



Republic of Zambia

MINISTRY OF EDUCATION

**ADAPTED MATHEMATICS AND SCIENCE
GRADE 1 TEACHING MODULE FOR LEARNERS WITH
VISUAL IMPAIRMENT (VI)**

PREFACE

The advent of the Competence-Based Curriculum (CBC) heralds a new era of dynamic and practical learning experiences designed to equip learners with the 21st century skills.

The choice of the Competence-Based Curriculum (CBC) marks a transformative step in improving education quality and relevance. The Ministry of Education understands the challenges that come with transitioning to a new curriculum and is therefore committed to ensuring provision of quality teaching and learning materials to support effective lesson delivery.

The **Adapted Mathematics and Science Teaching** Module has been shaped in line with the Competence Based Education principles which seek to link education to real life experiences. The General Competences provided in the 2023 Zambia Curriculum Framework are collaboration, critical thinking, creativity and innovation, problem solving, analytical thinking, emotional intelligence, digital literacy and entrepreneurship. The Topics, Sub-topics, Specific Competences are also suggested

Effective implementation of the CBC requires clarity of focus, undivided dedication, commitment and setting higher level competences. It is my sincere hope that this CBC Adapted Mathematics and Science Course for learners with Visual Impairments will greatly improve the quality of education provided to these learners as outlined and emphasized in various policy documents; ‘Education for Sustainability, 2023’, the ‘2023 Zambia Education Curriculum Framework and the ‘Guidelines in the Implementation of Special and Inclusive Education in Zambia, 2016’ as well as outlined in the 2015 National Policy on Disability.

This module reflects the Ministry’s unwavering commitment to making this journey as smooth as possible for teachers, by providing structured guidance, suggested activities, and formative assessments that align with the CBC’s objectives. However, teachers are encouraged to supplement this module with their own research and innovations in order to address any gaps that may arise during implementation.

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ACKNOWLEDGEMENT

The Adapted Mathematics and Science teaching Module for grade 1 learners with Visual Impairments is a result of wide consultation involving several stake holders within and outside the Education system.

Many individuals, institutions and organizations were consulted to gather their views on the existing Braille course for learners with Visual Impairments and to accord an opportunity to make suggestions for the Competence Based Curriculum. The Ministry of Education wishes to express heartfelt gratitude to all those who participated for their valuable contributions which culminated in the development of this Adapted Mathematics and Science Module for grade 1 learners with Visual Impairments.

Finally, I acknowledge the dedication and hard work of the staff at the Curriculum Development Centre, whose efforts were instrumental in ensuring the successful completion of the syllabus development process.

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Introduction

The Adapted Mathematics and Science **Grade 1** Teaching Module has been meticulously designed to support teachers in the effective delivery of lessons to learners with visual impairment under the reformed curriculum. The module is developed based on the approved 2024 Competence-based **Adapted Mathematics and Science** Syllabus. It aims to bridge the gap created by the absence of approved textbooks and to equip educators with practical tools, activities, and assessments tailored to the learners' level and needs.

The Ministry, understands the challenges that come with transitioning to a new curriculum that is Competence Based. The choice of the Competence-Based Curriculum (CBC) marks a transformative step in improving education quality and relevance. This module reflects the Ministry's unwavering commitment to making this journey as smooth as possible for teachers, by providing structured guidance, suggested activities, and formative assessments that align with the CBC's objectives. However, teachers are encouraged to supplement this module with their own research and innovations in order to address any gaps that may arise during implementation.

The suggested activities and assessments provided in this module are designed to foster practical and critical thinking skills in learners while ensuring relevance and adaptability to different school contexts. Teachers are encouraged to tailor these suggestions to their unique classroom dynamics and to explore alternative, acceptable approaches when necessary. This flexibility is key to ensuring that all learners, regardless of their environment, benefit from meaningful and impactful Curriculum.

It is envisaged that this module will serve as a valuable resource for teachers as they navigate the new Competence-Based Curriculum, enhancing their ability to inspire and equip learners with essential **Braille** knowledge, skills and positive attitudes desired to create a vibrant and responsive education system.

TOPIC 1: SETS

Introduction:

In Term 1, the topic sets will focus on distinguishing sets by sorting objects according to size, color and shape and other attributes. Sets will contain objects in intervals of 1 – 6, 1 – 9, 1 - 20 and up to 100, Matching sets into one-to-one correspondence, ordering sets according to their ordinal and cardinal numbers, (1st, 2nd, 3rd ...), Assigning numerals 0 to 10 to elements in a set, assign numerals in intervals of 0 – 6, 0 – 10 and using cardinal and ordinal numbers. Through these lessons, learners will be able to sort, match and order sets in their everyday life.

GENERAL COMPETENCE(S)

- Analytical Thinking
- Problem solving
- Collaboration

Key Terms /Words/Vocabulary

Sets: A collection of items or objects with similar characteristics or elements.

Sorting: This is the manner to group items into categories.

Matching: Comparing two or more objects with characteristics or elements.

Ordering: Arrangement of objects according to their elements in terms of size, shape and color, etc.

Cardinal number: It is a number that tells how many of something in a set such as one, two, three, four and five.

Ordinal number: An ordinal number is a number that tells the position of something in a list such as 1st, 2nd, 3rd, 4th and 5th.

Sub-Topic 1.1 SETS:

Introduction

This sub-topic focuses on equipping learners with the ability to distinguish sets according to their attributes so that they critically develop the skills and knowledge to sort, match and order given items in their everyday lives.

1.1.1.1 Specific competence

- Distinguish sets according to their attributes

Learning activities:

Activity 1: Distinguishing sets by sorting, matching and ordering in everyday life.

- **Activity 1a:** Sorting objects according to size, color, shape and other attributes. Sets to contain objects in intervals of 1 – 6, 1 – 9, 1 - 20 and up to 100
- **Activity 1b:** Matching sets into one-to-one correspondence. Number of objects can be in intervals of 1 – 6, 1 – 9, 1 - 20 and up to 100
- **Activity 1c:** Ordering sets according to their ordinal and cardinal numbers. (1st, 2nd, 3rd ...)
- **Activity 1d:** Assigning numerals 0 to 10 to elements in a set. Assign numerals in intervals of 0 – 6, 0 – 10.
- **Activity 1e:** Using cardinal and ordinal numbers in everyday life. (1st, 2nd, 3rd ...)

Activity 1a: Sorting objects according to size, color, shape and other elements.

PROCEDURE

STEP 1:

- Introduce the sub-topic by displaying different objects on the table for learners to see.
- Explain the concept of sorting to the learners (pencils, sticks and stones).
- Demonstrate on how to sort different objects displayed. For example: group pencils, sticks and stones, then ask learners to group them according to their characteristics or elements.

Assessment:

Project: Teacher to assign learners to collect different items in the local environment and instruct them to sort the collected items according to their specific characteristics and elements.

Activity 1b: Matching sets into one-to-one correspondence. Number of objects can be in intervals of 1 – 6, 1 – 9, 1 - 20 and up to 100. For example,

Step 1: teacher to display different sets and ask learners to match them according their size (equal sets)

Step 2: teacher to put learners into groups and ask them to match sets according to the number and kind of elements in them. For example, one set should have 3 pencils and the other one should have 5 sticks and one with 3 pieces of chalk, then they match. Therefore, a set of 3 pencils matches with 3 pieces of chalk.

Assessment: learners to form sets that can match.

Activity 1c: Ordering sets according to their ordinal and cardinal numbers. (1st, 2nd, 3rd ...). for example, sets of number of objects displayed on the table

Step 1: Teacher to explain how the size of the set can be determined by counting the number of elements in them.

Step 2: teacher to divide the learners into groups, then each group is given sets of different sizes for them to order according to their ordinality.

Step 3: teacher to ask each group to present their findings and then consolidate.

Assessment

Exercise: Learners to order sets according to their size in ascending and descending order.

Summary: This topic focused on distinguishing sets by sorting objects according to size, color and shape and other attributes. The general competences that learners needed to acquire through the learning experience included sorting, matching and ordering to critically develop the skills and knowledge to sort, match and order given items in their day- to- day lives. Additionally, the topic looked at the following key term: set(s), sorting, matching, ordering, cardinal and ordinal numbers respectively. Finally, learners were assessed in order to ascertain their acquisition of knowledge and skills through critical thinking.

TOPIC 2: THE HUMAN BODY

Introduction:

This topic will focus the human body. Learners will be taught on the external parts of the human body and senses.

1.2.1 External Structure of the Human Body

Definition: These are organs or parts of the body which are visible externally and these include: hair, teeth, nose, ears, eyes, hands, skin and legs etc.

GENERAL COMPETENCE(s)

- **Creativity and innovation**

Key Terms /Words/Vocabulary

Key terms:

- External:** This is an outer part of something
- **Structure:** This is the arrangement of parts or elements in a particular way to form a whole.
- **External structure:** this is the physical or visible arrangement of parts or components of an object
- **Human body:** this is the external and internal organs the human being.

Sub-Topic 2.1: External Structure of the Human Body

Introduction: This sub-topic focuses on the external parts of the body such as; -

Hair, Nose, Ears, Eyes, Hands, Skin and Legs.

1.2.1.1 Specific competence

- Demonstrate awareness of the human body structure.

Learning activities:

- Demonstrating awareness of the human body structure by: Recognizing and naming the external parts of the human body (head, neck, chest, arms, knees, abdomen, legs, eyes, nose, mouth, ears).

Procedure:

Step 1: Naming the external parts of a human body

- The teacher asks learners to name the external parts of the human body they know in their local language.

Step 2: Recognize the external parts of the human body

- The teacher asks learners to recognize the external parts of the human body through a song “head, shoulders, knees and toes”.

Assessment

Exercise 1: Naming the external parts of a human body.

- Learners to name external parts of the human body

Exercise 2: Recognize the external parts of the human body

- Learners to mold the external parts of the body using plasticine or clay (hair, teeth, nose, ears, eyes, hands, skin, legs)

SUB-TOPIC 2.2: The senses:

Introduction:

- This sub-topic focuses on the human senses and their uses such as touch/feeling - skin, smelling - nose, taste- tongue, sight- eyes, hearing – ears to explore the environment.

1.2.2.1 Specific competencies

- Use senses to explore the environment

Learning activities

- Using the senses such as touch/feeling - skin, smelling - nose, taste- tongue, sight- eyes, hearing – ears to explore the environment.

Procedure:

The teacher to divide the learners onto groups to discuss the uses of sensory organs of the human body such as; nose, tongue, eyes, skin and ears.

Step 1: teacher divides learners into groups of five to discuss the use of specific sensory organs.

Step 2: teacher to ask learners to make group presentations

Step 3: teachers to display different items on the table such as salt for tasting, a tablet of soap for smelling, a bell for hearing, picture for seeing embossed braille letter for touch.

Step 4: teachers to revise the use of senses to explore the environment.

Assessment

Teacher to ask learners how they can use the five senses. For example, teacher takes the learners near the kitchen and ask them to identify the smell of different food, identify someone through the voice, the smoothness and roughness of the leaf.....etc.

Summary

This topic focused the recognizing and naming the external parts of the human body such as; head, neck, chest, arms, knees, abdomen, legs, eyes, nose, mouth, ears. It also looked at the use of senses and their uses such as touch/feeling - skin, smelling - nose, taste- tongue, sight- eyes, hearing – ears to explore the environment.

TOPIC 3: NUMBER AND NOTATION

Introduction: this topic focuses on demonstrating an understanding of whole numbers by: Counting orally in intervals, counting using real objects in intervals, recognizing numbers in intervals, writing numbers up to 100 (including the meaning of zero), writing and reading numbers in intervals, interpreting numbers using ten as a unit, interpreting numbers using the Ten frame (bundles of ten) in intervals, interpret numbers using place values, ordering numbers in terms of magnitude, using number patterns in intervals (ascending and descending order and counting in tens up to ten tens (100).

GENERAL COMPETENCE(s)

- Problem solving
- Critical thinking
- Communication
- Collaboration

Key Terms /Words/Vocabulary

Key terms:

- **Number:** this is the quantity of something
- **Notation:** the use of symbols to represent operations
- **Number and notation:** the technique of representing a number in digits or figures.
- **Whole number:** a set of numbers including all-natural number and zero e.g., 0, 1,2, 3.....
- **Interval:** a space of time between numbers. E.g., 5, 10, 15,....
- **Magnitude:** the size or quantity of a number
- **Ascending order:** arrangement of numbers starting from the smallest to the biggest.
- **Descending order:** arrangement of numbers starting from the biggest to the smallest.

Sub-topic 3. 1:

Numbers:

Introduction: this topic will focus equipping learners and knowledge of writing, counting, reading, interpreting and ordering numbers in both ascending and descending order.

1.3.1.1 Specific competence

- Demonstrate an understanding of whole numbers.

Learning activities:

Demonstrating and understanding of numbers by:

- Counting orally in intervals such as 1 – 6, 1 – 9, 1 - 20 and up to 100
- Counting using real objects in intervals such as 1 – 6, 1 – 9, 1 - 20 and up to 100
- Recognizing numbers in intervals such as 1-3, 1 - 6, 1 – 9 and up to 100
- Reading numbers in intervals of 1-6, 1 – 9, 1 – 20 up to 100
- Writing numbers up to 100 (including the meaning of zero)
- Writing numbers in intervals of 1-6, 1 – 9, 1 – 10 and up to 100
- Interpreting numbers using ten as a unit.
- Interpreting numbers using the Ten frame, bundles of ten in intervals such as 10 -20, 20 – 50
- Interpret numbers using place values
- Ordering numbers in terms of magnitude
- Using number patterns in intervals of 1-6, 1-9, 1-20 up to 100 (ascending and descending order)
- Counting in tens up to ten to tens (100).

Procedure

Activity 1: Counting orally in intervals

Step 1: The teacher to demonstrate counting numbers in intervals of ten (10) from zero to 100.

E.g., 10, 20, 30, etc.

: **Step 2:** Teacher asks learners to count numbers orally

Step 3: Teacher demonstrates on how to count using real objects in intervals such as 1 – 6, 1 – 9, 1 - 20 and up to 100.

Activity 2: Recognizing numbers in intervals

Step 1: Teacher to distribute number cards to learners and ask them to read them after the teacher.

Step 2: Teacher asks learners to recognize numbers individually from the number cards individually.

Activity 3: Interpreting numbers using ten as a unit and writing numbers in intervals

Step 1: The teacher to demonstrate on how to interpret numbers using the unit of ten (10) using bundles of sticks or stones. For example, one bundle of sticks is equal to ten (1 bundle-10)

Step 2: Teacher writes/ embosses interpreted numbers

Step 3: Teacher divides learners into pairs and ask them to write the number represented by a given number of bundles of sticks.

Step 4: Teacher and leaners to revise the basic content of the sub-top

Activity 4: Interpreting numbers using place values and ordering them in terms of magnitude

Step 1: Teacher to explain the meaning of place value and the symbols used like; and H for hundreds, T for tens and O for ones.

Step 2: Teacher to demonstrate on how to interpret numbers using place values. For example, **H**
T O

2 5 3

Where 3 represents three ones, 5 represents five tens and 2 represents two hundreds.

Steps 3: Teacher divides learners into three groups and assigns each group to interpret given numbers according to place values.

Step 4: Teacher to ask leaners to interpret the numbers using place values according to the explanation. E.g., three ones=3, five tens =50 and two hundred =200 individually.

Activity 5: Ordering numbers in ascending and descending order magnitude according to magnitude.

Step 1: Teacher assigns learners to arrange the given numbers in ascending and descending order. For example, 1,5,3,2,4 (1,2,3,4,5).

Step 2: Teacher to put learners in pairs to order given numbers ascending and descending order.

Activity 6: Counting in tens up to ten tens (100).

Step 1: Teacher to ask learners to bundle sticks in tens. Thereafter should start putting together bundles of tens as in one ten, two tens, three tens. Finally, learners should unbundle the sticks to count them correctly in order to come up with 1 whole number as in four tens is equal to forty.

Assessment

Assignment: Teacher gives learners an assignment to make ten (10) bundles of ten sticks, then should ask learners to count in tens using bundles of sticks.

Summary:

This topic focused on demonstrating an understanding of whole numbers by: Counting orally in intervals, counting using real objects in intervals, recognizing numbers in intervals, writing numbers up to 100 (including the meaning of zero), writing and reading numbers in intervals, interpreting numbers using ten as a unit, interpreting numbers using the Ten frame (bundles of ten) in intervals, interpret numbers using place values, ordering numbers in terms of magnitude, using number patterns in intervals (ascending and descending order and counting in tens up to ten tens).

1.4 TOPIC 4: HEALTH

Introduction: This topic will look at the aspect of practising personal hygiene, food hygiene, recognizing that clean water is essential for proper hydration and maintaining bodily functions to prevent the spread of waterborne diseases. It also demonstrates awareness of water and foodborne diseases.

GENERAL COMPETENCIES

- **Creativity and innovation**

Key Terms /Words/Vocabulary

Key terms:

- **Hygiene:** a set of practices performed to preserve health
- **Personal hygiene:** taking care of oneself and the environment
- **Food:** something eatable or drinkable
- **Waterborne:** diseases spread through dirty water
- **Foodborne diseases:** diseases spread through dirty food

Sub-topic 4.1: Hygiene

1.4.1.1 Specific competence

- Practice personal and food hygiene

Introduction: This sub-topic will look at personal hygiene and food hygiene.

Learning activity

- Practicing personal hygiene by; washing the face, hands and feet and brushing the teeth, cleaning nails, and combing hair.
- Practicing food hygiene by; washing hands, vegetables, fruits and covering it.

Activity 1: practicing personal hygiene: washing hands and the face

Step 1: Teacher to demonstrate on how to wash hands and face thoroughly with water and soap.

Step2: Teacher to asks two pupils, a boy and a girl to demonstrate after the teacher

Step 3: Teacher to put the learners in pairs and then asks them to wash their hands and faces thoroughly.

Step 4: Teacher to go through the whole process

Activity 2: Practicing food hygiene

Step 1: Teacher to ask learners the effects of eating dirty or uncovered food and pupils to give answers.

Step 2: Teacher and learners to discuss food hygiene.

Step 3: Teacher to ask learner to demonstrate the effect of not practising food hygiene through role play.

Step 4: Teacher to revise with the learners the basic practices of food hygiene such as washing hands before eating, washing vegetables and fruits as well as covering the food.

Sub-topic 4. 2: Eating habits

Introduction: This sub-topic will look at the dos and the don'ts of eating habits before, during and after.

1.4.2.1 Specific competence

- Recognizing the importance of observing table manners

Learning activity

Activity 1: Recognize the importance of eating habits before, during and after such as washing hands with clean water, touching food with one hand, no talking while eating, no talking with food in the mouth as well as collecting and washing plates after eating.

Step 1: Teacher to explain the meaning of eating habits

Step 2: Teacher to ask learners to mention good and bad eating habits before eating. E.g., washing hands with clean and running water before eating.

Step 3: Teacher to divide learners in groups and ask them to discuss good and bad eating habits during and after eating.

Step 4: Teacher to facilitate the group presentations and consolidate the discussions on the good and bad eating habits.

Assessment:

- **Role play:** Teacher to ask learners to demonstrate good and bad eating habits.

Sub-topic 4.3: Water and Foodborne Diseases

Introduction: this sub-topic focuses on demonstrating awareness of water and foodborne diseases.

1.4.3.1 Specific competencies

- Demonstrate awareness of Water and Foodborne diseases

Learning activities

• Demonstrating awareness of Water and Foodborne diseases such as Diarrhea, Cholera, and Dysentery

Procedure:

Activity 1: Demonstrating awareness of Water and Foodborne diseases

Step 1: Teacher to explain to the learners what is meant by water and foodborne diseases.

Step 2: teacher to ask learners to mention the water and foodborne diseases they know.

Step 3: teacher to tell how water and foodborne diseases can be prevented.

Step 4: teacher to consolidate on the best hygiene practices to prevent water and foodborne diseases.

Assessment:

Oral exercise: Teacher to ask learners to mention causes of waterborne and foodborne diseases and their prevention.

Summary

This topic looked at the aspect of practicing personal hygiene, food hygiene, recognizing that clean water is essential for proper hydration and maintaining bodily functions to prevent the spread of waterborne diseases. It also demonstrates awareness of water and foodborne diseases.

GRADE 1 TERM 2

MATHEMATICS AND SCIENCE TEACHING MODULE

TOPIC 5: ADDITION

Introduction: this topic will look at demonstrating understanding of addition of whole numbers. Adding single digit numbers up to 9 using addition as an increase, as putting together and as comparison. Adding numbers using composition and decomposition of numbers (number bonds), Adding single digit numbers with a sum up to 18 (with carrying using the concept of ten as a unit), Adding whole numbers with sums up to 100 without carrying, completing addition of number sentences, using addition to carry out activities involving money and other quantities.

GENERAL COMPETENCE(S)

- critical thinking
- problem solving
- financial literacy

Key Terms /Words/Vocabulary

- Addition: this is a fundamental operation that combines two or more numbers together to get a total or a sum.
- Digit: a digit is a single symbol or character used to represent a value in a numerical system e.g. 1,2,3,4,5.....
- Composition: this refers to the process of combining two or more functions, relations, or operation to form a new number e.g., 2 plus 3 equals 5.
- Decomposition: this is the breaking down of a complex problem, object, or system into smaller, or manageable parts or components.
- Number bond: this is a simple math concept that represents the relationship between three numbers, where two numbers are added together to equal a third number. For example, 2 plus 3 equals 5 (The bond number is 2,3 and 5)

Sub-Topic 5.1: Addition

Introduction: this sub-topic focuses on demonstrating an understanding of addition of whole numbers.

Specific competence

- Demonstrate understanding of addition of whole numbers.

Learning activities

Demonstrating understanding of addition of whole numbers by adding single digit numbers up to 9 using addition as an increase, as putting together and as comparison.

- Adding numbers using composition and decomposition of numbers (number bonds)
- Adding single digit numbers with a sum up to 18 (with carrying using the concept of ten as a unit)
- Adding whole numbers with sums up to 100 without carrying.
- Completing addition of number sentences.
- Using addition to carry out activities involving money and other quantities.

Activity 1: Demonstrating understanding of addition of whole numbers by adding single digit numbers up to 9 using addition as an increase, as putting together and as comparison

Step 1: Teacher asks learners to count from 1-9 individually

Step 2: learners to practically add numbers using counters e.g. 1 plus 1 equal to 2, 1 plus 2 is equal to 3 and 2 plus 2 is equal to 4 etc.

Activity 2: Adding numbers using composition and decomposition of numbers (number bonds)

Step 1: the teacher to ask learners to add more complex numbers. For example, 2 plus 2 is equal to 4, then 3 plus 4 is equal to 8, and 4 plus 5 is equal to 9.

Step 2: the teacher to demonstrate addition of numbers more than 2. For example, 3 plus 2 plus 1.

Step 3: teacher to ask learners to solve the problem (1 plus 4 plus 2)

Activity 3: Adding single digit numbers with a sum up to 18 (with carrying using the concept of ten as a unit)

step 1: teacher to explain to the learners the concept of recarrying. E.g., 9 plus 7 is equal to 16.

Note: the act of carrying over a number to the next place value when adding two numbers together, where the sum in the ones is greater than 9

step 2: the teacher to demonstrate on how to add numbers by recarrying

step 3: teacher asks individual learners to demonstrate addition of recarrying (6 plus 7, 9 plus 5.....).

step 4: teacher to put learners in pairs and assign them to solve the given problems by recarrying.

Activity 4: Adding whole numbers with sums up to 100 without carrying.

Step 1: teacher to explain to the learners the concept that does not involve recarrying. E.g. 43 plus 24 in vertical arrangement.

Step 2: the teacher to demonstrate on how to add numbers without recarrying

Step 3: teacher asks individual learners to demonstrate addition without recarrying (22 plus 23, 31 plus 15.....).

Step 4: teacher to put learners in pairs and assign them to solve the given problems without recarrying.

Activity 5: Completing addition of number sentences.

Step 1: teacher to demonstrate addition to complete the addition of number sentences.

Step 2: teacher to ask individual learners to complete a given a number sentence by adding the numbers correctly.

Step 3: teacher to put the learners into groups of fives and then assign them to work out given tasks in their respective groups.

Step 4: teacher to ask learners from each respective groups to the front to present and the teacher to consolidate

Activity 6: Using addition to carry out activities involving money and other quantities.

Step 1: teacher to assess the learners' knowledge about money through a question (what do we use to buy jiggies, sweets or biscuits?)

Step 2: teacher to display different notes and coins of money on the table for the learners to identify and relate the value of different denominations of money to their buying power. E.g., K2 can buy a packet of jiggies, whereas K1 can buy a sweet.

Step 3: teacher to ask learners to demonstrate addition involving money through a role play

Step 4: teacher to assign learners to individually add money using number sentences. For example; $K10 + K5 = K15$.

Assessment:

Teacher to use an audio-visual aid depicting the selling and buying of goods to assess the learners' awareness and knowledge of money and its value.

Summary: this topic looked at demonstrating understanding of addition of whole numbers, adding single digit numbers up to 9 using addition as an increase, as putting together and as comparison, adding numbers using composition and decomposition of numbers (number bonds), adding single digit numbers with a sum up to 18 (with carrying using the concept of ten as a unit), adding whole numbers with sums up to 100 without carrying. It also looked on the aspect of completing addition of number sentences, using addition to carry out activities involving money and other quantities

TOPIC 6: THE ENVIRONMENT

Introduction: this topic focuses on exploring natural resources, comparing features of the environment, demonstrating an awareness of risks associated with household chemicals, developing care for the environment, developing awareness of weather occurrence, demonstrating awareness effects of climate change.

General competences

- Critical Thinking
- Creativity and innovation
- Environmental sustainability

Key terms/words/vocabulary

Key terms

- Environment: the immediate surrounding or condition where people or animals live or operate. This may include; family, friends, natural resources and the built environment
- Weather: the condition of the day at a particular time and place
- Climate change: a long-term warming of the planet resulting in increase in average temperature caused by negative human activities.
- Chemicals: any substance that can cause harm to a human being if not properly used
- Features: these are characteristics or components that define the product or a system.

Sub topic 6. 1: Natural Resources

Introduction: this sub-topic looks at exploring natural resources such as rivers, lakes, plants, animals, ant-hills, mountains and soil.

Specific competencies:

1.6.1.1 Explore natural resources.

Learning activities:

- Exploring natural resources such as rivers, lakes, plants, animals, ant-hills, mountains and soil.

Step 1: the teacher to explain to the learners what natural resources are.

Step 2: teacher to take the learners outside to identify natural resources observed in the immediate environment.

Step 3: teacher to display visual/tactile teaching and learning aids for the learners to observe.

Step 4: teacher to ask learners to relate what was observed in the teaching and learning aids to what is found in their environment.

Sub-topic 6. 2: Natural and man-made environment

Introduction: this sub -topic focuses on comparing features of the environment. Natural environment refers to some resources that are not man-made such as trees, rivers, sources that are not man-made.

Specific Competencies

1.6.2.1 Compare features of the environment:

Learning Activity 1:

- Comparing features such as urban, suburban, rural, or natural environments.

Step 1: urban environment- teacher to explain to the learners what an urban environment is.

Characteristics of an urban environment

- Paved or tared roads

- Piped water
- Modern buildings
- Modern markets
- Motorized transport
- Electricity

Step 2: sub-urban: a semi-developed environment lying between urban and rural.

Characteristics of sub-urban

- Graded/ gravel roads
- Piped water
- Wells
- Modern/traditional buildings

Step 3: rural: areas far from major towns

Characteristics of rural environment

- Traditional buildings
- Well, stream and river source of water
- Ungraded roads
- Traditional modes of transport
- Traditional lighting systems

Step 4: natural environment: environment that has its natural habitant

Characteristics

- Forest
- Natural water bodies
- World animals
- No roads
- No buildings

Step 5: Teacher to divide learners into groups to discuss, compare and contrast urban, suburban, rural, and natural environments.

Sub-topic 6. 3: Household Chemicals

Introduction: household chemicals are chemicals found in a home. These may either be useful,

Specific competence: Demonstrate an awareness of risks associated with household chemicals.

Learning activity 1: Demonstrating an awareness of risks associated with chemicals such as household chemicals: cleaning detergents, insect killers, medicines, perfume, garden and farm chemicals: fertilizer, pesticides, insect killers.

Steps 1: teacher to explain what household chemicals are.

Step 2: teacher to display some household chemicals found in the home on the table for the learners to observe, name and tell their uses.

Step 3: teacher to consolidate the answers given by the learners

Sub-topic 6.4: Care for Environment

Introduction: this sub–topic will focus on equipping learners with skills, knowledge and attitude to develop the environment by picking litter and disposing off waste correctly.

Specific competence:

1.6.4.1 Develop care for the environment.

Learning activity 1:

- Developing care for the environment by picking litter, disposing of waste correctly

Step 1: teacher to explain to the learners what litter is.

Step 2: teacher and learners to identify litter in the environment

Step 3: teacher to explain to the learners on the different ways of disposing litter such as throwing in the bin or in the rubbish pit or burning so as to keep the environment clean.

Sub-topic 5: Weather and climate change

Introduction: this sub-topic focuses on developing an awareness of weather and climatic occurrences and the effects of climate change.

specific competencies:

1.6.5.1 Develop awareness of weather occurrence

- Demonstrate awareness effects of climate change.

Learning activity 1:

- Developing awareness of weather occurrence such as cold, hot and wet.

Step 1: teacher asks learners what causes coldness, hotness and wetness.

Step 2: teacher to explain to the learners the weather occurrences such as cold, hot and wet when they take place within the particular time of the day.

Step 3: teacher to demonstrate the importance of weather occurrences to learners.

Leaning activity 2: Demonstrating awareness of effects of climate change such as: heat waves; floods...

Step 1: teacher to explain the meaning of climate change. For example, when weather occurrences take place for a longer period, it becomes climate.

Step 2: teacher to explain to learners the causes of climate change such as; excessive cutting down of trees without replacing the planting, poor method of farming, burning fuels

Step 3: teacher and learners to discuss the effects of climate change such as; floods, drought, shortage of food and heat waves.

Step 4: teacher to guide the discussion and consolidate on the effects of climate change.

Assessment: teacher to ask learners to make a presentation on the importance of caring for the environment

Summary: This topic focused on exploring natural resources, comparing features of the environment, demonstrating an awareness of risks associated with household chemicals,

developing care for the environment, developing awareness of weather occurrences, demonstrating awareness of the effects of climate change. This topic will help the learners to acquire knowledge and skills to develop critical thinking, creativity and innovation as well as environmental sustainability.

TOPIC 7: SUBTRACTION

Introduction: This topic will focus on demonstrating understanding of subtraction of whole numbers by: subtracting single digit whole numbers in intervals of 1 to 6, 1 to 9 using concrete and semi concrete objects and transit to abstract by using the subtraction symbol (take away, finding the difference, finding missing parts or finding less), carrying out activities involving zero to show that: “when zero is subtracted from a number the result is that number, when a number is subtracted from itself the result is zero”. Subtracting double digit numbers up to 18 using the unit of 10. Subtracting whole numbers in 10s up to 100, relating subtraction to addition such as $6 - 2 = 4$ or $4 + 2 = 6$, Completing subtraction of number sentences and using subtraction to carry out shopping activities involving money.

GENERAL COMPETENCE(S)

- critical thinking
- problem solving
- financial literacy

Key Terms /Words/Vocabulary

- **Subtraction:** taking away
- **Interval:** the space of time between two numbers
- **Digit:** a digit is a single symbol or character used to represent a value in a numerical system e.g. 1,2,3,4,5.....
- **Number:** How many of something in a set.

- **Whole number:** numbers starting from zero. E.g., 0,1,2,3,4,5.....
- **Concrete object:** objects that are felt and seen
- **Abstract:** something that cannot be felt and be seen

Sub-topic: Subtraction

Introduction: this sub-topic will focus on demonstrating an understanding of subtraction of whole numbers.

Specific competence:

Demonstrate an understanding of subtraction of whole numbers.

Learning activities

Demonstrating understanding of subtraction of whole numbers by:

- Subtracting single digit whole numbers in intervals of 1 to 6, 1 to 9 using concrete and semi concrete objects and transit to abstract by using the subtraction symbol (take away, finding the difference, finding missing parts or finding less)
- Carrying out activities involving zero to show that:
 - i. when zero is subtracted from a number the result is that number
 - ii. When a number is subtracted from itself the result is zero
- Subtracting double digit numbers up to 18 using the unit of 10.
- Subtracting whole numbers in 10s up to 100.
- Subtracting whole numbers up to 100.
- Relating subtraction to addition such as

$6 - 2 = 4$ or $4 + 2 = 6$

- Completing subtraction of number sentences.
- Using subtraction to carry out shopping activities involving money.

Sub-topic 7. 1: Subtraction

Introduction: This sub-topic focuses on demonstrating understanding of subtraction of whole numbers.

Specific competence

1.7.1.1 Demonstrate understanding of subtraction of whole numbers

Procedure:

Activity 1: Demonstrating understanding of subtraction of whole numbers by:

- Subtracting single digit whole numbers in intervals of 1 to 6, 1 to 9 using concrete and semi concrete objects and transit to abstract by using the subtraction symbol (take away, finding the difference, finding missing parts or finding less)

Assessment

summary