



KENYA INSTITUTE OF CURRICULUM DEVELOPMENT
A skilled and Ethical Society

PRIMARY SCHOOL EDUCATION CURRICULUM DESIGN

MATHEMATICAL ACTIVITIES

GRADE 1

First Published in 2017

Revised 2024

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FOREWORD

The Government of Kenya (GoK) is committed to ensuring that policy objectives for Education, Training and Research meet the aspirations of the Constitution of Kenya 2010, the Kenya Vision 2030, National Curriculum Policy 2018, the United Nations Sustainable Development Goals (SDGs) and the regional and global conventions to which Kenya is a signatory. Towards achieving the mission of Basic Education, the Ministry of Education (MoE) has successfully and progressively rolled out the implementation of the Competency Based Curriculum (CBC) at Pre-Primary, Primary and Junior School levels.

The Kenya Institute of Curriculum Development (KICD) reviewed the curriculum and rationalised the number of learning areas in 2024. The review and rationalisation process was informed by several factors, among them, the recommendations of the Presidential Working Party on Education Reforms (PWPER) and reports of the continuous curriculum monitoring and evaluation activities.

The reviewed curriculum designs build on competencies attained earlier by learners. The designs prepare the learner for smooth transition to the next level. The designs will also afford the learner opportunities for developing requisite competencies and enable them to interact with other people and the environment around them.

The key components of the curriculum designs include the National Goals of Education, the essence statement, general and specific learning outcomes as well as the strands and sub strands. Suggested learning experiences, key inquiry questions, core competencies, Pertinent and Contemporary Issues (PCIs), values and assessment rubrics are also outlined in the curriculum designs.

It is expected that all Government agencies and other stakeholders in Education will use the designs to plan for the effective and efficient implementation of the Competency Based Curriculum.

Thank you.



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PREFACE

The Ministry of Education (MoE) rolled out the Competency Based Curriculum (CBC), nationally in 2019, following a national convention in 2017 where the *Basic Education Curriculum Framework* (BECF) was adopted by stakeholders and a national pilot of the curriculum in the Early Years of Education (EYE) in 2018. According to the UNESCO IBE requirements, a curriculum should be reviewed every five years. So, the review of CBC was due from 2023. In view of this, the reviewed curriculum designs will enhance the implementation of CBC since it incorporates the lessons learnt from the implementation of CBC so far.

Consistent periodical review of the curriculum is also critical in the realisation of the Vision and Mission of the on-going curriculum reforms as enshrined in the Sessional Paper No. I of 2019 whose title is: *Towards Realizing Quality, Relevant and Inclusive Education and Training for Sustainable Development* in Kenya. The Sessional Paper explains the shift from a content-focused curriculum to a focus on producing an engaged, empowered and ethical citizen.

Therefore, the reviewed curriculum designs will facilitate the inculcation of core competencies in CBC, which are identified as: communication and collaboration, critical thinking and problem solving, creativity and imagination, citizenship, digital literacy, learning to learn and self-efficacy.

The curriculum designs provide suggestions for interactive and differentiated learning experiences linked to the various strands and sub strands and other aspects of the CBC. The designs also outline suggested learning resources and varied assessment techniques. It is expected that the use of these designs will lead to enhanced learning outcomes at various levels, prepare the learner for smooth transition to subsequent grades and make learning enjoyable.

The MoE requests all stakeholders to keep giving feedback on the curriculum designs to inform the review during the next cycle.

Thank you.



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ACKNOWLEDGEMENT

The Kenya Institute of Curriculum Development (KICD) Act Number 4 of 2013 (Revised 2019) mandates the Institute to develop and review curricula and curriculum support materials for basic and tertiary education and training. The curriculum development process is guided by research, international best practices as well as stakeholder engagement. The Institute conceptualised the Competency Based Curriculum (CBC) in consultation with the Ministry of Education and other stakeholders. According to the *Basic Education Curriculum Framework* (KICD, 2017) the conceptualisation of CBC was informed by 21st Century learning needs, the Constitution of Kenya 2010, the Kenya Vision 2030, the East African Community Protocol, the International Bureau of Education (IBE) Guidelines and the United Nations Sustainable Development Goals (SDGs).

KICD is funded by the Kenya Government to discharge its mandate. The institute also receives support from development partners targeting specific programmes. The reviewed curriculum designs were developed with the support of the World Bank through the Kenya Primary Education Equity in Learning Programme (KPEELP) - a project coordinated by MoE. KICD wishes to most sincerely thank the Government of Kenya, through the MoE and other development partners. More specifically, KICD appreciates the Cabinet Secretary - MoE and the Principal Secretary – State Department of Basic Education,

Additionally, the Institute expresses gratitude to all the KICD staff members, teachers, university lecturers, MoE staff, Semi-Autonomous Government Agencies (SAGAs) and representatives of various stakeholders; among others, for their contributions to the development of the reviewed curriculum designs. Finally, KICD acknowledges the Chief Executive Officers of the Teachers Service Commission (TSC) and the Kenya National Examinations Council (KNEC) as well as the KICD Council for supporting the curriculum review process.

May God bless all the individuals and respective institutions who in one way or another supported the curriculum review process. Indeed, these designs will effectively guide the implementation of the CBC at Primary level, thereby preparing the learner to transition to the Junior School.

Best wishes to all learners and curriculum implementers.



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TABLE OF CONTENTS

FOREWORD.....	iii
PREFACE.....	iv
ACKNOWLEDGEMENT.....	v
NATIONAL GOALS OF EDUCATION.....	vii
LESSON ALLOCATION AT LOWER PRIMARY.....	ix
LEVEL LEARNING OUTCOMES FOR PRIMARY SCHOOL EDUCATION.....	ix
MATHEMATICS GRADE 1.....	1
MATHEMATICS GRADE 2.....	35
MATHEMATICS GRADE 3.....	74
ESSENCE STATEMENT.....	75
APPENDIX 1: COMMUNITY SERVICE LEARNING AT LOWER PRIMARY.....	111
APPENDIX 2: SUGGESTED LEARNING RESOURCES, ASSESSMENT METHODS, AND NON-FORMAL ACTIVITIES.....	114

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 instil 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-fulfilment

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 instil 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.

LESSON ALLOCATION AT LOWER PRIMARY

S/No	Learning Area	Number of Lessons Per Week
1.	Indigenous Language Activities	2
2.	Kiswahili Language Activities / Kenya Sign Language Activities	4
3.	English Language Activities	5
4.	Mathematical Activities	5
5.	Religious Education Activities	3
6.	Environmental Activities	4
7.	Creative Activities	7
8.	Pastoral/Religious Instruction Programme	1*
Total		31

LEVEL LEARNING OUTCOMES FOR PRIMARY SCHOOL EDUCATION

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

- a) Use verbal and or non-verbal cues to convey information in varied contexts.
- b) Demonstrate mastery of number concepts to solve problems in day to day life.
- c) Use appropriate social skills, moral and religious values to positively impact the society.
- d) Develop individual talents and interests for self-efficacy.
- e) Make informed decisions as local and global citizens of a diverse, democratic society in an interdependent world.
- f) Devise innovative strategies for environmental conservation and sustainability.
- g) Apply digital literacy skills for learning and enjoyment.
- h) Appreciate the country's rich and diverse cultural heritage for harmonious living.

MATHEMATICAL ACTIVITIES

GRADE 1

ESSENCE STATEMENT

Mathematics is a learning area that involves computation in numbers and arithmetic, working with shapes, understanding spatial relationships, and processing information in the form of data. It plays a crucial role in driving a country's economic development. By learning mathematics, learners develop an understanding of numbers, logical thinking skills and problem-solving abilities. These skills are essential not only in business but also in the social and political spheres. At this level, mathematics builds on the competencies acquired by the learner in the early years of education. It also enhance strengthens their numeracy skills, which serve as a foundation for STEM at higher levels of education. Importantly, mathematics can also a subject of enjoyment and excitement, offering learners opportunities for creative work and fun.

SUBJECT GENERAL LEARNING OUTCOMES

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

1. demonstrate mastery of number concepts by working out problems in day-to-day life.
2. apply measurement skills to find solutions to problems in a variety of contexts.
3. apply properties of geometrical shapes and spatial relationships in real-life experiences.
4. apply data handling skills to solve problems in day-to-day life.
5. analyse information using algebraic expressions in real-life situations.
6. apply mathematical ideas and concepts to other learning areas or subjects and in real-life contexts.
7. develop confidence and interest in mathematics for further learning and enjoyment.
8. develop values and competencies for a cohesive harmonious living in the society.
9. manage pertinent and contemporary issues for enhanced interpersonal relationships

SUMMARY OF STRANDS AND SUB-STRANDS

Strands	Sub-Strands	Suggested Number of Lessons
1.0 Numbers	1.1 Pre-Number Activities	20
	1.2 Whole Numbers	25
	1.3 Addition	25
	1.4 Subtraction	20
2.0 Measurements	2.1 Length	10
	2.2 Mass	10
	2.3 Capacity	12
	2.4 Time	8
	2.5 Money	8
3.0 Geometry	3.1 Lines	6
	3.2 Shapes	6
Total Number of Lessons		150

NOTE:

The suggested number of lessons per sub-strand may be less or more depending on the context.

STRAND 1.0: NUMBERS

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
1.0 Numbers	1.1 Pre-number activities (20 lessons) <ul style="list-style-type: none"> • <i>Sorting and matching objects</i> • <i>Ordering objects</i> • <i>Creating patterns</i> 	By the end of the sub-strand, the learner should be able to: <ol style="list-style-type: none"> a) sort objects according to similar attributes in different situations, b) match objects with similar attributes in the environment, c) order objects according to given criteria in different situations, d) create patterns of different sizes and shapes using real objects, e) appreciate the use of sorting and grouping items in day-to-day activities. 	The learner is guided to: <ul style="list-style-type: none"> • collect different types of safe objects from the immediate environment, • group objects according to attributes such as size, colour, use, shape, and texture, • in teams, pair objects with similar attributes such as size, colour, use, shape, and texture, • arrange objects according to size from smallest to biggest and from biggest to smallest, • make patterns of different shapes and sizes using real objects, • assist in arranging items like fruits and cereals, for example beans, maize, and rice according to size, colour, shape and storage at home. 	<ol style="list-style-type: none"> 1. How can we group objects? 2. How can we arrange objects?

Core Competencies to be developed:

- Creativity: learner makes patterns of different shapes and sizes using real objects.
- Self-efficacy: learner assists in arranging items according to size, colour, shape, and storage at home.

Values:

- Unity: in teams, learner matches objects according to size, colour, and shape.
- Responsibility: learner assists in arranging items according to size, colour, shape, and storage at home.

Pertinent and Contemporary Issues (PCIs):

- Safety: learner observes safety as they collect objects from the immediate environment.
- Social Cohesion: learner works with peers as they pair and match objects according to size, colour and shape.

Link to other learning areas:

The learner can relate the skills used in creating patterns to the concept of patterns in Creative Activities.

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
1.0 Numbers	1.2 Whole Numbers (25 lessons) <ul style="list-style-type: none"> • <i>Counting numbers forward and backward</i> • <i>Reading and writing numbers in symbols and words</i> 	By the end of the sub-strand, the learner should be able to: <ol style="list-style-type: none"> a) count numbers forward up to 50, b) count numbers backward from 30, c) represent numbers 1 to 30 using concrete objects, d) read and write numbers 1 to 50 in symbols, e) read and write numbers 1 to 10 in words, f) identify missing numbers in number patterns up to 20, g) appreciate number patterns by creating 	The learner is guided to: <ul style="list-style-type: none"> • collect concrete objects from the immediate environment to use in counting activities, • count by 1's and 2's up to 20 starting from any point using concrete objects such as number cards, as well as body parts, • take turns in counting numbers forward up to 50, • count numbers backward from 30, • play games that involve representing numbers 1 to 30 using concrete objects, • read and write numbers 1 to 50 in symbols, • practise writing numbers 1 to 10 in words, • fill in missing numbers in number patterns up to 20, • create patterns with numbers up to 20 and share them with other groups, 	In what ways can we count from 1 to 20?

		and extending patterns during play activities.	<ul style="list-style-type: none"> play games involving whole numbers using digital devices or other resources. 	
Core Competencies to be developed: <ul style="list-style-type: none"> Digital Literacy: learner uses digital devices to play games involving numbers 1 to 50. Creativity: learner creates patterns with numbers up to 20. 				
Values: <ul style="list-style-type: none"> Respect: learner appreciates peers as they take turns in counting numbers forward up to 50. 				
Pertinent and Contemporary Issues (PCIs): <ul style="list-style-type: none"> Social Cohesion: learner takes turns counting numbers forward up to 50. Environmental Safety: learner observes safety when collecting concrete objects from the immediate environment. 				
Link to other learning areas: <ul style="list-style-type: none"> The learner can relate the skills used in the concept of reading and writing numbers in words and symbols to functional reading and writing in English Language Activities. The learner can relate the skills used in creating number patterns to the concept of patterns in Creative Activities. 				

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
1.0 Numbers	1.3 Addition (25 lessons) <ul style="list-style-type: none"> • <i>Modelling addition</i> • <i>Using addition and equal symbols</i> • <i>Carrying out additions</i> 	By the end of the sub-strand, the learner should be able to: <ol style="list-style-type: none"> a) model addition as putting objects together, b) use '+' and '=' signs in writing addition statements, c) add 2 single-digit numbers in different situations, d) add 3 single-digit numbers in different contexts, e) add a 2-digit number to a 1-digit number without regrouping with sum not exceeding 50, f) work out missing numbers in patterns involving the addition of whole numbers up to 50, 	The learner is guided to: <ul style="list-style-type: none"> • safely put two groups of objects together and count to get the total, • create scenarios where addition is relevant i.e there are two apples on the table, add three more, how many apples are there, • use flashcards with addition problems to practise quick recall of basic facts, • roll dice to add numbers together, • use number cards or abacus to add a 2-digit number to a 1-digit number without regrouping horizontally and vertically with a sum not exceeding 50, • make number patterns involving addition with 	How can you add a 2-digit number to a 1-digit number?

		g) play games involving addition using digital devices or other resources.	numbers up to 50, <ul style="list-style-type: none"> play games involving addition using digital devices and other resources. 	
Core competencies to be Developed: <ul style="list-style-type: none"> Creativity: learner makes number patterns involving addition. Collaboration: learner plays games involving addition with peers. 				
Values: Social Justice: learner accommodates others as they play games involving addition.				
Pertinent and Contemporary Issues (PCIs): <ul style="list-style-type: none"> Safety Issues: learner safely puts two groups of objects together and counts to get the total. Creative thinking: learner creatively makes number patterns involving addition with numbers up to 50. 				
Link to other learning areas: The learner can relate the skills used in writing addition sentences to functional writing in English Language Activities.				

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
1.0 Numbers	1.4 Subtraction (20 lessons) <ul style="list-style-type: none"> ● <i>Modelling subtractions</i> ● <i>Using subtraction and equal symbols</i> ● <i>Carrying out subtraction</i> 	By the end of the sub-strand, the learner should be able to: <ol style="list-style-type: none"> a) model subtraction as 'taking away' using concrete objects, b) use the ' - ' and '=' signs in writing subtraction sentences, c) subtract single digit numbers, d) subtract a 1-digit number from a 2-digit number without regrouping, e) work out missing numbers in patterns involving subtraction of whole numbers up to 50, f) play games involving subtraction using digital devices and other resources. 	The learner is guided to: <ul style="list-style-type: none"> ● model subtraction using concrete objects, ● use ' - ' and '=' signs in writing subtraction sentences, ● subtract by counting backward, ● subtract using concrete objects, ● make subtraction sentences related to basic addition facts, ● use number cards or charts safely to work out subtraction of a 1-digit number from a 2-digit number, ● work with peers to create patterns involving subtraction. 	How do you subtract a one-digit number from a two-digit number?

<p>Core Competencies to be developed:</p> <ul style="list-style-type: none">● Learning to Learn: learner learns the subtraction of numbers by counting backwards.● Creativity: learner creates patterns involving subtraction.
<p>Values:</p> <ul style="list-style-type: none">● Responsibility: learner takes care of concrete objects used in subtraction.● Unity: learner shares number cards or charts as they work out subtraction.
<p>Pertinent and Contemporary Issues (PCIs):</p> <ul style="list-style-type: none">● Social Cohesion: learner works with peers to create patterns involving subtraction.● Critical thinking: learner works out subtraction by counting backward.
<p>Link to other learning areas: The learner can relate the skills of writing subtraction sentences to functional writing in English Language Activities.</p>

SUGGESTED ASSESSMENT RUBRIC

LEVEL INDICATOR	Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Ability to sort, group, and match objects according to similar attributes (<i>size, shape, colour, use, texture</i>).	The learner sorts, groups, and matches objects according to five attributes systematically and correctly.	The learner sorts, groups and matches objects according to five attributes correctly.	The learner sorts and groups or matches objects according to any three to four attributes correctly.	The learner sorts, groups or matches objects according to any two attributes partially correctly.
Ability to create patterns by ordering objects and numbers according to different criteria (<i>addition, subtraction, size, shape, colour</i>).	The learner creates patterns by ordering objects and numbers according to five different criteria systematically and correctly.	The learner creates patterns by ordering objects and numbers according to five different criteria correctly.	The learner creates patterns by ordering objects or numbers according to any three or four different criteria correctly.	The learner creates patterns by ordering objects or numbers according to any two different criteria partially correctly.
Ability to count numbers forward up to 50 and backward from 30.	The learner counts numbers forward up to 50 and backward from 30, correctly and consistently.	The learner counts numbers forward up to 50 and backward from 30 correctly.	The learner counts numbers forward up to 40 or backward from 20 correctly.	The learner counts numbers forward up to 30 and backward from 10 partially correctly.
Ability to read and write numbers 1 to 50 in symbols and numbers 1 to 10 in words.	The learner reads and writes numbers 1 to 50 in symbols and 1 to 10 in words correctly and consistently.	The learner reads and writes numbers 1 to 50 in symbols and 1 to 10 in words correctly.	The learner reads and/or writes numbers 1 to 40 in symbols and/or 1 to 10 in words correctly.	The learner reads and/or writes numbers 1 to 30 in symbols and/or 1 to 5 in words partially correctly.

Ability to identify missing numbers in number patterns up to 20.	The learner identifies missing numbers in number patterns up to 20 correctly and consistently.	The learner identifies missing numbers in number patterns up to 20 correctly.	The learner identifies missing numbers in number patterns up to 15 correctly.	The learner identifies missing numbers in number patterns up to 10 partially correctly.
Ability to add a 2-digit number to a 1-digit number without regrouping with a sum not exceeding 50.	The learner adds a 2-digit number to a 1-digit number without regrouping with a sum not exceeding 50 correctly and systematically.	The learner adds a 2-digit number to a 1-digit number without regrouping with a sum not exceeding 50 correctly.	The learner adds a 2-digit number to a 1-digit number without regrouping with a sum not exceeding 30 correctly.	The learner adds a 2-digit number to a 1-digit number without regrouping with a sum not exceeding 20 correctly.
Ability to subtract a 1-digit number from a 2-digit number up to 50 without regrouping.	The learner subtracts a 1-digit number from a 2-digit number up to 50 without regrouping correctly and systematically.	The learner subtracts a 1-digit number from a 2-digit number up to 50 without regrouping correctly.	The learner subtracts a 1-digit number from a 2-digit number up to 30 without regrouping correctly.	The learner subtracts a 1-digit number from a 2-digit number up to 20 without regrouping correctly.
Ability to work out missing numbers in patterns involving the addition and subtraction of whole numbers up to 50.	The learner works out missing numbers in patterns involving the addition and subtraction of whole numbers up to 50 correctly and systematically.	The learner works out missing numbers in patterns involving the addition and subtraction of whole numbers up to 50 correctly.	The learner works out missing numbers in patterns involving the addition or subtraction of whole numbers up to 40 correctly.	The learner works out missing numbers in patterns involving the addition or subtraction of whole numbers up to 20 correctly.

STRAND 2.0 MEASUREMENT

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
2.0 Measurement	2.1 Length (10 lessons) <ul style="list-style-type: none"> • <i>Comparing length</i> • <i>Measuring length</i> 	By the end of the sub-strand, the learner should be able to: <ol style="list-style-type: none"> a) collect objects of different lengths from the immediate environment, b) compare the length of objects using longer than, shorter than, and same as, c) measure length using arbitrary units, d) appreciate measuring length using arbitrary units. 	The learner is guided to: <ul style="list-style-type: none"> • collect objects of different lengths from the immediate environment, • compare objects directly to identify objects that are longer than, shorter than or the same as other objects, • in teams, measure lengths using arbitrary units such as hand spans or walking steps and discuss the measurements, • use arbitrary units to measure the length of different objects in their immediate environment. 	<ol style="list-style-type: none"> 1) How do you compare the length of two objects? 2) What can be used to measure the length of the teacher's table?

Core competencies to be developed:

- Self-efficacy: learner measures the length of different objects in their immediate environment.
- Communication and collaboration: learner takes turns measuring the length of objects using arbitrary units.

Values:

Responsibility: learner takes care of objects collected from the environment for learning.

Pertinent and Contemporary Issues (PCIs):

Social Cohesion: learner works harmoniously in teams as they measure lengths using arbitrary units.

Link to other learning areas:

The learner can relate the concept of using objects from the environment for learning to the concept of resources in the environment in Environmental Activities.

Strand	Sub-Strand	Specific Learning Outcomes	Suggested learning experiences	Suggested Key Inquiry Question(s)
2.0 Measurement	2.2 Mass (10 lessons) <ul style="list-style-type: none"> • <i>Comparing mass</i> • <i>Measuring mass</i> 	By the end of the sub-strand, the learner should be able to: <ol style="list-style-type: none"> a) collect objects with different masses from the immediate environment, b) compare the mass of two objects using heavier than, lighter than, or same as, c) measure mass using arbitrary units, d) appreciate measuring mass using arbitrary units in the environment. 	The learner is guided to: <ul style="list-style-type: none"> • collect safe objects of different mass from their immediate environment, • in turn, use safe objects to identify those heavier than, lighter than, or same as, • use an identified empty container of known mass to measure the mass of other objects such as mass of beans, maize or flour as accurately as possible, • play games involving mass using digital devices. 	<ol style="list-style-type: none"> 1) How can you compare the mass of two or more objects? 2) How can you show that an object is heavier than, lighter than, or the same as your mathematics textbook?

Core Competencies to be developed:

- **Communication and Collaboration:** learner discusses objects that are heavier, lighter, or have the same mass.
- **Digital Literacy:** learner uses digital devices to play games involving mass.

Values:

- Unity: learner appreciates the effort of others as they measure the mass of different items.
- Respect: learner gives others equal opportunity as they use safe objects to identify heavier, lighter, or objects of the same mass.

Pertinent and Contemporary Issues (PCIs):

- Safety issues: learner observes safety as they collect objects of different mass from their immediate environment.
- Effective communication: learner listens and contributes to discussions on objects that are heavier, lighter, or have the same mass.

Links to other learning areas:

The learner can relate the concept of safe objects from the environment to the concept of safety in the school environment in Environmental Activities.

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
2.0 Measurement	2.3 Capacity (12 lessons) <ul style="list-style-type: none"> • <i>Comparing capacity</i> • <i>Measuring capacity</i> 	By the end of the sub-strand, the learner should be able to: <ol style="list-style-type: none"> a) collect containers of different capacities from the immediate environment, b) compare the capacity of two containers using more than, less than, and same as, c) measure capacity using arbitrary units, d) re-use empty containers of different capacities to keep items. 	The learner is guided to: <ul style="list-style-type: none"> • collect safe containers of different sizes from the environment, • empty and fill water in different containers to establish which holds more, which holds less, and which holds the same, • jointly fill basins with water using different small containers. The learners to count the number of small containers they use to fill the basin, • re-use containers of different capacities at home and school to keep items. 	How can we find out which of two containers holds more, less, or same as?

Core Competencies to be developed:

- Learning to Learn: learner determines the capacity of containers by filling bigger containers with water basins from smaller containers.
- Problem-solving: learner reuses containers of different capacities at home and school.

Values:

- Responsibility: learner re-uses containers to keep items at home and school.
- Unity: learner jointly with others fills bigger containers with water using different small containers.

Pertinent and Contemporary Issues (PCIs):

- Safety issues: learner collects safe containers of different sizes from the environment.
- Sustainable consumption: learner reuses of containers at home and school.

Link to other learning areas:

The learner can relate the skill of reusing empty containers to the skills of waste management in Environmental Activities.

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
2.0 Measurement	2.4 Time (8 lessons) <ul style="list-style-type: none"> • <i>Days of the week</i> • <i>Months of the year</i> 	By the end of the sub-strand, the learner should be able to: <ol style="list-style-type: none"> a) identify days of the week, b) relate days of the week to various activities, c) identify months of the year, d) appreciate activities that are done on different days of the week. 	The learner is guided to: <ul style="list-style-type: none"> • sing songs/ rhymes related to days of the week, • tell and write days of the week the way they follow each other, • name activities that take place during the days of the week such as raising flag on Monday and Friday, • sing songs/rhymes related to the months of the year, • discuss and tell their birth month to peers. 	<ol style="list-style-type: none"> 1) Which day of the week do you raise the school flag? 2) Which day of the week do you worship?
Core Competencies to be developed: <ul style="list-style-type: none"> • Self-efficacy: learner confidently sings songs/ rhymes related to days of the week. • Communication and Collaboration: learner discusses and tells his/her birth month to peers. 				

Values:

- Peace: learner harmoniously sings songs/ rhymes related to days of the week together.
- Patriotism: learner is aware of his/her own culture as they name activities that take place during the days of the week.

Pertinent and Contemporary Issues (PCIs):

- Citizenship: learner names activities that take place during the days of the week such as raising of the flag.
- Social Cohesion: learner collaboratively sings songs/ rhymes related to days of the week together.

Link to other learning areas:

The learner can relate the concept of time to the concept of weather and the sky, and day and night in Environmental Activities.

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
2.0 Measurement	2.5 Money (8 lessons) <ul style="list-style-type: none"> • <i>Kenyan currency</i> • <i>Counting and using money</i> 	By the end of the sub-strand, the learner should be able to: <ol style="list-style-type: none"> a) identify Kenyan currency coins, b) identify the sh.50 Kenyan currency note, c) count Kenyan currency coins one at a time, d) use money to buy up to 2 items without balance, e) appreciate the use of money in buying items from shops. 	The learner is guided to: <ul style="list-style-type: none"> • recognise and sort out different Kenyan currency coins sh.1, sh.5, sh.10, sh.20, and sh.40 according to their value, • recognise a sh.50 note and tell its value, • tell how many coins of sh.1, sh.5, sh.10, sh.20, sh. 40 by counting, • discuss the price of items in the model classroom shop up to sh.50, • role play buying up to 2 items from the model classroom shop without balance. 	How can you identify Kenyan currency coins and notes?

Core Competencies to be developed:

- Citizenship: learner recognises and sorts out different Kenyan currency coins and notes according to their value.
- Self-efficacy: learner role plays buying up to 2 items from the model classroom shop.

Values:

- Integrity: learner displays honesty as they role play selling and buying of items from the model classroom shop.
- Patriotism: learner is aware of own culture as they recognise different Kenyan currency coins and notes.

Pertinent and Contemporary Issues (PCIs):

Financial literacy: learner recognises and sorts out different Kenyan currency coins according to their value.

Link to other learning areas:

The learner can relate the skill of using money to the concept of our market in Environmental Activities.

SUGGESTED ASSESSMENT RUBRICS

LEVEL INDICATOR	Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Ability to compare lengths of objects using longer than, shorter than and same as.	The learner compares lengths of objects using longer than, shorter than, and same as accurately and comprehensively.	The learner compares lengths of objects using longer than, shorter than, and same as accurately.	The learner compares lengths of objects using any two of; longer than, shorter than, or same as accurately.	The learner compares lengths of objects using any one of; longer than, shorter than, or same as.
Ability to compare mass of two objects using heavier than, lighter than and same as.	The learner compares the mass of two objects using heavier than, lighter than and same as accurately and consistently.	The learner compares the mass of two objects using heavier than, lighter than and same as accurately.	The learner compares the mass of two objects using any two of; heavier than, lighter than or same as accurately.	The learner compares the mass of two objects using any one of; heavier than, lighter than or same as.
Ability to compare the capacity of two containers using more than, less than, and same as.	The learner compares the capacity of two containers using more than, less than, and same as accurately and consistently.	The learner compares the capacity of two containers using more than, less than, and same as accurately.	The learner compares the capacity of two containers using any of two; more than, less than, and same as accurately.	The learner compares the capacity of two containers using any one of; more than, less than and same as.

Ability to identify and relate days of the week to various activities.	The learner identifies and relates the days of the week to various activities correctly and consistently.	The learner identifies and relates the days of the week to various activities correctly.	The learner identifies and relates some days of the week to various activities accurately.	The learner identifies some days of the week.
Ability to identify months of the year.	The learner identifies 12 months of the year correctly and in sequence.	The learner identifies 12 months of the year correctly.	The learner identifies at most 7 months of the year correctly.	The learner identifies at most 4 months of the year correctly.
Ability to identify Kenyan currency coins sh.1, sh. 5, sh.10, sh. 20, sh. 40, and sh. 50 note.	The learner identifies Kenyan currency coins sh.1, sh.5, sh.10, sh.20, sh.40, and sh.50 note correctly and consistently.	The learner identifies Kenyan currency coins sh.1, sh.5, sh.10, sh.20, sh.40, and sh.50 note correctly.	The learner identifies at least 4 of Kenyan currency coins sh.1, sh.5, sh.10, sh.20, sh.40, or sh.50 note accurately.	The learner identifies at least 2 of Kenyan currency coins sh.1, sh.5, sh.10, sh.20, or sh.40.
Ability to count currency coins of sh.1, sh.5, sh.10, sh.20, and sh.40 one at a time.	The learner counts currency coins of sh.1, sh.5, sh.10, sh.20, and sh.40 one at a time accurately and fluently.	The learner counts currency coins of sh.1, sh.5, sh.10, sh.20, and sh.40 one at a time accurately.	The learner counts at least 4 currency coins of sh.1, sh.5, sh.10, sh.20, and sh.40 one at a time accurately.	The learner counts at least 2 currency coins of sh.1, sh.5, sh.10, sh.20, and sh.40 one at a time.

STRAND 3.0 GEOMETRY

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
3.0 Geometry	3.1 Lines (6 lessons) <ul style="list-style-type: none"> • <i>Straight lines</i> • <i>Curved lines</i> 	By the end of the sub-strand, the learner should be able to: <ol style="list-style-type: none"> a) identify straight lines in different situations, b) draw straight lines on different surfaces, c) identify curved lines in different situations, d) draw curved lines on different surfaces, e) recognise straight and curved lines from real objects in the environment. 	The learner is guided to: <ul style="list-style-type: none"> • stand behind one another facing the same side and identify what they have formed as a straight line, • in teams, mark two points on the ground and use a stick to join the two points to make a straight line, • practise drawing straight lines on the ground and in their books, • in teams, form a semicircle, draw a line around it and identify the line drawn as a curved line, • practise drawing curved lines on the ground and in their books, • observe and name lines from different objects in the environment. 	How do you make a line?
<p>Core-Competencies to be developed:</p> <ul style="list-style-type: none"> • Learning to Learn: learner discovers ways of drawing straight lines as they mark two points on the ground and using a stick to join the two points. • Self-efficacy: learner recognises straight and curved lines from real objects in the environment 				

Values:

- Respect: learner appreciates the effort of peers as they work in teams to observe and identify lines from different objects in the environment.
- Responsibility: learner follows instructions as they stand behind one another facing the same side to form a straight line.

Pertinent and Contemporary Issues (PCIs):

- Social Cohesion: learner works harmoniously in teams as they draw straight and curved lines.
- Environmental Awareness: learner observes and names lines from different objects in the environment.

Link to other learning areas:

The learner can relate the concept of drawing straight and curved lines to the concept of drawing in Creative Activities.

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
3.0 Geometry	3.2 Shapes (6 lessons) <i>Rectangles, triangles, and circles</i>	By the end of the sub-strand, the learner should be able to: a) identify rectangles, triangles, and circles in objects from the environment, b) make patterns involving rectangles, triangles, circles, and ovals, c) appreciate the beauty of patterns in different fabrics.	The learners are guided to: <ul style="list-style-type: none"> ● use safe objects from the environment to recognise different shapes such as rectangles, triangles, circles, and oval, ● make patterns of their choice using the three shapes, ● make patterns, colour them and share with classmates. 	What shapes can you identify in your class?
<p>Core-Competencies to be developed:</p> <ul style="list-style-type: none"> ● Creativity and Imagination: learner makes patterns of their choice using rectangles, triangles, circles, and ovals. ● Learning to Learn: learner uses safe objects from the environment to recognise different shapes such as rectangles, triangles, circles, and ovals. 				
<p>Values:</p> <ul style="list-style-type: none"> ● Peace: learner displays tolerance as they make patterns, colour them and share with classmates. ● Responsibility: learner is committed to duty as they work individually to make patterns of their choice using shapes. 				
<p>Pertinent and Contemporary Issues (PCIs):</p> <ul style="list-style-type: none"> ● Safety in the learning environment: learner uses safe objects from the environment for learning. ● Creative thinking: learner makes patterns of their choice using shapes. 				

Link to other learning areas:

- The learner can relate the skills used in making and colouring patterns to drawing and decoration skills in Creative Activities.
- The learner can relate the concept of using safe objects from the environment to the concept of safety in the school environmental in Environmental Activities.

SUGGESTED ASSESSMENT RUBRIC

LEVEL INDICATOR	Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Ability to draw straight and curved lines.	The learner draws straight and curved lines accurately and consistently.	The learner draws straight and curved lines accurately.	The learner draws straight and curved lines partially accurately.	The learner draws straight or curved lines partially accurately.
Ability to identify shapes in an object (<i>rectangles, triangles, circles, ovals</i>).	The learner identifies four shapes in an object correctly and names them.	The learner identifies four shapes in an object correctly.	The learner identifies any three shapes in an object correctly.	The learner identifies any two shapes in an object.
Ability to make patterns involving three shapes (<i>rectangles, triangles, circles, ovals</i>).	The learner makes patterns involving four shapes accurately and consistently.	The learner makes patterns involving four shapes accurately.	The learner makes patterns involving any three shapes accurately.	The learner makes patterns involving any two shapes.

APPENDIX 1: SUGGESTED LEARNING RESOURCES

STRANDS	SUB -STRANDS	RESOURCES
NUMBERS	NUMBER CONCEPT	Counters such as marbles, sticks, stones, grains
	WHOLE NUMBERS	A number line drawn on the ground/floor, place value chart
	ADDITION	Place value chart, abacus, basic addition facts table
	SUBTRACTION	Basic addition facts table, place value chart
	MULTIPLICATION	Bottle tops, marbles, stones, grains, number lines drawn on the ground/floor, multiplication tables
	DIVISION	Bottle tops, marbles, stones, sticks, grains, multiplication tables
	FRACTIONS	Circular and rectangular cut-outs, marbles, bottle tops, sticks, grains, stones
MEASUREMENT	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 faces both analogue and digital
	MONEY	Kenyan currency coins and notes/imitations up to sh.1000, classroom shop
GEOMETRY	POSITION AND DIRECTION	Charts showing a straight line, a turn to the left, and a turn to the right
	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 among others.

APPENDIX 2: SUGGESTED ASSESSMENT METHODS AND TOOLS

1. Written tests and quizzes
2. Rating scales
3. Projects
4. Observation Schedules
5. Portfolio
6. Assessment Rubric
7. Questionnaire