REPUBLIC OF KENYA

LOWER PRIMARY LEVEL DESIGNS

LEARNING AREA:

MATHEMATICS ACTIVITIES FOR LEARNERS WITH VISUAL IMPAIRMENT

KENYA INSTITUTE OF CURRICULUM DEVELOPMENT

First Published in 2017

ISBN: ISBN: 978-9966-31-725-4

Published and printed by Kenya Institute of Curriculum Development

Foreword

The Basic Education Curriculum Framework (BECF) outlines the vision and mission for the curriculum reforms. The Vision of the curriculum reforms is to develop "An engaged, an empowered and ethical citizen "while the mission is to "To nurture the potential of every learner".

The framework adopts a Competency Based Curriculum and has identified seven core competences, namely; communication and collaboration, critical thinking and problem solving, creativity and imagination, citizenship, digital literacy, learning to learn, and self-efficacy. It provides a variety of opportunities for identification and nurturing of learner's potentials and talents in preparation for life and the world of work. It is geared towards making learning enjoyable.

The curriculum designs are developed to enable implementation of the Basic Education Curriculum Framework. The design contain the National Goals of Education and outline the Early Years Education (EYE), subject general and specific learning outcomes. It also suggests a variety of learning experiences, assessment and links the topics to values, Pertinent and Contemporary Issues (PCI) and to other activity areas.

It is my hope that all educators in Early Years Education level will anchor their delivery to these Curriculum Designs.

FRED MATIANG'I, PhD, EGH
CABINET SECRETARY
MINISTRY OF EDUCATION

TABLE OF CONTENTS

Introduction

The Lower Primary designs are meant for learners in Grade 1 to 3. They have taken cognizance of the various aspects of development of learners of that age cohort. The designs are comprehensive enough to guide the teachers to effectively deliver the curriculum.

The teacher must understand the learning outcomes and be able to use the suggested learning experiences to achieve the outcomes. The teacher can also design own learning experiences as long as they achieve the designed learning outcomes. A variety of learning experiences will ensure that learners are engaged in the learning experience. Practical experiences will allow learners to retain more in the learning process. The designs allow the teachers to use a variety of assessment methods but in the end they must evaluate the achievement of the learning outcomes.

The curriculum designs are very critical and teachers must make reference to them consistently.

The Curriculum Designs for Lower Primary are in four volumes:

Volume One

- Kiswahili Activities
- Literacy
- English Activities

Volume Two

- Mathematics Activities
- Environmental Activities
- Hygiene and Nutrition Activities

Volume Three

- Christian Religious Education
- Hindu Religious Education
- Islamic Religious Education

Volume Four

- Movement and Creative Activities

Learning Areas Time Allocation

	Learning Area	**Lessons Per Week**
1	Literacy Activities	5
2	Kiswahili Language Activities/Kenya Sign Language	3
3	English Language Activities	3
4	Mathematical Activities	5
5	Environmental Activities	5
6	Hygiene and Nutrition Activities	2
7	Religious Activities	3
8	Movement and Creative Activities	8(*** 5 for PE)
9	Pastoral Programme of Instruction	1
	Total Lesson Per Week	**35**

National Goals of Education

1. **Foster nationalism, patriotism, and promote national unity**

Kenya's people belong to different communities, races and religions and should be able to live and interact as one people. Education should enable the learner acquire a sense of nationhood and patriotism. It should also promote peace and mutual respect for harmonious co-existence.

2. **Promote social, economic, technological and industrial needs for national development**

Education should prepare the learner to play an effective and productive role in the nation.

a) **Social Needs**

Education should instill social and adaptive skills in the learner for effective participation in community and national development.

b) **Economic Needs**

Education should prepare a learner with requisite competences that support a modern and independent growing economy. This should translate into high standards of living for every individual.

c) **Technological and Industrial Needs**

Education should provide the learner with necessary competences for technological and industrial development in tandem with changing global trends.

3. **Promote individual development and self-fulfillment**

Education should provide opportunities for the learner to develop to the fullest potential. This includes development of one's interests, talents and character for positive contribution to the society.

4 **Promote sound moral and religious values**

Education should promote acquisition of national values as enshrined in the Constitution. It should be geared towards developing a self-disciplined and ethical citizen with sound moral and religious values.

5. **Promote social equity and responsibility**

Education should promote social equity and responsibility. It should provide inclusive and equitable access to quality and differentiated education; including learners with special educational needs and disabilities. Education should also provide the learner with opportunities for shared responsibility and accountability through service learning.

6. **Promote respect for and development of Kenya's rich and varied cultures**

Education should instill in the learner appreciation of Kenya's rich and diverse cultural heritage. The learner should value own and respect other people's culture as well as embrace positive cultural practices in a dynamic society.

7. **Promote international consciousness and foster positive attitudes towards other nations**

Kenya is part of the interdependent network of diverse peoples and nations. Education should therefore enable the learner to respect, appreciate and participate in the opportunities within the international community. Education should also facilitate the learner to operate within the international community with full knowledge of the obligations, responsibilities, rights and benefits that this membership entails.

8. **Good health and environmental protection**

Education should inculcate in the learner the value of physical and psychological well-being for self and others. It should promote environmental preservation and conservation, including animal welfare for sustainable development.

General Learning Outcomes for Early Years Education

By the end of early years' education, the learner should be able to:

1. Demonstrate basic literacy and numeracy skills for learning.
2. Communicate appropriately using verbal and/or non-verbal modes in a variety of contexts.
3. Demonstrate appropriate etiquette in social relationships.
4. Apply creativity and critical thinking skills in problem solving.
5. Explore the immediate environment for learning and enjoyment.
6. Practice hygiene, nutrition, sanitation, safety skills to promote health and wellbeing.
7. Demonstrate the acquisition of emotional, physical, spiritual, aesthetic and moral development for balanced living.
8. Demonstrate appreciation of the country's rich and diverse cultural heritage for harmonious co-existence.
9. Apply digital literacy skills for learning and enjoyment.

MATHEMATICS ACTIVITIES

Essence Statement

Numeracy is a foundational skill that prepares the learner for number work, Mathematics in higher levels of schooling and mathematical approaches in all aspects of life. Numeracy activities involve identification and value placement of mathematical numerals, basic mathematical operations as well as measuring and describing shapes.

General Learning Outcomes

By the end of Early Years Education, the learner should be able to:

a) demonstrate mastery of number concepts by working out problems in day to day life,
b) apply measurement skills to find solutions to problems in a variety of contexts,
c) describe properties of geometrical shapes and spatial relationships in real life experiences.

GRADE 1

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question(s)
1.0 Numbers	1.1 Number Concept (20 lessons)	By the end of the sub-strand, the learner should be able to: a) sort and group objects according to different attributes within the classroom; b) pair and match objects in the environment; c) order and sequence objects in ascending and descending order, d) make patterns using real objects; e) recite number names in order up to 50, f) represent numbers 1-30 using concrete objects; g) demonstrate through counting that a group in all situations has only one count; h) appreciate the use of sorting and grouping items in day to day activities.	• Learners could be guided to go outside the classroom and collect different objects. Learners with blindness could be given orientation of the environment and paired with sighted guides. • Learners in pairs or groups could be to sort objects with same attribute and group them together. • Learners could be guided to play digital games involving sorting and grouping according to different attributes. Learners with blindness could be given devices with voice output. • In pairs or groups, learners could be guided to pair and match the objects to establish "equal to", "more than" and "less than." • Learners could be guided to order objects according to size from smallest to biggest and vice versa. Learners with blindness could be given physical guidance. • Learners could be guided to make patterns using real	1. How can we find out which group has more objects than another? 2. How can we group items?

			objects. • Learners could be guided to recite number names up to 50. • Learners could be guided to represent numbers 1-30 by hands on experience using concrete objects as well as their body parts. • Learners could be guided to show that any given group has only one count. • Learner in pairs or groups could be guided to collect and talk about litter in the environment and put it in various groups according to an attribute of their choice and give reasons for the grouping. • Learners in pairs or groups could be guided to assist in arranging, edible items like fruits, cabbages according to size and colour in the school store. Learners with blindness could be given physical guidance accompanied with verbal instructions. • Learners could be guided to visit a market to observe the sorting and grouping of fruits and vegetables. Learners with blindness could be given	

			orientation of the market and allowed to touch the groups of fruits and vegetables.	

Core Competences to be developed:
Learning to learn as learners are exposed to digital games.
Communication and collaboration as learners pair or group to collect and talk about the litter.
Critical thinking and problem solving as learners collect litter according to an attribute of their choice.

Link to PCI's: **Life skills:** self-awareness and self-esteem when using body parts in counting. **ESD: DRR:** Safety when collecting items and litter in the environment, environmental awareness; don't litter the environment.	**Link to Values:** • responsibility • unity
Link to other learning areas: • Environmental activities • Religious activities • Language activities	**Suggested Community Service Learning Activities:** Learners to assist in collecting and sorting litter in their locality and observe how it is disposed.
Suggested non-formal activity to support learning: Learners to count trees in the school compound.	**Suggested assessment:** Oral questions, written exercise, observation.

Suggested Resources:
Manila paper, pair of scissors, biscuits, circular or rectangular cut outs, marbles, bottle tops, sticks, grains, stones, large print exercise books, pencils, Braille papers, slate, stylus, types and type boards, cubes, cuberithms, rubber, Braille cards, flash cards, counting frames, tens frames, pegs, peg boards, blocks

Assessment Rubrics

Exceeds expectations	Meets expectations	Approaches expectations	Below expectations
Correctly: sorts and groups, pairs and matches, orders and sequences, recites numbers 1-50, represents numbers 1-30 using concrete objects and beyond.	Correctly: sorts and groups, pairs and matches, orders and sequences, recites numbers 1-50, represents numbers 1-30 using concrete objects.	Inconsistently: sorts and groups, pairs and matches, orders and sequences, recites numbers 1-50, represents numbers 1-30 using concrete objects.	Major inaccuracies in: sorting and grouping, pairing and matching, ordering and sequencing, recites numbers 1-50, representing numbers 1-30 using concrete objects.

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question(s)
Numbers	1.2 Whole Numbers (25 lessons)	By the end of the sub-strand, the learner should be able to: a) count numbers forward and backward up to 100; b) represent numbers 1-50 using concrete objects; c) identify place value of ones and tens; d) read and write numbers 1-50 in symbols; e) write numbers 1-10 in words; f) identify missing numbers in number patterns up to 20; g) appreciate number patterns by creating and	• Learners in pairs or groups could be guided to count by 1's and 2's up to 20 starting from any point using concrete objects as well as body parts, learners with blindness could be given physical guidance accompanied with verbal descriptions. • Learners could be guided to take turns in counting by: -5's up to 50 starting from zero -10's up to 100 starting from zero. • Learners in pairs or groups could be guided to count by1's and 2's using a number line. Learners with blindness	1. How many ways can we count from 1-20?

		extending patterns during play activities.	could be given a Braille card with numbers. • Learners in pairs or groups could be guided to play games that involve representing numbers 1-50 using concrete objects. • Learners could be guided to collect more than 10 objects and then lay them in two groups of ones and tens and then guided to identify place value. • Learners in pairs could be guided to recite and write numbers 1-50 in symbols. • Learners could be guided to practice writing numbers 1-10 in words. • Learners could be guided to identify missing numbers in number patterns up to 20. Learners with blindness could be provided with the patterns in Braille. • Learners in pairs could be guided to create patterns with numbers up to 20 and share with other groups. • Learners to play digital games involving whole numbers. Learners with visual impairment could be provided with digital devices with screen readers and appropriate contrast and font. • Learners to role play a cashier in day to day life activities such as a cashier	

			counting 5 shilling coins. Learners could be guided to identify the key features of money denominations. Learners with blindness could be guided to identify currencies by texture, shape and size.	

Core Competences to be developed:
Learning to learn as learners pair, group and take turns in counting.
Communication and collaboration as learners group and play games involving representing numbers.
Critical thinking and problem solving as learners role play cashier in day to day life activities.

Link to PCI's: **Life skills:** self-awareness and self-esteem- when using body parts in counting. **ESD: DRR:** safety -when collecting items and litter in the environment, environmental awareness- don't litter the environment.	**Link to values:** • responsibility • unity
Link to other learning areas: • Environmental activities • Religious activities • Language activities	**Suggested Community Service Learning Activities:** learners to assist in putting objects in groups of 2's, 5's and 10's together in community activities.
Suggested non-formal activity to support learning: Learners to count different types of flowers in the school compound. Learners could be given orientation.	**Suggested assessment:** Oral questions, written exercises, observation.

Suggested Resources:
Sticks, marbles, stones, counting blocks, grains, tape, ropes, making pens/pencils, special needs digital devices (SNLD)

Assessment Rubrics

Exceeds expectations	Meets expectations	Approaches expectations	Below expectations
Correctly: counts up to100, represents numbers 1-50 using concrete objects identifies place value of ones and tens, reads, writes numbers in symbols and words, works out missing numbers in number patterns and beyond.	Correctly: counts up to 100, represents numbers 1-50 using concrete objects, identifies place value of ones and tens, reads, writes numbers in symbols and words, works out missing numbers in number patterns.	Inconsistently: counts up to 100, represents numbers 1-50 using concrete objects, identifies place value of ones and tens, reads, writes numbers in symbols and words, works out missing numbers in number patterns.	Major inaccuracies in: counting up to 100, representing numbers 1-50 using concrete objects, identifying place value of ones and tens, reading and writing numbers in symbols and words, working out missing numbers in number patterns.

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question(s)
Numbers	1.3 Addition (25 lessons)	By the end of the sub-strand, the learner should be able to: a) model addition as putting objects together; b) use ' +' and ' =' in writing addition sentences; c) add 2- single digit numbers up to a sum of 10; d) add 3- single digit numbers up to a sum of 10 in different contexts; e) add a 2- digit number to a 1- digit number without	• Learners could be guided to go out and collect safe objects to use in the activities of putting together in pairs or groups to put two groups of objects together and count to get the total. • Learners could be guided to use ' + ' and ' = ' signs in writing addition sentences. Learners with blindness could be guided to write the signs in Braille. • Learners could be guided to add 2- single digit-numbers by skipping on a number line. Learners with blindness could be	1. How can you add a 2 digit number to a 1 digit number?

		regrouping, horizontally and vertically with a sum not exceeding 100; f) add multiples of 10 up to 100 vertically; g) work out missing numbers in patterns involving addition of whole numbers up to 100.	guided to skip on an embossed number line on the ground. • Learners could be guided to add 2- single digit numbers using the family of 10. • Learners could be guided to add 2- single digit number by counting on. • Learners could be guided to add 3- single digit numbers using a number line. Learners with blindness could be provided with the numbers on a Braille chart. • Learners could be guided to add 3- single digit numbers by counting on. • Learners could be guided to add 3- single digit numbers using the family of 10. • Learners could be guided to add a 2- digit number to a 1- digit number without regrouping horizontally and vertically with sum not exceeding 100. • Learners could be guided to add multiples of 10 up to a 100 vertically. • Learners could be guided to play digital games involving addition. Learners with blindness could be guided to use digital devices with speech and/or appropriate	

			screen font and contrast. • Learners could be guided to make patterns involving addition with numbers up to 100.	

Core competences to be developed:
Communication and collaboration as learners make patterns and compare in class.
Critical thinking and problem solving as learners involve in putting together in pairs, put two groups of objects together.
Digital literacy as learners involve in playing digital games.

Link to PCI's: **ESD: DRR;** safety- when handling objects.	**Link to values:** • responsibility • unity • integrity
Link to other learning areas: • Environmental activities • Language activities	**Suggested Community Service Learning Activities:** Learners to work out totals of items at home.
Suggested non-formal Activity to support learning: Learners to plant flowers in patterns at school during their free time and count them. Learners with blindness could be given orientation of the school compound.	**Suggested assessment:** oral questions, written exercise, observation.

Suggested Resources;

Plane value charts, Braille charts, Abacus, basic addition facts (large print and Braille, sticks and grains)

Assessment Rubrics

Exceeds Expectations	Meets Expectations	Approaching Expectations	Below Expectations
Correctly: models addition, uses '+' and '=' signs, adds more than 2- digit numbers to 1- digit numbers using different strategies, add 3- single digit numbers up to a sum of 10, adds multiples of 10 up to 100, works out missing numbers in patterns beyond 100.	Correctly: models addition, uses '+' and ' = 'signs, adds up to 2- digit numbers to 1- digit numbers using different strategies, add 3- single digit numbers up to a sum of 10, adds multiples of 10 up to 100, works out missing numbers in patterns up to 100.	Inconsistently: models addition, uses' +' and' = ' signs, adds up to 2- digit numbers to 1- digit numbers using different strategies, add 3- single digit numbers up to a sum of 10, adds multiples of 10 up to 100, works out missing numbers in patterns up to 100.	Major inaccuracies in: modeling addition; using '+' and ' = ' signs, adding up to 2- digit numbers to 1- digit numbers using different strategies, adding 3- single digit numbers up to a sum of 10, adding multiples of 10 up to 100, working out missing numbers in patterns up to 100.

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question(s)
Numbers	1.4 Subtraction (20 lessons)	By the end of the sub-strand, the learner should be able to: a) model subtraction as 'taking away' using concrete object; b) use the ' -' and '= 'sign in writing subtraction sentences; c) subtract single digit numbers; d) subtract a 1- digit number from a 2- digit number based on basic addition facts;	• Learners in pairs or groups could be guided to model subtraction using concrete objects. • Learners could be guided to use ' - ' and '=' signs in writing subtraction sentences in Braille and large print. • Learners in pairs or groups could be guided to subtract by counting backwards. • Learners in pairs or groups could be guided to subtract using the number line. Learners with blindness could be guided to	1. How do you subtract a single digit number from a 2-digit number?

		e) use the relationship between addition and subtraction involving basic addition facts to work out problems; f) subtract multiples of 10 up to 90; g) work out missing numbers in patterns involving subtraction of whole numbers up to 100.	count backwards on Braille cards. • Learners could be guided to solve routine and non- routine problems involving subtraction of a 1-digit number from a 2-digit number based on basic addition facts. • Learners could be guided to create subtraction sentences related to basic addition facts. • Learners to use tablets to workout subtraction of multiples of 10 up to 90. Learners who are Visually Impaired could be guided to use digital devices with speech and/ or appropriate screen font size and contrasts • Learners in pairs or groups could be guided to create patterns involving subtraction.	
Core Competences to be developed: Communication and collaboration as learners in pairs or groups subtract by counting backwards. Critical thinking and problem solving as learners use tablets to work out and create patterns involving subtractions. Creativity and imagination as learners create subtraction sentences related to basic addition facts.				
Link to PCI's: **ESD: DRR;** safety- as learners handle objects.			**Link to Values:** • responsibility • unity	
Link to other learning areas: • Environmental Activities			**Suggested Community Service Learning Activities:** Learners to collect litter from the environment.	

• Language Activities	
Suggested non- formal activity to support learning: Learners to plant trees in patterns in the school compound during their free time. Learners with blindness could be given orientation of the school compound.	**Suggested Assessment:** Written exercise, observation, oral questions.
Suggested Resources: Marbles, sticks, Special Needs Learning Devices (SNLD), Stones, Chairs, crops, tape, Braille cards, flash cards, embossed number lines	

Assessment Rubrics

Exceeds Expectations	**Meets Expectations**	**Approaching Expectations**	**Below Expectations**
Correctly: models subtraction as taking away, uses '-' and ' =' signs to write subtraction sentences, subtracts single digit numbers, subtracts 1- digit numbers from 2- digit numbers based on basic addition facts, relates addition and subtraction in working out problems involving basic addition facts, subtracts multiples of 10 from more than 90 and works out missing numbers in patterns up to 100 and beyond.	Correctly: models subtraction as taking away, uses '-' and ' =' signs to write subtraction sentences, subtracts single digit numbers, subtracts 1- digit numbers from 2-digit numbers based on basic addition facts, relates addition and subtraction in working out problems involving basic addition facts, subtracts multiples of 10 from up to 90 and works out missing numbers in patterns up to 100.	Inconsistently: models subtraction as taking away, uses, uses '-' and ' =' signs to write subtraction sentences, subtracts single digit numbers, subtracts 1- digit numbers from 2- digit numbers based on basic addition facts, relates addition and subtraction in working out problems involving basic addition facts, subtracts multiples of 10 from up to 90 and works out missing numbers in patterns up to 100.	Inaccuracy in: modeling subtraction as taking away, using '-' and' ='signs to write subtraction sentences; subtracting single digit numbers, subtracting 1-digit numbers from 2- digit numbers based on basic addition facts, relating addition and subtraction in working out problems involving basic addition facts, subtracting multiples of 10 from up to 90 and working out missing numbers in patterns up to 100.

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question(s)
2.0 Measurement	2.1Length (10 lessons)	By the end of the sub-strand the learner should be able to: a) compare length of objects directly; b) conserve length through manipulation; c) measure length using arbitrary units.	• Learners could be guided to collect safe objects to be used in direct comparison of length e.g books, pencils, sticks. Learners with blindness could be given physical guidance accompanied by verbal instructions. • Learners in pairs or groups could be guided to compare objects directly to identify objects which are longer than, shorter than or same as. • Learners could be guided to place objects of equal length in different orientations and describe them using words such as longer than, shorter than and same as. • Learners in pairs or groups could be guided to measure lengths using different objects as arbitrary units and discuss the measurements from the various groups.	1. How do you compare the length of two objects? 2. Which objects can be used to measure the length of the teacher's table?
Core competencies to be developed: Communication and collaboration as learners compare directly to identify objects which are longer than, shorter than or same as. Imagination and creativity as learners collect safe objects to be used in direct comparison of length. Critical thinking and problem solving as learners measure lengths using different objects as arbitrary units.				

Link to PCI's: ESD: DRR**;** safety- as learners in handle objects.	**Link to values:** • responsibility • Integrity • unity
Link to other learning areas: • Environmental Activities • Language activities	**Suggested Community Service Learning Activities:** Learners to plant trees or flowers using a stick to determine the distance between seedlings in religious institutions and dispensaries.
Suggested non-formal Activity to support learning: Learners to plant flowers in school spacing them equally.	**Suggested assessment:** Written exercises, observation, oral questions.
Suggested Resources: Books, pencils, sticks, ropes, SNLD	

Assessment Rubrics

Exceeds Expectations	**Meets Expectations**	**Approaches Expectations**	**Below Expectations**
Correctly: compares length directly, conserves length and measures length using arbitrary units and beyond.	Correctly: compares length directly, conserves length and measures length using arbitrary units.	Inconsistently: compares length directly, conserves length and measures length using arbitrary units.	Major inaccuracies in: comparing length directly, conserving length and measuring length using arbitrary units.

Strand	**Sub-Strand**	**Specific Learning Outcomes**	**Suggested learning experiences**	**Key Inquiry Question(s)**
Measurements	2.2Mass (10 lessons)	By the end of the sub-strand, the learner should be able to: a) compare mass of objects directly; b) conserve mass through manipulation; c) measure mass using	• Learners could be guided to collect appropriate size of safe materials to use in the activities of mass and be oriented to the beam balance. Learners with blindness could be given	1. How can you compare the mass of two or more objects? 2. What would you do to show that shape does not change

		arbitrary units.	orientation to the beam balance, physical guidance accompanied by verbal instructions. • Learners in pairs or groups could be guided to use safe objects to identify those heavier than, lighter than or same. • Learners could be guided to use two objects of equal mass and a beam balance to demonstrate that change of shape does not change the mass of an object. • Learners in pairs or groups could be guided to use an identified mass to compare the mass of other objects using the words heavier than, lighter than or same as.	mass? 3. How can you show that an object is heavier than, lighter than or same as your mathematics textbook?
Core Competencies to be developed: Communication and collaboration as learners in group work as they identify heavy and heavier. Critical thinking and problem solving as learners use beam balance and objects of different shapes for mass.				
Link to PCI's: • **ESD: DRR;** safety - in handling materials, animal welfare - feeding animals. • **Health education:** personal hygiene -appropriate size of materials. • **Citizenship:** honesty.			**Link to Values:** • responsibility • integrity • unity • respect	
Links to other learning areas:			**Suggested Community Service Learning Activities:**	

• Environmental activities • Language activities • Music and movement and activities	Learners to assist neighbours in feeding animals by measuring quantities.
Suggested non-formal Activity to support learning: Learners to compare mass of objects in the classroom.	**Suggested assessment:** Written exercises, oral questions, observation.
Suggested Resources: Beam balance, Plastic bottles, stones, pencils, books, rubber, slate, stylus.	

Assessment Rubrics

Exceeds Expectations	**Meets Expectations**	**Approaches Expectations**	**Below Expectations**
Correctly: compares mass directly using the words heavier than, lighter than, and same as, conserves mass through manipulation, measures mass using arbitrary units and beyond.	Correctly: compares mass using the words heavier than, lighter than and same as, conserves mass through manipulation, measures mass using arbitrary units.	Inconsistently: compares mass using the words heavier than, lighter than and same as, conserves mass through manipulation, measures mass using arbitrary units.	Major inconsistencies in: comparing mass using the words heavier than, lighter than and same as. Conserving mass through manipulation and measuring mass using arbitrary units.
Suggested Resources; beam balance, plastic bottles, stones, pencils, books, rubber, slate , stylus			

Strand	**Sub-Strand**	**Specific Learning Outcomes**	**Suggested Learning Experiences**	**Key Inquiry Question(s)**
Measurement	2.3Capacity (12 lessons)	By the end of the sub-strand, the learner should be able to: a) compare capacity of containers directly; b) conserve capacity	• Learners could be guided to collect safe containers to be used in direct comparison of capacity. • Learners could be guided to empty and fill water in different containers to establish which holds more, which holds less and which holds the same. • Learners could be guided to identify	1. How can we find out which of two containers hold more, less or same as?

		through manipulation; c) measure capacity using arbitrary units.	and compare containers which holds more, less or same as. • Learners could be guided to fill containers of different shapes and sizes with water then empty into others so as to establish that some containers can hold the same amount although their shapes are different. • Learners could be given water, same size basins and different small containers. The learners could be guided to count the number of small containers they use to fill the basin.	
Core Competencies to be developed: Critical thinking and problem solving as learners empty and fill containers for direct comparison. Communication and collaboration as they empty or fill containers to establish which hold more in pairs or groups. Imagination and creativity as they randomly collect safe containers to be used in direct comparison.				
Link to PCI's: **ESD: DRR;** Safety in handling materials, Health education – appropriate size of materials and, environmental conservation as learners re- use containers they used in measuring capacity; animal welfare – watering animals. **Citizenship**: honesty. **Health education**: safety- as learners collect safe and appropriate containers. **Life skills:** self-awareness- as learners work in groups.			**Link to values:** • responsibility • integrity • unity • respect	
Link to other learning areas: • Environmental Activities • Language Activities			**Suggested Community Service Learning Activities:** Learners to water trees and flowers around religious institutions, health centres and at home.	
Suggested non-formal activity to support learning: Learners to water school or class flowers.			**Suggested assessment:** Written exercises, observation, and oral questions.	

Suggested Resources;
Water, bottles, bucket, bowls, cups, jerricans and different liquids

Assessment Rubrics

Exceeds Expectations	**Meets Expectations**	**Approaches Expectations**	**Below Expectations**
Correctly: compares capacity of different containers using the terms holds more, less or same as, conserves capacity using containers of different shapes and sizes, measures capacity using arbitrary units and beyond.	Correctly: compares capacity of different containers using the terms holds more, less or same as, conserves capacity using containers of different shapes and sizes, measures capacity using arbitrary units.	Inconsistently: compares capacity of different containers using the terms holds more, less or same as, conserves capacity using containers of different shapes and sizes, measures capacity using arbitrary units.	Have major inaccuracies in: comparing capacity of different containers using the terms holds more, less or same as, conserving capacity using containers of different shapes and sizes, measuring capacity using arbitrary units.

Strand	**Sub-Strand**	**Specific Learning Outcomes**	**Suggested Learning Experiences**	**Key Inquiry Question(s)**
Measurement	2.4 Time (8 lessons)	By the end of the sub-strand, the learner should be able to: a) relate daily activities to time; b) relate days of the week with various activities.	• Learners in pairs or groups could be guided to identify activities they do in the morning, afternoon and evening both at home and school. • Learners could be guided to sing songs or rhymes related to days of the week. • Learners in pairs or groups could be guided to identify activities that take place during the days of the week.	1. Which day of the week do you raise the school flag? 2. Which day of the week do you worship?
Core competence to be developed: Communication and collaboration as learners identify activities done in different times at home and school.				

Citizenship as learners identify activities that take place during the days of the week.	
Link to PCI's: **Citizenship**: patriotism – the Kenyan flag. **Health Education**: time to brush teeth, wash face, sleep, take meals time to plant, harvest, among other activities.	**Link to values:** • respect • responsibility • patriotism
Link to other learning areas: • Environmental Activities • Language Activities	**Suggested Community Service Learning Activities:** Learners to visit or help the needy during school holidays.
Suggested non-formal activity to support learning : Learners write school daily activities and recite during assembly.	**Suggested assessment**: Oral questions**,** written exercises, observation.
Suggested Resources; Calendar in Braille and large print, timetable in Braille large print	

Assessment Rubrics

Exceeds Expectations	**Meets Expectations**	**Approaches Expectations**	**Below Expectations**
Correctly: relates daily activities to time, relates days of the week with various activities, recites days of the week and demonstrates more aspects of time.	Correctly: relates daily activities to time, relates days of the week with various activities, and recites days of the week.	Inconsistently: relates daily activities to time, relates days of the week with various activities, and recites days of the week.	Major inconsistencies in: relating daily activities to time, relating days of the week with various activities, reciting days of the week.

Strand	**Sub-Strand**	**Specific Learning Outcomes**	**Suggested Learning Experiences**	**Key Inquiry Question(s)**
Measurement	2.5Money (8 lessons)	By the end of the sub-strand, the learner should be able to: a) identify Kenyan currency coins and notes up to sh.100;	• Learners in pairs or groups could be guided to sort out different Kenyan currency coins and notes according to their value up to sh.100. Learners with blindness could be given different currencies to feel the	1. How can you identify Kenya currency coins and

		b) relate money to goods and services up to sh.100 in shopping activities; c) differentiate between needs and wants in real life context; d) appreciate spending and saving in real life situations.	difference in size shape and texture. • Learners could be guided to put together coins and notes up to sh.100 according to their value and features. • Learners in pairs or groups could be guided to give their own experiences in relation to shopping activities. • Learners could be guided to discuss the value of items in the classroom shop up to sh.100. • Learners in pairs or groups could be guided to discuss items they cannot do without and those that are necessary but they can do without. • Learners in pairs or groups could be guided to talk about needs and wants. • Learners to play digital games involving needs and wants. Learners with Visually Impaired could be given devices with speech output and screen with appropriate contrast and font size. • Learners could be guided to give their own experiences on saving and spending of money. • Learners could be guided to role play buying and selling from the classroom shop.	notes?
Core competence to be developed: Communication and collaboration as learners sort different Kenyan currencies. Self-efficacy as learners take active parts in role play				

<table>
<tr><td colspan="2">Citizenship as learners role play buying and selling from a shop.
Digital literacy as learners are exposed to digital games, devices with speech output and screen readers.</td></tr>
<tr><td>Link to PCI's:
ESD: DRR; Safety- as learners handle money.
Citizenship: patriotism- features on Kenya currency.</td><td>Link to values:
• integrity
• responsibility
• honesty</td></tr>
<tr><td>Link to other learning areas:
• Language activities
• Religious activities
• Environmental activities</td><td>Suggested Community Service Learning Activities:
Learners to sort money in places of worship and other functions</td></tr>
<tr><td>Suggested non-formal Activity to support learning:

Learners to help sort money into various denominations with school cashier or in a school function.</td><td>Suggested assessment:
Written exercises, oral questions, observation.</td></tr>
<tr><td colspan="2">Suggested Resources:
Play money on Braille cards, paper, real money in 50/- note, 1, 5, 10, 20, 40 shillings coin, classroom shop</td></tr>
</table>

Assessment Rubrics

Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Correctly: identifies Kenyan currency coins and notes up to sh.100, relates money to goods and services and differentiates between needs and wants, and beyond.	Correctly: identifies Kenyan currency coins and notes up to sh100, relates money to goods and services and differentiates between needs and wants.	Inconsistently: identifies Kenyan currency coins and notes up to sh100, relates money to goods and services and differentiates between needs and wants.	Major inconsistencies in: identifying Kenyan currency coins and notes up to sh100, relating money to goods and services and differentiating between needs and wants.

Strand	Sub-strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question(s)
3.0 Geometry	3.1 Lines (6 lessons)	By the end of the sub-strand, the learner should be able to: a) identify draw straight lines for application in real life; b) identify curved lines for application in real life situations.	• Learners could be guided to stand behind one another facing the same side and identify what they have formed as a straight line. Learners with blindness could be given physical guidance accompanied by verbal instructions. • Learners in pairs or groups could be guided to mark two points on the ground and using a stick to draw a line joining the two points to come up with a straight line. Learners with blindness could be guided to join the two points using a rope. • Learners could be guided to practice drawing straight lines on the ground and in their books. Learners with blindness could be guided to trace embossed lines on Braille cards and use a spur wheel to make straight lines. • Learners in groups could be guided to form a semi-circle and one of them to draw a line around it. Learners with blindness could be guided to walk around the curve and identify the semi-circle drawn as a curved line. • Learners to practice drawing curved lines on the ground and in their books.	1. What types of lines are there?

			• Learners could be guided to visit a water selling kiosk to observe how the water containers are arranged.	
Core-Competence to be developed: Communication and collaboration as learners in groups mark points use stick to draw a line to come up with a straight line. Imagination and creativity as learners stand behind one another to form straight lines. Learning to learn as learners visit water selling kiosks to observe containers making straight lines.				
Link to PCI's: **ESD: DRR;** safety- as learners use sticks to draw. **Life Skills**: self- awareness -when forming lines using their hands, inter-personal relationship.			**Link to Values:** • unity • responsibility • love	
Link to other learning areas: • Movement and creative arts			**Suggested Community Service Learning Activities:** Learners could visit a community function and assist in arranging seats in straight or curved lines.	
Suggested non- formal Activity to support learning: Learners to arrange seats in straight lines in class during cleaning.			**Suggested assessment**: Written exercises, observation, oral questions.	
Suggested Resources: Manila paper, pair of scissors, biscuits, circular/rectangular cut out, large print exercise books, pencils, Braille paper, slate and stylus, type board, cubes, cuberithms, rubber, Braille card, flash cards, strings, pieces of wire, spur wheel and mat				

Assessment Rubrics

Exceeds Expectations	**Meets Expectations**	**Approaches Expectations**	**Below Expectations**
Correctly draws straight and curved lines and also other types of lines.	Correctly draws straight and curved lines.	Inaccurately draws straight and curved lines.	Major inaccuracies in drawing straight and curved lines.

Strand	Sub-strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question(s)
Geometry	3.2 Shapes (6 lessons)	By the end of the sub-strand, the learner should be able to: a) identify rectangles, circles and triangles in the environment; b) make patterns involving rectangles, circles and triangles; c) appreciate the beauty of patterns in the environment.	• Learners in pairs or groups could be guided to sort and group different shapes using one attribute. • Learners in pairs or groups could be guided to discuss the types of lines that make rectangles, circles, triangles and name them. • Learners working individually could be guided to make patterns of their choice using the three shapes. • Learners in groups could be guided to make patterns, colour them and share with other groups.	1. What shapes can you identify in your school?
Core-Competence to be developed : Communication and collaboration as learners in group sort, discuss types of lines making shapes. Imagination and creativity as learners make patterns using different shapes.				
Link to PCI's : ESD**: DRR;** safety-as learners pick objects to trace and when coloring the patterns.			**Link to Values:** • responsibility • unity	
Link to other learning areas: • Movement and creative activities • Environmental activities			**Suggested Community Service Learning activities:** Learners to visit the elderly and beautify their walls with patterns drawn on manila paper.	
Suggested non-formal activity to support learning: Learners could visit pre -school and decorate the walls using patterns drawn on manila paper, and motif.			**Suggested assessment:** Written exercises, oral questions, observation.	

Suggested Resources:
Manila paper, pair of scissors, biscuits, circular/rectangular cut out, large print exercise books, pencils, Braille paper, slate and stylus, type board, cubes, cuberithms, rubber, Braille card, flash cards, strings, pieces of wire, spur wheel and mat

Assessment Rubrics

Exceeds Expectations	**Meets Expectations**	**Approaches Expectations**	**Below Expectations**
Correctly identifies shapes and makes patterns using rectangles, circles, triangles and other shapes.	Correctly identifies shapes and makes patterns using rectangles, circles and triangles.	Inaccurately identifies shapes and makes patterns using rectangles, circles and triangles.	Major inaccuracies in identifying shapes and making patterns using rectangles, circles and triangles.

Suggested Resources

Sub- Strands	**Resources**
Number Concept	Sticks, stones, grains
Whole Numbers	Sticks, marbles ,stones grains ,a number line drawn on the ground or floor
Addition	Place value chart, abacus basic addition facts, number line drawn on the ground/floor, table, sticks, marbles ,stones, grains and many more
Subtraction	Sticks, marbles, stones ,grains, basic addition facts table, number line drawn on the ground/floor
Length	Books, pencils, sticks, bottles, rulers and others
Mass	Items of different mass such as books ,stones, pieces of wood, items of same mass
Capacity	Containers of different sizes, water, sand ,soil and others
Time	Charts with days of the week and months of the year in order
Money	One shilling coins (copper, silver, small and big coins) sh10,20,40 coins, sh50 and classroom shop
Lines	Sticks, strings
Shapes	Cut- outs of rectangles, circles, and triangles of different sizes

NOTE

The following **ICT** devices may be used in the teaching or learning of mathematics at this level:

Special Needs Learner digital devices special Needs (SNLDD),Teacher digital devices(TDD),Mobile phones, Digital clocks, Talking clocks, Television sets, Videos, Cameras, Projectors, Radios DVD players, CD's, Scanners , Internet Mobile phones with voice output among others.

GRADE 2

Strand	Sub-strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question(s)
1.0Numbers	1.1Number Concept (8 lessons)	By the end of the sub-strand, the learner should be able to: a) read numbers 1-100 in symbols; b) represent numbers 1-100 using concrete objects in the environment.	• Learners could be guided to read number names from 1-100. • Learners in groups of five could be guided to count their fingers and toes. Learners with blindness could be given physical guidance. • Learners in pair or groups could be guided to play games of representing numbers 1-100 using safe concrete objects. • Learners to could be guided to play digital games of representing groups with numbers. Learners with visual impairment could be provided with digital devices with screen readers and appropriate contrast and font size.	1. How can we find the number of objects in a group?
Core Competences to be developed: Communication and collaboration as learners in groups count fingers or toes and play digital games. Imagination and creativity as learners represent numbers 1-100 using safe concrete objects. Digital literacy as learners play digital games representing groups with numbers. Critical thinking and problem solving as they count their fingers and toes.				

Link to PCI's: **Life skills:** self-awareness and self-esteem -when using body parts. **ESD: DRR;** safety- when collecting items in the environment.	**Link to Values:** • respect • responsibility
Link to other learning areas: • Language activities • Nutrition and Hygiene activities	**Suggested Community Service Learning Activities**: Learners to visit older citizens and listen to stories on how they used to count their animals and household items.
Suggested non- formal Activity to support learning: Learners to count number of different objects in the classroom.	**Suggested assessment:** oral questions, observation, and written exercise.
Suggested Resources: Sticks, stones, grains, marbles, digital devices.	

Assessment Rubrics

Exceeds expectations	**Meets expectations**	**Approaches expectations**	**Below expectations**
Correctly: reads numbers more than100 in symbols, represents numbers more than 100 using concrete objects.	Correctly: reads numbers 1-100 in symbols, represents numbers 1-100 using concrete objects.	Inconsistently: reads numbers 1-100 in symbols, represents numbers 1-100 using concrete objects.	Major inaccuracies in: reading numbers 1-100 in symbols, representing numbers 1-100 using concrete objects.

Strand	**Sub-strand**	**Specific Learning Outcomes**	**Suggested Learning Experiences**	**Key Inquiry Question(s)**
Numbers	1.2 Whole Numbers (20 lessons)	By the end of the sub-strand, the learner should be able to: a) count numbers forward and backward up to 100; b) identify place value up to hundreds;	• Learners in pairs or groups could be guided to count in 2's and 5's forward and backward starting from any point and say out the starting point. • Learners in pairs groups could be guided to count their fingers and toes in 2's and 10's	1. How do we get the next number in a pattern?

		c) read numbers 1-100 in symbols; d) read and write numbers 1-20 in words; e) work out missing numbers in number patterns up to 100, f) appreciate number patterns as they skip on the number line.	forward and backward starting at any point. Learners with blindness could be given physical guidance accompanied by verbal descriptions • Learners in pairs or groups could be guided to discuss place value up to hundreds. • Learners in pairs could be guided to read numbers 1-100 in symbols. • Learners to read and write numbers 1-20 in words. • Learners to play digital games involving whole numbers. Learners with Visually Impaired could be given digital devices with speech and screen contrast and font size. • Learners could be guided to work out missing numbers in patterns up to 100. • Learners could be guided to skip on a number line drawn on the floor. Learners with blindness could skip on a number line taped on the floor given physical guidance with verbal descriptions. • Learners in pairs or groups could be guided to make number patterns and share with other groups.	
Core Competences to be developed: Communication and collaboration as learners read or count in groups. Learning to learn as they count in 2"s forward find the pattern. Critical thinking and problem solving as they work out missing numbers in patterns.				

Link to PCI's: **Citizenship:** leadership- as learners work in groups.	**Link to Values:** • respect • responsibility
Link to other learning areas : • Language activities • Environmental activities • Movement and creative activities	**Suggested Community Service Learning Activities:** Learners to assist in arranging chairs and tables in rows and columns during community functions.
Suggested non- formal Activity to support learning: Learners to plant flowers in patterns in the school.	**Suggested assessment:** oral questions, written exercise, observation.
Suggested Resources: Sticks, marbles ,stones grains ,a number line drawn on the ground or floor	

Assessment Rubrics

Exceeds expectations	**Meets expectations**	**Approaches expectations**	**Below expectations**
Correctly: Counts to more than100, identifies place value up to more than hundreds, reads numbers more than100 in symbols, reads and writes numbers more than20 in words, works out missing numbers in patterns.	Correctly: counts from 1-100,identifies place value up to hundreds, reads numbers 1-100 in symbols, reads and writes numbers 1-20 in words, works out missing numbers in patterns.	Inconsistently: counts from 1-100,identifies place value up to hundreds, reads numbers 1-100 in symbols, reads and writes numbers 1-20 in words, works out missing numbers in patterns.	Major inaccuracies in: counting from 1-100, identifying place value up to hundreds, reading numbers 1-100 in symbols; reading and writing numbers 1-20 in words, working out missing numbers in patterns.

Strand	Sub-strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question(s)
Numbers	1.3 Fractions (12 lessons)	By the end of the sub-strand, the learner should be able to: a) identify a ½ as part of a whole; b) identify a ¼ as part of a whole.	• Learners in pairs could be guided to make circular paper cut- outs. Learners with blindness could be given physical guidance accompanied by verbal descriptions. • Learners in pairs could be guided to fold the circular paper cut – outs into two equal parts and identify one of the parts as a half of the whole written as ½. • Learners in pairs could be guided to make rectangular paper cut – outs and fold them into two equal parts to get a half of a whole written as ½. • Learners in pairs could be guided to fold circular paper cut – outs to get 4 equal parts and identify one of the parts as a ¼ of a whole. • Learners to play digital games involving fractions. Learners with Visually Impairments could be given digital devices with speech and appropriate contrast and font size for learners with low vision. • Learners in pairs could be guided to practice making halves and quarters of a whole.	1. What fraction do you get when you fold a circular paper cut- out into 4 equal parts?

Core Competences to be developed: : Imagination and creativity as learners fold paper cut outs into 1\2's Communication and collaboration as learners work in groups to work out the fractions Critical thinking and problem solving as learners identify parts of a whole. Digital literacy as learners play digital games involving fractions.	
Link to PCI's: **Life skills:** interpersonal relationship- making friends.	**Link to Values:** • unity • integrity • responsibility
Link to other learning areas: • Language activities • Nutrition and Hygiene activities	**Suggested Community Service Learning Activities:** Learners to share whole edible items in 1/2 's and ¼'s during community functions.
Suggested non- formal Activity to support learning: Learners to share whole edible items in halves and quarters in school.	**Suggested assessment:** oral questions, written exercise, observation.
Suggested Resources: papers of different shapes, digital devices,	

Assessment Rubrics

Exceeds Expectations	**Meets Expectations**	**Approaches Expectations**	**Below Expectations**
Correctly identifies ½ and ¼ and more fractions as part of a whole.	Correctly identifies ½ and ¼ as part of a whole.	Inconsistently identifies ½ and ¼ as part of a whole.	Major inconsistencies in identifying ½ and ¼ as part of a whole.

Strand	Sub-Strand	Specific Learning Outcomes	Suggested learning experiences	Key Inquiry Question(s)
Numbers	1.4 Addition (20 lessons)	By the end of the sub-strand, the learner should be able to: a) add a 2- digit number to a 1- digit number without and with regrouping with sum not exceeding 100; b) add 3-single digit numbers up to a sum of 20; c) add a 2-digit number to a 2-digit number without and with regrouping, with sums not exceeding 100; d) work out missing numbers in patterns involving addition of whole numbers up to 100.	• Learners in pairs could be guided to write addition sentences given in horizontal form vertically according to place value. • Learners with blindness could use the abacus to add single digit numbers. • Learners could be guided to add a 2- digit number to a 1- digit number without and with regrouping. • Learners could be guided to practice addition by skipping on the number line. Learners with blindness could skip on embossed number lines on the floor. • Learners in pairs or groups could be guided to collect different safe objects and use them in addition of 3-single digit numbers. • Learners in pairs or groups could be guided to practice breaking numbers apart to make a 10. • Learners in pairs to come up with different ways of adding two 2-digit numbers without and with regrouping. • Learners could be guided to play digital games involving addition. Learners with visually impaired	1. How can we align a 2-digit number and a 1-digit number vertically in order to add? 2. When do we regroup?

			could be given digital devices with speech output and appropriate screen contrast and font size. • Learners in groups could be guided to make patterns using numbers up to 100.	

Core Competences to be developed:

Communication and collaboration as learners work in groups to add.
Critical thinking and problem solving as they add up to 2digit numbers without regrouping both horizontally and vertically.
Self –efficacy as they jump on a number line in process of addition.
Imagination and creativity as learners work out missing numbers in given patterns.
Digital literacy as learners play digital games involving addition.

Link to PCI's: **ESD: DRR;** safety – as learners collect objects. **Citizenship**: social cohesion – when working in groups.	**Link to Values:** • respect • responsibility • unity
Link to other learning areas : • Language activities • Nutrition and hygiene	**Suggested Community Service Learning Activities:** learners to visit older citizen homes and assist them in getting the total number of different items in their homes.
Suggested non- formal Activity to support learning: Learners to plant flowers in patterns in school.	**Suggested assessment:** oral questions, written exercises, observation.

Suggested resources: Digital devices, embossed number line on floor, work cards embossed in Braille.

Assessment Rubrics

Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Correctly: adds more than two 2-digit numbers with sums not exceeding 100 using different strategies, works out missing numbers in patterns up to 100.	Correctly: adds up to two 2-digit numbers with sums not exceeding 100 using different strategies, works out missing numbers in patterns up to 100.	Inconsistently: adds up to two 2-digit numbers with sums not exceeding 100 using different strategies, works out missing numbers in patterns up to 100.	Major inconsistencies in: adding up to two 2-digit numbers with sums not exceeding 100 using different strategies, working out missing numbers in patterns up to 100.

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question(s)
Numbers	1.5 Subtraction (20 lessons)	By the end of the sub-strand, the learner should be able to: a) subtract up to 2- digit numbers without regrouping; b) use the relationship between addition and subtraction in working out problems; c) work out missing numbers in subtraction of up to 2- digit numbers; d) work out missing numbers in patterns involving subtraction up to 100; e) Work out subtraction using Abacus.	• Learners in pairs or groups could be guided to subtract single digit numbers by comparing groups of objects. • Learners who are totally blind could use the abacus to subtract single digit numbers. • Learners could be guided to subtract up to 2-digit numbers without regrouping in horizontal and vertical forms. • Learners could be guided to discuss the relationship between addition and subtraction using number families. • Learners could be guided to work out missing numbers in subtraction of up to 2- digit	1. How do you work out missing numbers in patterns involving subtraction?

			numbers. • Learners could be guided to play digital games involving subtraction. Learners with Visually Impairment could be given digital devices with speech output and appropriate screen contrast and font size. • Learners to work out missing numbers in number patterns involving subtraction. Learners with blindness could be given work cards with missing number patterns	
Core Competences to be developed: Communication and collaboration as learners work in groups to subtract. Critical thinking and problem solving as they subtract up to 2digit numbers without regrouping both horizontally and vertically. Self –efficacy as they jump on a number line in process of subtraction. Imagination and creativity as learners work out missing numbers in given patterns. Digital literacy as learners play digital games involving subtraction.				
Link to PCI's: **Life skills:** interpersonal relationship, effective communication, friendship formation - as learners work in groups. **Citizenship**: social cohesion – as learners work in groups.			**Link to Values:** • respect • unity • responsibility	
Link to other learning areas: • Language activities • Environmental activities			**Suggested Community Service Learning Activities:** Learners to participate in cleaning environment activities. organized by community members.	
Suggested non- formal Activity to support learning: Learners to collect litter during school cleaning activities.			**Suggested assessment:** oral questions, written exercise, observation.	
Suggested resources: Digital devices, embossed number line on floor, work cards embossed in Braille.				

Assessment Rubrics

Exceeds Expectations	Meets Expectations	Approaching Expectations	Below Expectations
Correctly: Subtracts up to more than 2- digit numbers without regrouping, works out missing numbers in number patterns up to 100.	Correctly: subtracts up to 2-digit numbers without regrouping, works out missing numbers in number patterns up to 100.	Inconsistently: subtracts up to 2- digit numbers without regrouping, works out missing numbers in number patterns up to 100.	Major inaccuracies in: subtracting up to 2- digit numbers without regrouping, working out missing numbers in number patterns up to 100.

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question(s)
Numbers	1.6 Multiplication (12 lessons)	By the end of the sub-strand, the learner should be able to: a) represent multiplication as repeated addition using numbers 1, 2, 3, 4 and 5 up to five times; b) write repeated addition sentences as multiplication, using '×' sign; c) multiply single digit numbers by 1, 2, 3, 4, 5 and 10.	• Learners in pairs or groups could be guided to use counters to represent multiplication as repeated addition. • Learners in pairs or groups could be guided to use number lines to represent multiplication as repeated addition. Learners with visual impairment could be given commentaries on the multiplication on number line. • Learners could be guided to use '×' sign in writing repeated addition sentences as multiplication. • Learners could be guided to multiply single digit numbers by 1, 2, 3, 4, 5 and 10. • Learners could be guided to play digital games involving multiplication. Learners with Visually Impaired could be given digital devices with speech output.	1. How do you represent multiplication as repeated addition?

			• Learners could be guided visit the local market to see how fruits are arranged in groups of 3's, 4's , 5's or 10's a certain number of times. Learners with blindness could be given verbal explanations and allowed to touch the items. •	

Core Competences to be developed:

Communication and collaboration as learners work in groups to multiply.
Critical thinking and problem solving as they multiply with illustration of repeated addition.
Self –efficacy as learners use counters to represent multiplication as repeat addition.
Imagination and creativity as learners visit market to see fruits arranged in groups or piles.
Digital literacy as learners play digital games involving multiplication.

Link to PCI's: **Life skills:** self- awareness- when learners use their fingers. **ESD**: DRR; re- use of materials collected.	**Link to Values:** • respect • unity • responsibility
Link to other learning areas: • Language activities • Environmental activities	**Suggested Community Service Learning Activities:** learners to visit older citizens and assist them in arranging items in groups of equal numbers.
Suggested non- formal Activity to support learning: Learner to count number of desks in their classroom through repeated addition.	**Suggested assessment:** oral questions, written exercises, observation.
Suggested Resources: counters, digital devices, embossed number line on floor,	

Assessment Rubrics

Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Correctly: represents multiplication as repeated addition, uses multiplication sign, multiplies single digit numbers by 1, 2, 3, 4, 5, and 10 and goes beyond.	Correctly: represents multiplication as repeated addition, uses multiplication sign, and multiplies single digit numbers by 1, 2, 3, 4, 5 and 10.	Inconsistently: represents multiplication as repeated addition, uses multiplication sign, and multiplies single digit numbers by 1, 2, 3, 4, 5 and 10.	Major inaccuracies in: performing multiplication as repeated addition, using multiplication sign, multiplying single digit numbers by 1, 2, 3, 4, 5 and 10.

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question(s)
Numbers	1.7 Division (8 lessons)	By the end of the sub-strand, the learner should be able to: a) represent division as equal sharing; b) represent division as equal grouping, c) use ' ÷ 'sign in writing division sentences; d) divide numbers up to 25 by 2, 3, 4 and 5 without a remainder in real life situations.	• Learners in pairs or groups could be guided to share a given number of objects equally by each picking an object at a time until all are finished and then count how many each got. • Learners in pairs or groups could be guided to pick an equal number of objects at a time from the main group and count the number of small equal groups formed. • Learners could be guided to use '÷'sign in writing division sentences. • Learners could be guided to play digital games involving division. Learners with Visually Impaired could be given digital devices with speech output and appropriate screen contrast and font size.	1. How can you share a given number of objects equally?

<table>
<tr><td></td><td></td><td></td><td>• Learners could be guided to divide numbers up to 25 by 2,3,4,5 without a remainder.</td><td></td></tr>
<tr><td colspan="5">Core Competences to be developed:

Communication and collaboration as learners work in groups to division.
Critical thinking and problem solving as they division with illustration of repeated subtraction.
Self –efficacy as learners use counters to represent division as repeat subtraction.
Imagination and creativity as learners visit market to see fruits arranged in groups or piles.
Digital literacy as learners play digital games involving subtraction.</td></tr>
<tr><td colspan="3">Link to PCI's:
Citizenship: social cohesion- as learners work in groups.
ESD: DRR; safety - of materials that learners use.</td><td colspan="2">Link to Values:
• respect
• responsibility
• love
• integrity
• social justice</td></tr>
<tr><td colspan="3">Link to other learning areas:
• Languages activities
• Environmental activities</td><td colspan="2">Suggested Community Service Learning Activities:

Learners to visit children's homes and share fruits as a way of giving back to the community</td></tr>
<tr><td colspan="3">Suggested non- formal activity to support learning:
Learners to plant seedlings in rows in the school compound.</td><td colspan="2">Suggested assessment: oral questions, written exercises, observation.</td></tr>
<tr><td colspan="5">Suggested Resources: counters, digital devices, embossed number line on floor.</td></tr>
</table>

Assessment Rubrics

Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Correctly: represents division as equal sharing and equal grouping, uses division sign, divides numbers up to 25 by 2, 3, 4, and 5 without a remainder and goes beyond.	Correctly: represents division as equal sharing and equal grouping, uses division sign, divides numbers up to 25 by 2, 3, 4 and 5 without a remainder.	Inconsistently: represents division as equal sharing and equal grouping, uses division sign, divides numbers up to 25 by 2, 3, 4 and 5 without a remainder.	Major inaccuracies in: representing division as equal sharing and equal grouping, using division sign, dividing numbers up to 25 by 2, 3, 4, and 5 without a remainder.

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question(s)
2.0 Measurement	2.1 Length (6 lessons)	By the end of the sub-strand, the learner should be able to: a) measure length using fixed units; b) identify the metre as a unit of measuring length; c) measure length in metres.	• Learners in pairs or groups could be guided to use sticks of equal length to measure different lengths, record and discuss the results. • Learners in pairs or groups could be guided to measure length using sticks of different lengths, including 1- metre sticks and identify the 1- metre sticks. • Learners could be guided to make 1-metre sticks and use them in measuring various lengths within the classroom, record and discuss the results. • Learners could be guided to play digital games involving length in metres. Learners with Visual Impairments could be given digital devices with speech output and appropriate screen contrast and font size.	1. What can you use to measure different lengths?

Core Competences to be developed: Communication and collaboration as learners work in groups to measure different lengths. Critical thinking and problem solving as learners measure different lengths. Imagination and creativity as learners make I metre sticks. Digital literacy as learners play digital games involving measurement. Learning to learn as learners record various lengths .	
Link to PCI's: **Citizenship:** social cohesion- as workers work in groups. **ESD: DRR;** safety- of materials learners use.	**Link to Values:** • respect • responsibility
Link to other learning areas : • Languages activities • Environmental activities	**Suggested Community Service Learning Activities:** Learners to assist their neighbours to measure length during building of chicken /rabbit cages among others.
Suggested non- formal activity to support learning: Learners to measure length of their school fields in metres during games.	**Suggested assessment:** oral questions, written exercises, observation.
Suggested Resources: sticks, digital devices,	

Assessment Rubrics

Exceeds Expectations	**Meets Expectations**	**Approaches Expectations**	**Below Expectations**
Correctly: measures length using fixed units identifies the metre as a unit of measuring length and measures length in metres with ease.	Correctly: measures length using fixed units identifies the metre as a unit of measuring length and measures length in metres.	Inconsistently: measures length using fixed units identifies the metre as a unit of measuring length and measures length in metres.	Major inaccuracies in: measuring length using fixed units; identifying the metre as a unit of measuring length and measuring length in metres.

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question(s)
Measurement	2.2 Mass (6 lessons)	By the end of the sub-strand, the learner should be able to: a) measure mass using fixed units; b) identify the kilogram as a unit of measuring mass; c) measure mass in kilograms.	• Learners in pairs or groups could be guided to use items of same mass and a beam balance to measure different masses record and discuss the results. • Learners in pairs or groups could be guided to use an item equivalent to a 1-kilogram mass and a beam balance to make other 1-kilogram masses and use them to compare other masses. • Learner could be guided to practice measuring mass in kilograms using a 1- kilogram mass. • Learners could be guided to play digital games involving mass in kilograms. Learners with Visually Impaired could be given digital devices with speech output and appropriate screed contrast and font size.	1. What can we use to measure mass?

Core Competences to be developed:
Communication and collaboration as learners work in groups to compare different masses.
Critical thinking and problem solving as learners measure mass using a beam balance.
Imagination and creativity as learners use item equivalent to a 1-kilogram mass and a beam balance to make other 1-kilogram mass.
Digital literacy as learners play digital games involving measuring mass.

Link to PCI's: • **Citizenship:** social cohesion- as learners work in groups. w • **ESD: DRR;** safety -of materials learners use.	**Link to Values:** • respect • integrity • responsibility
Link to other learning areas : • Language activities	**Suggested Community Service Learning Activities:** Learners to assist their neighbours to measure mass of items in

• Environmental activities	their homes in kilograms.
Suggested non- formal activity to support learning: Learners to measure mass of items in their classroom in kilograms during their free time.	**Suggested assessment:** oral questions, written exercise, observation.
Suggested Resources: item of 1kg equivalent, digital devices, beam balance, items of different mass.	

Assessment Rubrics

Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Correctly: measures mass using fixed units identifies and uses the kilogram as a unit measuring mass with ease.	Correctly: measures mass using fixed units identifies and uses the kilogram as a unit of measuring mass.	Inconsistently: measures mass using fixed units identifies and uses the kilogram as a unit of measuring mass.	Major inconsistencies in: measuring mass using fixed units, identifying and using the kilogram as a unit measuring mass.

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question(s)
Measurement	2.3 Capacity (8 lessons)	By the end of the sub-strand, the learner should be able to: a) measure capacity using fixed units; b) identify the litre as a unit of measuring capacity; c) measure capacity in litres.	• Learners in pairs or groups could be guided to use small containers of equal capacity to fill bigger containers of same capacity but different shapes with water and count the number of small containers used to fill them. • Learners in pairs or groups could be guided to use 1 litre containers to fill big containers with water and count the number of litres used to fill the big containers. • Learners in groups could be guided to measure the capacity of different	1. What can you use to measure capacity of different containers?

			containers in litres. • Learners could be guided to play digital games involving mass. Learners with Visual Impairments could be given digital devices with speech output and appropriate screen contrast and font size.	

Core Competences to be developed:

Communication and collaboration as learners work in groups to compare different capacity.
Critical thinking and problem solving as learners measure capacity using containers of different sizes.
Imagination and creativity as learners use item of different sizes to compare capacity.
Digital literacy as learners play digital games involving measuring capacity.

Link to PCI's: **Life Skills**: interpersonal relationships; group work **Citizenship:** social cohesion- as learners work in groups. **ESD: DRR;** safety- of materials learners use.	**Link to Values:** • respect • responsibility
Link to other learning areas: • Language activities • Environmental activities	**Suggested Community Service Learning Activities:** Learners to assist their neighbours to measure capacity of containers used in storing liquids.
Suggested non- formal activity to support learning: Learners to measure capacity of containers in their classroom in litres during their free time.	**Suggested assessment:** oral questions, written exercise, observation.

Assessment Rubrics

Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Correctly: measures capacity using fixed units uses the litre as a unit of measuring capacity and measures capacity in litres with ease.	Correctly: measures capacity using fixed units identifies the litre as a unit of measuring capacity and measures capacity in litres.	Inconsistently: measures capacity using fixed units identifies the litre as a unit of measuring capacity and measures capacity in litres.	Major inconsistencies in: measuring capacity using fixed units, identifying the litre as a unit of measuring capacity and measuring capacity in litres.

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question(s)
Measurement	2. 4 Time (10 lessons)	By the end of the sub-strand, the learner should be able to: a) relate the months of the year with various activities; b) recite the number of days in each month of the year; c) measure time using arbitrary units; d) measure time using fixed units; e) identify the clock face; f) read, tell and write time by the hour.	• Learners in pairs or groups could be guided to discuss activities that take place in the months of the year. • Learners in pairs or groups could be guided to sing songs, rhymes related to number of days in the months of the year. • Learners in pairs or groups could be guided to measure time taken to perform an activity using arbitrary units. • Learners in pairs or groups could be guided to measure time taken to perform an activity using fixed units. • Learners could be guided to discuss places where they have seen clocks displayed as well as how they look like.	1. In which month do you celebrate your birth day? 2. Which month has the least number of days?

			• Learners could be guided to observe a clock face and discuss the minute hand and the hour hand. Learners with blindness could be given tactile clock face to discuss the minute hand and the hour hand. • Learners could be guided to discuss how to read, tell and write time by the hour using both the analogue and digital clock. Learners with blindness could be given tactile clock face to perform the activity.	

Core Competences to be developed:
Communication and collaboration as learners work in groups to measure time taken to perform an activity.
Critical thinking and problem solving as learners discuss the minute hand and hour hand.
Imagination and creativity as learners use arbitrary units to measure time.
Self- efficacies as learners tell time.
Digital literacy as learners play digital games involving time.

Link to PCI's: **Health Education**: personal hygiene; brushing teeth, washing face. **Citizenship:** social cohesion- as learners work in groups. **ESD: DRR;** safety- of materials learners use.	**Link to Values:** • respect • responsibility
Link to other learning areas: • Language activities • Religious activities	**Suggested Community Service Learning Activities:** Learners to assist their neighbours in keeping their compounds clean during school holidays.
Suggested non-formal activity to support learning: Learners to clean their classroom during free time.	**Suggested assessment:** oral questions, written exercise, observation.

Suggested Resources: digital devices, clock face in large prints, embossed clock face, calendar.

Assessment Rubrics

Exceeds Expectations	Meets Expectations	Approaching Expectations	Below Expectations
Correctly: relates months of the year to various activities, identifies number of days in each month, measures time using arbitrary and fixed units, identifies the minute and the hour hand in a clock face and reads, tells and writes time by the hour with ease.	Correctly: relates months of the year to various activities, identifies number of days in each month, measures time using arbitrary and fixed units, identifies the minute and the hour hand in a clock face and reads, tells and writes time by the hour.	Inconsistently: relates months of the year to various activities, identifies number of days in each month, measures time using arbitrary and fixed units, identifies the minute and the hour hand in a clock face and reads, tells and writes time by the hour.	Major inaccuracies in: relating months of the year to various activities, identifying number of days in each month; measuring time using arbitrary and fixed units, identifying the minute and the hour hand in a clock face and reading, telling and writing time by the hour.

Strand	Sub-Strand	Specific Learning Outcomes	Suggested learning experiences	Key Inquiry Question(s)
Measurement	2.5Money (10 lessons)	By the end of the sub-strand, the learner should be able to: a) identify Kenyan currency coins and notes up to sh.100; b) count money in sh.1, sh.5, sh.10, sh.20, sh.40, sh.50 up to sh.100; c) represent same amount of money in different denominations; d) relate money to goods and services up to sh.100, e) differentiate between needs and wants in real	• Learners in pairs or groups could be guided to sort out Kenyan currency coins and notes according to their features up to sh.100. • Learners in groups could be guided to put different coins and notes together and separate them according to their values and features. • Learners in pairs or groups could be guided to count money in sh.1, sh.5, sh.10, sh.20, sh.40, sh.50 up to sh.100. • Learners in pairs or groups could	1. How can you identify different Kenyan currencies?

		life context; f) Appreciate spending and saving of money in real life situations.	be guided to make same amount of money using different denominations. • Learners in pairs or groups could be guided to discuss items they cannot do without and those that are necessary but they can do without up to a value of sh.100. • Learners in pairs or groups could be guide to classify needs and wants. • Learners could be guided to discuss the importance of saving. • Learners could be guided to play digital games involving money. Learners with Visually Impaired could be given digital devices with speech output and appropriate screen contrast and font size. • Learners could record a video during a role play of classroom shopping activities for replay and discussion later. Learners with blindness could be given commentaries on the activity taking place in the class.	
Core Competences to be developed: Communication and collaboration as learners role play shopping activities. Critical thinking and problem solving as learners classify needs and wants.				

Imagination and creativity as learners separate coins and notes according to their values and features. Citizenship as learners handle money appropriately. Digital literacy as learners play digital games involving money.	
Link to PCI's: **Life Skills**: interpersonal relationship, effective communication – during shopping activities. **Citizenship:** patriotism–money is a symbol of national unity. **ESD: DRR;** safety of materials in classroom shop, financial literacy.	**Link to Values :** • respect • responsibility • integrity • patriotism
Link to other learning areas : • Language activities • Environmental activities • Religious activities	**Suggested Community Service Learning Activities:** Learners to assist in counting money offered in religious and non-religious functions.
Suggested non- formal activity to support learning: Learners to assist the school clerk in sorting coins and notes according to their value.	**Suggested assessment:** oral questions, written exercise, observation.
Suggested Resources: digital devices, currencies (notes and coins)	

Assessment Rubrics

Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Identifies Kenyan currency notes and coins beyond sh.100, counts money in different denominations, works out equivalence of different denominations, relates money to goods and services and differentiates needs and wants.	Correctly: identifies Kenyan currency notes and coins up to sh.100, counts money in different denominations, works out equivalence of different denominations and relates money to goods and services, and differentiates needs and wants.	Inconsistently: identifies Kenyan currency notes and coins up to sh.100, counts money in different denominations, works out equivalence of different denominations, relates money to goods and services and differentiates needs and wants.	Major inconsistencies in: identifying Kenyan currency notes and coins up to sh.100, counting money in different denominations, working out equivalence of different denominations, relating money to goods and services and differentiating needs and wants.

Strand	Sub-strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question(s)
3.0Geometry	3.1 Lines (5 lessons)	By the end of the sub-strand, the learner should be able to: a) draw and model straight lines; b) draw and model curved lines.	• Learners in pairs or groups could be guided to model straight and curved lines using sticks plasticine /clay/ papier mache. • Learners in groups could be guided to model straight and curved lines using strings. • Learners in groups could be guided to model straight and curved lines by holding their hands. • Learners could be guided to draw straight and curved lines. Learners with blindness could be guided to draw using a spur wheel and track curved lines using a spur wheel or a stylus • Learners could be guided to model straight and curved lines using learner digital devices. Learners who are totally blind could be given digital devices with speech output to follow the commentaries	1. What types of lines do you know?
Core Competences to be developed: Communication and collaboration as learners model straight and curved lines using strings in groups. Imagination and creativity as learners draw straight and curved lines. Self- efficacy as learners model straight and curved lines. Digital literacy as learners use digital devices to draw.				
Link to PCI's:			**Link to Values:**	

Life Skills: self- awareness – as learners use their body parts. **ESD: DRR;** safety- of materials in modeling lines.	• respect • responsibility
Links to other learning areas: • Movement and creative activities • Environmental activities	**Suggested Community Service Learning Activities:** Learners to assist in arranging seats in straight lines in community functions.
Suggested non- formal activity to support learning: Learners to arrange seats in straight lines in the classroom.	**Suggested assessment:** oral questions, written exercise, observation.
Suggested Resources: Spur wheel, digital devices, sticks, plasticine, and strings.	

Assessment Rubrics

Exceeds Expectations	**Meets Expectations**	**Approaches Expectations**	**Below Expectations**
Correctly draws and models straight and curved lines with ease.	Correctly draws and models straight and curved lines.	Inaccurately draws and models straight and curved lines.	Major inaccuracies in drawing and modeling straight and curved lines.

Strand	**Sub-strand**	**Specific Learning Outcomes**	**Suggested Learning Experiences**	**Key Inquiry Question(s)**
Geometry	**3.2** Shapes (5 lessons)	By the end of the sub-strand, the learner should be able to: a) identify rectangles, circles, triangles, ovals and squares; b) appreciate making patterns involving rectangles; circles, triangles, ovals and squares.	• Learners in pairs or groups could be guided to sort and group items of different shapes. • Learners in pairs or groups could be guided to discuss types of lines making different shapes. • Learners could be guided to identify and name the different shapes found in their classroom. • Learners could be guided to make	1. What shapes can you identify in your environment? 2. What shapes are made by straight lines? 3. What shapes are made by curved lines?

			patterns of their choice using the five shapes. • Learners in groups could be guided to make patterns, colour them and share with other groups. • Learners could be guided to make patterns using digital devices. Learners with Visually Impaired could be given digital devices with speech output and appropriate screed contrast and font instructing on pattern making.	

Core Competences to be developed:

Communication and collaboration as learners discuss types of shapes made from lines.
Imagination and creativity as learners name different shapes found in the classroom.
Self- efficacies as learners create patterns.
Digital literacy as learners make patterns using digital devices.

Link to PCI's: **Life Skills**: self- awareness - use of their hands in making patterns. **ESD: DRR;** safety- of materials in making patterns.	**Link to Values:** • respect • unity • responsibility
Link to other learning areas: • Movement and creative activities • Environmental activities	**Suggested Community Service Learning Activities:** Learners to visit the children homes and beautify their walls with patterns drawn on paper.
Suggested non- formal activity to support learning: Learners to make patterns and stick them on classroom walls for beauty.	**Suggested assessment:** oral questions, written exercise, observation.

Suggested Resources: Different shapes, digital devices, coloured pens, spur wheel

Assessment Rubrics

Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Correctly identifies shapes and makes patterns involving rectangles, circles, ovals, squares with ease.	Correctly identifies shapes and makes patterns involving rectangles, circles, ovals, squares.	Inaccurately identifies shapes and makes patterns involving rectangles, circles, ovals, squares.	Major inaccuracies in identifying shapes and making patterns involving rectangles, circles, ovals, squares.

Suggested Resources

Sub -Strands	Resources
Number concept	Bottle tops , marbles ,sticks, stones, grains
Whole numbers	Bottle tops, marbles , sticks, stones, grains, a number line drawn on the ground/floor, an embossed number line on a Braille card
Fractions	Circular and rectangular cut outs
Addition	Bottle tops, marbles, stones, sticks, grains, place value chart, abacus, basic addition facts table, a embossed number line on the floor card, number line drawn on the ground/floor, basic addition facts table in both Braille and large prints
Subtraction	Bottle tops, marbles, sticks, stones, grains, basic addition facts table, a number line drawn on the ground/floor, abacus, embossed number line and numbers on the floor or Braille tapes, ropes
Multiplication	Bottle tops, marbles, stones, grains, number line drawn on the ground/floor, multiplication table in both Braille and large print, embossed numbers and numbers and number line on a Braille card
Division	Bottle tops, marbles, sticks, stones, grains, multiplication tables, tens frme
Length	Pencils, sticks, rulers, strings, ropes
Mass	Items of different masses such as books ,stones, pieces of wood, items of same mass, beam balance
Capacity	Containers of different sizes, 1-litre containers, water, soil, sand
Time	Charts with number of days in each month and months of the year in order, clock face both analogue and digital, tactile clock face
Money	Money in coins and notes sh.1,5,10,20,40,50, 100, classroom shop
Lines	Sticks, clay, plasticine, strings, ropes, twin wires
Shapes	Cut- outs of rectangles, circles, triangles , ovals and squares of different sizes, pegboards, pegs, strings, a pair of scissors, razor blade, glue shapes with different textures

NOTE

The following **ICT** devices may be used in the teaching/learning of Mathematics at this level:Learner digital devices (LDD),Teacher digital devices(TDD),Mobile phones, Digital clocks, Television sets, Videos, Cameras, Projectors, Radios, DVD players, CD's, Scanners, Internet, Special Needs Learners Digital Device(SNLDD),optical and non optical devices.

GRADE 3

Strand	Sub-strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question(s)
1.0 Numbers	1.1 Number Concept (8 lessons)	By the end of the sub-strand, the learner should be able to: a) use ordinal numbers to identify position from 1-20.	• Learners in pairs or groups could be guided to arrange different items in order of size starting with the smallest. • Learners could be guided to identify the position of an object from a reference point using first, second up to 20^{th}. • Learners in groups could be guided to run for a distance and each to identify their position using the words first, second up to 20^{th} position. Learners with blindness could be paired with sighted peers for the activity. • Learners could be guided in pairs or groups to relate numbers 1 –20 to positions first, second up to 20^{th} using concrete objects. • Learners to play digital games involving position 1^{st} - 20^{th}. Learners with visual impairment could be provided with digital devices with screen readers and appropriate contrast and font size.	1. In which position were you when you came to class in the morning?
Core-Competences to be developed: Communication and collaboration as learners identify position of numbers. Learning to learn as learners relate numbers 1-20 to ordinal positions. Critical thinking and problem solving as learners arrange objects in correct positions.				

Self –efficacy as learners run and identify positions for fun. Digital literacy as learners play games involving position.	
Link to PCI's: **Life Skills:** self – awareness- as they use their body parts.	**Link to Values:** • Cooperation • Social justice • positive competition
Link to other learning areas: • Language activities	**Suggested Community Service Learning Activities:** learners may assist in giving patients cards in health facilities according to their arrival time.
Suggested non-formal activity to support learning: Learners to take turns in playing digital games.	**Suggested assessment:** written exercises, oral questions, observation.
Suggested Resources: digital devices, items of different sizes in class.	

Assessment Rubric

Exceeds expectations	**Meets expectations**	**Approaches expectations**	**Below expectations**
Correctly uses ordinal numbers in identifying positions from 1^{st}-$20^{th}$and beyond with ease.	Correctly uses ordinal numbers in identifying positions from 1^{st}-20^{th}.	Inconsistently uses ordinal numbers in identifying positions from 1^{st}-20^{th}.	Major inaccuracies in using ordinal numbers in identifying positions from 1^{st}-20^{th}.

Strand	**Sub-strand**	**Specific Learning Outcomes**	**Suggested Learning Experiences**	**Key Inquiry Question(s)**
Numbers	1.2 Whole Numbers (20 lessons)	By the end of the sub-strand, the learner should be able to: a) count numbers forward and backward from 1-1000; b) identify place value up to thousands; c) read numbers 1-1000 in	• Learners in pairs or groups could be guided to count in 2's and 5's forward and backward starting from any point. • Learners in pairs or groups could be guided to count their fingers and toes in 2's and 10's forward and backward starting from any point. Learners with blindness could be given physical	1. How would you get the total number of people in a group?

		symbols; d) read and write numbers 1-100 in words; e) identify missing numbers in number patterns up to 1000; f) appreciate number patterns as they skip on a number line.	guidance. • Learners in pairs or groups could be guided to discuss place value up to thousands. Learners with blindness could be guided to identify place value of numbers up to 1000 on the Abacus • Learners in pairs or groups could be guided to complete reading numbers 1-1000 in symbols. • Learners to read and write numbers 1-100 in words. • Learners could be guided to play digital games involving whole numbers. Learners with Visual Impairment could be provided with devices with appropriate screen readers and contrast, font size. • Learners in pairs or groups could be guided to make number patterns up to 1000 and share with other groups.	

Core-Competence to be developed:
Communication and collaboration as learners discuss place value of numbers.
Critical thinking and problem solving as learners read numbers up to 1000.
Imagination and creativity as learners solve missing numbers in patterns.
Digital literacy as learners play digital games involving whole numbers.

Link to PCI's: **Life skills**: self- awareness -as learners count their fingers and toes. **Citizenship**: social cohesion -as learners work in groups.	**Link to Values:** • Integrity • cooperation • unity • responsibility
Link to other learning areas: • Environmental activities	**Suggested Community Service Learning Activities:** Learners may assist in counting the number of chairs in a

• Language activities	community function.
Suggested non-formal activity to support learning: Learners to count trees in the school compound.	**Suggested assessment:** Written exercise, oral questions, observation.
Suggested Resources: Digital devices, abacus,	

ASSESSMENT RUBRICS

Exceeds expectations	**Meets expectations**	**Approaches expectations**	**Below expectations**
Correctly: counts numbers from 1 -1000,reads and writes numbers 1-100 in words, reads and writes number symbols from 1 – 1000, identifies place value up to thousands, works out missing numbers in patterns up to 1000 with ease.	Correctly: counts numbers from 1 - 1000,reads and writes numbers 1-100 in words, reads and writes number symbols from 1 – 1000, identifies place value up to thousands, works out missing numbers in patterns up to 1000.	Inconsistently: counts numbers from 1 - 1000, reads and writes numbers 1-100 in words, reads and writes number symbols from 1 -1000, identifies place value up to thousands, works out missing numbers in patterns up to 1000.	Major inaccuracies in: counting numbers from 1 - 1000, reading and writing numbers 1-100 in words, reading and writing number symbols from 1- 1000, identifying place value up to thousands, working out missing numbers in patterns up to 1000.

Strand	**Sub-strand**	**Specific Learning Outcomes**	**Suggested Learning Experiences**	**Key Inquiry Question(s)**
Numbers	1.3 Fractions (10 lessons)	By the end of the sub-strand the learner should be able to: a) identify ½, ¼ and1/8 as part of a whole; b) identify ½, ¼ and 1/8 as part of a group.	• Learners in pairs or groups could be guided to make circular cut-outs. • Learners in pairs or groups could be guided to fold circular cut-outs into 2 equal parts and identify one part as ½ of the whole. • Learners in pairs or groups could be guided to make rectangular cut-outs and fold them into 4 equal parts to get a quarter of a whole	1. How can you represent a half, a quarter or an eighth of a group?

			and identify each part as ¼ of the whole. • Learners in pairs or groups could be guided to make rectangular cut-outs and fold to get 8 equal parts and identify one part as 1/8 of the whole. • Learners in pairs or groups could be guided to divide a number of objects into 2 equal groups and identify each of the small groups as ½ of the whole group. • Learners in pairs or groups could be guided to divide a number of objects into 4 equal groups and identify each of the small groups as ¼ of the whole group. • Learners in pairs or groups could be guided to divide a number of objects into 8 equal groups and identify each of the small groups 1/8 of the whole group. • Learners could be guided to play digital games involving ½ , ¼ and $^1/_8$. Learners with Visual Impairment could be provided with devices with screen readers and appropriate contrast and font size	
Core-Competence to be developed: Imagination and creativity as learners divide a number of objects into equal parts. Communication and collaboration as learners work in groups to make parts of a whole.				

Critical thinking and problem solving as learners identify a fraction as part of a whole, Digital literacy as learners play digital games involving fractions.	
Link to PCI's: **Life skills:** interpersonal relationships- friendship formation and decision making. **Citizenship**: integrity-sharing, social cohesion -as they work in groups. **ESD:** environmental awareness- as learners collect objects like sticks.	**Link to Values:** • integrity • unity • responsibility
Link to other learning areas: • Nutrition and Hygiene activities • Environmental activities • Language activities	**Suggested Community Service Learning Activities:** learners can share responsibilities during community activities.
Suggested non-formal Activity to support learning: Learners to share library books during free time.	**Suggested assessment:** written exercise, observation, oral questions.
Suggested Resources: digital devices, manila sheets, cut-outs,	

Assessment Rubrics

Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Correctly identifies 1/2, ¼, 1/8 and more as part of a whole and as part of a group.	Correctly identifies 1/2, 1/4 and 1/8 as part of a whole and as part of a group.	Inconsistently identifies 1/2, 1/4 and 1/8 as part of a whole and as part of a group.	Major inconsistencies in identifying 1/2, 1/4 and 1/8 as part of a whole and as part of a group.

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question(s)
Numbers	1.4 Addition (25 lessons)	By the end of the sub-strand, the learner should be able to: a) add a 3- digit number to up to a 2 -digit number without regrouping with sum not exceeding 1000; b) add a 3- digit number to up to a 2- digit number with single regrouping with sum not exceeding 1000; c) add three single digit numbers with sum up to 27; d) add two 3- digit numbers without regrouping; e) add two 3- digit numbers with single regrouping with sum not exceeding 1000; f) work out missing numbers in patterns involving addition up to 1000; g) create number pattern involving addition up to 1000.	• Learners could be guided to add up to two 3- digit numbers without and with regrouping with sum not exceeding 1000. • Learners could be guided to practice adding horizontally and vertically. • Learners in pairs could be guided to come up with different ways of adding 3- single digit numbers. • Learners to play digital games involving addition. Learners with Visual Impairment could be provided with devices with voice output and appropriate contrast and font size • Learners could be guided to create and work out missing numbers in patterns involving addition up to 1000.	1. How do you arrange numbers when adding vertically 2. How do you identify the first two numbers to add when adding three single digit numbers? 3. How can you get the next number in a given pattern?
Core Competences to be developed: Communication and collaboration as learners discuss regrouping of 3 digit numbers. Critical thinking and problem solving as learners add a 3 digit number to a 2 digit numbers with single regrouping. Digital literacy as learners play digital games involving addition. Imagination and creativity as learners arrange 3 digit numbers both horizontally and vertically.				
Link to PCI's: **ESD: DRR;** safety-environmental awareness. **Life skills**: self- awareness-as they use body parts in counting.			**Link to Values:** • integrity • responsibility	

Link to other learning areas: • Environmental activities • Language activities • Religious activities	**Suggested Community Service Learning Activities:** Learners may assist in working out the total number of different trees in their locality in order to find out which type should be planted.
Suggested non-formal activity to support learning: learners to work out total number of learners in the school.	**Suggested assessment:** written exercise, observation, oral questions.
Suggested Resources: digital devices, abacus.	

Assessment Rubrics

Exceeds Expectations	Meets Expectations	Approaching Expectations	Below Expectations
Correctly: adds a 3- digit number to up to 3- digit numbers with double regrouping with sum not exceeding 1000 works out missing numbers in number patterns up to 1000, creates patterns involving addition up to 1000.	Correctly: adds a 3- digit number to up to 3- digit numbers with single regrouping with sum not exceeding 1000 works out missing numbers in number patterns up to 1000, creates patterns involving addition up to 1000.	Inconsistently: adds a 3- digit number to up to 3- digit numbers with single regrouping with sum not exceeding 1000 works out missing numbers in number patterns up to 1000, creates patterns involving addition up to 1000.	Major inaccuracies in: adding a 3- digit number to up to 3- digit numbers with single regrouping with sum not exceeding 1000, working out missing numbers in number patterns up to 1000, creating patterns involving addition up to 1000.

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question(s)
Numbers	1.5 Subtraction (20 lessons)	By the end of the sub-strand, the learner should be able to: a) subtract up to 3- digit numbers without regrouping; b) subtract up to 3- digit numbers involving missing numbers with single regrouping;	• Learners could be guided to work out subtraction of up to 3-digit numbers without regrouping in real life situations. • Learners could be guided to work out missing numbers in subtraction of up to 3- digit numbers with single regrouping using a variety of strategies such as number families.	1. When do you regroup during subtraction? 2. How do you identify the missing number in a number pattern?

		c) work out missing numbers in number patterns involving subtraction up to 1000.	• Learners could be guided to play digital games involving subtraction. Learners with Visual Impairment could be provided with devices with screen readers and appropriate contrast and font size • Learners could be guided to discuss how to work out missing numbers in patterns involving subtraction up to 1000.	
Core Competences to be developed: Communication and collaboration as learners discuss subtraction of 3 digit number without regrouping. Critical thinking and problem solving as learners solve missing numbers in patterns. Digital literacy as learners play digital games involving subtraction.				
Link to PCI's: **ESD:** environmental awareness- as learners work out subtraction.			**Link to Values:** • respect • responsibility • integrity	
Link to other learning areas: • Language activities • Nutrition and Hygiene activities • Environmental activities			**Suggested Community Service Learning Activities:** learners to participate in community environmental cleaning activities.	
Suggested non- formal activity to support learning: Learners to clean up their school.			**Suggested assessment:** oral questions, written exercise, observation.	
Suggested Resources: digital devices with voice production, abacus.				

Assessment Rubrics

Exceeds Expectations	Meets Expectations	Approaching Expectations	Below Expectations
Correctly: subtracts up to 3-digit numbers without regrouping, subtracts up to 3-digit numbers involving missing numbers with single regrouping, and works out missing numbers in patterns up to 1000 with ease.	Correctly: subtracts up to 3-digit numbers without regrouping, subtracts up to 3-digit numbers involving missing numbers with single regrouping, and works out missing numbers in patterns up to 1000.	Inconsistently: subtracts up to 3- digit numbers without regrouping, subtracts up to 3-digit numbers involving missing numbers with single regrouping, and works out missing numbers in patterns up to 1000.	Major inaccuracies in: subtracting up to 3- digit numbers without regrouping, subtracting up to 3- digit numbers involving missing numbers with single regrouping, working out missing numbers in patterns up to 1000.

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question(s)
Numbers	1.6 Multiplication (10 lessons)	By the end of the sub-strand, the learner should be able to: a) multiply single digit numbers by numbers 1-10 in different contexts.	• Learners in pairs or groups could be guided to multiply single digit numbers by numbers1-10 using: - groups of objects - repeated addition - multiplication table • Learners could be guided to play digital games involving multiplication. Learners with visually with visual impairment could be provided with devices with screen readers and appropriate contrast and font size. •	1. How can you work out multiplication using repeated addition? 2. How can we get the answer to a multiplication question using the multiplication table?

Core competences to be developed: Ccommunication and collaboration as learners multiply single digit numbers by numbers1-10 in groups. Imagination and creativity as learners use groups of objects to multiply numbers. Self-efficacy as learners recite the multiplication table. Digital literacy as learners play digital games involving multiplication.	
Link to PCI's: **Life skills**: self –awareness –learners use body parts in grouping objects. **ESD: DRR**; Environmental conservation-learners re-use materials and objects; animal welfare-feeding animals in small portions at a time.	**Link to values** • integrity • unity • cooperation
Link to other learning areas: • Language activities • Environmental activities • Movement and creative activities	**Suggested Community Service Learning Activities**: learners to assist farmers in finding out how many seedlings planted in rows are in a seed bed.
Suggested non-formal activities to support learning: Learner to play games involving multiplication in school.	**Suggested assessment:** written exercise, observation, oral questions.
Suggested Resources: Digital devices, objects to be grouped, multiplication table, abacus.	

Assessment Rubrics

Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Correctly multiplies single digit numbers by numbers 1-10 and beyond.	Correctly multiplies single digit numbers by numbers 1-10.	Inconsistently multiplies single digit numbers by numbers 1-10.	Major inaccuracies in multiplying single digit numbers by numbers 1-10.

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question(s)
Numbers	1.7 Division (8 lessons)	By the end of the sub-strand, the learner should be able to: a) represent division as repeated subtraction up to	• Learners could be guided to take away from a group a specific number of objects at a time until all are finished and then count the number of small groups formed.	1. How can we divide numbers using subtraction? 2. How can we use the multiplication table to

		5 times; b) show relationship between multiplication and division using mathematical sentences up to 9×10 = 90.	• Learners could be guided to represent division as repeated subtraction up to 5 times. • Learners could be guided to discuss the relationship between division and multiplication using the multiplication table. • Learners in pairs or groups could be guided to practice how to divide numbers related to multiplication of up to 9 × 10 = 90. Learners who are totally blind could be guided to use Abacus in the division process. • Learners could be guided to play digital games involving division. Learners who are visual impaired could be provided with devices with screen readers and appropriate contrast and font size.	work out division questions?

Core Competences to be developed:
Communication and collaboration as learners discuss relationship between division and multiplication.
Critical thinking and problem solving as learners take away a given number of from a group a given number of times.
Digital literacy as learners play digital games involving division.

Link to PCI's: **ESD:** animal welfare- feeding animals by giving small portions at a time.	**Link to Values:** • respect • responsibility • love
Link to other learning areas : • Language activities • Hygiene and Nutrition activities • Environmental activities	**Suggested Community Service Learning Activities:** learners to assist in sharing food in functions.

Suggested non- formal activity to support learning: Learners to water flowers and trees in the school compound.	**Suggested assessment:** oral questions, written exercise, observation.
Suggested Resources: Digital devices, objects to be grouped, multiplication table, abacus.	

Assessment Rubrics

Exceeds Expectations	**Meets Expectations**	**Approaches Expectations**	**Below Expectations**
Correctly represents division as repeated subtraction up to more than 5 times and relates division to multiplication up to 9x10=90.	Correctly represents division as repeated subtraction up to 5 times and relates division to multiplication up to 9x10=90.	Inconsistently: represents division as repeated subtraction up to 5 times, relates division to multiplication up to 9x10=90.	Major inaccuracies in: representing division as repeated subtraction up to 5 times and in relating division to multiplication up to 9x10=90.

Strand	**Sub-Strand**	**Specific Learning Outcomes**	**Suggested Learning Experiences**	**Key Inquiry Question(s)**
Measurement	2.1Length (6 lessons)	By the end of the sub-strand, the learner should be able to: a) measure length in metres, b) add and subtract length in metres; c) estimate length up to 20 metres.	• Learners could be guided to in pairs or groups to use metre sticks to measure various distances and record their results. • Learners could be guided to prepare 5 metres long strings with knots at intervals of one metre to measure long distances. • Learners could be guided to in groups to measure the lengths of the 4 walls in their classroom and add the lengths.	1. How do you measure the chalkboard using a metre stick? 2. How do you get the total length in metres of the 4 classroom walls? 3. How do you measure the distance between the flag post and the staffroom using a 5 metres long string?

			• Learners could be guided to measure the length of the chalkboard and the wall it is fixed and work out the difference in length. • Learners could be guided to work out questions involving addition and subtraction of length in metres based on real life situations. • Learners in pairs or groups to could be guided to estimate distances around the school up to 20 metres and measure to confirm. • Learners to take videos of others measuring length then playback and discuss. Learners with Visual Impairment could be provided with audio devices	
Core Competencies to be developed: Communication and collaboration as learners measure different lengths in groups using strings or sticks. Imagination and creativity as learners estimate different lengths around the school compound. Critical thinking and problem solving as learners work out questions involving addition and subtraction of different lengths. Self-efficacy as learners measure length and take videos. Digital literacy as learners use digital devices to take photos.				
Link to PCI's: **ESD: DRR** ; environmental awareness-re-use of materials, safety- of materials learners use.			**Link to values:** • integrity • unity • responsibility	
Link to other learning areas: • Environmental activities			**Suggested Community Service Learning Activities:** Learners to assist their neighbours in measuring length	

• Language activities	when building chicken and rabbit cages among others.
Suggested non-formal activity to support learning: Learners to measure lengths of buildings in school.	**Suggested assessment:** oral questions, observation' written exercise.
Suggested Resources: 5m long strings, digital devices, 1m sticks.	

Assessment Rubrics

Exceeds Expectations	**Meets Expectations**	**Approaches Expectations**	**Below Expectations**
Correctly measures length in metres, adds length in metres, subtracts length in metres and estimates length up to 20 metres and beyond.	Correctly measures length in metres, adds length in metres, subtracts length in metres and estimates length up to 20 metres.	Inconsistently: measures length in metres, adds length in metres, subtracts length in metres and estimates length up to 20 metres.	Major inaccuracies in: measuring length in metres, adding length in metres, subtracting length in metres and estimating length up to 20 metres.

Strand	**Sub-Strand**	**Specific Learning Outcomes**	**Suggested Learning Experiences**	**Key Inquiry Question(s)**
Measurement	2.2 Mass (6 lessons)	By the end of the sub-strand, the learner should be able to: a) measure mass in kilograms; b) add and subtract mass in kilograms; c) estimate mass up to 5 kilograms.	• Learners could be guided to measure mass in kilograms using a beam balance. • Learners could be guided to make masses of 1kg using sand or soil by measuring against the kilogram standard unit. • Learners could be guided to add and subtract mass in kilograms in real life situations. • Learners could be guided to use a 5kg mass to compare other masses. • Learners could be guided to estimate	1. How can you make a 1kg mass using a beam balance?

			mass up to 5kg and measure to confirm. • Learners could be guided to play digital games involving mass. Learners with Visual Impairment could be provided with screen readers and appropriate contrast and font size	
Core competencies to be developed: Communication and collaboration as learners work in groups to measure mass on a beam balance. Imagination and creativity as learners use a standard kilo weight to make masses of 1kg. Critical thinking and problem solving as learners solve subtraction questions involving mass. Self-efficacy as learners measure different weights. Digital literacy as learners use digital devices to play games involving measurement of masses.				
Link to PCI's: • **Citizenship:** social cohesion- as learners work in groups. • **ESD: DRR**; safety- in selecting appropriate materials.			**Link to Values:** • integrity • unity • honesty	
Link to other learning areas: • Environmental activities • Language activities • Movement and creative activities			**Suggested Community Service Learning Activities:** Learners to assist neighbours in arranging light items.	
Suggested non-formal activity to support learning: Learners to measure mass of different items in kilograms.			**Suggested assessment:** written exercise, oral questions, observation.	
Suggested Resources: Beam balance, digital devices, soil or sand,				

Assessment Rubrics

Exceeds Expectations	Meets Expectations	Approaching Expectations	Below Expectations
Correctly: measures mass in kilograms adds and subtracts mass in kilograms and estimates mass up to 5kg and beyond.	Correctly: measures mass in kilograms adds and subtracts mass in kilograms and estimates mass up to 5kg.	Inconsistently: measures mass in kilograms adds and subtracts mass in kilograms and estimates mass up to 5kg.	Major inaccuracies in: measuring mass in kilograms, adding and subtracting mass in kilograms and estimating mass up to 5kg.

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question(s)
Measurement	2.3 Capacity (8 lessons)	By the end of the sub-strand, the learner should be able to: a) measure capacity in litres, b) add and subtract capacity in litres, c) estimate capacity up to 5 litres,	• Learners in pairs or groups could be guided to measure capacity of different containers in litres. • Learners could be guided to add and subtract capacity in litres in real life situations. • Learners could be guided to estimate capacity up to 5 litres and measure to confirm. • Learners could be guided to play digital games involving capacity. Learners with visual impairment could be provided with devices with screen readers and appropriate contrast and font size	What can we use to measure capacity?

Core Competences to be developed:

Communication and collaboration as learners work in groups to measure capacity of different liquids.

Critical thinking and problem solving as learners solve addition and subtraction of different capacity.

Digital literacy as learners play digital games involving capacity.

Imagination and creativity as learners measure capacity of different containers.

Citizenship as learners use water appropriately.

Link to PCI's:	Link to Values:
ESD: animal welfare – feed animals with water	• respect

	• responsibility • integrity
Link to other learning areas: • Language activities • Nutrition and hygiene activities • Environmental activities • Movement and creative activities	**Suggested Community Service Learning Activities:** learners to take part in watering flowers and trees around places of worship, health centres and at home.
Suggested non- formal activity to support learning: learners to water flowers and trees in the school compound.	**Suggested assessment:** oral questions, observation, and written exercise.
Suggested Resources: Digital devices, containers of different sizes, water.	

Assessment Rubrics

Exceeds Expectations	**Meets Expectations**	**Approaches Expectations**	**Below Expectations**
Correctly measures capacity in litres adds and subtracts capacity in litres in real life experiences and estimates capacity up to 5 litres and beyond.	Correctly measures capacity in litres, adds and subtracts capacity in litres in real life experiences and estimates capacity up to 5 litres	Inconsistently: measures capacity in litres, adds and subtracts capacity in litres in real life experiences and estimates capacity up to 5 litres	Major inaccuracies in: measuring capacity in litres, adding and subtracting capacity in litres in real life experiences and estimating capacity up to 5 litres

Strand	**Sub-Strand**	**Specific Learning Outcomes**	**Suggested Learning Experiences**	**Key Inquiry Question(s)**
Measurement	2.4 Time (10 lessons)	By the end of the sub-strand, the learner should be able to: a) identify the minute as a unit of measuring time; b) read and tell time using	• Learners could be guided to discuss the divisions on a clock face and what each division represents. Learners with total blindness could be given tactile clock face to manipulate • Learners could be guided to read time on	1. How do we convert hours to minutes?

		the digital clock; c) read and tell time using 'past' and 'to' the hour using the clock face; d) write time using 'past' and 'to' the hour; e) estimate time in hours, f) add and subtract time involving hours and minutes without conversion in real life situations.	a digital clock. Learners with blindness could be provided with talking clocks. • Learners in pairs or groups could be guided to discuss the relationship between hours and minutes using a clock face. • Learners in pairs or groups could be guided to read, tell and write time using 'past' and 'to' the hour. • Learners in pairs or groups could be guided to estimate time in hours. • Learners in pairs or groups could be guided to add and subtract time involving hours and minutes without conversion in real life situations.	

Core Competences to be developed:

Communication and collaboration as learners discuss parts of a clock face in groups.
Critical thinking and problem solving as learners read tell and write time using 'past' and 'to' the hour.
Digital literacy as learners tell time using digital devices.
Learning to learn as learners estimate time.

Link to PCI's: **Health education:** HIV and AIDS- drugs time adherence. **Citizenship**: governance- law and order in school in keeping time.	**Link to Values:** • respect • responsibility • integrity • social justice
Link to other learning areas : • Language activities • Nutrition and Hygiene activities • Environmental activities	**Suggested Community Service Learning Activities:** learners to assist in being time keepers in community activities.

Suggested non- formal activity to support learning: learners to assist in time keeping during games.	**Suggested assessment:** oral questions, observation, written exercise.
Suggested Resources: clock face, tactile clock face, talking clocks.	

Assessment rubrics

Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Correctly reads, tells, writes time using 'past' and 'to' the hour, estimates time in hours and minutes, adds and subtracts time involving hours and minutes without conversion in real life situations with ease.	Correctly reads, tells, writes time using 'past' and 'to' the hour, estimates time in hours, adds and subtracts time involving hours and minutes without conversion in real life situations.	Inconsistently: reads, tells, writes time using 'past' and 'to' the hour, estimates time in hours, adds and subtracts time involving hours and minutes without conversion in real life situations.	Major inconsistencies in: reading, telling, writing time using 'past' and 'to' the hour, estimating time in hours, adding and subtracting time involving hours and minutes without conversion in real life situations.

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question(s)
Measurement	2.5 Money (10 lessons)	By the end of the sub-strand, the learner should be able to: a) identify Kenyan currency notes up to sh.1000; b) count money in different denominations up to sh.1000; c) add and subtract money involving up to sh.1000; d) carry out shopping activities	• Learners in pairs or groups could be guided to sort out Kenyan currency notes according to their value and features up to sh.1000. Learners with blindness could be given currencies to manipulate • Learners in pairs or groups could be guided to practice addition and subtraction of money in real life situations up to sh.1000.	1. What is the difference between needs and wants?

		involving change and balance; e) relate money to goods and services up to sh.1000; f) differentiate between needs and wants; g) appreciate spending and saving of money in real life situations.	• Learners in pairs or groups could be guided to practice giving change and balance using imitation money up to sh.1000 in shopping activities. • Learners in pairs or groups could be guided to share own experiences in relation to shopping activities. • Learners in pairs or groups could be guided to discuss items they cannot do without and those that are necessary but they can do without. • Learners in pairs or groups could be guided to classify needs and wants. • Learners could be guided to play digital games involving money. Learners with visual impairment could be provided with devices with screen readers and appropriate contrast and font size	

Core Competences to be developed: Communication and collaboration as learners sort out Kenya currency notes. Critical thinking and problem solving as learners classify needs and wants. Digital literacy as learners play digital games involving money. Citizenship as learners handle money appropriately.	
Link to PCI's: • **ESD:** financial literacy- the choice of what to buy and what not to buy. • **Parental Empowerment and engagement:** selection of what to buy and what not to buy.	**Link to Values:** • respect • responsibility • integrity • social justice

Link to other learning areas: • Language activities • Hygiene and Nutrition activities	**Suggested Community Service Learning Activities:** learners to visit older citizens to listen to stories involving money features.
Suggested non- formal activity to support learning: learners to help count money in school activities.	**Suggested assessment:** written exercise, oral questions, observation.
Suggested Resources: denominations of money, digital devices,	

Assessment Rubrics

Exceeds Expectations	**Meets Expectations**	**Approaches Expectations**	**Below Expectations**
Correctly: identifies Kenyan currency notes up to sh. 1000,counts money in different denominations, adds, subtracts, carries out shopping activities above sh.1000, relates money to goods and services, differentiates needs and wants, explains meaning of spending and saving in real life situations.	Correctly: identifies Kenyan currency notes up to sh. 1000,counts money in different denominations, adds, subtracts, carries out shopping activities within sh.1000, relates money to goods and services, differentiates needs and wants, explains meaning of spending and saving in real life situations.	Inconsistently: identifies Kenyan currency notes up to sh.1000,counts money in different denominations, adds, subtracts, carries out shopping activities within sh.1000, relates money to goods and services, differentiates needs and wants, explains meaning of spending and saving in real life situations.	Major inconsistencies in: identifying Kenya currency notes up to sh.1000, counting money in different denominations, adding, subtracting, carrying out shopping activities within sh.1000, relates money to goods and services, differentiating needs and wants, explaining meaning of spending and saving in real life situations.

Strand	Sub-strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question(s)
3.0 Geometry	**3.1** Position and Direction (5 lessons)	By the end of the sub-strand, the learner should be able to: a) move along a straight line from a point; b) turn to the right from a point; c) turn to the left from a point.	• Learners in pairs or groups could be guided to move along a straight line from a given point. Learners with blindness could be paired with sighted peers to move along straight line and given verbal instructions. • Learners in pairs or groups could be guided to move in straight along the outside of their classroom and then turn to the right or left. • Learners in pairs could be guided to practice moving along a straight line and turning left or right. • Learners could be guided to play digital games on movement. Learners with visual impairment could be given digital devices with screen readers and appropriate contrast and font size	1. What do you do when you get to a road junction?
Core Competences to be developed: Communication and collaboration as learners work in groups to move together in the same direction. Critical thinking and problem solving as learners turn left or right as directed. Digital literacy as learners play digital games involving position and direction. Imagination and creativity as learners as learners move in a straight line.				

Link to PCI's: **Life skills:** self- awareness – as learners use their body parts in movement. **Citizenship**: social cohesion- as learners work in groups.	**Link to Values:** • cooperation • responsibility • unity
Link to other learning areas: • Language activities • Movement and creative activities • Environmental activities	**Suggested Community Service Learning Activities:** learners to assist in ushering people during community functions.
Suggested non- formal activity to support learning: learners to participate in games, athletics and scouting.	**Suggested assessment:** written exercise, oral questions, observation.
Suggested Resources: Digital devices,	

Assessment Rubric

Exceeds Expectations	**Meets Expectations**	**Approaches Expectations**	**Below Expectations**
Correctly demonstrates movement along a straight line and turns to the right or left with ease.	Correctly demonstrates movement along a straight line and turning to the right or left.	Inaccurately: demonstrates movement along a straight line, and turning to the right or left.	Major inaccuracies in: demonstrating movement along a straight line and turning to the right or left.

Strand	**Sub-strand**	**Specific Learning Outcomes**	**Suggested Learning Experiences**	**Key Inquiry Question(s)**
Geometry	3.2 Shapes (4 lessons)	By the end of the sub-strand, the learner should be able to: a) make patterns involving rectangles, circles, triangles, ovals and	• Learners could be guided to sort and group items of different shapes. • Learners in pairs or groups could be guided to discuss the types of lines making various shapes.	1. What shapes can you identify in your school?

		squares; b) appreciate making patterns involving rectangles, circles, triangles, ovals and squares.	• Learners could be guided to identify and name the different shapes found in their environment. • Learners could be guided to make patterns using the five shapes. Learners with visual impairments could be guided to make embossed shapes. • Learners in groups could be guided to make patterns, colour them and share with other groups. Learners with blindness could be given a description of the colours. • Learners could be guided to play digital games involving shapes. Learners who are totally blind could be given a description of the colours.	
Core Competences to be developed: communication and collaboration as learners make patterns in groups, creativity and imaginations learners make patterns using the 5 shapes, critical thinking and problem solving as learners identify and name the shapes found in their classrooms, digital literacy as learners play digital games involving shapes.				
Link to PCI's: **Citizenship:** leadership development, social cohesion- as learners work in groups. **Life skills**: self- esteem and awareness- as learners make patterns			**Link to Values:** • respect • responsibility • unity	
Link to other learning areas : • Languages activities • Movement and creative activities • Environmental activities			**Suggested Community Service Learning Activities:** learners to visit children homes and beautify their rooms with patterns drawn on paper.	
Suggested non- formal activity to support learning: Learners to mark games or sports fields.			**Suggested assessment: w**ritten exercises, oral questions, observation.	

Suggested Resources: Digital devices, manila sheets, items of different shapes in class, coloured pencils.

Assessment Rubric

Exceeds Expectations	**Meets Expectations**	**Approaches Expectations**	**Below Expectations**
Correctly makes patterns involving rectangles, circles, triangles, ovals, and squares with ease.	Correctly makes patterns involving rectangles, circles, triangles, ovals and squares.	Inaccurately makes patterns involving rectangles, circles, triangles, ovals and squares.	Major inaccuracies in making patterns involving rectangles, circles, triangles, ovals and squares.

Suggested Resources

Sub -Strands	Resources
Number concept	Marbles, sticks, stones, grains, cubes and cuberithms, Abacus, blocks, pegs and peg boards, types and type board
Whole numbers	A number line drawn on the ground/floor, place value chart in Braille and large print. A number line tapped on the ground
Fractions	Circular and rectangular cut outs, marbles, bottle tops ,sticks, grains, stones
Addition	Place value chart in both Braille and large print, abacus, basic addition facts table in both Braille and large print
Subtraction	Basic addition facts table in both Braille and large print, place value chart in both Braille and large print, Abacus
Multiplication	Bottle tops ,marbles, stones, grains, number line drawn on the ground/floor, number line tapped on the ground multiplication tables in both Braille and large print
Division	Bottle tops, marbles, stones, sticks, grains, multiplication tables in both Braille and large print
Length	Books, pencils, rulers, sticks, bottles, metre rule, metre sticks
Mass	Masses of 1kg, soil, sand, beam balance
Capacity	Containers of different sizes, 1litre containers, sand soil water,5 litre containers
Time	Clock face both analogue and digital, tactile clock face, talking clock
Money	Kenyan currency coins and notes/imitations up to sh.1000, classroom shop
Position and Direction	Charts showing a straight line, a turn to the left and a turn to the right, Braille cards with embossed lines
Shapes	Cut- outs of rectangles, circles, triangles, ovals and squares of different sizes

Note
The following **ICT** devices may be used in the teaching/learning of mathematics at this level:

Learner digital devices (LDD),Teacher digital devices(TDD),Mobile phones, Digital clocks, Television sets, Videos, Cameras, Projectors, Radios, DVD players, CD's, Scanners, Internet, Special Needs Learner Digital Devices (SNLDD), optical and non optical devices among others, optical and non optical devices