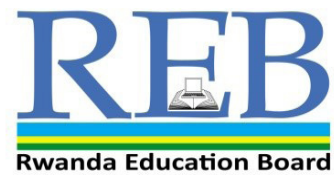


REPUBLIC OF RWANDA



MINISTRY OF EDUCATION

**SUBJECT BASED TEACHER TRAINING MANUAL ON COMPETENCE
BASED CURRICULUM
SCIENCE AND ELLEMENTARY TECHNOLOGY (SET)**



TRAINER'S MANUAL

OCTOBER, 2019



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WELCOME NOTE

Dear Teacher,

The Rwandan Education philosophy for quality Education is to ensure that learners fully acquire and integrate knowledge, skills, values and attitudes at all levels of their Education. They are encouraged to bring their own real experiences and knowledge into the learning processes for an improved learning outcome.

This manual attempt to help teachers understand how to teach SET in the context of Competence Based Curriculum (CBC) for consistency and coherence in teaching and learning process. Learners acquire appropriate skills and are able to apply them in real life; make a difference not only into their own lives but also to the nation and the globe. During the national baseline survey on the implementation of CBC, it was revealed that teachers still need support in:

- Understanding of taught subjects in competence-based approach;
- Addressing cross-cutting issues in taught subjects;
- Developing and integrating generic competences in taught subjects;
- Understanding effective use of appropriate assessment techniques as they ask adequate questions during lesson delivery as they provide positive feedback to students;
- Building on student recorded progress build student portfolio.

We hope, it will help you to develop required knowledge, skills, values and attitudes to confidently adapt each activity, situation or scenario for improved learning outcomes.

My sincere appreciation goes to all people who contributed towards the development of this manual, particularly UR-CE lectures, TTC tutors, primary subject teachers, Development partners, the British Council and REB staff from different departments.

Dr. NDAYAMBAJE Irénée

Director General of REB

ACKNOWLEDGEMENT

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To conclude, my word of gratitude goes to the Rwanda Education Board staff particularly those from Teacher Development & Management and Career Guidance & Counseling Department (TDM&CGC), Curriculum, Teaching and Learning Resources Department (CTLR), Examinations, Selection and Assessment Department (ESAD), ICT in Education Department (ICTE) who participated tirelessly in the entire process.

James NGOGA,

**Head of Teacher Development & Management and Career Guidance & Counseling
Department (TDM&CGC)**

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BACKGROUND

The Curriculum for Rwandan schools at primary and secondary levels has been changed from knowledge and content-based to competence-based. Competence-Based Curriculum (CBC) is of great importance in aligning Rwanda's education to the social and economic demands of society. The CBC also presents answers to concerns about the capability and employability of school graduates.

The Competence-Based Curriculum (CBC) was launched in April 2015. Since then, teachers and school leaders underwent different induction trainings so far on 3 modules:

- Module 1: Role out of the Competence Based Curriculum
- Module 2: Implementation of Competence Based Curriculum in school
- Module 3: Reflection on teaching practices and focus on assessment

However, teachers are still struggling to embed/integrate generic competences in teaching and learning activities in different subjects. This has been observed in the gap analysis survey conducted by REB in collaboration with British Council and other development partners, whereby teachers still have development areas on:

- Understanding their respective subject in competence based approach
- How to address Cross-cutting issues in their taught subjects
- How to develop and integrate generic competences in taught subjects
- Understanding effective use of appropriate assessment techniques as they ask adequate questions during lesson delivery as they provide positive feedback to students
- Building on student recorded progress build student portfolio.

To respond to these identified gaps, it was necessary to develop training manual that shows on how competence-based approach (generic competence, integration of cross cutting issues, assessment, etc...) can be embedded in different subjects including primary school examinable subjects namely Mathematics, English, Social and Religious Studies, Science and Elementary Technology and Kinyarwanda.

INTRODUCTION:

The introduction of a competence-based curriculum in schools calls for comprehensive change and new thinking with regard to instructional approaches in teaching, learning and assessment processes. The teacher is the most important player in improving education quality and a key factor in determining learners' success.

Teachers need to be fully equipped with knowledge, understanding and practical abilities to embed/integrate the competence-based approach in classroom and outside the classroom.

It is therefore necessary to provide teacher training to equip teachers in different subjects with competences that will enable them to effectively handle challenges associated with the implementation of a competence-based approach in taught subjects.

The purpose of this manual is to help the teacher to actively integrate principles and features of Competence Bases approach in subject taught.

LEARNING OBJECTIVES:

By the end of this training, teachers will be able to:

- Explain the rationale of teaching SET subject in Competence Based Curriculum (CBC)
- Address and integrate cross-cutting issues in SET subject
- Apply different teaching methodologies that help in developing and embedding/integrating generic competences in SET subject
- Understanding effective use of appropriate assessment techniques as the teacher asks adequate questions during SET lesson delivery and provides positive feedback to learners
- Building on learners recorded progress to build their portfolio.

ABOUT THIS MANUAL

As shown by different surveys, most of teachers who teach SET face challenges of integrating cross-cutting issues and generic competences in real learning situations. Some other challenges that have been realized alongside the above mentioned are big size classes.

So, the goal of this manual is to assist teachers to incorporate transferable skills and cross cutting issues in order to improve students' learning. There is a need for teachers to apply active methodologies to support the development of the core skills. Teachers will develop these through subject based activities with support from the SET teacher training manual.

In order to provide quality education, SET teachers are expected to engage in professional development activities throughout their career. This allows them to deepen their knowledge, develop their skills and keep themselves updated with major changes affecting their profession.

This manual contains:

- Background,
- Introduction,
- Units with their sessions
 - Unit one has one sessions
 - Unit two has five sessions
 - Unit three has six sessions
 - Unit four has three sessions
 - Unit five has three sessions

Each session is developed into activities and has the following main parts

- a. Session title
 - b. Objectives
 - c. Materials
 - d. Time
 - e. Steps
 - f. Sequences
 - g. Synthesis /summary
 - h. Conclusion
- References
 - Annex containing a Model lesson plan.

EXPECTED OUTCOMES

By the end of this training, SET teachers will be able to:

- Integrate cross-cutting issues and generic competences in teaching and learning.
- Explain the structure of SET syllabus and linkage between topic area, units and number of periods.
- Formulate accurate instructional objectives
- Integrate assessment techniques throughout the lesson delivery and provide positive/constructive feedback.

LIST OF ABBREVIATIONS USED

ESAD: Examinations, Selection and Assessment Department

7YGP : 7 Years' Government Programme

A4: a standard paper size

AIDS: Acquired Immunodeficiency Syndrome

CBA: Competence Based Approach

CBC: Competence Based Curriculum

CCIs: Cross-cutting Issues

CoP: community of Practice

CPD: continuous Professional development

CTLR: Teaching and Learning Resources department

EDPRS2: *Economic Development and Poverty reduction Strategies 2*

ESSP: Education sector strategic Plan

GCs: Generic Competences

HIV: Human Immunodeficiency Virus

HoD: Head of department

ICT: Information and Communication Technology

K.L.W: I Knew, I learnt, I want to learn

KBC: Knowledge Based Curriculum

MINEDUC: Ministry of Education

P: primary

REB: Rwanda Education Board

SET: Science and Elementary Technology

TDM&CGC: Teacher Development & Management and Career Guidance & Counseling

TTC: Teacher Training College

UR-CE: University of Rwanda College of Education

INTRODUCTION TO THE WORKSHOP

Welcome and introduction

The facilitator greets participants, introduces him/herself and welcomes them in the training.

On the circle, the facilitator invites participants to pair up and introduce one another. Participants share names, schools, hobbies, and teaching experience. Then each of the participant introduces their partner.

The facilitator invites participants to join their seats and write their expectations of the training on a post note or piece of paper and asks them to read. One of the participants will take notes on a flip chart to refer them later.

The facilitator invites participants to suggest common ground rules for the training

Ground rules are suggested and recorded on a flip chart.

Example of ground rules:

- Respect each other's views
- Put phones in silent mode
- Respect time
- Avoid unnecessary in and out movements
- Time management

Rationale of subject based training

The facilitator calls participants to brainstorm on CBC training they attended (benefits, challenges).

The facilitator helps participants to read and understand the training objectives.

Conclusion :(20min)

The facilitator concludes the session by putting emphasis o the necessity of welcoming participants or learners in the session or lesson.

Key message

i. Importance of creating a good rapport in the classroom setting

It is important for the teachers to introduce themselves when they enter class for the first time and at the start of every lesson. Setting ground rules helps teachers to hold students accountable of their teaching and learning activity especially discipline in the class room. As the teacher collects learners 'expectations at the beginning of the lesson, they are able to understand and respond to their curiosity

ii. Why subject based training?

The facilitator sums up by emphasizing on the below message:

“Since the launch of CBC in 2015 teachers underwent different trainings at different levels and times. However, teachers are still struggling to embed generic competences, cross cutting issues and assessment throughout teaching and learning activities in taught subjects. This has been observed in the gap analysis survey conducted by REB in collaboration with British Council and other development partners on the implementation of CBC after three years.

To remediate on the identified gaps, teacher training on primary examinable subjects was initiated as response. It suggests active methodologies to be applied while teaching successful lessons. It proposes room for sharing experiences and suggests the ways forward. It guides teachers on teaching best practices and integrate cross cutting issues, generic competences and assessment as far as CBC is concerned.”

Session 1

Challenges faced by teachers in teaching Science and Elementary Technology at primary level (SET)

Session objective:

By the end of this session, participants will be able to discuss about the challenges faced by SET teachers and suggest possible solutions.

Materials/resources: post-it notes, papers, pens, flip charts and markers, scotch, computer and projector, black board, etc.

Introduction (5 minutes)

The facilitator building from the previous activity, asks participants to form groups and share the session objective (depending on the situation, the facilitator can use a warmup).

Session development (40 minutes)

Activity

Identification of challenges and proposed solutions

With an already prepared flip chart, the facilitator invites participants to write down the challenges related to the:

- a. subject
- b. the learner
- c. the teacher

face in teaching and learning science and Elementary Technology and how they can be solved. The facilitator invites participants to present their findings.

Expected answers:

Challenges	Overcoming challenges
Challenges related to teachers	
<ul style="list-style-type: none"> Lack of methodological skills. Eg: teachers teach a theoretical and experiment-based lesson in same way 	<ul style="list-style-type: none"> Teachers should be equipped by different and specific methods according to specific content. CPD (Continuous Professional Development) should be enhanced.
<ul style="list-style-type: none"> Lack of content knowledge. Eg: Teacher may know science but no ICT skills 	<ul style="list-style-type: none"> Through CPD activities, teachers should learn from each other. Have two different teachers in collaboration (one teacher teaches what he/she understand)
<ul style="list-style-type: none"> Barriers in instruction language 	<ul style="list-style-type: none"> Teacher should update themselves (self-learning) through reading books and consult different multimedia sources, collaborate with fellow teachers through CPD, conduct debates among themselves with learners.
Challenges related to subject	
<ul style="list-style-type: none"> Insufficiency of teaching and learning materials 	<ul style="list-style-type: none"> Teachers should make and use teaching materials from the low cost and waste materials in our local environment (improvisation).
<ul style="list-style-type: none"> Lack of facilities to conduct field trips 	<ul style="list-style-type: none"> Use ICT like movies form YouTube, picture, graphs...
<ul style="list-style-type: none"> 40 minutes period management 	<ul style="list-style-type: none"> Effective lesson planning (when a teacher is well prepared, he maximizes the loss of time) Teachers may assign different task to different learners or group. DOS should arrange timetable such way that there will be 2 consecutive periods for SET subject in a given class.
Challenges related to learner	
<ul style="list-style-type: none"> Big size-classes 	<ul style="list-style-type: none"> Teachers can use group work and assign different task in order to get time and call attention of the rest of the class
<ul style="list-style-type: none"> Absenteeism 	<ul style="list-style-type: none"> Involving parents, local government authorities, school leadership
<ul style="list-style-type: none"> Hungry learners due to insufficient food at home 	<ul style="list-style-type: none"> School feeding program, akarima k'igikoni, inkongoro y'amata ku mwana
<ul style="list-style-type: none"> Learners with insufficient learning materials 	<ul style="list-style-type: none"> Involving parents
<ul style="list-style-type: none"> Family conflict 	<ul style="list-style-type: none"> Involving parents

Conclusion (5 minutes)

The facilitator addresses participants by putting emphasis on fact that this training was prepared in response to teachers challenges in implementing CBC.

Session 1 Overview of the CBC

Session objective(s)

By the end of the session, participants will be able to

- Explain the concept of the CBC.
- Recognize the purpose, principles and values of the CBC

Session 1: Overview of the CBC

Materials/resources: teacher training manual, in SET syllabus for both lower and upper primary, flipchart, pens, markers, laptop, projector, internet, notebooks, English textbooks and readers, dictionaries, curriculum framework etc.

Introduction (5 minutes)

The facilitator invites the participants through the warmup below:

Chorus: Oh, come and see the use of education (x2)

One participant: I am a teacher

All participants: because of education

One participant: I can teach

All participants: because of education

(I am a doctor, I can; I am a farmer, I can....; I am an Engineer, I can.... etc)

Note: Depending on the subject, the facilitator can change the warmup to what suit them.

The facilitator displays/presents a chart with session objectives and invites one of the participants to read aloud.

Session development: (50 minutes)

Activity 1

Defining the term curriculum, competence and CBC (*Curriculum Framework pre-primary to upper secondary 2015 preliminary page: x*)

The facilitator asks participants to work in pairs and discuss what they understand by the terms: **curriculum, competence and CBC**. S/he invites any four pairs to share in plenary.

The facilitator thanks all participants for their responses and share expected answers.

Key message:

A curriculum: the learning provided throughout the education system consisting of learning areas, subjects including knowledge and competences, cross cutting issues, basic and generic competences, skills and attitudes.

- **A competence** is ability to confidently use an appropriate combination of knowledge, skills, attitudes, values and behavior for a successful accomplishment of task.
- **A competence-based curriculum (CBC)** is a curriculum that takes learning to higher levels by providing challenging and engaging learning experiences which require deep thinking. This means going beyond the recall of information to a level of sufficient understanding for learners to apply their learning.

Activity 2

Recognize the purpose, principles and value of CBC

The facilitator invites participants into three groups, give them a flip paper, markers, SET syllabi and ask them to discuss and write:

- Group 1: The reasons behind shifting from Knowledge based Curriculum (KBC) to Competence Based Curriculum (CBC),
- Group 2: Principles underlying CBC
- Group 3: CBC values

Once all groups are done, the facilitator invites them to put up their work in different corners of the room. S/he invites all members to do gallery walk. Once they are in one corner, ask member to explain what they have done.

Key message:

After plenary discussion, the facilitator shares with participants flash cards with below text:

i. Reasons behind shifting from KBC to CBC (Curriculum Framework pre-primary to upper secondary 2015 pages: 8-9)

According to Vision 2020, economic development and poverty reduction strategy two (EDPRS 2), education sector strategic plan (ESSP), seven-year government program (7YGP), the Rwandan Curriculum requires a renovation:

- To meet the demands of the country's vision and the dynamic global skills market demands.
- To allow the free movement of workers in the region and in the world.

These involve turning Rwanda into a knowledge-based society whilst the aspiration is that the reformed curriculum should reflect the best of curricula in the developing world and embody best practices.

Therefore, CBC has been developed to ensure that the curriculum is responsive to the needs of the learner, society and labor market. This necessitates shifting from objective and knowledge-based learning to competence-based learning. The emphasis has been to build more on knowledge, skills and attitudes, and values with best practices.

ii. (CBC basic values (curriculum framework pre-primary to upper secondary page17)

- Dignity and integrity
- Self-reliance
- National and cultural identity

- *Peace and tolerance*
- *Justice*
- *Respect for others and human rights*
- *Solidarity and for human rights*
- *Hard work, commitment and resilience*
- *Patriotism*

iii. Principles and approaches underlying CBC curriculum framework pre-primary to upper secondary page19-21)

Learners learn best when they are actively involved in the learning process through a high degree of participation, contribution and production. Each learner is an individual with their own needs, pace of learning, experiences and abilities. Teaching strategies must therefore be varied but flexible within a well-structured sequence of lessons. Learner-centered education does not mean that the teacher no longer has the responsibility of facilitating and guiding so that learning takes place. Below are principles that will contribute to the successful implementation of CBC:

- *Learner centeredness*
- *Competence based approach*
- *Inclusiveness*
- *Transparency and accountability*
- *Integration of ICT as a tool*
- *Interconnection with cross-cutting issues*
- *Competence-based assessment*

Conclusion (5minutes)

The facilitator uses the concentration game to recap the session (see appendices: warmups)

The facilitator thanks participants for their responses and emphasizes the meaning of competence Based curriculum and the reason behind it.

Session 2 Developing competences

Session objective(s)

By the end of this session, participants will be able to:

- Distinguish basic from generic competences
- Describe the subject competences

Materials/resources: projector, computer, flipchart, pens, markers,

Introduction (5 minutes)

The facilitator guides participants in reviewing the concept “competence”

Competence is ability to confidently use an appropriate combination of knowledge, skills, attitudes, values and behavior for a successful accomplishment of task.

Session development (50minutes)

Activity 1

Differentiate Basic competences from Generic competences

The facilitator invites participants to pair up with the person on the right side to read and discuss about the text on “Curriculum Framework pre-primary to upper secondary 2015 pages: 26 – 31. She/he invites any three pairs to share their findings

Key message:

- i. **Basic competences** are priority competences for all learners that are developed into subject content as well as developed across subject.
- ii. **Generic competences** are competences which lead learners to develop higher order thinking and can be developed in all subjects.

Understanding basic and generic competences

The facilitator asks participants to count up to five and then asks ones to go together up to five. Each group is given a set of cut out of competences mixed with their descriptors.

Participants are required to sort them out and match each competence category with their descriptors.

Key message:

Table 1 provides basic competences and their descriptors

Basic competences	Descriptors (what learners are able to demonstrate during the learning process)
Literacy	<ul style="list-style-type: none">• Reading a variety of texts accurately and fast.• Expressing ideas, messages and events through writing legible texts in good handwriting with correctly spelt words.• Communicating ideas effectively through speaking using correct phonetics of words.• Listening carefully for understanding and seeking clarification when necessary.
Numeracy	<ul style="list-style-type: none">• Computing accurately using the four mathematical operations.• Manipulating numbers, mathematical symbols, quantities, shapes and figures to accomplish a task involving calculations, measurements and estimations.• Use numerical patterns and relations to solve problems related to everyday activities like commercial context and financial management.• Interpreting basic statistical data using tables, diagrams, charts and graphs.
ICT and digital competences	<ul style="list-style-type: none">• Locating, extracting, recording and interpreting information from various sources.• Assessing, retrieving and exchanging information via internet or cell phones.• Using cell phones and internet for leisure and for money transactions.

	<ul style="list-style-type: none"> • Using computer keyboard and mouse to write and store information. • Using information and communication technologies to enhance learning
Citizenship and national identity	<ul style="list-style-type: none"> • Relating the impact of historical events on past and present national and cultural identity. • Understanding the historical and cultural roots of Rwandan society and how the local super structure functions in relation to the global environment. • Demonstrating respect for cultural identities and expressing the role of the national language in social and cultural context. • Advocating for the historical, cultural and geographical heritage of the nation within the global dimensions. • Showing national awareness, a strong sense of belonging and patriotism. • Advocating for a harmonious and cohesive society and working with people from diverse cultural backgrounds.
Entrepreneurship and business development	<ul style="list-style-type: none"> • Applying entrepreneurial attitudes and approaches to challenges and opportunities in school and in life. • Understanding obligations of parties involved in employment. • Planning and managing micro projects and small and medium enterprises. • Creation of employment and keeping proper books of accounts. • Taking risks in business ventures and in other initiatives. • Evaluating resources needed for a business.
Science and technology	<ul style="list-style-type: none"> • Applying science and technology skills to solve practical problems encountered in everyday life including efficient and effective performance of a given task. • Develop a sense of curiosity, inquisitiveness and research to explain theories, hypotheses and natural phenomena. • Reasoning deductively and inductively in a logical manner. • Using and experimenting with a range of objects and tools of science and technology and drawing appropriate conclusions.

Table 2 provides Generic Competences and their descriptors

Generic Competences	<ul style="list-style-type: none"> • Competence Descriptors (what learners are able to demonstrate during the learning process)
Critical thinking	<ul style="list-style-type: none"> • Think reflectively, broadly and logically about challenges encountered in all situations. • Weigh up evidence and make appropriate decisions based on experience and relevant learning. • Think imaginatively and evaluate ideas in a meaningful way before arriving at a conclusion. • Explore and evaluate alternative explanations to those presented by others.

<i>Creativity and innovation</i>	<ul style="list-style-type: none"> • <i>Responding creatively to different challenges encountered in life.</i> • <i>Use imagination beyond knowledge provided to generate new ideas to enrich learning.</i> • <i>Take initiative to explore challenges and ideas in order to construct new concepts.</i> • <i>Generate original ideas and apply them in learning situations.</i> • <i>Demonstrate resilience when faced with learning challenges.</i>
<i>Research and problem solving</i>	<ul style="list-style-type: none"> • <i>Be resourceful in finding answers to questions and solutions to problems.</i> • <i>Produce new knowledge based on research of existing information and concepts and sound judgment in developing viable solutions.</i> • <i>Explain phenomena based on findings from information gathered or provided.</i>
<i>Communication</i>	<ul style="list-style-type: none"> • <i>Communicating and conveying confidently and effectively information and ideas, through speaking and writing and other forms of communication, using correct language structures and relevant vocabulary in a range of social and cultural contexts.</i> • <i>Comprehending language through listening and reading.</i> • <i>Using oral and written language to discuss, argue and debate a variety of themes in a logical and appealing manner.</i> • <i>Communicate clearly and confidently using a range of linguistic, symbolic, representational and physical expression.</i> • <i>Developing and communicating formal messages and speech appropriate to the target recipient or audience.</i>
<i>Cooperation, interpersonal management and life skills</i>	<ul style="list-style-type: none"> • <i>Co-operating with others as a team in whatever task assigned.</i> • <i>Adapting to different situations including the world of work.</i> • <i>Demonstrating a sense of personal and social responsibility and making ethical decisions and judgments.</i> • <i>Respect others' rights, views and feelings.</i> • <i>Having positive ethical and moral attitudes with socially acceptable behavior.</i> • <i>Perform practical activities related to environmental conservation and protection.</i> • <i>Advocating for personal, family and community health, hygiene and nutrition.</i> • <i>Developing motor skills to perform a variety of physical activities for fitness, health, leisure and social interaction.</i>
<i>Lifelong learning</i>	<ul style="list-style-type: none"> • <i>Taking initiative to update knowledge and skills with minimum external support.</i> • <i>Coping with the evolution of knowledge and technology advances for personal fulfillment</i> • <i>Seeking out acquaintances more knowledgeable in areas that need personal improvement and development.</i> • <i>Exploiting all opportunities available to improve on knowledge and skills.</i>

Activity 2

Linkage of subject competences

The facilitator invites participants to form small groups and asks them to read through SET syllabus and show the relationship between competences developed within it.

Key message:

(school-Based Continuous professional Development Manual Phase 1:2017 page 143)

***Broad Competences** are competences (knowledge, skills, attitude and values) to be shown by learners at the end of the learning cycle; namely at the conclusion of three years.*

***Key Competences** are competences (knowledge, skills, attitude and values) to be shown by learners at the end of each academic year.*

***Key Unit Competences** are competences (knowledge, skills, attitude and values) to be shown by the learner at the end of unit.*

***Learning Objectives** are specific knowledge, skills, attitudes and values that the learner shows within lessons in a unit.*

***Instructional Objective** is a precise statement of what a learner will be able to do at the end of a lesson.*

The chart below shows the linkage of subject competences.

BROAD SUBJECT COMPETENCES



KEY COMPETENCES



KEY UNIT COMPETENCES



LEARNING OBJECTIVES



INSTRUCTIONAL OBJECTIVES

Eg: Develop a concern for the world around us (End of p6 SET Syllabi, page5)



Protect school surrounding environment against soil erosion (end of P4 SET Syllabi, page16)



To be able to choose good soil and prevent it from soil erosion (unit8 SET Syllabi, p30)



Identify methods and techniques of soil erosion prevention (one of the objectives under unit8 SET Syllabi, p30)



Instructional objectives for each lesson (by using photos, the learner will be able to choose and identify different techniques that can correctly be used to prevent soil erosion)

Conclusion (5 minutes)

The facilitator asks participants to discuss what they have learnt new from the session. S/ he harmonizes and reminds them the difference between basic and generic competences and how subject competences are linked to each other.

Session 3

Difference between Knowledge Based Curriculum (KBC) and Competence Based Curriculum (CBC)

Session objective(s)

By the end of the session, participants will be able to:

- Differentiate knowledge-based curriculum from competence-based curriculum
- Identify the role of competence curriculum and apply competence-based approach throughout teaching and learning activities.

Materials/resources: teacher training manual, SET syllabus, flipchart, pens, markers, laptop, projector, and internet approved course books, etc.

Introduction (5 minutes)

The facilitator invites participants to brainstorm on different approaches that can be used in teaching and learning activities.

Expected answers:

- Questions in corners,
- Outdoor activities/field visit,
- Project work, group work,
- Role play, case study,

- Brainstorming,
- Games/play,
- Research work,
- Practical work,

The facilitator will give constructive comments on the given answers, and then s/he shares the objectives of the session with participants.

Session development (50minutes)

Activity 1

Differentiate knowledge-based curriculum from competence-based curriculum

Using think-pair-share, the facilitator invites participants to discuss the difference between knowledge-based curriculum (KBC) and competence-based curriculum (CBC) and present their findings. S/he gives brief comments and harmonizes findings.

Key message:

(Teacher training Manual o the roll out of the competence Based curriculum 2015, page3-4)

a. Definition:

Knowledge Based Curriculum: *it uses the approach that puts the teacher in the center of learning. This approach focuses on the content that is taught in the classroom and does not give room to learners to link learning and its relevancy in daily life. It assesses against the content covered than focusing on acquired skills.*

Competence-based Curriculum: *In this curriculum the approach of teaching and learning is often used in learning concrete skills than abstract learning. In the Teaching / Learning process, this approach allows students to acquire sustainable skills that can help them in their education and in their daily lives. (curriculum framework page)*

b. Difference between Knowledge-based and Competence-based Curriculum

Knowledge based curriculum	Competence-Based curriculum
Focus on subject content and what learners can know and memorize rather than what they can do.	Focus on what learners can do and apply in different situations by developing skills, attitudes and values in addition to knowledge and understanding.
They are teacher-centered with minimum involvement of the learners.	The learning process is learner focused where a learner is engaged in active and participatory learning activities.
The teacher provides the subject content concepts, through writing or dictating notes and practical demonstration where experiments are required.	The learner builds new knowledge from prior knowledge through discovery and problem solving based learning (constructivist theory).
The teacher decides what to teach and how to deliver the content without considering the needs and interests of the learners.	The learner helps to decide what to learn and at what pace and the learning is through one competence at a time by units or modules of learning.

The assessment is after a period of time through tests or exams of pen and paper.	The assessment is an integral part of the learning process and takes place all the time by informal or formal methods.
The assessment is norm referenced for the purpose of ranking or selection mainly.	The assessment is mainly criterion referenced for the purpose of evaluating and measuring what learners are able to demonstrate.
Records show only naked scores or grades without indicating what the learners have demonstrated.	Records with clear statements about competence achievement are necessary for feedback

Activity 2

The roles and application of Competence base Curriculum in teaching and learning activities

Using think-write-pair and share, the facilitator asks participants to discuss the role of competence-based curriculum in teaching and learning and how they apply it in their daily teaching and learning activities.

The facilitator invites paired participants to share their partner's experience while others comment and complement.

Key message:

The roles of competence-based curriculum in teaching and learning

- *CBC is designed to help learners to acquire academic knowledge, develop and apply skills for lifelong learning needed to be fully prepared for college, career and life.*
- *CBC helps to recognize the individual differences and enables the teacher to help learners according to their pace.*
- *CBC considers learners' needs and interest.*
- *CBC helps learners to critically think, imagine, innovate and create.*
- *CBC promotes the development of the higher order thinking skills.*
- *CBC focuses on what student learns and not on the time spent in the classroom.*
- *CBC increases student engagement because they have ownership over their learning.*
- *CBC enables students to demonstrate practical skills and tangible outcomes to determine competence and not just the possession of theoretical knowledge.*

How to apply competence based curriculum in teaching and learning (TTC orientation manual 2019 page20)

Competences are acquired over time through the cumulative effect of a competence approach to learning. It should be noted that competences are rarely developed in isolation. They are interconnected and developed simultaneously.

Students need to be engaged in practical, contextualized and complex learning situations through which application of learning is constantly developed. The teachers should strive to have active teaching and learning techniques when planning activities within a lesson and the activities should challenge students to think critically, carry out research, solve problems, be creative and innovative, communicate and co-operate. Applying competences requires teachers to adopt approaches that encourage and enable students to develop knowledge, skills and values as well.

Conclusion (5 minutes)

The facilitator summarizes the session by putting emphasis on the importance of using active methodologies because they enable learners gain knowledge and acquire required skills and values for a universal citizen.

Session 4 Addressing cross-cutting issues

Session Objective:

By the end of this session, participants will be able to:

- Describe the eight cross-cutting issues
- Explain the importance of addressing cross-cutting issues

Materials/resources: teacher training manual, SET syllabus for lower and upper primary, flipchart, stand, pens, markers, laptop, projector, Curriculum Framework, Dictionary, notebooks, Balls, A4 papers, etc.

Introduction (5 minutes)

The facilitator uses the warmup related to the session to start (optional).

The facilitator displays a chart with session objectives and calls one of the participants to read

Session development (50 minutes)

Activity 1

Description of eight cross cutting issues

The facilitator asks participants what they understand by “Cross-cutting issues.” S/he gives chance to some participants to share in plenary and harmonizes.

The facilitator hands out to participants pieces of paper, some having cross-cutting issues names others having their descriptors statement and match them.

Possible answers: (Curriculum Framework pre-primary to upper secondary 2015 pages 21–24)

Cross-cutting issues are important for learners to learn about and must be integrated across learning areas appropriately since they are not confined to one subject. The issues are embedded within all subjects across the years rather than having a dedicated timetable slot of their own. Integrating CCIs will provide an opportunity for learners to acquire knowledge; skills and values which will enable them address salient issues in their lives and in the community. The issues include but not limited to the following; Genocide studies, Environment and Sustainability, Peace and Values Education, Gender, Comprehensive Sexuality Education, Financial Education, Standardization Culture and Inclusive Education.

Describing the eight CCIs:

CCI	Descriptor
<ul style="list-style-type: none"> • Comprehensive Sexuality Education 	Equips children, adolescents, and young people with knowledge, skills and values in an age appropriate and culturally gender sensitive manner so as to enable them to make responsible choices about their sexual and social relationships, explain and clarify feelings, values and attitudes, and promote and sustain risk reducing behaviour.
<ul style="list-style-type: none"> • Environment and sustainability 	Its integration in the curriculum focuses on and advocates for the need to balance economic growth, society well-being and ecological systems. Learners need basic knowledge from the natural sciences, social sciences, and humanities to understand to interpret principles of sustainability.
<ul style="list-style-type: none"> • Genocide studies 	The Rwandan children should know about the Genocide perpetrated against Tutsi in 1994 and other Genocides which took place across the globe. They should know what caused the genocide in Rwanda, its planning and execution, how it was stopped and what the consequences have been. Rwandan children should take part in fighting genocide ideology and genocide denial.
<ul style="list-style-type: none"> • Peace and Values Education 	It is defined as education that promotes social cohesion, positive values, including pluralism and Personal responsibility, empathy, critical thinking and action in order to build a more peaceful society.
<ul style="list-style-type: none"> • Financial Education 	Its integration aimed at a comprehensive Financial Education as a precondition for achieving financial inclusion targets and improving the financial capability of Rwandans so that they can make appropriate financial decisions that best fit the circumstances of one's life.
<ul style="list-style-type: none"> • Gender 	It will be understood in school beginning with family complementarity, gender roles, responsibilities, the need for gender equity and equality, gender sensitivity, gender mainstreaming and other related issues.
<ul style="list-style-type: none"> • Standardisation Culture 	Rwanda, it will be promoted through formal education and plays a vital role in terms of health improvement, economic growth, industrialization, trade and general welfare of the people
<ul style="list-style-type: none"> • Inclusive Education 	It is based on the right of all learners to a quality and equitable education that meets their basic learning needs, and understands the diversity of backgrounds and abilities as a learning opportunity

Conclusion (5 minutes)

The facilitator asks participants to share what they have learnt from the session. The facilitator emphasizes on the fact that CCIs are issues that learners should be aware of, which are not confined to a single subject.

Key message:

Cross-Cutting Issues must be integrated in teaching and learning because it is important for learners to not only have academic knowledge, but also to know how that knowledge affects their lives and the world at large. Connecting school life to social and professional lives helps learners to be fully prepared, as good citizens who strive to build a better Rwanda and the globe

Session 5 Learner Centered Methodology in CBC

Session objective(s)

By the end of the session, participants will be able to:

- Discuss learner centered and competence-based approaches in CBC
- Discuss learner-centered methodology in developing learners' competences.

Materials/resources: projector, computer, flipchart, pens, markers, notebooks, scotch and papers.

Introduction (5 minutes)

The facilitator introduces the session by using a warmup activity (facilitator and participants)

The facilitator shares session objectives and help participants to understand them.

Session development (30 minutes)

Activity 1

Learner centered approach Vs Competence based approach (Curriculum Framework pre-primary to upper secondary 2015 pages 19-20)

- a. In plenary discussion, the facilitator asks participants to share their daily teaching practices and identify the difference between learner centered and teacher centered methodology

Expected answers

Teacher centered methodology	Learner centered methodology
<p><i>Is a way of teaching within teacher's activities are most involved?</i></p> <p>Examples of teacher centered:</p> <ul style="list-style-type: none">• <i>A teacher who practice certain example directly and does not allow learners actively in the same practice</i>	<ul style="list-style-type: none">• <i>Is a way of teaching and learning that put learners in the center of learning Learner's needs are priorities and they play an outstanding role in activities.</i>• <i>Plays an important role to support teachers in the process of producing citizens comfortable for the changing world.</i>

- A teacher who does not allow learners to ask questions
- A teacher who take most of the time talking than learners

Examples of learner centered:

- Teacher allows students to ask question, answer to their colleagues' queries and interact each other
- Teacher allows learners to teach each other, promote discussion, collaborate each other and give their ideas freely
- A classroom with a good atmosphere where students like their teacher and is free to interact with their teachers
- Teacher allows learners to participate actively in teaching and learning process through group work, discussion, presentation, feedback, project work,....(all depends on the content, environment, time, space, context, and situation)

- b. The facilitator invites participants to pair up and discuss learner centered approach compared to competence-based approach in competence-based curriculum. S/he samples some pairs to share with the whole group then harmonizes answers.

Key message:

Learner-centered approach.

It is an approach where teaching and learning must address learners' individual needs, interests, abilities and backgrounds, creating an environment where learning activities are organized in a way that encourages learners to construct the knowledge either individually or in groups in an active manner.

Competence-based approach

This is an approach where teaching and learning is based on discrete skills rather than dwelling on only knowledge or cognitive domain of learning. Learners work on competences through units with specific learning outcomes broken down into knowledge, skills and attitude. The student is evaluated against a set of standards to achieve before moving on. The learning activities should be learner-centered rather than the traditional didactic approach.

Activity 2

Techniques of applying learner centered methodology in developing learner's competences.

The facilitator invites participants to form groups and requests each group to identify and discuss learner centered teaching and learning techniques /strategies that can help develop learners' competences.

The facilitator invites participants for plenary presentations.

Expected answer:

Designed activities should reflect active teaching and learning methods like Think-Pair and Share, group discussions, role play, questions in corners, speed dating, hot seat, debate, gallery walk, carousel and field visit.

Note: for more details on the above methodology definitions, please refer to “*Teacher training Manual on the Roll out of the competence Based-Curriculum 2015 pages: 31-37*”

Conclusion (5 minutes)

The facilitator invites participants to share examples of teaching strategies that they think are learners centered and can help learners develop competences.

The facilitator shares with participants examples of active teaching and learning methodologies/strategies that teachers can use to develop learners’ competences.

UNDERSTANDING SCIENCE AND ELEMENTARY TECHNOLOGY (SET) IN COMPETENCE BASED CURRICULUM (CBC)

Session 1

Rationale of Science and Elementary Technology syllabus in CBC

Session objective(s)

By the end of this session, participants will be able to:

- Explain the rationale of teaching and learning SET
- Draw the connections between SET and the society.

Materials/resources: teacher training manual, SET syllabi, flipchart, pens, markers, XO laptop projector, notebooks, masking tape, curriculum framework, etc.

Introduction (5 minutes)

By using cabbage game, the facilitator asks participants to answer the questions in the cabbage (questions should be related to previous units and easy to answer).

Session development (30 minutes)

Activity 1

Explain the rationale of teaching and learning SET (*Curriculum Framework pre-primary to upper secondary 2015 pages: 57*)

The facilitator guides participants in forming groups depending on the size of the team.

The facilitator hands out the copies of lower and upper primary syllabi. In groups, participants discuss the importance of teaching and learning SET. Each group shares their ideas as instructed by facilitator.

The facilitator harmonizes the presentation.

Key message:

For Lower Primary: *“Integanyanyigisho y’Ubumenyi , Ikoranabuhanga riciriritse n’Ikoranabuhanga mu Isakazabumenyi”, urupapuro rwa 2.*

Akamaro k’ ubumenyi, ikoranabuhanga riciriritse n’ikoranabuhanga mu isakazabumenyi ku muryango nyarwanda

Ubumenyi bw’ibanze kubana bato ni umusingi wo gutuma bazashobora kwiga ubumenyi mubihe biri imbere no kubategura guhangana n’ibikenewe mu kinyejana cya 21. Naho ikoranabuhanga mu isakazabumenyi rifite akamaro haba mubihugu byataye imbere ndentse no mubihugu bikiri munzira y’amajyambere nk’u Rwanda. Gukunda ubumenyi n’ikoranabuhanga bitangirira mumashuri abanza aho abana baba bafite amatsiko menshi banashishikajwe no kwiga. Kwita kubumenyi, ikoranabuhanga riciriritse n’ikoranabuhanga

mu isakazabumenyi mumashuri abanza byerekana akamaro kubumenyi n'ikoranabuhanga mubice binyuranye by'ubuzima bwa buri munsu, ku akazi, ishuri ndetse no mu miryango dutuyemo. Ubumenyi, ikoranabuhanga riciriritse n'ikoranabuhanga mu isakazabumenyi ni intangiriro ishoboza abana gukurikira amasomoy'ubumenyi mu mashuri abanza n'ayisumbuye, bakagira ubukeshya mubyerekeye ubumenyino gukora nk'abanyabumenyi. Bibafasha kandi kumenya akamaro k'ubumenyini ikoranabuhanga mu ubuzima bwa buri munsu, bakabasha guharanira ubushobozi bufitiye umuryango akamaro muri rusange.

Ubumenyi, ikoranabuhanga riciriritse n'ikoranabuhanga mu isakazabumenyi n'abanyeshuri

Abana bagomba gutegurwa bakiri bato kuba abanyagihugu beza, ni muri urwo rwego ubumenyi, ikoranabuhanga riciriritse n'ikoranabuhanga mu isakazabumenyi bishishikajwe n'uko abana biyumvisha uburyo bwo gukoresha ubumenyi, ikoranabuhanga riciriritse n'ikoranabuhanga mu isakazabumenyi mubice bitandukanye, haba mumuco, ubukungu, politike, ibidukikije no mumibanire isanzwe. Mukwiga no kwigisha umumenyi, ikoranabuhanga riciriritse n'ikoranabuhanga mu isakazabumenyi bigomba gushingira kubikorwa abanyeshuri bakora ari nabyo bizatuma babasha kugera kuntego zigambiriwe, kumenya ikoranabuhanga no gutsinda neza isuzuma.

For Upper Primary: (Science and Elementary Technology syllabus for upper primary P4-P6, 2015 page 1-2.)

Activity 2

Draw the link between SET and the society

The facilitator invites participants to form small groups and discuss about:

- the link between SET and the society
- the role of learning SET for learners

Groups hang their findings on the wall as other group members do gallery walk and complement where necessary. The facilitator brings the team together and harmonizes the work done.

Key message:

Lower primary: Integanyanyigisho y'Ubumenyi, Ikoranabuhanga riciriritse n'ikoranabuhanga mu Isakazabumenyi, urupapuro rwa **appendix**

Upper primary: (Science and Elementary Technology syllabus for upper primary P4-P6, 2015 page 7)

- **The link between SET and the society**

Teaching elementary science to young children is critical for establishing a foundation for further success in science and for coping with the demands of the 21st century. Furthermore, technology education constitutes an unequalled important added value. Not only in developed countries but also in developing countries such as Rwanda, the love and interest in science and technology begins in primary school where young children tend to be more curious and motivated to learn. The inclusion of Science and Elementary Technology and ICT in the Primary School reflects the importance of science and technology in many aspects of our daily lives, at work, at school and at home. As integrated science and ICT, it provides a very good foundation for the study of science subjects in the post-primary setting. Most importantly, it cultivates a positive attitude towards science and provides pupils with opportunities to experience the excitement of working as a scientist. Above all, the rationale of teaching and

learning of SET & ICT is embedded in the need for learners to have a greater awareness of the role of science and technology in everyday life. SET at primary school, enables the learner to develop competencies which have great impact on the society in general. Teaching SET&ICT at primary school is further justified in that it helps to develop cultural and democratic notions of scientific literacy.

- **The role of learning SET for learners**

Learners have to be prepared from an early age for active and responsible citizenship. With this regard, SET & ICT strives to equip learners to understand and situate scientific and technological developments in their cultural, environmental, economic, political and social contexts. At the center of teaching and learning of SET & ICT, hands on activities will play a key role, which in turn, should contribute significantly towards improving learners' achievement, motivation, technological literacy and test scores.

Conclusion (5 minutes)

The facilitator invites participants to reflect on what they have learnt from this session.

The facilitator puts emphasis on the fact that learning SET is crucial as it helps learners:

- To develop interest in science as a body of knowledge and methods of thinking, inquiring and working
- Develop a concern for the world around us
- Make children aware of themselves within the world we live and importance of science in relation to this

Session 2 Structure of SET subject

Session objectives

By the end of this session, participants will be able to:

- Describe the components of SET syllabus
- Understand the structure and the linkage among topics, units of SET syllabus and related number of periods.

Materials/resources: teacher training manual, core and SET syllabus, curriculum framework, flipchart, pens, markers, XO laptops, projector, notebooks, etc.

Introduction (5 minutes)

Facilitator shares the objectives of the session with participants.

Session development (60 minutes)

Activity 1

Describe the components of SET syllabus

The facilitator shares/distribute with the participants the SET syllabi in groups and instructs participants to read through (*Upper primary: From page 1 to page 92; lower primary: from page 3 to page 74*).

In groups the participants discuss the components of SET syllabus and each group present their findings to the whole group.

Expected answers:

Introduction: Is composed of the background to the syllabus review, the rationale behind teaching and learning a given subject.

Pedagogical approaches: Highlight guidelines on active learning (interactive and participatory methods) aimed at developing competences in the students.

Assessment approaches: Demonstrate competence-based assessment guidelines, whereby a learner is given complex real life situations and tries to overcome problems by applying what he/she learnt.

Resources: Indicate various infrastructure, equipment and human resources for successful implementation of the CBC.

Syllabus units: Indicate the unit structure: Topic area, subtopic area, key unit competence, learning objectives, content, learning activities, the link to other subjects, assessment criteria and materials to be used in teaching and learning a given unit.

References: Indicate a list of all resources used throughout the development of the syllabus.

Appendix: Shows the subject overview and weekly time allocation for each subject

Activity 2

Understanding the structure and the linkage for each topic and units of SET syllabus for lower and upper primary.

Based on answers provided by participants in the previous activity, the facilitator asks participants to discuss on the structure and linkage for each topic and units of SET syllabus for lower and upper primary.

- Group one works on Lower Primary syllabus units.
- Group two works on Upper primary syllabus units.

Participants perform the task and then present it to the plenary.

Expected answer

Lower primary

IMBUMBANYIGISHO	Umwaka Wa	Umutwe	Umubare w'amasomo
IKORANABUNGA RICIRIRITSE	1	1. Ibikoresho biboneka ku ishuri no mu rugo	
		2. Ibikinisho, ibikoresho binyuranye n'imfashanyigisho	
		3. Ibikoresho by'ibanze by'ikoranabuhanga	
	2	Ibikoresho biboneka ku ishuri no mu rugo	
		Ibikinisho, ibikoresho binyuranye n'imfashanyigisho	
		Inshuti yanjye mudasobwa	

	3	Ibikinisho, ibikoresho binyuranye n'impashanyigisho	
		Imikoreshereze ya terefoni	
		Inshuti yanjye mudasobwa	
IBIDUKIKIJE	1	Amazi	
		Inyamaswa	
		Ibimera	
		Imyanda n'isukura	
	2	Umwuka n'umuyaga	
		Ubutaka	
		Ibimera	
	3	Amazi	
		Ubutaka	
Inyamaswa			
UMUBIRI W'UMUNTU	1	Umubiri w'umuntu	
	2	Ibyumviro	
	3	Imikaya n'amagufa	
IBIKORESHA N'IMIMERERE Y'IBINTU	1	Ibikoresho n'ibikoresha	
	2	-	
	3	-	
INGUFU	1	-	
	2	Urumuri n'ubushyuhe	
	3	1.Amashanyarazi 2. Rukuruzi	
IGITERANYO	5		
Upper primary			
TOPIC AREA	Level	Unit	Number of periods
TOOLS AND OBJECTS PRODUCTION	P4	Agriculture tools	10
		Objects production	14
	P5	Carpentry tools	8
		Masonry Objects production	6 14

	P6	Mechanics and blacksmith tools	6
		Simple machines	12
		Objects production	8
ICT	P4	Computer my friend	16
		Writing skills	8
		Graphics and multimedia	5
		Programing for children	20
	P5	Computer my friend	9
		Writing skills	8
		Computer research	8
		Programing for children	20
	P6	Writing skills	17
		Computer research	10
		Programing for children	25
	OUR ENVIRONMENT	P4	Air, wind and sound
Soil			12
Animals			12
Animals management			12
Plants			14
P5		Water	16
		Soil	14
		Animals	12
		Plants and environment	10
P6		Air pollution	12
		Animals	12
		Plants reproduction	10
		Sustainable waste management	10

HUMAN BODY	P4	Human sensory organs	25
		Humana skeleton	10
		Muscles	8
	P5	Digestive system	10
		Reproductive system	20
	P6	Circulatory system	8
		Respiratory system	8
		Reproductive system	14
	ENERGY	P4	-
P5		Light	7
		Electricity	9
P6		Energy management	12
		Magnetism	8
MATERIALS AND STATE OF MATTER	P4	-	
	P5	Materials	10
	P6	State of matter	10
TOTAL	6		543(<i>or</i> 181×3)

Conclusion (5 minutes)

The facilitator asks participants to share what they have learnt from this session.

Session 3 Address cross-cutting issues in SET

Session objective(s)

By the end of this session, participants will be able to:

- Explain how cross-cutting issues are integrated or addressed in teaching and learning SET,
- Design teaching and learning activities that integrate cross-cutting issues in SET

Materials/resources: teacher training manual, SET syllabi, flipchart, pens, markers, laptop, projector, notebooks, handouts, OX laptops, curriculum framework, etc.

Introduction (5 minutes)

The facilitator asks participants to list all cross-cutting issues highlighted in CBC.

Expected answer

- Environment and sustainability
- Gender
- Comprehensive Sexuality Education
- Peace Education and Values
- Genocide Studies

- Financial education
- Inclusive education
- Standardization culture

Session development (50 minutes)

Activity 1

Integration of CCIs in teaching and learning activity.

Facilitator guides participants to form groups and asks them to describe how cross-cutting issues can be integrated in SET.

In groups, participants identify cross-cutting issues that are specific to SET.

Key message:

a. Cross-cutting issues can be integrated in SET depending on:

- ***Nature of the topic being handled;*** e.g. ***Comprehensive Sexuality Education as CCI can be integrated during teaching and learning the reproductive system unit. Environmental and Sustainability can be developed through teaching and learning Soil erosion lesson.***
- ***The teaching activity set by the teacher;*** e.g: *outline materials used to take care of our teeth (standardization culture).*
- ***The techniques used during teaching and learning process;***

For example, through group work, think-write-pair and share, brainstorming, etc. (gender, peace education and values, inclusive education).

*They can also be integrated **depending on class situation and during assessment;***

For example, when assessing, the assessor may set questions according to bloom taxonomy where there will be simple and complex questions, he/she may also facilitate learners with sight difficulties by providing questionnaires with big font size (inclusive education).

b. Cross-cutting issues that are specific to SET

- *Environment and sustainability*
- *Gender*
- *Comprehensive Sexuality Education*
- *Peace Education and Values*
- *Genocide Studies*
- *Financial education*
- *Inclusive education*
- *Standardization culture*

Activity 2

Design sample activities in SET that address cross-cutting issues.

In groups, facilitator asks participants to observe the below pictures and discuss on cross-cutting issues that can be addressed through pictures.

Reference: *Science and Elementary Technology for Rwandan Schools pupil's Book 5 Spotlight publishers (EA) limited.*



Picture 1 (From P5 SET book, Unit 2 on page 24)



Picture 2 (From P5 SET book, Unit 8 on page 101)



Picture 3 (Picture from P5 SET book, Unit 12 on page 156)



Picture 4 (From P5 SET book, Unit 1 on page 2)



Picture 5 (from www.learningdisabilityengland.org.uk)



Picture 6 (from www.google.com)

By observing the above pictures, which cross-cutting issues addressed?

Expected answer:

<i>Cross-cutting issues addressed</i>	Pictures
<i>Environment and sustainability</i>	Picture 2
<i>Gender</i>	Picture 1
<i>Peace Education and Values</i>	Picture 3
<i>Inclusive education</i>	Picture 5
<i>Financial education</i>	Picture 4
<i>Standardization culture</i>	Picture 6

Conclusion (5 minutes)

The facilitator invites participants to answer the following questions:

1. What have you learnt from this session?
2. How does the integration of cross-cutting issues into SET help the learners at your school?

Key message:

Not all cross-cutting issues can be addressed in each lesson when teaching SET.

- *Some may be addressed depending on the topic content being handled, others are addressed through teaching and learning activities set by the teacher.*

Session 4 Analyze key unit competence in SET

Session objective(s)

By the end of this session, participants will be able to:

- Discuss the key unit competences that are specific in each form (lower and upper primary).
- Explain the importance of a key unit competence within a unit.
- Design activities of a unit and suggest approaches that can help learners achieve key unit competence

Materials/resources: teacher training manual, SET syllabi, flipchart, pens, XO laptops, curriculum framework, markers, laptop, projector, notebooks, handouts...

Introduction (5 minutes)

Facilitator starts the session by giving a warmup depending on the class situation

The facilitator shares session objectives with participants.

Session development (60 minutes)

Activity 1

Discuss the key unit competences that are specific in each level (lower and upper primary).

The facilitator leads participants to form two groups, one for lower primary another one for upper primary and hands them SET syllabi, teacher's guide

The facilitator asks participants to discuss what “key unit competence” is. After this, they identify and discuss the flow chart of the key unit competences found in SET syllabus units. Groups present their works to the plenary.

Expected answers:

a. Key Unit Competences are competences (knowledge, skills, attitude and values) to be shown by the learner at the end of unit in SET.

b. Flow chart of the key unit competences:

<i>Umwaka</i>	<i>Ubushobozi bw'ingengi bugamijwe</i>
<i>Umwaka wa 1</i>	<ul style="list-style-type: none"> • <i>Gushobora gusobanura umumaro w'ibikoresho biboneka ku ishuri no mu rugo</i> • <i>Gushobora gukora ibikinisho binyuranye</i> • <i>Kurondora ibikoresho byinjiza cyangwa bisohora amajwi n'amashusho n'ibyangirira no gukoresha terefone, radiyo na tereviziyo</i> • <i>Gushobora gutandukanya amashuri no gusobanura amoko n'akamaro by'amazi, kumesa imyambaro yoroheje no kurunga ibiribwa bibisi</i> • <i>Gushobora gutandukanya inyamaswa zo mu rugo (zororwa) n'izo mugasozi (zitororwa) zo mu karere ishuri ryubatsemo, akamaro kazo n'ibice bigize udusimba duto</i> • <i>Gushobora gutandukanya ibimera bihingwa n'ibyimeza biri mu karere ishuri ryubatsemo</i> • <i>Gutandukanya amoko y'imyanda gusukura ahadukikije n'umumaro wabyo</i> • <i>Gutandukanya ibice bigize umubiri w'umuntu, umumaro wabyo no kuwugirira isuku</i> • <i>Gushobora gutandukanya ibikoreshwa karemano n'ibikoresho bitari karemano binyuranye</i>
<i>Umwaka wa 2</i>	<ul style="list-style-type: none"> • <i>Gushobora gukoresha no gufata neza ibikoresho biboneka ku ishuri no mu rugo</i> • <i>Gukora ibikinisho / ibikoresho binyuranye / n'imfashanyigisho</i> • <i>Gutandukanya ibice by'ingenzi bya mudasobwa no kwitwararikirira uburyo bwo kuyikoresha</i> • <i>Kuvumbura ukubaho k'umwuka no gusobanura ibiwuranga, akamaro kawo, gutandukanya amoko yawo, ingaruka zawo no kuzirinda.</i> • <i>Gushobora kuvumbura akamaro k'ubutaka, ibyangiza ubutaka n'ingaruka z'amazi k'ubutaka</i> • <i>Gutandukanya ibice binyuranye by'ikimera n'umumaro wabyo no gutandukanya (amatsinda) ibihingwa hakurikijwe umumaro wabyo</i> • <i>Kuvumbura inkomoko y'urumuri n'iyubushyuhwe n'isano iri hagati y'urumuri n'igicucu</i> • <i>Gushobora gutandukanya ibyumviro by'umubiri w'umuntu, kubisukura no kurondora umumaro wabyo</i>

<p>Umwaka wa 3</p>	<ul style="list-style-type: none"> • <i>Gukora ibikinisho / ibikoresho / imfashanyigisho mu ndodo, mu bitambaro, mu byatsi, mu birere mu mpapuro, mu bikarito mu mikwege no mu ibumba</i> • <i>Gukoresha terefoni mu guhamagara , mu butumwa bugufi no mu ikoranabuhanga rusange</i> • <i>Kunoza imyandikire muri Typing turtle na Write activity no gufata amafoto, amashusho n'amajwi muri Record activity</i> • <i>Gushobora gutegura no kubika amazi yo kunywa</i> • <i>Gutandukanya amoko y'ubutaka, amoko y'isuri n'uburyo bwo kuyirinda ubutaka</i> • <i>Gutandukanya amoko y'inyamaswa ushingiyeye ku rutirigongo</i> • <i>Gusobanura isano iri hagati y'ingingo, imikaya n'amagufa n'uko bifatwa neza</i> • <i>Gusobanura amoko atandukanye y'ingufu</i> • <i>Gushobora kuvumbura ibikoresho bikoresha amashanyarazi n'umumaro wayo</i> • <i>Kuvumbura ingufu n'ibiranga rukuruzi ; gutandukanya ibikururwa n'ibidakururwa na rukuruzi</i>
<p>P4</p>	<ul style="list-style-type: none"> • <i>To be able to use and maintain agricultural tools safely</i> • <i>To be able to make play, utility and learning objects</i> • <i>To be able to use common ICT terms and differentiate Sugar and Gnome user interfaces</i> • <i>To be able to perform write activity</i> • <i>To be able to use Paint activity to draw and colour different shapes and to enhance project work</i> • <i>To be able to design and construct geometric shapes in Turtle art activity and create animations using Scratch Activity</i> • <i>To be able to explain properties and importance of air and effects of wind as well as sound in surrounding environment</i> • <i>To be able to choose good soil and prevent it from erosion</i> • <i>To be able to classify the animals according to their backbone, locomotion, feeding, reproduction and respiration mode.</i> • <i>To be able to explain and practice the rabbit keeping</i> • <i>To be able to demonstrate stages of germination and establish the relationship between parts of plants and their function</i> • <i>To be able to explain the structure, function and maintenance of the human sensory organs</i> • <i>To be able to describe the human skeleton and explain its functions and maintenance</i> • <i>To be able to identify and explain the functions and maintenance of muscles</i>

P5

- *To be able to use and maintain carpentry tools*
- *To be able to use and maintain masonry tools*
- *To be able to make simple utility objects, toys and learning materials*
- *Learner should be able use data storage devices and data sharing*
- *Learner should be able to perform write activity*
- *Learner should be able to explore and use the Browse Activity and the use of E-mails (Sugar Interface)*
- *To be able to perform arithmetic operations, draw geometric shapes (parallelogram, rhombus, trapezium, regular polygons) using Turtle Art Activity and create dialogue and cartoons using Scratch Activity.*
- *To be able to purify water for drinking and explain dangers of polluted water*
- *To be able to prepare the soil for cultivation and use fertilizers*
- *To be able to explain and practice effective chicken farming*
- *To be able to explain the importance of plants and deforestation's effects on the environment*
- *To be able to explain different stages of digestion and prepare a balanced diet*
- *To be able to practice hygiene and recognize sexual characteristics and responsible behavior*
- *To be able to demonstrate the existence of light ,explore its properties and transmission according to intensity*
- *To be able to construct , manage an electric circuit and explain its importance*
- *To be able to classify materials according to their properties in metals and non-metals, and calculate their density*

P6

- *To be able to use and maintain mechanics and blacksmith tools safely*
- *To be able to classify simple machines and levels*
- *To be able to make toys , utility and learning objects*
- *To be able to perform write activity.*
- *Explore and use search engines*
- *To be able to design and construct geometric shapes using Turtle Art Activity and design different projects in scratch and use Etoys Activities.*
- *To be able to explain the phenomenon of air pollution, its consequences and management*
- *To be able to explain and practice effective management of goats and cows*
- *To be able to describe the parts of a flower and explain the process of sexual and asexual reproduction in plants*
- *To be able to apply garbage collection techniques and separate hazardous, organic and recyclable waste materials*
- *To be able to describe and explain the functioning of the circulatory system, its hygiene and maintenance*
- *To be able to explain the mechanism of respiration*
- *To be able to explain the function of male and female genital organ the prevention , transmission and treatment of STIs and HIV and state ways of preventing unplanned pregnancy*
- *To be able to understand the use of energy and its transformations from one form to another*
- *To be able to explain and demonstrate the existence of magnetic forces and magnetic field*
- *To be able to demonstrate and explain changes of state of matter*

Activity 2

Explain the importance of key unit competence within a unit.

Facilitator asks paired participants to explain the importance of key unit competence within a unit.

Expected answer:

- It helps teacher to set up assessment activities related to the unit content
- It helps teacher to set objectives when planning a lesson
- It helps the teacher to organize activities that are in line with the content under unit

Activity 3

Design activities of a unit and suggest appropriate approaches that can help learners to achieve the key unit competence.

Facilitator asks participants to choose one unit in the syllabus and design their own activities and suggest appropriate approaches which can help learners to achieve the key unit competence

Expected answers:

Reference: Science and Elementary Technology syllabus for upper primary P4-P6, 2015: Page 25

Primary 4

Unit 6: Programing for children

Key unit competence: to be able to design and construct geometrical shapes in turtle arts activity and create animation using scratch activity

Unit 6 (Programing for children) of primary four is made of the below lessons:

Lessons titles	Contents to cover	Number of periods(20)
1. Turtle Art	Introduction to Turtle art	1
2. Elements of Turtle Art Window	<ul style="list-style-type: none">• Identification of elements of Turtle art window• Use of Main toolbar• Use of palettes Tool bar	1
3. Using Turtle Art instructions/ commands	<ul style="list-style-type: none">• Use of Turtle art instructions to construct and produce different geometric shapes	3
4. Drawing	<ul style="list-style-type: none">• Drawing vertical, horizontal and oblique lines using multiple blocks from Turtle palette• Drawing geometrical shapes such as a square, a rectangle and a circle using Turtle Art	2

5. Saving a document, closing and opening Turtle Art Activity	<ul style="list-style-type: none"> • Saving a document • Closing Turtle Art activity • Opening Turtle activity 	2
6. Scratch window	<ul style="list-style-type: none"> • Identification of the components of scratch window • Description of different components of scratch window 	5
7. Object animations	<ul style="list-style-type: none"> • Choose new sprite from file • Change background • Add blocks scripts etc. 	5
8. Unit revision	<ul style="list-style-type: none"> • Elements of Turtle Art Window • Using Turtle Art instructions/ commands • Drawing • Saving a document, closing and opening Turtle Art Activity • Scratch window • Object animations 	1

Sample Activity 1.

Practice how to drag and drop the blocks from turtle palette to the main area and draw a square.

Approach/technique: Practical work and discovery approach

Reference: *Science and Elementary Technology syllabus for upper primary P4-P6, 2015: page 45*

Primary 5

Unit 2: Masonry tools

Key unit competence: to be able to use and maintain masonry tool

Unit 2 (Masonry tools) of primary five is made of *the* below lessons

1. Masonry tools:
2. Usage and maintenance of some of masonry tools
3. Dangers of masonry tools

E.g.: Sample activity in lesson 1

Differentiate various masonry tools according to their various usage

Approach/technique: Field visit, group work, and presentation

As the teacher takes learners to the field, learners are able to observe and interview masons using masonry tools; they will develop a good understanding of the function and the usage of masonry tools

Reference: *Integanyanyigisho y'Ubumenyi n'Ikoranabuhanga Riciriritse P1-P3;2015 : Urupapuro rwa 35*

Umwaka wa 2

Umutwe 2: Ibikinisho, ibikoresho by'ibanze n'imfashanyigisho

Ubushobozi bw'ingenzi bugamijwe: Gukora ibikinisho, ibikoresho binyuranye n'imfashanyigisho

Mumutwe wa 2 (Ibikinisho, ibikoresho by'ibanze n'imfashanyigisho) mumwaka wa 2 harimo amasomo akurikira:

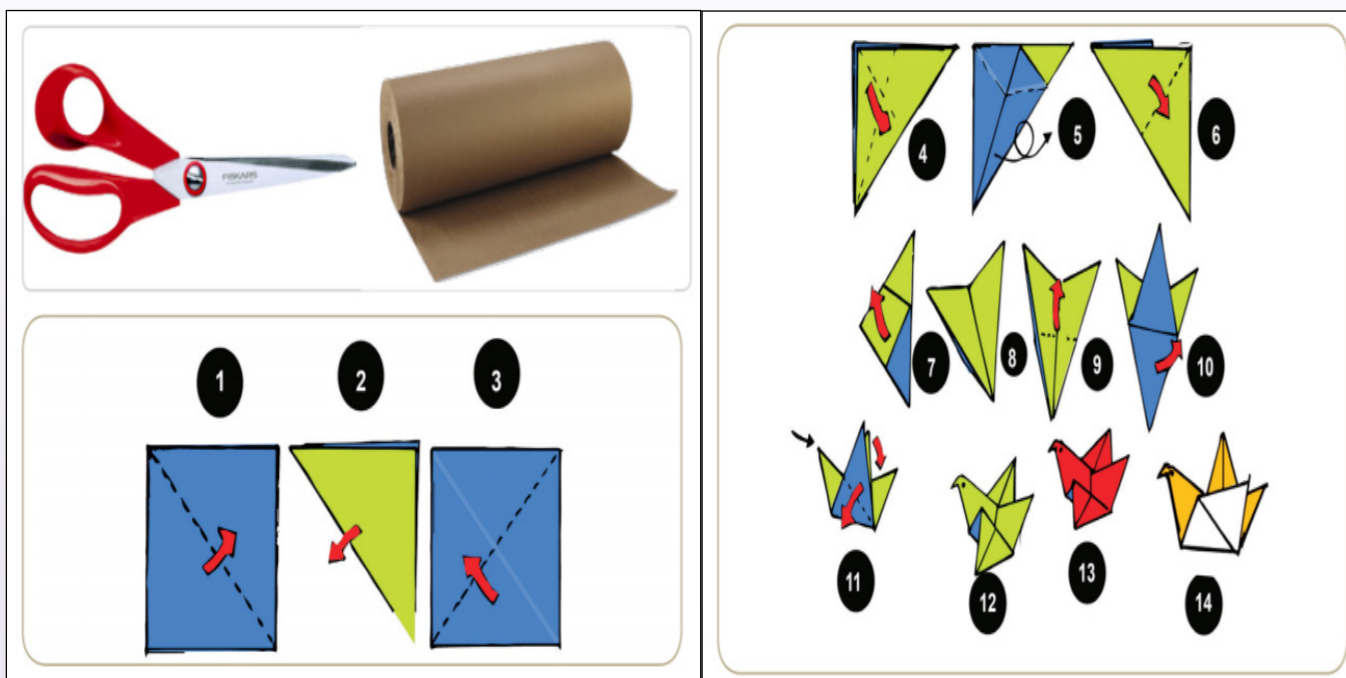
1. Ibishobora gukorwa mumpapuro
2. Ibishobora gukorwa mubikenyeri
3. Ibishobora gukorwa mubikarito
4. Ibishobora gukorwa muri purasitike
5. Ibishobora gukorwa mu ibumba

Uburyo bwo kwigisha/ Imbonezamasomo: Umukoro ngiro n'iyerekana

Mwarimu arashyira abana mu matsinda; abahe impapuro zakoreshejwe zitagikenewe n'amabwiriza barakurikiza.

Urugero rw'igikorwa 3:

Gukora inyoni mu mpapuro



Mwarimu mugusaba abanyeshuli gufata urupapuro rufite nibura uruhanded rwa cm 20 bakarukatamo impande 4 zingana, umunyeshuri araba azamura ubushobozi *bwo gupima no kugereranya mu gukora ibikinisho, ibikoresho binyuranye n'imfashanyigisho.*

Conclusion (5 minutes)

The facilitator emphasizes on the fact that every activity that teachers carry out in the lesson should connect to the instructional objectives, learning objectives and must link up with competences that learners are supposed to acquire at the end of a unit.

Session objectives

By the end of this session, participants will be able to:

- Explain the generic competences in SET
- Design activities that integrate generic competences in SET and identify approaches used

Materials/resources: teacher training manual, SET syllabus, flipchart, pens, markers, laptop, projector, white board/chalkboard, notebooks, etc.

Introduction (5 minutes)

The facilitator gives a warmup.

Facilitator shares the session objectives with the participants.

Session development (50 minutes)

Activity 1

Explain the Generic Competences

Through brainstorming, participants reflect on generic competences learnt earlier on.

The facilitator invites participants in pairs to consider the scenario below and do the task as described.

- a.
- *Critical thinking*
 - *Creativity and innovation*
 - *Research and problem solving*
 - *Communication*
 - *Cooperation, interpersonal management and life skills*
 - *Lifelong learning*

b. Scenario:

Comparing how light travels through different media

Materials needed:

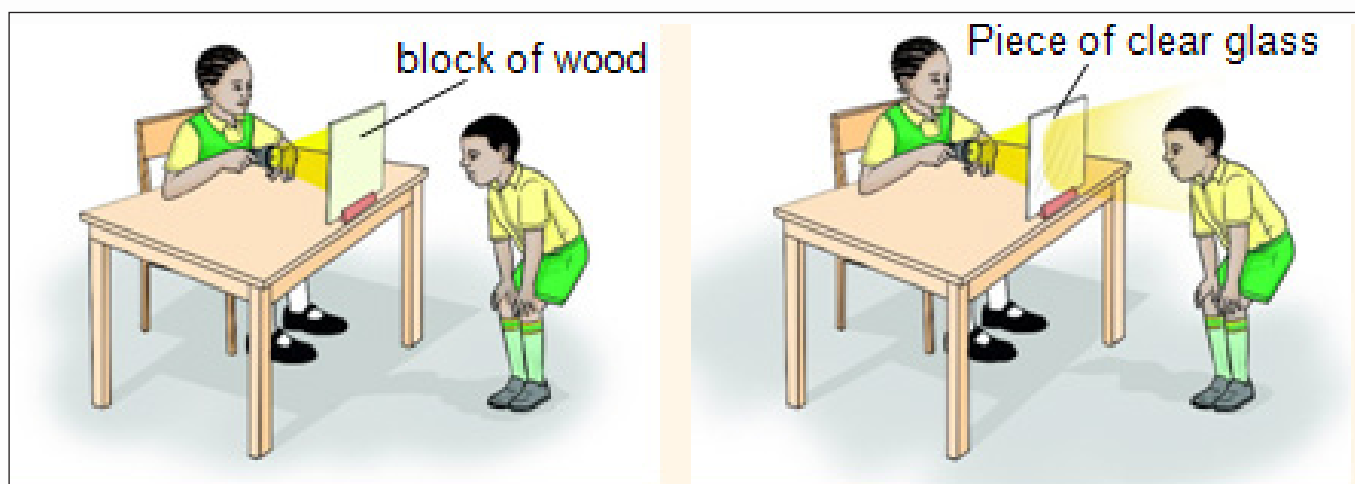
Various materials for example:

- *Oiled paper*
- *Clear polythene paper*
- *Notebooks*
- *Torch*
- *Block of wood*
- *Clear glass*

Task:

- Get into your working groups.
- Let one of you shine a torch on the materials listed above one by one.
- Let the rest of you stand on the opposite side of the materials being illuminated by the torch.

Observe what happens.



(Picture from *Science and Elementary Technology for Rwandan Schools pupil's Book 5 Spotlight publishers (EA) limited, Unit 14 on page 184*)

- iv. Interchange one by one so that all of you make observations.
- v. Let your group secretary record the observations made.
- vi. Share your report with the rest of the class.

Expected answers:

<i>Generic competences</i>	<i>Explanations</i>
<i>Critical thinking</i>	<i>In analyzing the observations</i>
<i>Communication</i>	<i>When interchanging one by one so that each member makes observations.</i>
<i>Co-operation</i>	<i>Working in groups, working together.</i>
<i>Interpersonal relations and life skills</i>	<i>Sharing the report with the rest of the class</i>
<i>Creativity and innovation</i>	<i>When they are preparing a report with all observations</i>

Key message:

These generic competences help learners to deepen their understanding of subjects and apply acquired knowledge in a range of situations.

As learners develop these generic competences, they also acquire a set of skills that employers look for at the labor market, thus, the competences help prepare learners for the global market.


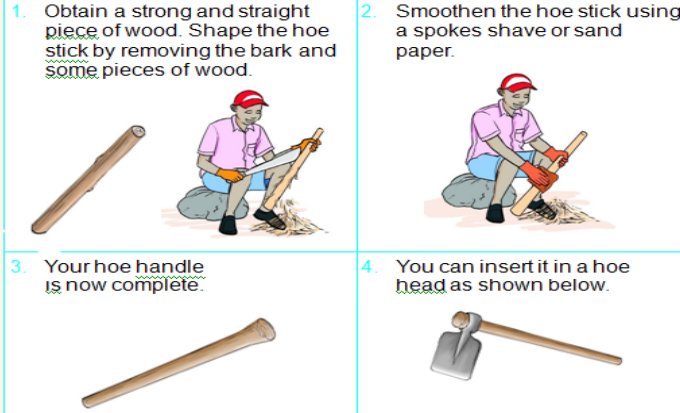
The generic competences are also vital for enabling learners to become life-long learners who can adapt to our fast-changing world and the uncertain future (Curriculum Framework pre-primary to upper secondary 2015 page: 27).

Activity 2

Design activities that integrate Generic competences in SET and identify approaches used

Referring to SET syllabus, teacher's guide, pupil's book, choose a lesson within a unit and design an appropriate activity that can help learners to develop the Generic competences and then explain different approaches that can be used

Expected answers:

Approaches/how to develop generic competences	Model Activities	Generic competence
<p><i>Any task that challenges a learner and requires him/her to think deeply before answering. All questions that fall under higher order of thinking (refer to bloom taxonomy).</i></p>	<p>Look at the following pictures.</p> <p>Activity 13.4: Identifying secondary sexual changes in girls Look at the following pictures.</p>  <p><i>(Science and Elementary Technology for Rwandan Schools pupil's Book 5 Spotlight publishers (EA) limited, Unit 12 on page 172)</i></p> <ol style="list-style-type: none"> i. List the differences you can see between Girl A and Girl B. ii. How does Girl A develop into Girl B? 	<p><i>Critical thinking</i></p>
<p><i>Introduce the lesson by telling the learners to search for the application of the topic in real life situation and discuss how best they can improve products that are already on the marks or to create the new ones</i></p>	<p>Making a hoe handle</p> <p>Materials needed:</p> <ul style="list-style-type: none"> • Hand saw • A long thick piece of wood (about 1 m long) • A machete or strong knife • A spokes shave or sandpaper <p>What to do:</p> <ol style="list-style-type: none"> 1. Obtain a strong and straight piece of wood. Shape the hoe stick by removing the bark and some pieces of wood. 2. Smoothen the hoe stick using a spokes shave or sand paper. 3. Your hoe handle is now complete. 4. You can insert it in a hoe head as shown below. 	<p><i>Creativity and innovation</i></p>

	(Science and Elementary Technology for Rwandan Schools pupil's Book 5 Spotlight publishers (EA) limited, Unit 3 on page 30)	
<p>Setting a task that requires learners to make a research in order to find a solution to a problem in existence</p> <ul style="list-style-type: none"> • Case study • Project work • Research work 	<p>Researching the functions of the reproductive system</p> <p>What to do:</p> <ol style="list-style-type: none"> Using your XO laptop, research on the major function of the reproductive system. Share your findings with the rest of the class. 	<i>Research and problem solving</i>
<ul style="list-style-type: none"> • Discussion in groups • Presenting the finding from a given task to the plenary, etc. • Round table • Debate • Games 	<p>EXPLORING THE MEDIUM OF SOUND TRANSMISSION:</p> <ol style="list-style-type: none"> Go to your school playground. Let each of you try to talk to each other. <p>Do you hear each other?</p>	<i>Communication</i>
<p>TWPS: Think Write, Pair and Share.</p> <p><i>A teacher gives a task and gives time for learners to think about the answer. He/she instructs learners to write down their answers. Then he/she instructs learners to turn to their partners and</i></p> <p><i>Share their findings</i></p>	<p>The teacher assigns learners to work in pairs. He/she calls upon learners to work in harmony, respect each other and be productive.</p>	<p>Communication, Interpersonal relations and life skills</p>
<ul style="list-style-type: none"> • Outdoor activities • Fields visits • Project work • Case study 	<p>EXPLORING LOCOMOTION MODE OF DIFFERENT ANIMALS:</p> <ol style="list-style-type: none"> Visit a nearby zoo. Observe the movement of different animals like birds, lizards, rabbits, elephants and crocodiles. Make a report on it and present to the class. 	<i>Lifelong learning</i>

Conclusion (5 minutes)

The facilitator emphasizes on the fact that through teaching and learning activities that the teacher uses in delivering the lesson, one or more generic competence(s) can be developed through one activity or several activities can develop one generic competence.

Session objectives

By the end of this session, participants will be able to:

- Explain the importance of using teaching and learning materials
- Select and discuss how to use local teaching and learning materials
- Create teaching and learning materials using local available resources.

Materials/resources: teacher training manual, SET syllabus, flipchart, pens, markers, laptop, projector, notebooks.

Introduction (5 minutes)

The facilitator starts the session with a warmup, and then shares the session objectives with the participants.

Session development (50 minutes)

Activity 1

Explain the importance of using teaching and learning materials.

Through think-write-pair-share, the facilitator asks participants to explain the role of using teaching and learning materials.

Expected answers:

Definition of teaching and learning material: *it is a general term used to describe the resources teacher use to deliver the instructions.*

Importance of using teaching and learning materials (Teacher training Manual on the Roll out of the competence Based-Curriculum 2015 page 75)

- *The use of teaching materials helps learners to understand the lesson by relating to real life*
- *The use of teaching and learning resources is crucial in guiding learners to develop ideas*
- *Teachers should use real or concrete materials to help learners gain experience, construct abstract ideas, make inventions and build self-confidence*
- *Teaching and learning materials used, motivate learners and make good clarification of SET lesson*
- *By the use of teaching and learning materials, the teacher saves time in his/her facilitation*
- *Teaching and learning resources help the teacher to achieve the lesson objectives*

Activity 2

Select and discuss how to use local teaching and learning materials

The facilitator invites participants to form groups, and asks them to find all possible local available materials in teaching SET.

Expected answers:

Magnets from used radios, banana fibers, strings from sweaters, charcoals, sand, saucepan, paper bags, etc.

<i>Teaching and learning materials</i>	<i>How they are used</i>
<i>Banana fibers, strings from sweaters</i>	<i>They can be used in making a mat</i>
<i>Waste papers</i>	<i>They can be used to make paper bags which can be used to carry things like sugar, shoes...</i>
<i>Charcoals, sand</i>	<i>They can be used in water purification</i>

Activity 3

Crete teaching and learning materials using local available resources.

The facilitator asks participants to sit in triads; he/she requests each pair to select any topic of their choice from SET syllabus. They then discuss and create the teaching and learning material using local available resources to be used in teaching that topic.

Using gallery work, participants will present their work.

Note: In case participants fail to find local available materials, the facilitator guides them through reading and answering to questions in the scenario below.

Activity

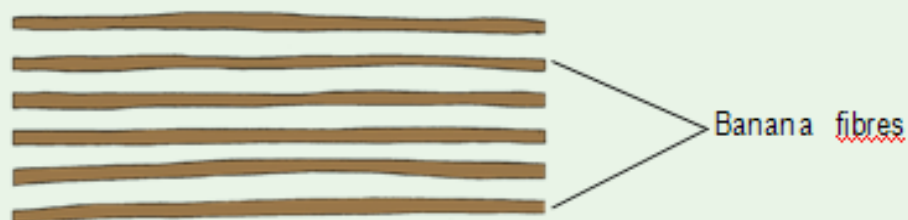
MAKING A MAT

You will need

- ◆ Straight banana fibres
- ◆ A pair of scissors
- ◆ String

Procedure

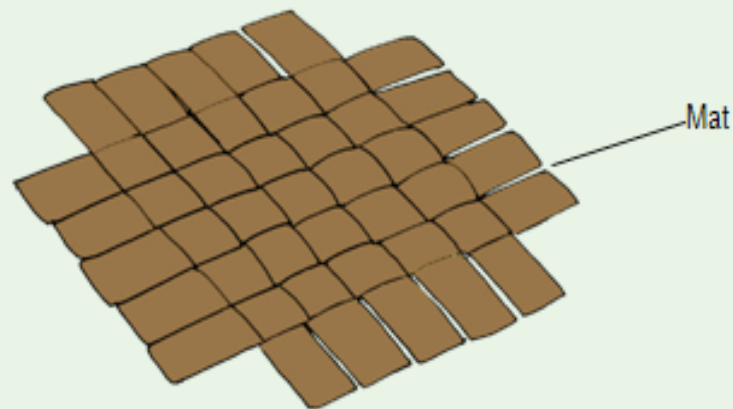
Step 1: Arrange about 6–8 banana fibres as shown.



Step 2: Weave other fibres across the fibres above.



Step 3: When it becomes the size of a mat, stich all its borders with a string



Step 4: Cut the extra length of the fibres with the help of a pair of scissors.

Your doormat is ready to use

Step 5: Display your mat in the classroom

(From Science and Elementary Technology for Rwandan Schools pupil's Book 4

Unit 2 on page 25)

Expected answer:

These are possible local materials which can be used in teaching how to make a mat:

- Straight banana fibers
- A pair of scissors
- String

The facilitator asks participants to share appreciation on the session:

- *What's new?*
- *What surprised them?*

Conclusion (5 minutes)

The facilitator guides participants to conclude on the session by putting emphasis on the necessity of using teaching and learning materials in their daily lessons. He/she reminds them not to limit themselves on the materials suggested in the teachers' guide rather improvise on locally available resources to make teaching and learning effective and enjoyable.

Session 1

Different forms of assessment in CBC

Session Objective (s):

By the end of this session, participants should be able to;

- Differentiate formative from summative assessment
- Explain why, what and when we assess
- Assess knowledge, skills, values and attitudes (Competences)

Teaching and learning materials: Training manual, SET syllabus, Bloom's Taxonomy Handout, flip charts, projector, computer, etc.

Introduction (5 minutes)

The facilitator asks participants a question that leads to the session objectives.

e.g.: What factors to consider when choosing a school where to take your children?

The facilitator informs participants that the judgement they do to choose a school is a part of assessment and share with them the session objectives.

Development of the Session (40 minutes)**Activity 1****Differentiate formative from summative assessment**

In pairs, facilitator asks participants to define the term assessment and differentiate formative from summative assessment

Expected answers:

Assessment is the process of gathering/collecting/recording and interpreting information about the learner's learning progress against defined standard. (**Curriculum Framework pre-primary to upper secondary 2015 pages 33**)

Formative assessment is a daily monitoring of learning to provide ongoing feedback that teacher can use to improve their teaching and learners can use to improve their acquisition of competences.

Summative assessment is any method of evaluation performed at the end of a defined time that allows a teacher to measure a learner's understanding, typically against standardized criteria. (**Curriculum Framework pre-primary to upper secondary 2015 pages 34-35**)

Activity 2

Why, What, and When do we assess? (*Teacher training Manual on the Roll out of the competence Based-Curriculum 2015 page 53*)

In the group, facilitator asks participants to answer the following questions:

The facilitator gives a room for gallery walk and participants visit other groups to see what they have done. S/he also encourages participants to ask questions and give comments.

1. Why do we need to assess in teaching and learning?
2. What do we assess in teaching and learning?
3. When do we assess in teaching and learning?

Expected answers:

1. In teaching and learning, we assess:

- To identify particular learning needs of learners
- To create differentiated teaching strategies and learning opportunities for helping individual learners to move forward in their learning
- For providing immediate feedback and direction to learners
- To enhance learners' motivation and commitment to learning.
- Connect the topic being taught to topics from prior or future academic years.
- To monitor the progress and provide feedback for career guidance.

2. What do we assess?

We assess competences (knowledge, Skills, attitudes and values)

3. When do we assess?

a. Before learning (diagnostic)

b. During teaching and learning (formative/continuous)

c. After teaching and learning (summative). Summative assessment is also done at School, District and National level

Activity 3

Assessing knowledge, skills, attitude and values

The facilitator asks participants to read and discuss about the below task given to P5 learners, and discuss how knowledge, skills, attitude and values were assessed.

Task for Primary 5;

Reference: Science and Elementary Technology for Rwandan Schools pupil's Book 5 Spotlight publishers (EA) limited: Unit 8, Page 101

Activity 8.11: Identifying ways of preventing water pollution

"Look at the following pictures and answer to questions underneath.



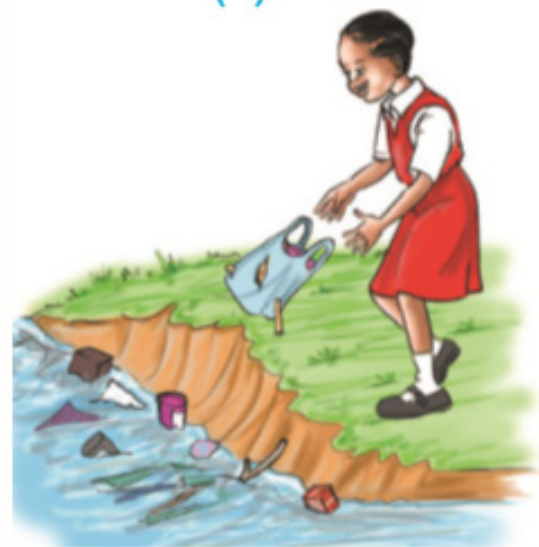
(a)



(b)



(c)



(d)

- (a) Describe the activities labelled (a), (b), (c) and (d).

(b) Which activities will cause water pollution?

(c) Which activities help to prevent water pollution?
- Propose different ways of preventing water pollution in your community.

Expected answers:

1. Knowledge acquired:

As learners are able to describe the message portrayed on pictures above (Q1-a) and identify activities that can cause water pollution (Q1-b) and activities that help to prevent water pollution (Q1-c), they develop **knowledge and understanding**.

2. Skills, attitudes and values acquired:

Learners being able to propose different ways of preventing water pollution in their community (Q2) they develop **Skills, attitudes and values**.

Conclusion (5 minutes)

The facilitator invites few participants to share how they are going to change the way they have been assessing for improved learners' performance.

While concluding the facilitator stresses that assessment is an integral part of teaching and learning and should be done throughout the lesson. She /he also tells them that during the assessment they should make sure learners' acquired knowledge, skills and attitudes are correctly assessed.

Session 2 Questioning techniques

Session objectives

By the end of this session, participants will be able to:

- Explain the importance/benefits of questioning
- Describe levels of questioning according to Blooms taxonomy model
- Set appropriate questions following Blooms taxonomy level of questioning

Materials/resources: teacher training manual, SET syllabi, flipchart, pens, markers, laptop, projector, SET books.

Introduction (5 minutes)

Facilitator calls upon all participants to stand up and invites one of them to lead the whole group in a warm-up. After the warm-up, she/he takes them through session objectives.

Session development (50 minutes)

Activity 1

Explain the benefits/importance of questioning

Facilitator leads participants in brainstorming on the following questions:

- *Why do we ask questions to our learners?*
- *What challenges do we face when questioning?*
- *Explain the importance/ benefits of questioning in the teaching and learning process*

Expected answers:

Reasons for asking questions to learners

- *To develop interest and motivate learners to become actively involved in a lesson*
- *To develop critical thinking skills in our learners*
- *To help our learners review their learning process*
- *To stimulate our learners to pursue knowledge on their own and ask questions*

Challenges faced when questioning:

- *Lack of enough materials during practical assessment*
- *Language barrier (English in upper primary and Kinyarwanda in lower primary)*
- *Promotion of learners with severe and accumulated gaps in learning which makes it very difficult and even impossible to build on the next levels*
- *Teachers with poor skills in setting challenging questions*

The benefits/importance of questioning in the teaching and learning process

- To get information on the learners' levels of thinking and capacity of performing a given task
- To make decision on how best we can help the learner learn effectively. In other words, to revise/ improve our ways of teaching and handling learners
- To create an interactive atmosphere between teachers and learners
- To give learners opportunities to assess and evaluate themselves and therefore look for ways to improve their learning
- The feedback from the process of questioning that took place in classroom informs both the teacher and learners to think of ways of making teaching and learning better.

Activity 2

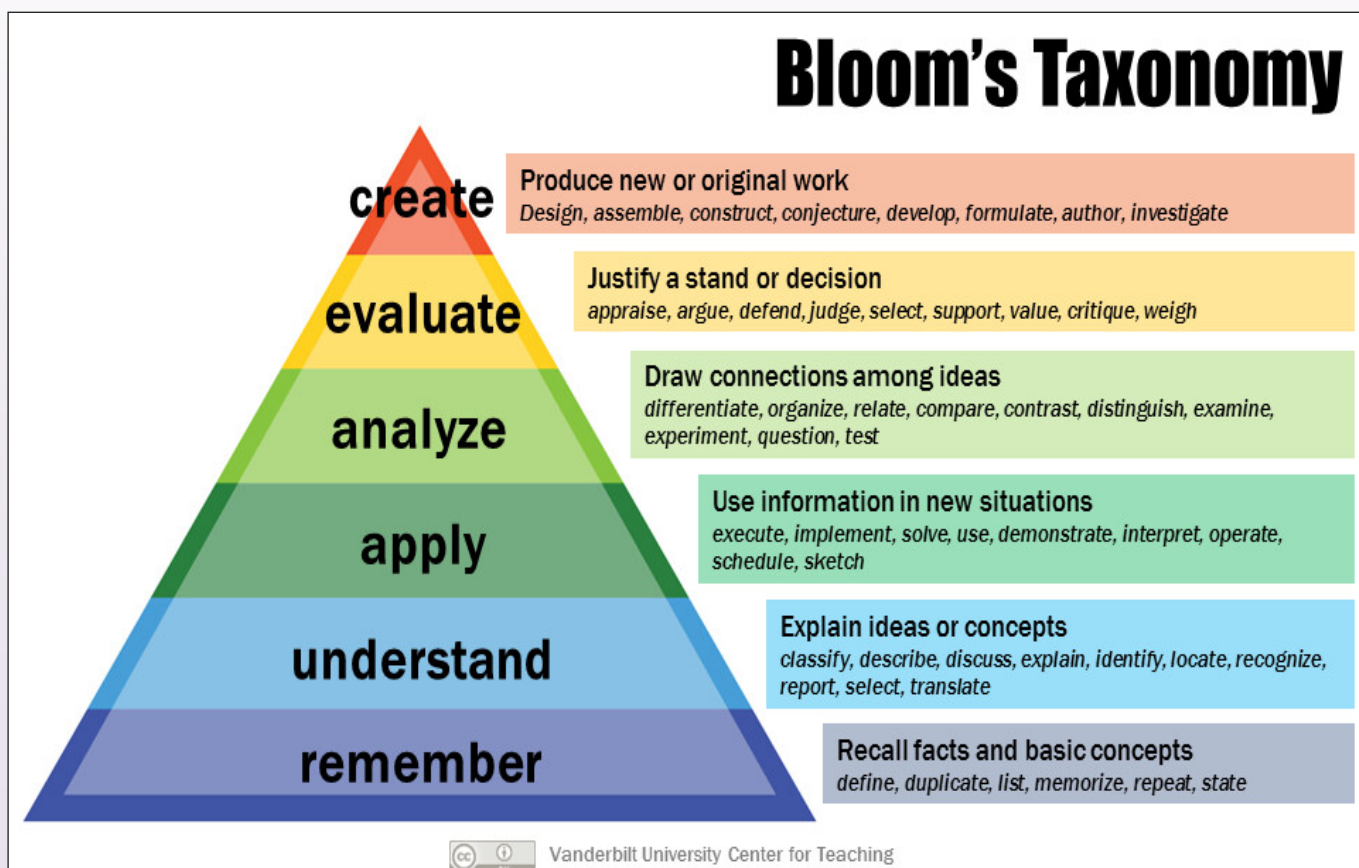
Describe levels of questioning according to Bloom's taxonomy model

Reference: *Training Session Plans for TTC Tutors, TTC Student Teacher Leavers and Teachers From Demonstration Schools Training on the Competence-Based Curriculum December 2018 page 53.*

Facilitator hangs six papers in the room at different corners with one level of Bloom's taxonomy.

H/She asks participants to brainstorm and propose descriptive words for each level,. Volunteers will write descriptors to match levels.

Expected answers:



She/he distributes questions cards to different groups and asks them to discuss on which level their question fall under. After matching questions to the relevant levels of Bloom's Taxonomy, groups present their findings

Expected answers

Level 1: Remembering (some verbs: list, define, tell, repeat, state etc)

Sample question: a) what materials are suitable for cleaning ears?

b) List five masonry tools?

Level 2. Understanding (some verbs: discuss, classify, describe, explain, identify etc)

Sample question: Discuss why it is important to clean our ears?

Level 3. Application (some verbs: execute, use, implement, solve etc)

Sample question: How can you take care of masonry tools for their durability?

Level 4. Analysis (some verbs: differentiate, organise, relate, compare, and contrast)

Sample question: Differentiate between a water level and a plumb line.

Level 5. Evaluation (some verbs: appraise, defend, judge, select, support etc)

Sample question: Argue out on the fact that planting trees prevent soil erosion.

Level 6. Creation (some verbs: design, develop, assemble, construct, formulate)

Activity 3

Setting appropriate questions following bloom's taxonomy model

The facilitator asks teachers from same school to pair up and chooses one unit (for lower and upper primary) in SET syllabus and asks them to set two sample questions for each of level of Bloom's taxonomy.

The facilitator invites participants to share in plenary proposed questions.

Participants are encouraged to change and comment any question they feel is not relevant to the proposed level.

Expected answer (referring to activity2, participants harmonise their answers)

Conclusion (5 minutes)

The facilitator concludes the session by reminding participants that the assessment of learners' knowledge, skills, attitudes and values should reflect their level of cognitive development.

Session 3

learner's progress record keeping and portfolio

Session objective(s)

By the end of this session, participants will be able to:

- Explain learner's progress record keeping and Portfolio
- Discuss the importance of record keeping and communicating learner's progress in CBA
- Identify the importance of providing positive feedback
- Discuss the elements of feedback format
- Fill in the feedback format using kept records

Materials/resources: Teacher training manual, SET syllabi, flipchart, pens, markers, laptop, projector, notebooks, masking tape ...

Introduction (5 minutes)

The facilitator guides participants into reviewing the previous session and shares the session objectives with them.

Session development (60 minutes)

Activity 1

Explain learner's progress record keeping and Portfolio in teaching and learning activity

The facilitator by using “**speed dating methodology**” asks participants to sit on two parallel lines, two participants facing each other. S/he names the two lines A and B depending on their choice. S/he gives each participant of line A 30 seconds to tell his/ her partner from line B what they understand by “**learner's progress record keeping** “. And line B listens attentively to what they are being told. Line A moves clockwise, and line B moves anti-clockwise. Every time the facilitator gives a signal each participant moves to the next seat until each participant from line A has spoken to all the participants from line B. Participants on the line moving clockwise always speak to their partner on the line moving anti-clockwise

Note: Same methodology will apply to explain “**portfolio**”

Expected answer

Learner's progress record keeping involves gathering facts and evidences from different assessment instruments and using them to judge the learner's performance by assigning an indicator against the set criteria or standard. (**Curriculum Framework pre-primary to upper secondary 2015: page 38**)

Portfolio: Learner's portfolio is a collection of learner's learning progress. It is comprehensive analysis of the learner's mastery, comprehension, application of knowledge acquired over a designed academic period. (**Teacher training Manual on the Roll out of the competence Based-Curriculum 2015 page 48**).

Activity 2

Discuss the importance of record keeping and communicating learner's progress in competence-based approach (Teacher training Manual on the Roll out of the competence Based-Curriculum 2015 pages 58-59)

The ffacilitator asks participants to pair up with the person on their left side and discuss the purposes of record keeping and communicating learner's progress in competence-based approach.

S/he moves around to monitor how individuals are contributing and support where necessary. S/he invites a few pairs to share with others what they have discussed and harmonises interventions.

Expected answer:

Why record learner's performance?

- *Tracking each learner's performance and plan for remedial activities*
- *Encourage learners to take more ownership and responsibility over the learning process*

- *Help learners in their own learning in terms of knowledge, skills, attitudes and values*
- *Test the effectiveness of the methods used*
- *Provide evidence of achievement to be used in the decision making (promotion, retake, rank/classification, grading, comparing standards, measuring levels of achievement, certification or rewards, etc.)*
- *Informing parents about the learning progress of their children and give advice accordingly.*

What do we record in a portfolio?

- *We record learners' academic work including deliberations decisions on learners' performance over a given academic period against set performance standard.*
- *We record learner's behaviours and discipline decisions (when applicable).The document in which we keep all these information is called a learner portfolio.*

Why do we communicate learner's performance?

- *We provide parents with clear and individualise information about learner's progress/ performance against achievement standards*
- *We identify learner's areas of strength and improvement henceforth suggest remedial activities.*

Activity 3

Importance of giving positive feedback

Facilitator asks participants to brainstorm the importance of giving and receiving feedback.

Facilitator asks participants to brainstorm on why do they provide positive feedback in teaching and learning activities and discuss the best ways of providing positive feedback to learners

- Teacher, giving feedback helps to know where learners have weakness
- For learner, receiving feedback help her/him to identify where he/she needs improvement
- Both teacher and learners can adopt other strategy for improvement if there is lower performance

Activity 4

Discuss the elements of feedback format.

Still in their pairs, the facilitator shares with the participants the feedback format and asks them to discuss and explain what they understand by its components.

Expected answers:

FEEDBACK FORMAT/PROGRESS STUDENT REPORT

SUBJECT:

UNIT:

KEY UNIT COMPETENCE:

Student names	Achievement description	Comment (area for improvement/ good points)	Way forward
A
B
C

N	N	N	

Elements of feedback format

Unit:

Key unit competence:

Learner's name:

Achievement description: *in this part the teacher describes the learner's rating (outstanding, fair, and unclassified).*

Comment (Areas of improvement): *In this part the teacher fills in the comments on the performance of the learner in that subject and suggest areas of improvement.*

Way forward: *In this part the teacher describes the action to be taken, and if remedial activities to be taken.*

Activity 4

Fill in the feedback format using kept records

Facilitator requests participants to suggest learner's assessment activity, mark it, fill the feedback format, and present their findings.

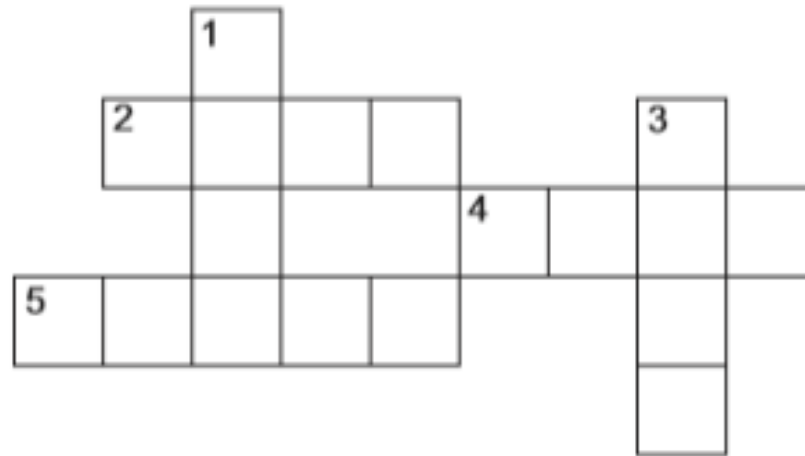
Expected answers:

During an end unit assessment, Teacher BENIMANA asked her P4 learners to perform the following activities:

1. Answer the following questions briefly:

- a. Define the term **soil** / 1 mark
- b. Write down three uses of soil. / 3 marks
- c. Soil is home to many animals. Can you name any two animals whose home is soil? / 1 mark
- d. Explain two methods of preventing soil erosion. /5 marks

2. Complete the crossword puzzle using the clues below: / 5 marks



Clues:
Across

- 2. It is the topmost layer of the soil
- 4. Soft when it is wet and hard when it is dry
- 5. Component of the soil, made up of dead plants and animal remains.

Down

- 1. A kind of soil which is a mixture of sand and clay with some humus
- 3. Finely crushed stones found on beaches.

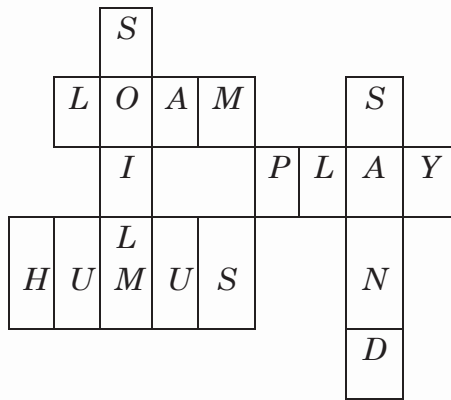
Below are some answers given by three Learners

Learners A: $\frac{5}{15} \frac{5}{15}$	Learner B: $\frac{10}{15}$	Learner C: $\frac{13.5}{15}$
<p>1. a) Soil is a mixture of broken rocks and minerals, living organisms and decaying organic matter humus. <input checked="" type="checkbox"/> (1 mark)</p> <p>b) Soil is useful for us. (increase your analysis: 1 mark)</p> <p>c) Cows, flies and birds. (increase your analysis: 0 mark)</p>	<p>a) Soil is one of the non-living things (improve your comprehension; 0.5 mark) and is useful to plants, people and other animals. <input checked="" type="checkbox"/> (inattention in numbering; 2.5marks)</p> <p>b)-</p> <p>c) Snakes, rats. <input checked="" type="checkbox"/> (1 mark)</p>	<p>a) Soil is the topmost layer of earth's surface. <input checked="" type="checkbox"/> (1 mark)</p> <p>b) Soil supports plant growth. Soil is used for construction of houses and playgrounds. <input checked="" type="checkbox"/> (3 marks)</p> <p>c) Insects. (increase your analysis; incomplete answer; 0.5 mark)</p>

d) To prevent soil erosion, you cut trees and cover the land with grass (improve your understanding and synthesis; 1 mark).

Across

2.



Across

2. (Analyze the question carefully and link it to structure of puzzle) ✗

4. (Analyze the question carefully and link it to structure

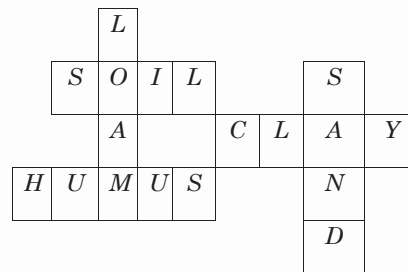
of puzzle) ✗ 5. ✓

Down

1. (Analyze the question carefully and link it to structure of puzzle) ✗ 3. ✓

d) To prevent erosion, you need terrace (improve your synthesis; 1mark).

2.



Across

2. ✓ 4. ✓ 5. ✓

Down

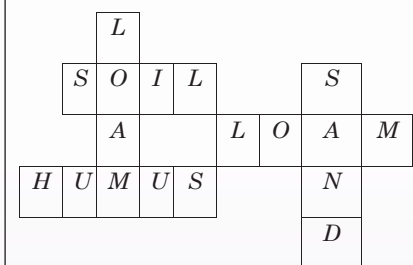
1. ✓ 3. ✓

(Excellent in analyzing the question carefully and linking it to structure of puzzle)

d) Shelter Belts where you might plant tall trees grown on all sides of a field. These are grown to reduce the speed of blowing winds. They act as wind breakers.

Soil Cover for which after harvesting of crops, the land should be covered with grass. The roots of the grass bind the soil and protect it from being

blown away. ✓ (very good; 5 marks)



Across

2. ✓ 4. (Analyze the question carefully and link it to structure of puzzle)

✗ 5. ✓

Down

1. ✓ 3. ✓

End unit assessment Feedback

Student names	Achievement description	Comment (area for improvement/ good points)	Way forward
A	Unclassified	He /she has difficulties in understanding the given questions.	Need more exercises related to communication skills.
2. B	Satisfactory	He/she has tried and performs well in questions involving analysis, but she/ he has a weakness in providing explanation.	Need more revision on operation in integers and more remedial exercises.

3. C	Outstanding	He/she mastered the content assessed at higher level.	Need more exercises related to analysis level, more exercise leading him/her to research activities.
4
5

(Teacher training Manual on the Roll out of the competence Based-Curriculum 2015 page: 50).

Conclusion (5 minutes)

The facilitator asks the participants to answer the questions below:

What did you find new? What surprised you? What will you do differently after here?

Facilitator harmonizes this session emphasizing on the importance of keeping records and giving feedback on each assessment done as well as prepare an effective portfolio.

Session 1 Understanding lesson plan format

By the end of the session the participants should be able to:

- Identify different pedagogical documents needed in teaching and learning activities
- Identify and describe the components of lesson plan format
- Explain how to complete a lesson plan format.

Teaching & Learning resources: Syllabi, scheme of work format, lesson plan format, flip charts, markers of varying colours, scotch, etc.

Session introduction (5 minutes)

The facilitator invites one of the participants to lead the rest through a warm up. After it, the facilitator shares the session objectives with them.

Development of the Session (50 Minutes)

Activity 1

Identify different pedagogical documents needed in teaching and learning activities.

*Using cabbage game, the facilitator asks participants to explain how the pedagogical documents on the paper they peel is used in teaching and learning activities. S/he asks volunteers to write key words on the flip chart and hang them on the wall. **Teacher training Manual on the Roll out of the competence Based-Curriculum 2015 pages 64,67,72 and 79)***

Expected answers:

1. Subject syllabus:

- It communicates information about a specific subject,
- Its defines expectations and responsibilities of teachers and learners at every stage of teaching and learning activity,
- It describes the teaching and learning activities(subject schedules, minimum technics required to transfer knowledge, skills, attitudes and values)and
- ICT integrated in teaching and learning.

2. Class diary: it describes:

- Time allocation: period(s)for the lesson
- The content to be taught on daily basis
- Teaching techniques to be used to deliver the content
- Comments and observation about the lesson taught

3. Time table

- *It ensures that all subjects are equally studied*
- *Smooth and orderly work of the school (it makes sure that everything is planned in advance all teachers and learners know their jobs as well as the time they are to devote for each activity)*
- *It prevents waste of time and energy (it shows exactly what is to be done at a particular time. It thus directs the attention of both the learners and the teacher one thing at a time.)*
- *It ensures equitable distribution of work among teachers (with the help of the timetable the headteacher / DoS keep track of the quantum of workload assigned to each teacher.)*
- *It ensures equitable distribution to different subjects and activities.*
- *It helps in adjusting school work according to the needs of teachers and learners.*
- *It helps in school discipline (it prevents confusion and duplication of work and lessens the need of punishment by keeping learners busy in desirable activities.)*

4. Schemes of work:

- *It outlines what should be taught in a given period, such as a week, a month, a term or a year.*
- *It is done every year, before the start of new academic year.*
- *It determines the objectives to be achieved over a period.*
- *It gets activities for all learners and makes the order and timing for activities.*
- *It identifies the content and materials to be used by learners, (the teacher prepares all instructional materials such as audio-visuals, apparatus...)*
- *It helps teachers to plan how they will monitor and assess learners' progress.*
- *It also identifies all the references that the teacher will use to plan and deliver lessons.*

5. Class register:

- *It is a book where the teacher registers learners' attendance frequencies*
- *It tells you the average percentage of learners' attendance*
- *It gives you baseline information on the quality of a school*
- *It helps identify learners who might need extra support to catch up lessons they might have missed along with actions to tackle poor attendance.*

6. Homework book.

- *Keeps records of all homework's that the teacher has given to learners in a specific subject*
- *It also suggests all responses to each homework and marks for each of the questions asked/assessment rubric.*

7. Quiz book.

- *Keeps records of all formal tests and assessment that the teacher has set (general quiz, end of unit assessment, end of term, year, mock exams)*
- *All marking guides for test, exam are also recorded in it.*

8. Lesson plan.

- *helps teachers manage the curriculum content within a term/year*
- *helps teachers sequence activities well from simple to complex,*
- *helps teachers organize teaching & learning to develop objectives and competences,*
- *helps teachers think about the needs of all learners,*
- *helps teachers stay organized in the classroom,*
- *helps teachers remember the content to be taught and activities to cover it,*

- *helps teachers to manage time*

9. Lesson notes book

- *It contains summary content for every lesson that the teacher gives to learners.*

10. Exercises' notebook

- *Shows evidence on which activities the teacher engaged learners in (all exercises the teacher gave are recorded within it.)*

11. Learner's progressive record and portfolio

- *It helps to record learners performance over the course of units*
- *It helps design remedial teaching and learning activities*
- *It helps to track learners 'performance*
- *It helps to inform next level teachers of the performance and areas of improvement of the learner for next level teachers to customize the learning and content to the learners 'needs.*

Activity 2

Identify and describe the components of a lesson plan format (*Teacher training Manual on the Roll out of the competence Based-Curriculum 2015 page: 79*)

In groups, participants describe the parts of lesson plan format and provide all the necessary details.

Expected answer:

Parts	Description
School name	Teacher should write the name of the school
Teacher's name	The teacher writes her/his name of the teacher
Term	The current term
Date	Date of delivering the lesson
Subject	SET
Class	P1 or p2,p3,p4,p5,p6
Unit number	From the SET syllabus
Lesson number	In the SET syllabus, you can count the number of the lesson (content column), then you identify the order of your lesson
Duration	40 min or 80 min
Class size	Number of learners in the classroom
Types of special education needs to be catered for in this lesson and number of learners in each category	Teacher has to identify if there are some learners who need particular support. For example, learners who have physical impairments or mental impairments, slow learners and talented learners.

Unit title	It is taken from the SET syllabus.
Key unit competence	It is taken from the SET syllabus within the unit
Title of the lesson	It is picked from the unit content
Instructional objective	The teacher formulates the instructional objective by respecting the 5 key points: who, behavior, action, content and condition
Plan for this class (location: in/ outside)	It depends on the lesson. This may be taking place inside classroom, outside classroom, or in laboratory
Learning materials (for all learners)	Learning materials prepared according to the instructional objective
References	Teacher has to show all different references he/she has used during lesson preparation such as textbooks, unit, page....
Timing for each step	Allocate time for each step
Description of teaching and learning activity	This part describes briefly the activities to be done by the teacher and what to be by the learners.
Teacher activities	Teacher describes his or her activities within introduction, body, and conclusion
Learner activities	Teacher suggests the activities of the learners within introduction, body, and conclusion
Generic competences and cross cutting issues to be addressed +a short explanation	During the lesson preparation, teacher needs to suggest generic competences to be developed and the crosscutting issues to be addressed in the lesson delivery
Introduction(time)	Teacher may talk about what learners are going to learn in case it is a new lesson and no relation with the previous. If the lesson under discussion has a pre-requisite from past lesson, then the teacher revises it by diagnosing what learners remember or by reviewing what has been learnt previously.
Development of the lesson	
2.1 Discovery activity	The teacher gives an opportunity to the learners to think about the lesson. He/she may give them a situation to analyze, a video or a picture to observe, or a problem to predict on. This helps learners to discover what the teacher want them to learn.

<p>2.2 Presentation of learner's production</p>	<p>After letting learners realize what they will learn, the teacher assigns learners the activity to work on. In this stage, teacher will guide them in order to relate what they are working on with the objectives of the lesson.</p> <p>Here, some teaching and learning strategies may be used. These are group work discussion, debate, lecture, role-play, research, calling attention, etc. He/she should create a positive learning environment for learners.</p>
<p>2.3 Exploitation of learner's production</p>	<p>This is the time where the teacher relates what the learners have presented to what was expected. He/she harmonizes the work done by all learners, identifying what went well and what can be done differently. He/she needs to motivate and appreciate all learners despite their presentation.</p>
<p>2.4 Conclusion/summary</p>	<p>Teacher asks learners to comment on how the lesson went on.</p> <p>Also he/she helps them to rearrange the class if necessary.</p>
<p>3. Assessment</p>	<p>Teacher has to use varieties of questions from the beginning to the end of the lesson to raise up the levels of thinking of learners (high order of thinking).</p>
<p>Observation on lesson delivery</p>	<p>Teacher has to verify if:</p> <ul style="list-style-type: none"> All learners captured well the lesson Time was well managed Competences are developed among the learners The instructional objective was achieved

Facilitator distributes lesson plan formats and asks participants to read and compare with their findings.

Activity 3

Understand the lesson plan format

Facilitator distributes lesson plan formats and asks participants to pair up with the fourth person on their left side. She invites them to go through the lesson plan and discuss its components as they share any challenge they encounter in completing the lesson plan to read and compare with

SET Lesson Plan format

School Name: ...

Teacher's name:

Term	Date	Subject	Class	Unit No	Lesson No	Duration	Class size
					.../...		
Type of Special Educational Needs to be catered for in this lesson and number of learners in each category							
Unit title							
Key Unit Competence							
Title of the lesson							
Instructional Objective							
Plan for this Class (location: in / outside)							
Learning Materials (for all learners)							
References							

Timing for each step	Cross cutting issues to be addressed + a short explanation:		Generic competences + a short explanation
	Description of teaching and learning activity		
	Teacher's activities	Learner activities	
Introduction			

Development of the lesson			
Conclusion			
Teacher self-evaluation			

Conclusion (5 minutes)

The facilitator collects participants' contributions especially challenges they encounter in completing the lesson plan format

Session 2 Making instructional objective

Session objective(s)

By the end of this session, participants will be able to:

- Elaborate the main components of instructional objective
- Formulate an instructional objectives which are inclusive
- Design teaching and learning activities responding to the instructional objective formulated earlier

Materials/resources: teacher training manual, SET syllabus, flipchart, pens, markers, laptop, projector, notebooks, etc.

Introduction (5 minutes)

Facilitator help participants to make a review on session one.

Session development (50 minutes)

Activity 1

Explain main components of instructional objective

- In groups, the participants discuss about the main components of instructional objective and then share their findings in plenary.

Expected answers:

Any instructional objective must contain:

- Condition
- Who
- Action
- Content
- Measure of performance (Accuracy or Standard)

b. Based on the given example of an instructional objective, the facilitator asks participants to read and identify its five components(Teacher training Manual on the Roll out of the competence Based-Curriculum 2015 pages 67)

Through practices and by using charts, water from the river or dam and small containers(**situation**),the learner(**who**) will be able to explain (**action/behavior**) boiling and filtration(**content**) as water purification methods and explain how they can correctly use them (**standard of performance**)

Key message:

The facilitator clearly explain that an instructional objective should have the five components (condition, who, behavior/action, content and standard of performance).

Activity 2

Formulating instructional objectives in SET

The facilitator distributes SET syllabi in groups and instructs participants to read through. Each group chooses a lesson from SET syllabi and then formulates related objective containing all listed main points of instructional objectives.

Expected answers:

P5, SET

References: Science and Elementary Technology for Rwandan Schools pupil's Book 5 Spotlight publishers (EA) limited. page 153

UNIT 12: DIGESTIVE SYSTEM

LESSON 2: PARTS AND FUNCTIONS OF DIGESTIVE SYSTEM

- By using a given charts and video show about digestive system (condition), the learner (who) will be able to identify (action) parts of digestive system and explain its functions clearly.

Activity 3

Design teaching and learning activities responding to the instructional objective formulated earlier

In the same groups, the Facilitator asks participants to design teaching and learning activities that respond to the instructional objective formulated earlier.

Expected answer: Eg:

P5 SET

References: Science and Elementary Technology for Rwandan Schools pupil's Book 5 Spotlight publishers (EA) limited. page 153

UNIT 12: DIGESTIVE SYSTEM

LESSON 2: PARTS AND FUNCTIONS OF DIGESTIVE SYSTEM

Instructional objective: By using given charts and video show about digestive system, a learner will be able to identify parts of the digestive system and explain its functions correctly.

Teaching activities	Participants' activities
The teacher introduces the lesson by ask learners to pair up and share their personal experiences about parts and functions of digestive system	In their pairs each learners follows and listen attentively the ideas of another
The teacher guides in forming groups and assign each group with unlabeled picture of digestive system and let them observe freely and label it	Learners form groups and start to interpret the given picture and then after present their findings in plenary.
The teacher shows audio visual video with subtitles on how the digestive system functions and gives time to the learners to comment on it. H/she also comments on the comments given by the learners	The learners watch the video and try to give comments of how the digestive system functions and structured.
The teacher asks learners to list and explain the functions the parts of digestive system	The learners perform the exercises individually.

Conclusion (5 minutes)

The facilitator asks the participants to make a circle and do a warm up of throwing a ball randomly to each other. Anyone who gets a ball will describe one of the main components of instructional objective.

Key message:

H/she emphasizes on the fact that each of the instructional objective must have five keys components and developed teachers and learner's activities should help to achieve the desired outcome in learners.

The teacher, while conducting the lesson should make sure that all asked questions and proposed techniques help the learner to be able to learn and develop desired knowledge, skills, attitudes and values.

Session objective(s)

By the end of the session, participants will be able to develop lesson plans, execute microteaching and provide positive feedback.

Materials/resources: teacher training manual, core and subsidiary mathematics syllabus, flipchart, pens, markers, laptop, projector, notebooks, etc.

Introduction (5minutes)

The facilitator calls all participants on a circle and chooses one of them to lead others through a warm up. S/he shares session objectives with them.

Session development (110 minutes)**Activity****Develop lesson plans and execute microteaching****A The facilitator says/ writes the following quote**

“As teachers expect learners to come to class prepared to learn, learners expect teachers to come to class prepared to teach.”

The facilitator asks participants to react on this quote and reminds them the importance of a lesson plan.

Expected answers:

A lesson plan is necessary in the effective teaching process because it helps the teacher to: (Teacher training Manual on the Roll out of the competence Based-Curriculum 2015 pages: 74-75)

- *Focus clearly on the content to be covered and the way it should be taught thus avoiding being vague and irrelevant*
- *Organize the content to be taught in advance*
- *Plan, prepare and assemble teaching/learning resources*
- *Take the opportunity to visualize and conceptualize in advance the teaching strategies and methods.*
- *Select and design appropriate assessment methods.*

The facilitator continues by asking participants the following question:

“What should the teacher think about/look for before developing a lesson plan?”

Expected answer:

- *Referring to the scheme of work*
- *Writing lesson objectives*
- *Identifying appropriate cross cutting issues to be addressed and generic competences to be developed*
- *Choosing activities that link with the objectives*
- *Looking for appropriate teaching/learning aids*

- *Allocating time for each activity*
- *Making research to enrich/update the content mastery*
- *Choosing appropriate methods that engage all learners and help them develop competences*

Still in same groups, the facilitator distributes flip chart papers and markers to each of the groups and asks them to select a lesson from any topic / unit of their choice, prepare a lesson and microteach the prepared lesson. (each group will be given 20 minutes to microteach and 10 minutes for feedback)

Conclusion: (5 minutes)

The facilitator winds up the session by emphasising on why we should be providing feedback to either learners or our fellow teachers.

Key message

We tend to associate giving feedback with things going wrong and when we experience being evaluated, criticised, it triggers a stress response. It activates the part of the brain that launches the fight or the flight response.

It is very natural that in this case we become a bit defensive, as we all want to know that we are valued, recognised, and people see us in positive light.

Feedback, can do both good and bad as well as it can make us feel valued recognised and satisfied.

A study by Harvard business review found that 57% of people will prefer constructive/positive feedback to positive praise or recognition. Constructive/positive feedback make people feel appreciated which in turn make them more motivated and engaged.

*Giving positive feedback doesn't mean just saying good job, which can sometimes come across as vague or insincere. Rather, it is better to adopt the what/**why approach**.*

The what and why approach involves telling the person what it was about the behaviour or action that impressed you and why what they did was effective

References:

1. Curriculum Framework pre-primary to upper secondary 2015
2. *Teacher training Manual on the Roll out of the competence Based-Curriculum 2015*
3. *School-Based Continuous Professional Development Manual Phase 1:2017*
4. TTC orientation manual , 2019
5. *Science and Elementary Technology syllabus for upper primary P4-P6, 2015: Page 25*
6. *Integanyanyigisho y'Ubumenyi n'Ikoranabuhanga Riciriritse P1-P32015 : Urupapuro rwa 35*
7. *Science and Elementary Technology for Rwandan Schools pupil's Book 4*
8. *Science and Elementary Technology for Rwandan Schools pupil's Book 5 Spotlight publishers (EA) limited.*
9. *Science and Elementary Technology for Rwandan Schools pupil's Book 6*
10. *Ubumenyi n'ikoranabuhanga riciriritse umwaka wa Mbere amashuri abanza*
11. *Ubumenyi n'ikoranabuhanga riciriritse umwaka wa Kabiri amashuri abanza*
12. *Ubumenyi n'ikoranabuhanga riciriritse umwaka wa gatatu amashuri abanza*

ANNEX 1: MODEL LESSON PLAN OF SET



Lesson plan

School name: XXXXX

Teacher's name: XXXX

Term	Date	Subject	Class	Unit No	Lesson No	Duration	Class size
2nd	dd/mm/yyyy	SET	P5	8	8 of 16	40 min	38
Type of special educational needs to be catered for in this lesson and number of learners in each category				Learners with low vision (1)			
Unit title	Water						
Key Unit Competence:	To be able to purify water for drinking and explain dangers of polluted water						
Title of the lesson	Water purification methods for drinking						
Instructional Objective	Through practices and by using charts, water from the river or dam and small containers(situation),the learner will be able to correctly apply boiling and filtration as water purification methods.(instructional objective)						
Plan for this Class (location: in / outside)	Both in classroom and outside						
Learning Materials (for all learners)	Charts, pan/ pot with a lid, sieve/white piece of cloth, source of heat, water, small containers						
References	- REB, 2017: Science and Elementary Technology, Pupil's book, Primary 5, P101-103. Spotlight Publishers (EA) Limited Spreading Light - REB, 2015: SET Syllabus for upper primary. Kigali						
Timing for each step	Description of teaching and learning activity					Generic competences and cross cutting issues	
	On a circle/semi-circle, learners guided by the teacher, observe provided water purification materials, discover and apply boiling and filtration methods.						
	Teacher activities			Learner activities			
						Note: In this lesson, environment and	

<p>Introduction 5 minutes</p>	<p>Asks learners questions about the previous lesson of pollutants of water, dangers and their prevention</p> <p>1. Identify any two dangers of water pollution</p>	<p>Answer to the questions asked</p> <p>Proposed answers:</p> <p>Q1.</p> <ul style="list-style-type: none"> - Dangers of water pollution for human beings (Diarrheal disease) - Dangers of water pollution for animals (from germs and parasites) - Dangers of water pollution for plants (Water that contains excessive fertilizers, pesticides or herbicides can make plants to dry) - Dangers of water pollution for soil (Polluted soil kills small organisms that live in soil). <p>Q2.</p> <ul style="list-style-type: none"> - Practicing proper hygiene (use of toilets, latrines and urinals). - Avoiding bathing, watering animals and washing clothes in water sources. 	<p>sustainability (training learners on the environment protection) and standardization culture (training learners on the culture of drinking purified water) will be addressed</p> <p>Communication</p> <p>As the learners answer to the questions, they will develop the confidence of sharing their ideas.</p>
	<p>2. Identify three ways of preventing water pollution</p>	<ul style="list-style-type: none"> - Practicing farming methods that reduce soil erosion like contour and terrace farming. 	<p>Interpersonal life skills</p> <p>As the learners listen to others answering to asked questions, they develop the attitude of respecting/ appreciating others' views</p>

<p>Development of the lesson 25 minutes</p>	<p>Guides learners through observation of a given charts</p> <p>Asks learners to discuss about the images from the charts and share their observations</p>  <p>A</p>  <p>B(From P5 SET, Unit8, page103)</p>	<p>Observe and comment on given charts (eg: wall charts ...)</p> <p>Proposed answers:</p> <p>On figure A: Boiling water</p> <p>B: Dirty water is poured through a filter sieve</p>	<p>Cooperation and interpersonal management life skills</p> <p>As learners observe, discuss and comment on given charts and respect others' contributions/views.</p> <p>Critical thinking</p> <p>As they are relating the given charts to real life situation and draw the conclusion.</p>
	<p>Guides learners in group formation.</p> <p>Invites learners to observe provided materials in groups outside the classroom</p> <p>Gives instructions/ guidance to how the experiment will be performed</p> <p>Instructions:</p> <ul style="list-style-type: none"> - Hold a sieve over a clean pan or pot - Pour water from a jerry can over the sieve or piece of cloth into a clean pan or pot to filter it. Cover the pan or pot with a lid. 	<p>Form groups</p> <p>Observe the materials</p> <p>Listening attentively teacher's instructions</p>	<p>Communication as the learners are listening to the teacher's instructions, they develop listening skills</p>

	<p>- Light a fire to get heat. Place the pan with filtered water over the heat.</p> <p>- When the water has boiled, remove it from the source of heat. Let the water cool.</p> <p>Invites one of the learners per each of the groups to perform the experiment as per instructions (invites different learners to perform experiment)</p>	<p>Perform experiment of purifying water</p> <p>Practice the experiments and collect all data on the papers.</p>	<p>Critical thinking</p> <p>As learners perform the experiment in turns</p> <p>Creativity and innovation as learners learn new steps purifying drinking water</p> <p>Interpersonal management life skills</p> <p>Learners' leadership skills through group management/ presentation/ discussions</p>
	<p>Takes learners back to the classroom</p> <p>Invites learners to identify different methods of water purification by asking the below question</p> <p>Which methods did we use to purify water?</p> <p>Invites learners to identify different steps of water purification by asking the below question</p>	<p>Join classroom</p> <p>The learner answers to the question by providing the below answer</p> <p>Proposed answers about their practices</p> <p>Methods of water purification</p> <p>Boiling water</p> <p>Filtration of water</p> <p>The learner answers to the question by providing the below answer</p> <p>Proposed answers:</p> <ul style="list-style-type: none"> - Hold a sieve over a clean pan or pot - Pour water from a jerry can over the sieve or piece of cloth into a clean pan or pot to filter it. Cover the pan or pot with a lid. 	<p>Critical thinking</p> <p>As learners will answer the questions</p>

		<p>- Light a fire to get heat. Place the pan with filtered water over the heat.</p> <p>- When the water has boiled, remove it from the source of heat. Let the water cool.</p>	
Conclusion (10 minutes)	<p>Summarize together with learners the experiment done (chorus answers)</p> <p>Ask questions on the experiments:</p> <ol style="list-style-type: none"> 1. Which water would you prefer to drink? And Why? 2. In your village, what methods do your neighbors use to purify drinking water? 3. Why do you think it is necessary to purify drinking water? 	<p>Summarize the lesson and share what will help them in real life.</p> <p>Write and answer the questions asked in their exercise's notebook.</p>	
Teacher self-evaluation	The lesson was well delivered, the lesson objectives was achieved, each learner was ab		

ANNEX3:GRADE RANGE

Annex3:

Grade range

Teacher training manual, reference (roll out of the CBC, 2015-P52)

Achievement level	Achievement description	Percentage score	Grade
1	Outstanding	75-100	D1
2	Excellent	70-74	D2
3	Very good	65-69	C3
4	Good	60-64	C4
5	Satisfactory	55-59	C5
6	Adequate	50-54	C6
7	Moderate	45-49	P7
8	Fair	40-44	P8
9	Unclassified	0-39	F9