

Handbooks and toolkits

Teaching lower secondary science

A handbook for teacher educators



TESSA (Teacher Education in Sub-Saharan Africa) aims to improve the classroom practices of primary teachers and secondary science teachers in Africa through the provision of Open Educational Resources (OERs) to support teachers in developing student-centred, participatory approaches. The TESSA OERs provide teachers with a companion to the school

textbook. They offer activities for teachers to try out in their classrooms with their students, together with case studies showing how other teachers have taught the topic, and linked resources to support teachers in developing their lesson plans and subject knowledge.

TESSA OERs have been collaboratively written by African and international authors to address the curriculum and contexts. They are available for online and print use (<http://www.tessafrica.net>). The Primary OERs are available in several versions and languages (English, French, Arabic and Swahili). Initially, the OER were produced in English and made relevant across Africa. These OER have been versioned by TESSA partners for Ghana, Nigeria, Zambia, Rwanda, Uganda, Kenya, Tanzania and South Africa, and translated by partners in Sudan (Arabic), Togo (French) and Tanzania (Swahili) Secondary Science OER are available in English and have been versioned for Zambia, Kenya, Uganda and Tanzania. We welcome feedback from those who read and make use of these resources. The Creative Commons License enables users to adapt and localise the OERs further to meet local needs and contexts.

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As well as the main body of pedagogic resources to support teaching in particular subject areas, there are a selection of additional resources including audio, key resources which describe specific practices, handbooks and toolkits.



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1. Introduction to TESSA

'The education and training of teachers represent one of the greatest challenges for education systems in Sub-Saharan Africa. TESSA is an imaginative and creative response to that. Most importantly, it stresses the value of raising standards through international co-operation'

Professor Jophus Anamuah-Mensah

TESSA provides collaboratively developed Open Educational Resources (OER) for teachers to use in their own classrooms to support active and participatory learning. They can be accessed on the internet (<http://www.tessafrica.net/Secondary-Science>). These resources are free to use; you do not need permission. They can be downloaded, and adapted; they can be copied, used and shared in different contexts.

Many Governments across the world have decided that teaching in schools should be 'student-centred' or 'learner-centred', and this is incorporated into policy documents. Teachers learn about the theory behind 'student-centred learning' in college, but the evidence is that they find it very difficult to put into practice. The TESSA materials help teachers to develop 'student-centred' approaches, and evidence from across the TESSA consortium shows that the TESSA materials make lessons more interesting, and in many places have led to improved attendance.

Key information about TESSA OER

- They are free to use – no permission required
- You can adapt them as you wish to suit your context
- You can copy and share as you wish
- They are written for teachers. All the learning outcomes are for teachers. Pupils do not need copies of the materials
- The TESSA OER draw on local materials and take account of the conditions in classrooms in Africa.

Principles underpinning the TESSA OER

The principles of student-centred teaching are:

- learning is a process which involves building on prior knowledge and experience in order to develop new understandings;
- knowledge is constructed by the learner as a result of the activities that they undertake and the experiences that they have;
- language is central to learning and to thinking, and therefore to the development of higher cognitive processes;
- prior knowledge and experiences, and the use of language, will be determined by the social and cultural context in which the learner is located.

TESSA materials support student-centred learning by helping the teacher to:

- recognise that students come to school with knowledge and experience. They are not 'empty vessels';
- realise that all students can learn if you give them the opportunity and support them appropriately;
- value the knowledge that students bring and the culture and context in which they live;
- involve all students in the lessons and ensure that all can learn.

Using TESSA materials teachers can develop teaching approaches that will help them to:

- find out what their students already know;
- promote dialogue and enquiry in their classroom;
- design activities that engage students in active learning;
- draw on local resources to support their teaching;
- make their teaching relevant to the students' lives.

The TESSA materials help teachers to plan their lessons by providing ideas for activities and giving teachers the confidence to try them out. However, they do not represent a lesson plan, and teachers will still need to plan their own lessons.

2. TESSA Teaching Lower Secondary Science

The TESSA teaching lower secondary science materials were developed by a team of teacher educators drawn from Uganda, Kenya, Tanzania, Ghana and Zambia, co-ordinated by The Open University, UK.

Initially, the group agreed a description of an effective secondary science teacher ([Appendix 1](#)). From this description, five pedagogical themes were identified covering the attributes, skills, knowledge and attitudes an effective science teacher needs to develop. These

The five pedagogical themes are:

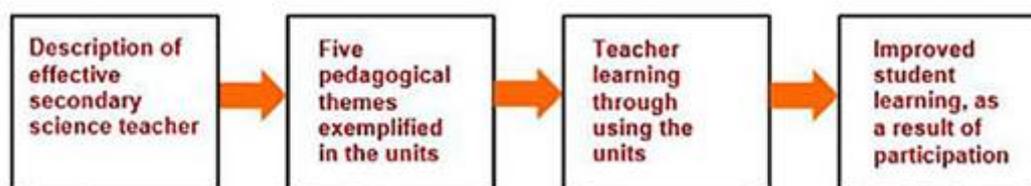
- probing understanding
- making science practical
- making science relevant and real
- creativity and problem solving
- dealing with challenging ideas in science

One science topic was chosen for each theme from physics, chemistry and biology giving a total of 15 units of work. The units do not attempt to cover the whole of the curriculum, but once teachers start to use the units and try out the pedagogic themes, they will begin to adapt the activities for other parts of the curriculum.

Table 1: TESSA Teaching Lower Secondary Science Units

Theme	Biology context	Chemistry context	Physics context
Probing children's understanding / learning	B1: Classification and adaptation	C1: Elements, compounds and mixtures	P1: Properties of matter
Making science practical Science lived (relevant and real)	B2: Transport	C2: Acids, bases, salts	P2: Measurement
	B3: Respiration	C3: Combustion	P3: Pressure
Problem solving – creativity – innovation in science	B4: Nutrition	C4: Atomic structures, chemical families and the periodic table	P4: Forces
Dealing with challenging ideas in science	B5: Cells	C5: States of matter	P5: Electricity and magnetism

The diagram below shows the thinking behind the units. By using the units, teachers will learn how to improve their practice, which will result in improved student outcomes.



In all of the units, the emphasis is on teacher learning. One of the findings from the evaluation report is that using the TESSA primary units has created a demand for professional development amongst teachers. Teachers who have been teaching for many years are finding that by using the TESSA primary units, their students are more engaged, and teaching has become more enjoyable. The 15 units listed in Table 1 are the first ones specifically targeting secondary school teachers.

3. A TESSA Teaching Lower Secondary Science Unit

Each unit is divided into sections. Teachers and teacher educators can use the whole unit, or select individual case studies, activities and resources to use as they wish. The table below explains the purpose of each section.

Title	Indicates the subject (biology, chemistry or physics), the pedagogical theme and the science topic used to exemplify the theme.
Learning Outcomes	Each section has a maximum of three intended learning outcomes for the teacher. These centre on the development of classroom skills in the context of a topic from the secondary science curriculum.
Introduction	The introduction sets the scene for the unit. It outlines classroom skills to be developed by the teacher and the curriculum content area that is addressed.
Narrative	The narrative provides a rationale for the case studies and activities and highlights the purpose of each. It may briefly describe a relevant theoretical perspective, additional subject knowledge for the topic or the location of additional supporting resources. The purpose of the narrative is to help teachers to understand the approach sufficiently well to be able to transfer their learning to new curriculum contexts.
Case Studies	Every section has three case studies, each linked to a particular activity. The case studies illustrate ideas and concepts by describing how one teacher has approached the linked activity or a similar activity in their classroom. They often focus on one particular aspect of the activity or on a particular classroom situation – for example working with a multi-grade class, with very large numbers of pupils or in particularly challenging circumstances.
Activities	The three activities are at the heart of each section. They offer activities for teachers to undertake in their classroom, with pupils or in the wider school and community. The activities are all student-centred and highly engaging for pupils. Some activities are very short – perhaps a twenty minute task – whilst others are projects stretching over several weeks. The majority should occupy one lesson. They show teachers how resources available locally can be used in their teaching and do not rely on teachers having specialist equipment.
Resources	<p>Each section has up to six supporting resources. These can take a variety of forms. They are chosen to enrich the teachers' learning and support their delivery of the activities.</p> <p>The resources support the development of different dimensions of a teacher's knowledge base, including:</p> <ul style="list-style-type: none"> • content knowledge • pedagogical knowledge and • pedagogical content knowledge. <p>A few of the resources are intended for use with pupils. Icons are used to show the core purpose of a resource.</p> <p>These are:</p> <ul style="list-style-type: none"> • pupil use • background information / subject knowledge for teachers • teacher resource for planning or adapting to use with pupils

4. Using TESSA materials in teacher education programmes

TESSA materials are appropriate for pre-service, in-service and upgrading programmes at a variety of levels and for teachers who want to develop their existing skills or acquire new ones. The materials are designed so that teacher educators working in different contexts (universities, colleges, regions and districts) can use them in a variety of situations and programmes.

Purpose of the TESSA materials

The purpose of TESSA materials is to enhance teacher education curricula and provide teacher development activities. Although TESSA is not an entire curriculum for a teacher education programme science teacher educators will be able to find examples of how to exemplify each of the pedagogical themes in their specialist subject.

Finding resources

The materials support:

- subject methodology
- professional studies
- teaching practice

For the topics that are covered, some of the resources will be helpful to pre-service teachers or practising teachers who need to update or extend their subject knowledge. In fact, we have evidence that teacher educators in some institutions are using the units with teachers in their science subject teaching. In this way, they can teach science and, at the same time, model participatory pedagogy.

All of the units contain some resources to support particular teaching approaches. The table below will help you to find these materials. All of these resources have been designed to apply to any curriculum topic, physics, chemistry or biology, and could be used to support your teaching of methodology.

Each theme has a generic resource.

Table 2: Where to find resources to support the five pedagogical themes

Pedagogical themes	Where to find the supporting resource
Probing understanding through questioning	C1, resource 1; B1, resource 4; P1 resource 1
Practical work	C2, resource 6; B2, resource 1; P2, resource 2
Making science relevant	C3, resource 1; B1 resource 1; P1, resource 1
Problem solving and creativity	C4, resource 1; B4, resource 1; P4, resource 1
Using models in science	C5, resource 3; B5 resource 6

There are a number of other generic teaching resources which could be useful, whichever topic is being taught. For example, a chemistry teacher will find the resource on student writing useful, even though it is in a physics unit, and all teachers will find some useful ideas on revision in unit C5.

Table 3: Where to find generic resources to support participatory teaching techniques

Teaching approach/technique	Examples from the TESSA Teaching Lower Secondary Science Units
Demonstrations	C1 Activity 2 and resource 5 will help you think about organising any demonstration.
Brainstorming	B1, resource 1; C3, resource 3; P3, resource 2
Peer assessment	B1, resource 3; B5, resource 5; C5, resource 4
Students' writing	P1, resource 5; B2, resource 3
Differentiating work	P2, resource 1; C4, resource 2; B4, resource 4
Risk assessment	C2, resource 2
Science investigations	B2, resource 5; C3, resource 5; P3, resources 5 and 6
Cross curricula links and literacy	P4, resource 2
Misconceptions	C5, resource 1; P5, resource 1
Revision tools	C5, resource 5

Ways to use the TESSA materials

The TESSA project has been running since 2005. The materials are being used in many different ways. In some institutions they have been incorporated in to the curriculum, so that all pre-service teachers use the units; in some institutions, pre-service teachers are given access to the materials and have opportunity to select what they use for themselves. These are categorised here:

Table 4: Different types of use of TESSA materials

Form of use of TESSA materials	Highly structured	Loosely structured	Guided use
Characteristics	Selection of a set of TESSA activities for all pre-service teachers to carry out	Lecturers select appropriate TESSA activities for their own course	Designated time for pre-service teachers to select TESSA activities
Teacher access to TESSA materials	New teacher books which include several TESSA sections	Website and printed TESSA sections	Website or CDs
Example	National Teachers' Institute (NTI) (Nigeria); Open University of Sudan (OUS)	University of Education, Winneba (UEW) (Ghana); Egerton University (Kenya)	University of Pretoria (UoP) (South Africa); Our Lady of Apostles (OLA) College (Ghana)

In the first case study below, programme organisers made time for pre-service teachers to become familiar with the materials, but allowed them to select what they use. In the second case study, the units were incorporated into the printed course materials and assessment tasks.

At Winneba University of Education in Ghana, pre-service students have one afternoon a week in a computer room. There is one computer between two students. Very few of them have access to the internet outside these sessions, but they all have mobile phones, so they can collaborate with each other.

During one session, they were asked to use the TESSA materials to plan an activity to try out with their classmates during a “micro-teaching” session. During the next week, everyone had the opportunity to teach their activity and get feedback from their classmates.

For their next assignment they were asked to devise three activities for teaching one science topic. The tutor gave them a choice of three science topics and purposefully chose ones that did not have a TESSA unit. The tutor was very pleased when the assignments were handed in to see that the student teachers had used many of the ideas from the micro-teaching.

The tutor found that integrating the TESSA materials in to the programme had benefits for her pre-service students.

At a teacher training college in Zambia, pre-service students are given a ‘course guide’ which contains a programme for the year, certain key readings and details of the assessment tasks. The guide for physics students contains copies of the five TESSA teaching lower secondary science physics units as ‘key readings’. One of the assessment tasks asks students to plan a lesson using one of the TESSA activities, to teach the lesson either as part of the micro-teaching programme or on teaching practice and to evaluate the lesson. Another task asks them to design an activity to teach ‘sound’ that would fit into the theme ‘science lived – relevant and real’.

5. Using the materials in your own teaching

Modelling good practice

By adopting active and participatory strategies in the classroom, teachers and pre-service teachers are being asked to teach in a way that is very different from the way in which they were taught. It is very important therefore, that teacher educators model the practices being promoted so that pre-service teachers experience a student-centred approach in their education as a teacher. Likewise, if experienced teachers are attending an in-service training course on student-centred approaches, they should not be asked to sit and listen to a long lecture. The training will be much more effective if the techniques are modelled by teacher educators.

In Uganda, a group of young teacher educators attended a course which introduced the TESSA teaching lower secondary science materials. Elijah found it inspiring. The next day, he had to teach 'food webs' to a group of pre-service secondary teachers. There was no TESSA unit that covered food webs, but in the workshop he had looked at a unit which involved taking students outside the classroom. Instead of delivering a lecture on food webs and how to teach it, having very briefly introduced the idea of "food web" he took his class into the university grounds, where he knew there was a pond. He gave them ten minutes to observe carefully and to write down all the creatures they could see. Then he asked them to join together in pairs and compare their lists. Finally he asked them to work in groups of 4 to compile a food web for the pond. The students became very animated and were amazed at how many creatures they observed. Back inside, each group made a poster of the food web on flip chart paper. The posters were displayed in the wall. Elijah organised a class discussion to agree some marking criteria, and then they worked in groups to mark the posters and give feedback. Finally each group was given the chance to improve their own poster in the light of what they had learnt from looking at the others.

By taking part in the exercise, they learnt about food webs, but they also experienced an approach to teaching it, that they would be able to use with their own classes on teaching practice.

Strategies to model student-centred teaching

Student-centred teaching can be modelled by:

- always using individual names and taking an interest in learner-teachers as people.
- asking open-ended questions and asking teachers to discuss the answers in pairs or groups.
- asking teachers to work in groups to solve problems so that those with weaker subject knowledge have the opportunity to learn from others.
- giving teachers choices of tasks to complete so that they take responsibility for their own learning.
- asking teachers to evaluate their own work, particularly when under-taking teaching or micro-teaching.
- pausing in the middle of a lecture (even if you have 300 students in the room) and asking them to discuss a question or a point with the person next to them.
- using peer assessment, so teachers can see how other people have tackled the same task, and are reminded what it feels like to receive feedback.

In Tanzania, Joseph, a lecturer in Biology education was teaching a group of pre-service teachers. He was teaching lesson planning. They were using a text book 'How to teach Biology in the secondary school'. In the text there were some descriptions of typical lessons. Joseph divided his group of 52 students into groups of 4. Each group took one of the descriptions and had to suggest five ways in which the lesson could have been made more student-centred. They used the TESSA units from their subject to develop their ideas. He then asked one group to feedback their five suggestions and wrote them on the board. He went round the other groups asking them to contribute something that had not already been said. (By the time he got to the last few groups they did not have anything else to add and Joseph resolved to make sure he started on that side of the room next time he did something like this.) For their next assignment, Joseph asked the pre-service teachers to plan a lesson to teach a topic of their choice. The results were excellent and the plans that they produced were more creative and imaginative than in previous years.

Joseph realised that by having the chance to discuss their ideas in a group, his students had thought of many more ideas than they would have done on their own.

6. Using TESSA materials to support teaching practice

Supporting student teachers on teaching practice

In many institutions there are no existing materials to support teaching practice or school experience modules, and TESSA materials have been used frequently to support this part of the curriculum. Using the materials in this way is a good starting point as it familiarises teachers (and their supervisors/tutors) with the TESSA materials and there is often less resistance to their use in this area than to integration in more formal taught parts of the curriculum.

When pre-service teachers are on teaching practice, some will be supported by another teacher and the head teacher, but some will be left on their own. If they have access to the internet, then they will be able to use the TESSA materials to gather ideas for activities and to plan their lessons. If access to the internet is an issue, providing each student with a hard copy of the five units in their subject (Biology, Chemistry or Physics) will ensure that they have some concrete ideas for classroom activities.

At the Egerton University in Kenya, pre-service students complete an assignment during their teaching practice. They have to create a learning resource, use it with their classes and then write an evaluation of their resource. When they leave the school, the resources that they have created are given to the school.

Last year, Dr Wambugu decided to focus on the theme of 'problem solving and creativity'. Before the students went on teaching practice, Dr Wambugu set her Physics pre-service students the task of planning a lesson using the Physics unit on 'creativity and problem solving'. She asked them to write out the plan and to provide some notes to explain why they had chosen particular activities. She then asked them to work in pairs and provide feedback to each other on their plans. When she set the teaching practice assignment, she specifically asked them to create a resource which could be used in a lesson to promote students' creativity and problem solving skills. She was very pleased when they produced their resources – they were much more imaginative and creative than the ones she saw last year. Using the TESSA unit had inspired them and helped them with their assignment.

'School Experience' or 'Teaching practice' supervisors are expected to visit pre-service teachers and observe their teaching. The School Experience Supervisors' Toolkit has some detailed guidance on how to assess teaching practice.

The 'toolkit' was developed by teacher educators working in Zambia, and was adapted from the original TESSA Teaching Practice Supervisors Toolkit developed in Nigeria. The 'tools' they have developed apply to all School experience supervisors. The toolkit is an OER which means that the resources can be downloaded and adapted for use. For example, the resource on 'recognising a good lesson', could be used for the basis of a discussion by a group of teacher educators before they observe pre-service teachers in school.

[Appendix 2](#) contains some of the 'tools' that are likely to be most useful for teacher educators, and a list of all the activities and case studies that are available. The activities are for teacher educators to use in their work with pre-service teachers, and the case studies show how the activities can be implemented in practice.

Conclusion

The TESSA Teaching Lower Secondary Science Units are designed to support teachers in developing active and participatory approaches to learning and to aid teacher educators as they work to develop these approaches with pre-service and in-service teachers. The pedagogy modelled in the units is based on five principles:

- Students are knowledgeable. They do not come to the classroom as ‘empty vessels’ for teachers to ‘fill’ with knowledge. They come with knowledge and experience of the world.
- The teacher’s job is to elicit prior knowledge and to help the students develop new understandings.
- All students should be treated with respect and included in the lesson.
- Learning opportunities should be structured, with students having the chance to learn from each other.
- Dialogue and discussion are an important part of learning. Students will learn more if they have the opportunity to talk about their developing ideas.

The materials are designed to be used in work with pre-service teachers and with experienced teachers. They aim to exemplify ways to make lessons student-centred, helping teacher educators and the teachers they are educating grow in confidence in offering engaging, inclusive lessons. As their confidence develops, they will be able to develop new units to teach other curriculum topics more effectively.

Appendix 1: The Effective Secondary Science Teacher

1) Knowledge & Understanding

An effective teacher will have knowledge of:

- a) SCIENCE – content; concepts children find difficult; the curriculum
- b) PEDAGOGY – strategies to support learning in science
- c) LEARNING – how children learn, and how to take account of this
- d) ASSESSMENT – how to find out what children understand / have learned
- e) THE CHILD – social; cultural; personal (interests, home)
- f) MOTIVATION – how children are motivated or de-motivated

2) Attitudes; Values; Attributes

An effective teacher will have the following attributes:

- a) PROFESSIONAL – be a good role model
- b) SELF-MOTIVATED – wanting to learn; seeks improvement
- c) RESPECTFUL – of children, parents, colleagues
- d) INQUIRER – takes risks; try things out; experiments
- e) RESOURCEFUL – problem solver; creative; positive thinker; risk taker

3) Practices

An effective teacher will do the following things:

- a) PREPARATION - planning & preparation will be careful and thorough
- b) BE INCLUSIVE - consider and involve all learners
- c) BE ENGAGING - engage learners and engage WITH learners
- d) PROVIDE VARIETY - use a variety of teaching approaches, strategies and resources
- e) ASSESS PROGRESS – using a variety of techniques

4) Skills

An effective teacher will have the following skills:

- a) COMMUNICATION – listening; explaining; questioning
- b) MANAGEMENT – of learning, resources, learners, time, self
- c) SCIENCE SKILLS – practical skills of science
- d) MOTIVATIONAL - how to inspire, excite and promote interest in science

Appendix 2

The following resources are extracts from the Teaching Practice Supervisors' Toolkit.

Recognising a good lesson (Section 3 of toolkit)

As a Teaching Practice Supervisor, one of your key roles is to identify the good and not so good features of a lesson.

The list of questions below will help you to check the main characteristics of what makes a good lesson.

Recognising a good lesson

1. Does the lesson stimulate and interest the pupils?
2. Is it appropriate to the age and grade of the pupils?
3. Does the student teacher have a good knowledge of the subject matter?
4. Is the lesson plan and presentation flexible?
5. Are there opportunities for active learning? e.g. questions and answers, debates, role play, discussion, dramatisation, song and dance, experimentation etc.
6. Is there dialogue between the pupils and the student teacher? (not just closed questions with 'right' answers?) Does the student teacher listen to the pupils' ideas?
7. Are instructional materials appropriate? If so, are they used well?
8. Is a range of learning styles used in the lesson? (e.g. visual, kinaesthetic, oral – to engage different pupils)
9. Does the lesson involve all the pupils? Or are some pupils not encouraged to participate?
10. Is the class organised effectively? How well is the class managed and controlled?
11. Does the student teacher have clear strategies for evaluating the achievement of objectives? e.g. practice, demonstrative, tests, questions and answers etc.

Teaching Practice Supervisor Observation Form (Section 6 of toolkit)

Student teacher's name

Date

Time

Duration

Class

Average age

No. of boys

No. of girls

Subject

Topic

Subtopic

Notes on the lesson plan:

-
-
-

Notes on the learning objectives:

-
-
-

Notes on the instructional materials:

-
-
-

Notes on the use of previous knowledge/entry behaviour

-
-
-

Detailed notes on the lesson

	Time	What happens in the classroom	Comments, questions, suggestions
Introduction			
Step 1			
Step 2			
Step 3			
Step 4			
Step 5			
Evaluation and feedback			
Summary			
Conclusion			

Summary for the student teacher

What we agreed went well:	
Agreed areas to develop:	TESSA strategy/strategies or resources that would help:
General comment on the lesson:	

Guidance on assessment of student teachers (Section 8 of toolkit)

Many teachers, teacher educators, pupils and parents think of assessment as evaluating only what learners have learnt at the end of a week, term or year. Such **summative assessment** is important. However, '**assessment for learning**' or **formative assessment** is important within the learning cycle because it gives

- the educator and the learners
- the teacher and the pupils
- the teacher educator and the student teachers

the opportunity to check progress while all are learning. This can then be the basis for further learning. Both formative and summative assessment can include self- and peer assessment as well as Teaching Practice Supervisor directed assessment.

On your visits to your student teachers, you should complete the teaching practice assessment sheet as usual. The scoring can differ from one institution to another but this list covers some suggestions that you may want to consider in your assessment of the student teacher. The Teaching Practice Supervisor should be specific in stating their marks and give reasons and examples.

Assessment of teaching practice by Teaching Practice Supervisor

Trainee's Personal Behaviour

- Trainee's outward show (appearance)
- Trainee's contribution to school environment and other activities (culture, sport and social activities)
- Trainee's self-awareness

Lesson Preparation and Planning

- Level of detail and accuracy in the lesson plan
- Accuracy, adequacy and sequencing of content
- Knowledge and appropriate use of objectives according to the domains of cognitive, affective and psychomotor
- Coherent lesson design involving active learning according to the pupils' levels and competences
- Selection of appropriate instructional activity for the lesson objectives
- Preparation and selection of appropriate instructional materials

Lesson Presentation and Classroom Management

- Stimulates the pupils
- Knowledge of subject
- Implementation of lesson plan (flexibility)
- Knowledge of the pupils and their individual differences
- Competency at using instructional materials especially the chalkboard
- Responses to pupils' behaviour
- Use of voice
- Pupil participation in the lesson by asking questions, debating and discussion
- Classroom management and control

- Relevant, interesting and motivational introduction
- Logical and sequential development of lesson
- Adequacy and accurate mastery of subject
- Command of language (accurate, fluent and to the point)
- Questioning (good quality, well distributed among the learners)
- Learner-centred approach (lots of relevant activities)
- Use of instructional materials
- Learning consolidation through summary and conclusion

Evaluation

- Evaluation of pupils' learning
- Analysis of lesson delivery against lesson objectives



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