit for creating learner friendly inclusive environments.](#)

This is a very large document with lots of useful ideas and information. Unfortunately, it does not have an overall contents page at the front. Page 11 gives an overview of the 6 booklets that make up the toolkit, but no page numbers! Each booklet has its own contents list once you find

it. Use the search facility (see notes above) to find information. Booklet 4 (on page 135 of 344) *Creating Inclusive Learning Friendly Classrooms*, and Booklet 5 (page 217 of 344) *Managing Inclusive Learning Friendly Classrooms*, are both worth exploring and provide simple tools for assessing sensory and cognitive impairments.

- [AIMZ: Albinism in Malawi & Zambia](#)

Simple, straight-forward information and advice for teachers, parents and pupils. The contents are suitable for many sub-Saharan African countries. Print a copy off for any pupils in school with albinism (and their teachers).

- [WWW.TESS-India.edu.In and TESSA Teaching Lower Secondary Science](#)

Resources for Secondary School. They are not about inclusion specifically but are based on principles that reflect inclusive practice. There are materials on teaching Secondary Maths and Science that are worth exploring. You will need to sign up to OpenLearn to access the materials, but it is free.

- [TESSA Kenya Classroom Resources](#)

[Aimed at Primary level teachers, resources to support active learning and teaching in Primary schools. They are linked to the school curriculum and are full of ideas on how to make teaching and learning more engaging and how to use local resources effectively.](#)

- [Open Learn OU](#)

Various open-access online materials and free courses from the Open University, UK. Create an account for free and explore using the search box by typing in your area of interests (e.g. “Hearing Impairment”, “Inclusive Education” etc.).

- [The Commonwealth of Learning](#)

Has many resources: Click on ‘Resources’, then ‘Open Access Repository’, then use the search facility. The search term “Inclusion AND ICT” for example yields some interesting resources.

- [TESSA Teaching Early Reading](#)

A free online course (certificate available on completion) to support teachers of Early Reading. It is not specifically about inclusion, but is based on the principles of inclusive teaching.

- [Enabling Education Network: EENET](#)

Not an OER but a free-to-join community supporting teachers and schools worldwide – with an emphasis on resource poorer contexts – working towards better inclusive practice. They have a good online library of appropriate [video materials](#) too. Join, share your experiences and ideas. Put Kenya on the map!

Producing OER

The cost of producing OER is borne by the author, or the institution in which they work. Many academics choose to publish OER either as a way of supporting educational development (with

the cost coming from grants) or as a way of publicising what they do in the hope of attracting people into their institution.

The best way to learn how to produce OER is to become a consumer first. Review resources that are already available and adapt them if they do not meet your needs. Through the use of a variety of different resources, from different sources, you will experience a variety of presentational styles and pedagogical approaches. This will help you to understand how to design high quality learning materials.

If, as an institution, you would like to become producers of OER, a good strategy would be to work together to articulate the features of learning design and to produce resources. You might like to try this free course from the Open University: **Creating Open Educational Resources** (<https://www.open.edu/openlearn/education/creating-open-educational-resources/content-section-0?active-tab=description-tab>)

If you are using or producing OER, you need to pay attention to the details of the copyright licenses available.

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KEY RESOURCE 19

Assessment of, for and as Learning

Assessment OF Learning

The purpose of this kind of assessment is usually **summative** and is mostly done at the end of a task, unit of work etc.

“It is designed to provide evidence of achievement to parents, other educators, the students themselves and sometimes to outside groups (e.g., employers, other educational institutions).”

“Assessment of Learning is the assessment that becomes public and results in statements or symbols about how well students are learning. It often contributes to pivotal decisions that will affect students’ futures. It is important, then, that the underlying logic and measurement of assessment of learning be credible and defensible.”

Teachers’ roles in assessment of learning

“ Teachers have the responsibility of reporting student learning accurately and fairly, based on evidence obtained from a variety of contexts and applications. Effective assessment of learning requires that teachers provide:

- a rationale for undertaking a particular assessment of learning at a particular point in time;
- clear descriptions of the intended learning;
- processes that make it possible for students to demonstrate their competence and skill;
- a range of alternative mechanisms for assessing the same outcomes;
- public and defensible reference points for making judgments;
- transparent approaches to interpretation;
- descriptions of the assessment process;
- strategies for recourse in the event of disagreement about the decisions.

Reflection: Can you think of when you have used assessment of learning in your own teaching? How does it match with the points listed above?

Assessment FOR Learning

In assessment for learning, the emphasis shifts from summative to **formative** assessment.

Assessment for learning happens during the learning, often more than once, rather than at the end. Students understand exactly what they are to learn, what is expected of them and are given feedback and advice on how to improve their work.

“ In Assessment for Learning, teachers use assessment as an investigable tool to find out as much as they can about what their students know and can do, and what confusions, preconceptions, or gaps they might have.

The wide variety of information that teachers collect about students’ learning processes provides the basis for determining what they need to do next to move student learning forward. It provides the basis for providing descriptive feedback for students and deciding on groupings, instructional strategies, and resources.

Teachers’ roles in assessment for learning

“ Assessment for learning occurs throughout the learning process. It is interactive, with teachers:

- aligning instruction;
- identifying particular learning needs of students or groups;
- selecting and adapting materials and resources;
- creating differentiated teaching strategies and learning opportunities for helping individual students move forward in their learning;
- providing immediate feedback and direction to students.

“ Teachers also use assessment for learning to enhance students’ motivation and commitment to learning. When teachers commit to learning as the focus of assessment, they change the classroom culture to one of student success.

Reflection: Can you think of times you have used assessment for learning in your classroom? What makes you think that the examples you have given reflect assessment for learning?

Assessment AS Learning

In assessment as learning, students are able to learn about themselves as learners and become aware of how they learn. In other words, they become metacognitive (having knowledge of one’s own thought processes).

Students reflect on their work on a regular basis, usually through self- and peer assessment, and decide (often with the help of the teacher, particularly in the early stages) what their next learning will be.

Assessment as learning helps students to take more responsibility for their own learning and monitor future directions.

ASSESSMENT AS LEARNING: MONITORING METACOGNITION

What is the purpose of learning these concepts and skills?

- What do I know about this topic?

- What strategies do I know that will help me learn this?
- Am I understanding these concepts?
- What are the criteria for improving my work?
- Have I accomplished the goals I set for myself?

(Adapted from Schraw, “Promoting General Metacognitive Awareness)

Teachers’ roles in assessment as learning

“The teacher’s role in promoting the development of independent learners through assessment as learning is to:

- model and teach the skills of self-assessment;
- guide students in setting their own goals, and monitoring their progress toward them;
- provide exemplars and models of good practice and quality work that reflect curriculum outcomes;
- work with students to develop clear criteria of good practice;
- guide students in developing internal feedback or self-monitoring mechanisms to validate and question their own thinking, and to become comfortable with ambiguity and uncertainty that is inevitable in learning anything new;
- provide regular and challenging opportunities to practise, so that students can become confident, competent self-assessors;
- monitor students’ metacognitive processes as well as their learning, and provide descriptive feedback;
- create an environment where it is safe for students to take chances and where support is readily available.”

Reflection: Have you ever in your teaching used assessment as learning?



LEARNING FOR SUSTAINABLE DEVELOPMENT

COL is an intergovernmental organisation created by Commonwealth Heads of Government to encourage the development and sharing of open learning and distance education knowledge, resources and technologies.

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