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KENYA INSTITUTE OF CURRICULUM DEVELOPMENT

A skilled and Ethical Society

PRIMARY SCHOOL EDUCATION CURRICULUM DESIGN

MATHEMATICAL ACTIVITIES

GRADE 1, 2 & 3

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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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. 	
<p>Core Competencies to be developed:</p> <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. 				
<p>Values:</p> <ul style="list-style-type: none"> Respect: learner appreciates peers as they take turns in counting numbers forward up to 50. 				
<p>Pertinent and Contemporary Issues (PCIs):</p> <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. 				
<p>Link to other learning areas:</p> <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, • 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?
<p>Core Competencies to be developed:</p> <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

MATHEMATICAL ACTIVITIES

GRADE 2

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 Number Concept (8 lessons) <ul style="list-style-type: none"> • <i>Numbers in symbols</i> • <i>Number games</i> 	By the end of the sub-strand, the learner should be able to: <ol style="list-style-type: none"> a) identify numbers 1 to 100 in symbols in different situations, b) represent numbers 1 to 100 using concrete objects from the environment, c) play number games using number cards or digital devices, d) appreciate the use of numbers in real-life situations. 	The learner is guided to: <ul style="list-style-type: none"> • recognise and read numbers 1 to 100 from number cards or charts, • collect safe concrete objects from the environment, • count concrete objects of given numbers in symbols, • match a group of objects to their number value, • in turns, discuss, choose, and play number games in turns using number cards or digital devices. 	How can we represent numbers using objects?
Core Competencies to be developed: <ul style="list-style-type: none"> • Digital Literacy: learner uses digital devices to play number games. • Learning to Learn: learner discovers ways of representing numbers as they match a group of objects to their number value. 				
Values: <ul style="list-style-type: none"> • Unity: learner respects peers' opinions as they in turn, discuss, choose, and play number games. • Responsibility: learner observes safety practises as they collect concrete objects for learning from the environment. 				

Pertinent and Contemporary Issues (PCIs):

- Social Cohesion: learner discusses, chooses, and plays number games in turns.
- Safety issues: learner observes safety as they collect concrete objects for learning from the environment.

Link to other learning areas:

The learner relates the concept of using concrete objects from the environment to represent numbers 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)
1.0 Numbers	1.2 Whole Numbers (20 lessons) <ul style="list-style-type: none"> • <i>Counting numbers forward and backward</i> • <i>Place value</i> • <i>Missing numbers</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 100 in different situations, b) count numbers backward from the number 50, c) read and write numbers 1 to 100 in symbols in different situations, d) identify the place value of numbers in ones and tens, e) read and write numbers 1 to 20 in words, f) work out missing numbers in number patterns up to 100, 	The learner is guided to: <ul style="list-style-type: none"> • count numbers forward up to 100 starting from any point, • count numbers backward from 50 starting from any point, • recognise and read numbers 1 to 100 in symbols from number cards or charts, • name and write the numbers in the place value of ones and tens, • discuss the place value of digits written on the number cards, • read and write numbers 1 to 20 in words, • work out missing numbers in number patterns up to 100, • make number patterns and share with peers, • play games involving whole numbers using digital devices or other resources, • improvise place value apparatus by use of place value tins and pockets from locally available materials, 	How do we get the next number in a number pattern?

		g) appreciate number patterns in playing number games.	<ul style="list-style-type: none"> play a game of putting number cards in place value tins or pockets (ones and tens) according to the place value of digits. 	
<p>Core Competencies to be developed:</p> <ul style="list-style-type: none"> Creativity and Imagination: learner improvises place value apparatus by use of place value tins and pockets from locally available materials. Communication and Collaboration: the learner discusses the place value of digits written on the number cards. 				
<p>Values:</p> <ul style="list-style-type: none"> Unity: the learner, in turn, plays a game of putting number cards in place-value tins or pockets according to the place value of digits. Responsibility: learner observes safety precautions as they use locally available materials to improvise place value tins and pockets. 				
<p>Pertinent and Contemporary Issues (PCIs):</p> <ul style="list-style-type: none"> Effective Communication: learner reads and writes numbers 1 to 100 in symbols in different situations. Creative thinking: learner improvises place value tins and pockets from locally available materials. 				
<p>Link to other learning areas:</p> <ul style="list-style-type: none"> The learner relates the skills used in reading and writing numbers in symbols to reading and writing skills in English Language Activities. The learner relates the skills used in making 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 (20 lessons) <ul style="list-style-type: none"> • <i>Addition of numbers</i> • <i>Missing numbers</i> 	By the end of the sub-strand, the learner should be able to: <ol style="list-style-type: none"> a) add a 2-digit number to a 1-digit number without and with regrouping with the sum not exceeding 100, b) add a 2-digit number to a 2-digit number without and with regrouping, with the sum not exceeding 100, c) add two multiples of 10 whose sum does not exceed 100, d) work out missing numbers in patterns involving the addition of whole numbers up to 100, e) appreciate the addition of numbers in real-life situations. 	The learner is guided to: <ul style="list-style-type: none"> • write additional sentences given in horizontal form into vertical form according to place value, • add a 2-digit number to a 1-digit number without regrouping, • use number cards to add a 2-digit number to a 1-digit number with regrouping, • in teams, discuss and come up with different ways of adding two 2-digit numbers without and with regrouping, • add 2 multiples of ten whose sum does not exceed 100, • work with peers and make patterns using numbers up to 100 and share with others. 	<ol style="list-style-type: none"> 1. How are horizontal addition sentences written vertically? 2. When do we regroup during addition?

			<ul style="list-style-type: none"> play games with peers involving addition using digital devices or other resources, 	
<p>Core Competencies to be developed:</p> <ul style="list-style-type: none"> Communication and Collaboration: The learner speaks and listens to peers as they discuss different ways of adding two 2-digit numbers without and with regrouping. Learning to Learn: learner discovers ways of presenting addition as they write addition statements in horizontal and vertical forms. 				
<p>Values:</p> <ul style="list-style-type: none"> Social Justice: learner accommodates others as they play games involving addition. Unity: The learner discusses and comes up with different ways of adding two 2-digit numbers without and with regrouping. 				
<p>Pertinent and Contemporary Issues (PCIs):</p> <ul style="list-style-type: none"> Critical thinking: learner works out missing numbers in patterns involving addition. Friendship formation: learner plays games with peers involving addition using different resources. 				
<p>Link to other learning areas:</p> <ul style="list-style-type: none"> The learner relates the skills used in making patterns to the concept of patterns in Creative Activities. The learner relates the skills used in writing additional sentences in horizontal and vertical forms 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>Subtraction of numbers</i> • <i>Missing numbers</i> 	By the end of the sub-strand, the learner should be able to: <ol style="list-style-type: none"> a) subtract a 1-digit number from a 2-digit number without regrouping, b) subtract a 2-digit number from a 2-digit number without and with regrouping, c) subtract a lower multiple of 10 from a higher multiple of 10, d) work out missing numbers in patterns involving subtraction up to 100, e) appreciate the subtraction of numbers in real-life situations. 	The learner is guided to: <ul style="list-style-type: none"> ● subtract a 1-digit number from a 2-digit number without regrouping, ● subtract a 2-digit number from a 2-digit number without regrouping using place value apparatus, ● subtract a 2-digit number from a 2-digit number with regrouping using place value apparatus, ● subtract lower multiples of 10 from higher multiples of 10 using number cards, ● in teams, discuss and work out missing numbers in patterns involving subtraction up to 100. 	How do you work out missing numbers in number patterns involving subtraction?

Core Competencies to be developed:

- Learning to Learn: the learner discovers steps of subtracting a 2-digit number from a 2-digit number with regrouping using place value apparatus.
- Critical thinking: learner discusses and works out missing numbers in patterns involving subtraction up to 100.

Values:

- Unity: learner collaborates as they discuss and work out missing numbers in patterns involving subtraction up to 100.
- Social Justice: The learner accommodates peers as they discuss and work out missing numbers in patterns involving subtraction.

Pertinent and Contemporary Issues (PCIs):

- Social Cohesion: learner jointly with others discusses and works out missing numbers in patterns involving subtraction up to 100.
- Critical thinking: learner subtracts a 2-digit number from a 2-digit number with regrouping using place value apparatus.

Link to other learning areas:

The learner relates the skills used in discussion to speaking and listening skills in English Language Activities.

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
1.0 Numbers	1.5 Multiplication (12 lessons) <ul style="list-style-type: none"> • <i>Multiplication of numbers</i> • <i>Multiplication sign</i> 	By the end of the sub-strand, the learner should be able to: <ol style="list-style-type: none"> a) represent multiplication as repeated addition using numbers 1, 2, 3, by 2 and 3, b) write repeated addition sentences as multiplication using ‘×’ sign, c) multiply 1-digit numbers by 1, 2, 3, 4 and 5, d) multiply 1-digit numbers by 10, e) appreciate arranging objects in groups of 3’s, 4’s, 5’s, and 10’s in real-life situations. 	The learner is guided to: <ul style="list-style-type: none"> • use counters or other concrete objects to represent multiplication as repeated addition, • model multiplication as repeated addition using concrete objects, • practice using ‘×’ sign in writing repeated addition sentences as multiplication, • work with peers and multiply 1-digit numbers by 1, 2, 3, 4, 5, • use locally available materials to model a multiplication chart and display it in the learning environment, • multiply 1-digit numbers by 10 to form multiples of 10, • play games involving multiplication using digital devices or other resources, 	How is multiplication represented as repeated addition?

			<ul style="list-style-type: none"> visit the local market to see how different fruits and other items are arranged in groups of 3's, 4's, 5's, or 10's for selling, and assist in grouping some of the items for sale. 	
<p>Core Competencies to be developed:</p> <ul style="list-style-type: none"> Digital Literacy: learner uses digital devices to play games involving multiplication. Critical thinking and Problem-solving: learner uses locally available materials to model a multiplication chart. 				
<p>Values:</p> <ul style="list-style-type: none"> Responsibility: learner shares resources amicably as they model a multiplication chart. Patriotism: learner participates in community activities as they visit the local market and assist in grouping items for sale. 				
<p>Pertinent and Contemporary Issues (PCIs):</p> <ul style="list-style-type: none"> Financial Literacy: the learner visits the local market to see how fruits and other items are arranged in groups for selling. Community involvement: the learner visits the local market to assist in grouping items for sale. 				
<p>Link to other learning areas:</p> <p>The learner relates the skills used in improvising learning materials to waste management skills in Environmental Activities.</p>				

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
1.0 Numbers	1.6 Division (8 lessons) <ul style="list-style-type: none"> • <i>Division of numbers</i> • <i>Division sign</i> 	By the end of the sub-strand, the learner should be able to: <ol style="list-style-type: none"> a) represent division as equal sharing up to the number 20 by 2, b) represent division as the equal grouping of numbers up to 25 by 3, c) use the '\div' sign in writing division statements. d) divide numbers up to 25 by 4 and 5 without a remainder, e) appreciate the application of division of numbers in real-life situations. 	The learner is guided to: <ul style="list-style-type: none"> • in teams, share a given number of objects equally by each picking one object at a time until all the objects are finished. Each learner to count how many objects he/she got, • in teams, place several objects together, and let each team pick one item at a time until there is no object remaining, each team is to count the number of objects they picked, • write division statements using the sign '\div', • organise numbers up to 25 into groups of 4 or 5 without a remainder, • play games involving division using digital devices or other resources with peers. 	How can you share a given number of objects equally?
<p>Core Competencies to be developed:</p> <ul style="list-style-type: none"> • Learning to Learn: learner learns to organise numbers up to 25 into groups of 4 or 5 without a remainder, • Digital Literacy: learner uses digital devices to play games involving division. 				

Values:

- Love: the learner shares a given number of objects equally by each picking one object at a time until all the objects are finished.
- Unity: learner works harmoniously in teams as they place objects together.

Pertinent and Contemporary Issues (PCIs):

- Positive discipline: learner works harmoniously in teams as they place and share objects.
- Social Cohesion: learner plays games involving division using digital devices or other resources with peers.

Link to other learning areas:

- The learner relates the skills of writing division statements to functional writing in English Language Activities.
- The learner relates the concept of equal sharing to the concept of values in Religious Activities.

Strand	Sub-strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
1.0 Numbers	1.7 Fractions (12 lessons) <i>Identifying fractions</i>	By the end of the sub-strand, the learner should be able to: <ol style="list-style-type: none"> a) identify a $\frac{1}{2}$ as part of a whole in different situations, b) identify a $\frac{1}{4}$ as part of a whole in different situations, c) apply fractions in day-to-day activities, d) appreciate use of fractions in daily life activities. 	The learner is guided to: <ul style="list-style-type: none"> • use papers, pencils, and a pair of scissors to make circular paper cut-outs while observing safety, • fold the circular paper cut-outs into two equal parts and identify one of the parts as half of the whole written as $\frac{1}{2}$, • make rectangular paper cut-outs and fold them into two equal parts to get half of a whole written as $\frac{1}{2}$, • fold circular paper cut-outs to get 4 equal parts and identify one of the parts as a $\frac{1}{4}$ of a whole, • practise making or sharing items in halves or quarters of a whole, • play games involving fractions using digital devices or other resources. 	How do we get a fraction from a whole?

Core Competencies to be developed:

- Learning to Learn: the learner identifies halves and quarters as part of a whole in different situations.
- Self-efficacy: learner practises making halves and quarters of a whole from paper cut-outs.

Values:

- Responsibility: learner observes safety as they use scissors to make circular paper cut-outs.
- Unity: learner collaborates with peers as they use digital devices to play games involving fractions.

Pertinent and Contemporary Issues (PCIs):

- Life skills: learner uses fractions in day-to-day activities.
- Self-esteem: learner practises making halves and quarters of a whole from paper cut-outs.

Link to other learning areas:

The learner can relate the skills of making halves and quarters of a whole from paper cut-outs to pattern and modelling skills in Creative Activities.

SUGGESTED ASSESSMENT RUBRIC

Level Indicator	Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Ability to identify numbers 1 to 100 in symbols.	The learner identifies numbers 1 to 100 in symbols and words accurately.	The learner identifies numbers 1 to 100 in symbols accurately.	The learner identifies numbers 1 to 70 in symbols accurately.	The learner identifies numbers 1 to 50 in symbols.
Ability to count numbers forward up to 100 and backward from number 50.	The learner counts numbers forward up to 100 and backward from number 50 accurately and fluently.	The learner counts numbers forward up to 100 and backward from number 50 accurately.	The learner counts numbers forward up to 70 and backward from number 30 accurately.	The learner counts numbers forward up to 50 and backward from number 20.
Ability to read and write numbers 1 to 100 in symbols and 1 to 20 in words.	The learner reads and writes numbers 1 to 100 in symbols and 1 to 20 in words correctly and proficiently.	The learner reads and writes numbers 1 to 100 in symbols and 1 to 20 in words correctly.	The learner reads and writes numbers 1 to 70 in symbols and 1 to 15 in words correctly.	The learner reads and writes numbers 1 to 70 in symbols and 1 to 10 in words.
Ability to identify the place value of numbers in ones and tens.	The learner identifies the place value of numbers in ones, tens, and hundreds correctly.	The learner identifies the place value of numbers in ones and tens correctly.	The learner identifies the place value of numbers in ones or tens correctly.	The learner identifies the place value of numbers in ones or tens partially correctly.

Ability to work out missing numbers in number patterns up to 100.	The learner works out missing numbers in number patterns up to 100 correctly and systematically.	The learner works out missing numbers in number patterns up to 100 correctly.	The learner works out missing numbers in number patterns up to 100 partially correctly.	The learner works out missing numbers in number patterns up to any number less than 100 partially correctly.
Ability to add a 2-digit number to a 2-digit number without and with regrouping, with a sum not exceeding 100.	The learner adds a 2-digit number to a 2-digit number without and with regrouping, with a sum not exceeding 100 correctly and systematically.	The learner adds a 2-digit number to a 2-digit number without and with regrouping, with a sum not exceeding 100 correctly.	The learner adds a 2-digit number to a 2-digit number without or with regrouping, with a sum not exceeding 100 correctly.	The learner adds a 2-digit number to a 1-digit number without or with regrouping, with a sum not exceeding 100.
Ability to work out missing numbers in patterns involving addition and subtraction of whole numbers up to 100.	The learner works out missing numbers in patterns involving addition and subtraction of whole numbers up to 100 correctly and systematically.	The learner works out missing numbers in patterns involving addition and subtraction of whole numbers up to 100 correctly.	The learner works out missing numbers in patterns involving the addition and subtraction of whole numbers up to 100 partially correctly.	The learner works out missing numbers in patterns involving the addition or subtraction of whole numbers up to any number less than 100 partially correctly.

Ability to subtract a 2-digit number from a 2-digit number without and with regrouping.	The learner subtracts a 2-digit number from a 2-digit number without and with regrouping correctly and systematically.	The learner subtracts a 2-digit number from a 2-digit number without and with regrouping correctly.	The learner subtracts a 2-digit number from a 2-digit number without and with regrouping partially correctly.	The learner subtracts a 2-digit number from a 2-digit number without or with regrouping partially correctly.
Ability to multiply 1-digit numbers by 1, 2, 3, 4, 5 and 10.	The learner multiplies 1-digit numbers by 1, 2, 3, 4, 5, and 10 accurately and systematically.	The learner multiplies 1-digit numbers by 1, 2, 3, 4, 5 and 10 accurately.	The learner multiplies 1-digit numbers by any 3 to 5 of; 1, 2, 3, 4, 5, or 10 accurately.	The learner multiplies 1-digit numbers by any 2 of; 1, 2, 3, 4, 5, or 10.
Ability to represent division as equal sharing and grouping up to number 20 by 2.	The learner represents division as equal sharing and grouping up to the number 20 by 2 accurately and systematically.	The learner represents division as equal sharing and grouping up to the number 20 by 2 accurately.	The learner represents division as equal sharing or grouping up to the number 15 by 2 accurately.	The learner represents division as equal sharing or grouping up to number 10 by 2.
Ability to divide numbers up to 25 by 4 and 5 without a remainder.	The learner divides numbers up to 25 by 4 and 5 without a remainder accurately and systematically.	The learner divides numbers up to 25 by 4 and 5 without a remainder accurately.	The learner divides numbers up to 20 by 4 or 5 without a remainder accurately.	The learner divides numbers up to 15 by 4 or 5 without a remainder.
Ability to identify a $\frac{1}{2}$ and a $\frac{1}{4}$ as part of a whole.	The learner identifies a $\frac{1}{2}$ and a $\frac{1}{4}$ as part of a whole correctly and systematically.	The learner identifies a $\frac{1}{2}$ and a $\frac{1}{4}$ as part of a whole correctly.	The learner identifies a $\frac{1}{2}$ and a $\frac{1}{4}$ as part of a whole partially correctly.	The learner identifies a $\frac{1}{2}$ or an as part of a with partially 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 (6 lessons) <i>Measuring length</i>	By the end of the sub-strand, the learner should be able to: <ol style="list-style-type: none"> a) measure length using fixed units, b) identify the metre as a unit of measuring length, c) measure length in metres, d) appreciate measuring length using fixed units in real-life situations. 	The learner is guided to: <ul style="list-style-type: none"> • use sticks of equal length to measure the lengths of different objects and record the measurements, • use sticks of different lengths to measure length, including 1-metre sticks, • in teams, use locally available materials to make 1-metre sticks and use them to measure the length of various objects within the classroom and record the measurements, • measure the length of different objects at home, record the measurements, and discuss them with peers in school. 	How is the length of an object measured?
<p>Core Competencies to be developed:</p> <ul style="list-style-type: none"> • Critical thinking and Problem-solving: learner makes 1-metre sticks and uses them to measure the length of various objects. • Self-efficacy: the learner measures the length of different objects at home, records the measurements, and discusses them with peers in school. 				

Values:

- Responsibility: the learner uses locally available materials to make 1-metre sticks and use them to measure the length of various objects.
- Unity: the learner works in teams to make 1-metre sticks and use them to measure the length of various objects.

Pertinent and Contemporary Issues (PCIs):

- Self-esteem: the learner measures the length of different objects at home, records the measurements, and discusses them with peers in school.
- Creative thinking: learner uses locally available materials to make a 1-metre stick.

Link to Other Learning Areas:

The learner can relate the concept of using objects within the classroom and at home 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)
<p>2.0 Measurement</p>	<p>2.2 Mass (6 lessons)</p> <p><i>Measuring mass</i></p>	<p>By the end of the sub-strand, the learner should be able to:</p> <ol style="list-style-type: none"> a) measure mass using fixed units, b) identify the kilogram as a unit of measuring mass, c) measure the mass of different objects in kilograms, d) appreciate measuring mass using fixed units in real-life situations. 	<p>The learner is guided to:</p> <ul style="list-style-type: none"> ● collect safe materials from the environment for measuring mass, ● work with peers to use locally available materials to make an improvised a beam balance, ● in teams, use items of the same mass and an improvised beam balance to measure different masses, record and discuss the results with peers, ● use an item equivalent to a 1-kilogram mass and a beam balance to measure the mass of different objects in kilograms accurately, ● visit a shop or market and assist vendors in measuring the mass of items such as beans, maize, rice, and flour using fixed units, for example, an empty 1-kilogram container, ● measure the mass of different items in kilograms using a 1-kilogram container, ● play games using digital devices or other resources involving mass in kilograms. 	<p>Why is it important to know the mass of an object?</p>

Core Competencies to be developed:

- Communication and Collaboration: learner in teams, uses items of the same mass and an improvised beam balance to measure different masses and discuss results.
- Creativity and imagination: learner works with peers to use locally available materials to make an improvised a beam balance.

Values:

- Patriotism: the learner assists vendors in measuring the masses of items such as beans, maize, rice, and flour using fixed units.
- Responsibility: learner improvises beam balance to measure different masses.

Pertinent and Contemporary Issues (PCIs):

- Creative thinking: learner improvises beam balance to measure different masses.
- Community involvement: learner visits a shop or market and assists vendors to measure the masses of items using fixed units.

Link to Other Learning Areas:

- The learner can relate the concept of visiting a shop or market to the concept of our market in Environmental Activities.
- The learner can relate the skills of using locally available materials to improvise a beam balance to the skills of identifying resources in the environment in Environmental Activities.

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
2.0 Measurement	2.3 Capacity (8 lessons) <i>Measuring capacity</i>	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, d) appreciate measuring capacity in litres using improvised containers in real-life situations.	The learner is guided to: <ul style="list-style-type: none"> ● collect containers of different sizes for use in measuring capacity, ● use small containers of equal capacity to fill bigger containers of the same capacity but different shapes with water, count the number of small containers used to fill the big containers, ● use 1-litre containers to fill bigger containers with water, and count the number of litres used to fill the big containers. Use water properly to avoid wetting floors. ● in teams, discuss and measure the capacity of different containers in litres accurately, ● participate in activities involving measuring liquids such as milk and water using 1-litre bottles. 	<ol style="list-style-type: none"> 1. Why do containers have different capacities? 2. Which commodities can be measured in terms of litres?

Core Competencies to be developed:

- Self-efficacy: learner uses 1-litre containers to fill bigger containers with water and counts the number of litres used to fill the bigger containers.
- Communication and Collaboration: learner in teams, discusses and measures the capacity of different containers in litres.

Values:

- Unity: learner participates in activities involving measuring liquids such as milk and water using 1-litre bottles.
- Responsibility: The learner collects containers of different sizes for use in measuring capacity.

Pertinent and Contemporary Issues (PCIs):

- Safety issues: the learner uses water carefully to avoid wet floors as they use 1-litre containers to fill big containers with water.
- Self-esteem: learner discusses and measures the capacity of different containers in litres confidently.

Link to other Learning Areas:

The learner can relate the skills used in discussion to speaking and listening skills in English Language Activities.

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
2.0 Measurement	2.4 Time (10 lessons) <ul style="list-style-type: none"> • <i>Months of the year</i> • <i>Days in a month</i> • <i>Calendar</i> • <i>Minute and hour hand</i> • <i>Reading and writing time</i> 	By the end of the sub-strand, the learner should be able to: <ol style="list-style-type: none"> a) relate the months of the year to special occasions, b) recite the number of days in each month of the year, c) read the calendar in terms of day and date, d) measure time using arbitrary units, e) identify the minute and hour hand in the clock face, f) read time by the hour from the clock face, g) write time by the hour shown by an analogue and digital clock, 	The learner is guided to: <ul style="list-style-type: none"> • discuss special occasions that take place in different months of the year, • sing songs and rhymes related to the number of days in the months of the year, • discuss how to read, tell, and write dates from the calendar. • discuss and relate time by hour using the length of a shadow of an object such as a tree in the environment, • discuss places where clocks are displayed and how they look, • observe a clock face and discuss the minute and hour hand, • discuss how to read, tell and write time by the hour using both the analogue and digital clock, 	How do we use calendars and clocks to track time?

		h) appreciate keeping time in day-to-day activities.	<ul style="list-style-type: none"> • discuss the importance of keeping time for different activities. 	
<p>Core Competencies to be developed:</p> <ul style="list-style-type: none"> • Citizenship: the learner discusses special occasions that take place in different months of the year. • Self-efficacy: the learner reads the calendar in terms of day and date, and measures time using arbitrary units. 				
<p>Values:</p> <ul style="list-style-type: none"> • Patriotism: the learner discusses special occasions that take place in different months of the year. • Integrity: the learner discusses the importance of keeping time in different activities. 				
<p>Pertinent and Contemporary Issues (PCIs):</p> <ul style="list-style-type: none"> • Global Citizenship: the learner discusses special occasions that take place in different months of the year. • Life Skills: learner discusses and relates time by the hour using the length of a shadow of an object such as a tree in the environment. 				
<p>Link to other learning areas: The learner can relate the skills of telling time to the concept of weather and sky, and day and night in Environmental Activities.</p>				

Strand	Sub-Strand	Specific Learning Outcomes	Suggested learning experiences	Suggested Key Inquiry Question(s)
2.0 Measurement	2.5 Money (10 lessons) <ul style="list-style-type: none"> • <i>Kenyan currency</i> • <i>Counting money</i> • <i>Addition in 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 and notes up to sh.100, b) count the number of sh. 10 and sh. 20 coins in different situations, c) count the number of sh. 50 and sh. 100 notes in different situations, d) add two denominations of money with a sum not exceeding sh. 100, e) use money to buy up to 3 items without balance, f) appreciate the use of money in buying items. 	The learner is guided to: <ul style="list-style-type: none"> • recognise and sort out Kenyan currency coins and notes up to sh.100, • in teams, make sh. 10 and sh. 20 coins paper cut-outs, sort and count the number of sh. 10 and sh. 20 coins paper cut-outs, • work collaboratively, to make sh. 50 and sh. 100 notes paper cut-outs, sort and count the number of sh. 50 and sh. 100 notes paper cut-outs, • add two denominations of money with a sum not exceeding sh. 100, • with peers, role play buying up to 3 items without balance from the model shop in the classroom, • record a video during a role play of classroom shopping activities. 	How different are Kenyan currency denominations?

Core Competencies to be developed:

- Collaboration: learner in teams, makes sh. 10 and sh. 20 coins paper cut-outs, sorts and counts the number of sh. 10 and sh. 20 coins paper cut-outs.
- Digital Literacy: the learner records a video during a role play of classroom shopping activities.

Values:

- Patriotism: learner recognises and sorts out Kenyan currency coins and notes up to sh.100.
- Responsibility: learner takes up assigned roles as they role-play classroom shopping activities.

Pertinent and Contemporary Issues (PCIs):

- Financial Literacy: learner role plays buying up to 3 items without balance from the model shop in the classroom.
- Citizenship: the learner recognises and sorts out Kenyan currency coins and notes.

Link to other learning areas:

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

SUGGESTED ASSESSMENT RUBRIC

LEVEL INDICATOR	Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Ability to measure the length in metres, mass in kilograms, and capacity in litres.	The learner measures length in metres, mass in kilograms, and capacity in litres accurately and systematically.	The learner measures length in metres, mass in kilograms, and capacity in litres accurately.	The learner measures any 2 of; length in metres, mass in kilograms, and capacity in litres accurately.	The learner measures any 1 of; length in metres, mass in kilograms, or capacity in litres.
Ability to read the calendar in terms of day and date.	The learner reads the calendar in terms of day, month, and year accurately and fluently.	The learner reads the calendar in terms of day, month, and year accurately.	The learner reads the calendar in terms of any 2 of; day, month, and year accurately.	The learner reads the calendar in terms of any; day, month, or year.
Ability to read and write time by the hour from the clock face.	The learner reads and writes time by the hour from the clock face accurately and fluently.	The learner reads and writes time by the hour from the clock face accurately.	The learner reads or writes time by the hour from the clock face accurately.	The learner reads or writes time by the hour from the clock face partially accurately.
Ability to identify Kenyan currency coins and notes up to sh.100.	The learner identifies Kenyan currency coins to sh. 40 and notes up to sh.100 accurately and names their features.	The learner identifies Kenyan currency coins to sh. 40 and notes up to sh.100 accurately	The learner identifies Kenyan currency coins up to sh. 40 or notes up to sh.100 accurately.	The learner identifies Kenyan currency coins up to sh. 20 or sh.50 note.

Ability to count the number of sh.10 and sh.20 coins and sh.50 and sh.100 notes.	The learner counts the number of sh.10 and sh.20 coins and sh.50 and sh.100 notes correctly and fluently.	The learner counts the number of sh.10 and sh.20 coins and sh.50 and sh.100 notes correctly.	The learner counts the number of any 3 of; sh.10 and sh.20 coins, sh.50 and sh.100 notes correctly.	The learner counts the number of any 2 or 1 of; sh.10 or sh.20 coins, sh.50 or sh.100 notes.
Ability to add 2 denominations of money with a sum not exceeding sh. 100.	The learner adds 2 denominations of money with a sum not exceeding sh. 100 correctly and consistently.	The learner adds 2 denominations of money with a sum not exceeding sh. 100 correctly.	The learner adds 2 denominations of money with a sum not exceeding Sh. 70 correctly.	The learner adds 2 denominations of money with a sum not exceeding sh. 50.

STRAND 3.0 GEOMETRY

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
3.0 Geometry	3.1 Lines (5 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) model straight lines in different ways, b) draw straight lines in different ways, c) model curved lines in different ways, d) draw curved lines in different situations, e) recognise the use lines in real-life situations. 	The learner is guided to: <ul style="list-style-type: none"> • safely model straight lines using sticks, plasticine/clay, or papier mache and strings, • safely model curved lines using plasticine/clay, or papier mache and strings, • model straight and curved lines by holding their hands in different ways; upward, horizontal, diagonal, • draw straight and curved lines on manila papers and books using pencils, crayons rulers, or sticks, • use digital devices or other resources to draw lines and share with peers. 	How are lines used in real life?
<p>Core Competencies to be developed:</p> <ul style="list-style-type: none"> • Self-efficacy: learner draws straight and curved lines on manila papers and books. • Digital Literacy: learner uses digital devices to draw lines. 				

Values:

- Responsibility: the learner takes care of materials used for drawing straight and curved lines.
- Love: learner portrays a caring attitude as they use digital devices to draw lines and share with peers.

Pertinent and Contemporary Issues (PCIs):

- Creative thinking: learner safely models curved lines using plasticine/clay or papier mache and strings.
- Friendship formation: the learner uses digital devices or other resources to draw lines and share with peers.

Links to other learning areas:

The learner can relate the skills used in drawing straight and curved lines to drawing skills in Creative Activities.

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
3.0 Geometry	3.2 Shapes (5 lessons) <i>Drawing shapes and patterns</i>	By the end of the sub-strand, the learner should be able to: <ol style="list-style-type: none"> a) identify different shapes in the environment, b) draw shapes in different ways, c) draw patterns involving different shapes, d) appreciate the use of shapes in forming patterns in fabrics. 	The learner is guided to: <ul style="list-style-type: none"> ● recognise and name different shapes in the environment (triangles, rectangles, squares, circles, and ovals), ● discuss types of lines in different shapes (triangles, rectangles, squares, circles, and ovals) ● in turn, name different shapes of objects or on surfaces in their classroom, ● draw triangles, rectangles, squares, circles, and ovals on manila papers and display them in the learning environment, ● make patterns using triangles, rectangles, squares, circles, and ovals, colour them and share them with peers, ● play games involving pattern-making using digital devices or other resources with peers. 	How can patterns be made using shapes?
<p>Core Competencies to be developed:</p> <ul style="list-style-type: none"> ● Creativity and Imagination: learner makes patterns using triangles, rectangles, squares, circles, and ovals, and colour them. ● Learning to Learn: learner recognises and names different shapes in the environment 				

Values:

- Unity: the learner discusses types of lines in different shapes and in turn, names different shapes of objects in their classroom.
- Social Justice: learner gives others equal opportunity as they in turn name different shapes of objects in their classroom.

Pertinent and Contemporary Issues (PCIs):

- Self-esteem: the learner draws triangles, rectangles, squares, circles, and ovals on manila papers and displays them in the learning environment.
- Social Cohesion: learner plays games involving pattern-making using digital devices or other resources with peers.

Link to other learning areas:

The learner can relate the skills used in drawing shapes to drawing skills in Creative Activities.

SUGGESTED ASSESSMENT RUBRIC

LEVEL INDICATOR	Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Ability to model and draw straight and curved lines.	The learner models and draws straight lines correctly and creatively.	The learner models and draws straight lines correctly.	The learner models or draws straight lines correctly.	The learner models or draws straight lines partially correctly.
Ability to model and draw curved lines.	The learner models and draws curved lines correctly and creatively.	The learner models and draws curved lines correctly.	The learner models or draws curved lines correctly.	The learner models or draws curved lines partially correctly.
Ability to identify and draw shapes (triangles, rectangles, squares, circles, and ovals).	The learner identifies and draws 5 shapes (triangles, rectangles, squares, circles, and ovals) accurately and consistently.	The learner identifies and draws 5 shapes (triangles, rectangles, squares, circles, and ovals) accurately.	The learner identifies and draws any 4 of the 5 shapes (triangles, rectangles, squares, circles, and ovals) accurately.	The learner identifies or draws less than 4 shapes (triangles, rectangles, squares, circles, and ovals).
Ability to draw patterns involving shapes (triangles, rectangles, squares, circles, and ovals).	The learner draws patterns involving 5 shapes (triangles, squares, circles, and ovals) accurately and creatively.	The learner draws patterns involving 5 shapes (triangles, rectangles, squares, circles, and ovals) accurately.	The learner draws patterns involving any 4 of the 5 shapes (triangles, rectangles, squares, circles, and ovals) accurately.	The learner draws patterns involving less than 4 shapes (triangles, rectangles, squares, circles, and ovals).

SUGGESTED LEARNING RESOURCES

STRANDS	SUB -STRANDS	RESOURCES
NUMBERS	NUMBER CONCEPT	Counters such as bottle tops, marbles, sticks, stones, grains
	WHOLE NUMBERS	Bottle tops, marbles, sticks, stones, grains, a number line drawn on the ground/floor
	ADDITION	Bottle tops, marbles, stones, sticks, grains, place value chart, abacus, basic addition facts table, a number line drawn on the ground/floor
	SUBTRACTION	Bottle tops, marbles, sticks, stones, grains, basic addition facts table, a number line drawn on the ground/floor
	MULTIPLICATION	Bottle tops, marbles, stones, grains, number lines drawn on the ground/floor, multiplication table
	DIVISION	Bottle tops, marbles, sticks, stones, grains, multiplication tables
	FRACTIONS	Circular and rectangular cut-outs, pair of scissors
MEASUREMENT	LENGTH	Pencils, sticks, rulers, strings, ropes
	MASS	Items of different masses such as books, stones, pieces of wood, items of the same mass, beam balance
	CAPACITY	Containers of different sizes, 1-litre containers, water, soil, sand
	TIME	Charts with the number of days in each month and months of the year in order, clock face both analogue and digital
	MONEY	Money in coins and notes sh.1, sh.5, sh.10, sh.20, sh.40, sh.50, sh.100, Model classroom shop
GEOMETRY	LINES	Sticks, clay, plasticine, strings, ropes
	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.

Suggested Assessment Methods and Tools

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

MATHEMATICAL ACTIVITIES
GRADE 3

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 Number Activities (8 lessons) <ul style="list-style-type: none"> • <i>Ordering objects</i> • <i>Position of objects</i> 	By the end of the sub-strand, the learner should be able to: <ol style="list-style-type: none"> a) order objects according to size, b) identify the position of objects from 1st to 20th, c) write the position of objects in numbers symbols and words, d) recognise the use of positions of items in real-life situations. 	The learner is to be guided to: <ul style="list-style-type: none"> • discuss and arrange real objects collected from the environment according to size starting with the smallest to the largest and from the largest to the smallest, • name the position of an object from a reference point using 1st, 2nd up to 20th, • race for a distance and assign each other the correct position using the words first, second to twentieth position depending on when they finish the race. Write their positions in the race in symbols and words, • relate numbers 1 to 20 to positions first, second up to 20th and relate to real-life situations. For example, birth order in a family; 1st born, 2nd born, • play games with peers involving positions 1 to 20 using digital devices and other resources. 	How do we tell our positions in a competition?

Core Competencies to be developed:

- Communication and Collaboration: the learner discusses and arranges real objects collected from the environment according to size.
- Digital Literacy: learner plays games involving the position of items from 1 to 20 using digital devices.

Values:

- Integrity: learner displays honesty as they assign each other the rightful positions after a timed race.
- Unity: the learner plays games with peers involving the position of items from 1 to 20 using digital devices.

Pertinent and Contemporary Issues (PCIs):

- Sports and Games: learner participates in a race and assigns each other the correct position.
- Friendship formation: the learner plays games with peers involving positions 1 to 20 using digital devices and other resources.

Link to other learning areas:

The learner can relate the skills used in writing the position of objects in number symbols and words to functional writing in English Language Activities.

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
1.0 Numbers	1.2 Whole Numbers (20 lessons) <ul style="list-style-type: none"> • <i>Counting forward and backward</i> • <i>Place value</i> • <i>Reading and writing numbers</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 1000 starting from any point, b) count numbers backward in multiples of 100 from 1000, c) identify the place value of numbers up to hundreds, d) read numbers 1 to 1000 in symbols, e) read and write numbers 1 to 100 in words, f) identify missing numbers in 	The learner is guided to: <ul style="list-style-type: none"> • count forward in 1's, 10's, and 100's starting from any point up to 1000 using a rope skipping game in a safe environment, • practise through play using number cards counting numbers backward in multiples of 100 from 1000, • discuss place value up to hundreds using place value apparatus in class, • read numbers 1 to 1000 in symbols starting from any point, • take turns, reading and writing numbers 1 to 100 in words using number cards, • team up to create number patterns up to 1000 and share with other groups, 	<ol style="list-style-type: none"> 1. How would you get the total number of people in a group? 2. How do you tell the place value of a digit in a number?

		number patterns up to 1000, g) play games involving number patterns up to 1000.	<ul style="list-style-type: none"> play games involving whole numbers up to 1000 using digital devices and other resources with peers. 	
Core Competencies to be developed: <ul style="list-style-type: none"> Learning to Learn: the learner counts numbers backward in multiples of 100 from 1000. Creativity and Imagination: learners create patterns of numbers up to 1000. 				
Values: <ul style="list-style-type: none"> Respect: the learner gives peers equal opportunity as they take turns to read and write numbers. Unity: the learner plays games involving whole numbers up to 1000 using digital devices and other resources with peers. 				
Pertinent and Contemporary Issues (PCIs): <ul style="list-style-type: none"> Friendship formation: the learner plays games involving whole numbers up to 1000 using digital devices and other resources with peers. Social Cohesion: learner discusses place value up to hundreds using place value apparatus in class. 				
Link to other learning areas: The learner can relate discussion skills to speaking and listening skills in English and Kiswahili Language 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>Addition of numbers</i> • <i>Creating number patterns</i> 	By the end of the sub-strand, the learner should be able to: <ol style="list-style-type: none"> a) add a 3-digit number to up to a 2-digit number without regrouping with a sum not exceeding 1000, b) add a 3-digit number to up to a 2-digit number with single regrouping with a sum not exceeding 1000, c) add two 3-digit numbers without regrouping, d) add two 3-digit numbers with single regrouping with a sum not exceeding 1000, 	The learner is guided to: <ul style="list-style-type: none"> • add a 3-digit number to up to a 2-digit number without regrouping with a sum not exceeding 1000 using place value apparatus, • practise addition horizontally and vertically using place value apparatus, • work with peers to practise adding a 3-digit number to up to a 2-digit number with single regrouping with a sum not exceeding 1000, • practise adding two 3-digit numbers without regrouping with a sum not exceeding 1000 using place value 	<ol style="list-style-type: none"> 1. How do you arrange numbers when adding downwards? 2. How can you get the next number in a given pattern?

		<p>e) create number patterns involving addition up to 1000,</p> <p>f) practise the addition of numbers using digital devices or other resources.</p>	<p>apparatus (abacus and place value tins),</p> <ul style="list-style-type: none"> ● create and work out missing numbers in patterns involving addition up to 1000, ● use digital devices or other resources for activities involving additions. 	
<p>Core Competencies to be developed:</p> <ul style="list-style-type: none"> ● Imagination and Creativity: the learner creates patterns involving addition up to a sum of 1000. ● Learning to Learn: learner practises addition horizontally and vertically using place value apparatus. 				
<p>Values:</p> <p>Respect: learner portrays patience as he/she works with peers to practise addition horizontally and vertically using place value apparatus.</p>				
<p>Pertinent and Contemporary Issues (PCIs):</p> <p>Sustainable consumption: the learner improvises place value apparatus such as an abacus, place value tins, or pockets using locally available materials.</p>				
<p>Link to other learning areas:</p> <p>The learner can relate the skills used in creating patterns to the pattern-making skills in Creative Activities.</p>				

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>Subtraction of numbers</i> • <i>Missing numbers</i> 	By the end of the sub-strand, the learner should be able to: <ol style="list-style-type: none"> a) subtract a 2-digit number from a 3-digit number without regrouping, b) subtract a 2-digit number from a three-digit number with single regrouping, c) subtract a 3-digit number from a 3-digit number with single regrouping, d) subtract up to 3-digit numbers involving missing numbers with single regrouping, e) work out missing numbers in number 	The learner is guided to: <ul style="list-style-type: none"> • work out subtraction of up to 3-digit numbers without regrouping using place value apparatus and share findings with others, • jointly work out subtraction of up to 3-digit numbers with single regrouping using a place value chart, • work out missing numbers in subtraction of up to 3-digit numbers with single regrouping using a variety of strategies, • play games involving subtraction using digital devices and other resources with peers, 	<ol style="list-style-type: none"> 1. When do you regroup during subtraction? 2. How do you identify the missing number in a number pattern involving subtraction?

		<p>patterns involving subtraction up to 1000,</p> <p>f) appreciate subtraction in real-life situations.</p>	<ul style="list-style-type: none"> work out missing numbers in patterns involving subtraction up to 1000. 	
<p>Core Competencies to be developed:</p> <ul style="list-style-type: none"> Digital Literacy: learner plays games involving subtraction using digital devices. Creativity and Imagination: the learner comes up with ideas to create number patterns involving subtraction. 				
<p>Values:</p> <ul style="list-style-type: none"> Unity: learner jointly works out subtraction of up to 3-digit numbers without regrouping using place value pockets. Respect: learner accommodates diverse opinions as they discuss how to work out missing numbers in patterns. 				
<p>Pertinent and Contemporary Issues (PCIs):</p> <p>Problem-solving skills: learner works out missing numbers in subtraction of up to 3-digit numbers with single regrouping using a variety of strategies.</p>				
<p>Link to other learning areas:</p> <p>The learner can relate skills used in discussion to speaking and listening skills in English and Kiswahili Language Activities.</p>				

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
1.0 Numbers	1.5 Multiplication (10 lessons) <i>Multiplication of numbers</i>	By the end of the sub-strand, the learner should be able to: <ol style="list-style-type: none"> a) model multiplication as repeated addition using numbers 1,2,3,4, and 5 by 4 and 5, b) multiply a single-digit number by a single-digit number, c) multiply single-digit numbers by 10, d) appreciate multiplication of numbers as repeated addition. 	The learner is guided to: <ul style="list-style-type: none"> • model multiplication as repeated addition of numbers 1, 2, 3, 4, and 5 by 4 and 5 using counters, • multiply a single-digit number by a single-digit number using a multiplication chart, • in turn, practise multiplication of single digit numbers by 10 using multiplication tables, • play games involving multiplication using digital or other resources with peers. 	<ol style="list-style-type: none"> 1. How can you work out multiplication using repeated addition? 2. How do we model multiplication as repeated addition?
<p>Core Competencies to be developed:</p> <ul style="list-style-type: none"> • Learning to Learn: the learner discovers the connection between repeated addition of numbers and multiplication. • Creativity and Imagination: the learner models multiplication as repeated addition of numbers. 				

Values:

- Respect: learner appreciates others as they take turns to practise multiplication of a single-digit number by 10 using multiplication tables.
- Social Justice: learner fosters fairness and justice among peers as they play games involving multiplication.

Pertinent and Contemporary Issues (PCIs):

Environmental Conservation: The learner re-uses improvised learning materials and objects such as charts and counters.

Link to other learning areas:

The learner can relate skills used in playing games to performance skills in Creative Activities.

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
1.0 Numbers	1.6 Division (8 lessons) <i>Division of numbers</i>	By the end of the sub-strand, the learner should be able to: a) represent the division of numbers up to 50 by 4 and 5 as repeated subtraction b) divide a 2-digit number by a single-digit number without a remainder, c) divide a 2-digit number by 10 without a remainder, d) appreciate division as repeated subtraction in real-life situations.	The learner is guided to: <ul style="list-style-type: none"> ● 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 and share their findings with peers, ● discuss and model division as repeated subtraction of numbers up to 50 by 4 and 5 using counters and share their findings with peers, ● in teams, practise division of multiples of ten from 90 by 10 using multiplication tables, ● work out the division of a 2-digit number by a single-digit number without a remainder, ● carry out the division of a 2-digit number by 10 without a remainder. ● play video games involving division with peers. 	<ol style="list-style-type: none"> 1. How can you represent division as repeated subtraction? 2. How can we use the multiplication table to work out division questions?

Core Competencies to be developed:

- Communication and Collaboration: the learner discusses division as repeated subtraction of numbers.
- Learning to Learn: the learner discovers the connection between repeated subtraction and division.

Values:

- Social Justice: learner shares objects equitably by repeatedly taking away from a group a specific number of objects at a time until all are finished.
- Unity: learner plays video games involving division with peers.

Pertinent and Contemporary Issues (PCIs):

Critical thinking: the learner models division as repeated subtraction of numbers up to 50 by 4 and 5 using counters.

Link to other learning areas:

The learner can relate skills used in discussion to listening and speaking skills in English and Kiswahili Language Activities.

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
1.0 Numbers	1.7 Fractions (10 lessons) <i>Identifying fractions</i>	By the end of the sub-strand the learner should be able to: <ol style="list-style-type: none"> a) identify, $\frac{1}{4}$ and $\frac{1}{8}$ as part of a whole, b) identify and $\frac{1}{8}$ as part of a group, c) appreciate fractions as part of a whole in daily activities. 	The learner is guided to: <ul style="list-style-type: none"> • safely make circular cut-outs from manila paper, • fold circular cut-outs into 2 equal parts and identify one part as the whole, • make rectangular cut-outs and fold them into 4 equal parts to get a quarter of a whole and identify each part as the whole, • make rectangular cut-outs and fold to get 8 equal parts and identify one part as the whole, • work out the division of several objects into 2 equal groups and identify each of the small groups as the whole group, • work out the division of several objects into 4 equal groups and identify each of the small groups as the whole group, • work out the division of several objects into 8 equal groups and identify each of the small groups as the whole group, • play games involving $\frac{1}{2}$, $\frac{1}{4}$, and use digital devices or other resources with peers. 	How can you represent a half, a quarter, or an eighth of a group?

Core Competencies to be developed:

- Critical thinking and Problem-solving: the learner divides a number of objects into 8 equal groups and identifies each of the small groups as an eighth of a whole.
- Learning to Learn: the learner folds circular cut-outs into 2 equal parts and identifies one part as $\frac{1}{2}$ of the whole.

Values:

Unity: learner plays games involving $\frac{1}{2}$, $\frac{1}{4}$, and $\frac{1}{8}$ using digital devices or other resources with peers.

Pertinent and Contemporary Issues (PCIs):

Safety issues: learner safely makes circular cut-outs from manila papers.

Link to other learning areas:

The learner can relate the folding and cutting of manilla papers to pattern making in Creative Activities.

SUGGESTED ASSESSMENT RUBRIC

Indicator \ Level	Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Ability to identify the position of objects from 1 st to 20 th and write the position in number symbols and words.	The learner identifies and writes the position of objects from 1 st to 20 th in number symbols and words correctly and fluently.	The learner identifies and writes the position of objects from 1 st to 20 th in number symbols and words correctly.	The learner identifies and writes the position of objects between 1 st to 15 th in number symbols or words correctly.	The learner identifies and writes the position of objects between 1 st to 10 th in number symbols or words correctly.
Ability to count numbers forward up to 1000 starting from any point and backward from 1000 in multiples of 100.	The learner counts numbers forward up to 1000 starting from any point and backward from 1000 in multiples of 100 correctly and fluently.	The learner counts numbers forward up to 1000 starting from any point and backward from 1000 in multiples of 100 correctly.	The learner counts numbers forward up to 700 starting from any point or backward from 700 in multiples of 100.	The learner counts numbers forward up to 500 starting from any point or backward from 500 in multiples of 100.
Ability to identify place value of numbers up to hundreds.	The learner identifies the place value of numbers up to hundreds accurately and fluently.	The learner identifies the place value of most of the numbers up to hundreds accurately.	The learner identifies the place value of numbers up to ten accurately.	The learner identifies the place value of numbers up to one.

Ability to read numbers 1 to 1000 in symbols and read and write numbers 1 to 100 in words.	The learner reads numbers 1 to 1000 in symbols and reads and writes numbers 1 to 100 in words accurately and fluently.	The learner reads numbers 1 to 1000 in symbols and reads and writes numbers 1 to 100 in words accurately.	The learner reads numbers from 1 to 700 in symbols or reads and writes some numbers from 1 to 70 in words.	The learner reads numbers 1 to 500 in symbols or reads and writes numbers 1 to 50 in words.
Ability to add two 3-digit numbers with single regrouping with a sum not exceeding 1000.	The learner adds two 3-digit numbers with single regrouping with a sum not exceeding 1000 correctly and proficiently.	The learner adds two 3-digit numbers with single regrouping with a sum not exceeding 1000 correctly.	The learner adds two 3-digit numbers with single regrouping with a sum not exceeding 700 correctly.	The learner adds two 3-digit numbers without regrouping with a sum not exceeding 500.
Ability to subtract up to 3-digit numbers with single regrouping.	The learner subtracts up to 3-digit numbers with single regrouping correctly and proficiently.	The learner subtracts up to 3-digit numbers with single regrouping correctly.	The learner subtracts up to 2-digit numbers with single regrouping correctly.	The learner subtracts up to 2-digit numbers without regrouping correctly.
Ability to multiply a single-digit number by a single-digit number and by 10.	The learner multiplies a single-digit number by a single-digit number and by 10 correctly and proficiently.	The learner multiplies a single-digit number by a single-digit number and by 10 correctly.	The learner multiplies a single-digit number by a single-digit number or by 10 correctly.	The learner multiplies a single-digit number by a single-digit number correctly.

Ability to divide a 2-digit number by a single-digit number and by 10 without a remainder.	The learner divides a 2-digit number by a single-digit number and by 10 without a remainder correctly and proficiently.	The learner divides a 2-digit number by a single-digit number and by 10 without a remainder correctly.	The learner divides a 2-digit number by a single-digit number or by 10 without a remainder correctly.	The learner divides a 2-digit number by a single-digit number without a remainder correctly.
Ability to create number patterns involving addition, subtraction, multiplication, and division of numbers up to 1000.	The learner creates number patterns involving addition, subtraction, multiplication, and division of numbers up to 1000 correctly and creatively.	The learner creates number patterns involving addition, subtraction, multiplication, and division of numbers up to 1000 correctly.	The learner creates number patterns involving any 3 of; addition, subtraction, multiplication, or division of numbers up to 700.	The learner creates number patterns involving any 2 of; addition, subtraction, multiplication or division of numbers up to 500.
Ability to identify $\frac{1}{2}$, $\frac{1}{4}$, and $\frac{1}{8}$ as part of a whole and as part of a group.	The learner identifies $\frac{1}{2}$, $\frac{1}{4}$, and $\frac{1}{8}$ as part of a whole and as part of a group correctly and proficiently.	The learner identifies $\frac{1}{2}$, $\frac{1}{4}$, and $\frac{1}{8}$ as part of a whole and as part of a group correctly.	The learner identifies 2 of; $\frac{1}{2}$, $\frac{1}{4}$, and $\frac{1}{8}$ as part of a whole and as part of a group correctly.	The learner identifies either $\frac{1}{2}$ or $\frac{1}{4}$, or $\frac{1}{8}$ as part of a whole or part of a group 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 (6 lessons) <ul style="list-style-type: none"> • <i>Measuring length</i> • <i>Addition and subtraction of length</i> 	By the end of the sub-strand, the learner should be able to: <ol style="list-style-type: none"> a) measure length in metres, b) add length in metres, c) subtract length in metres, d) estimate length up to 10 metres, e) appreciate measuring length in metres in real-life situations. 	The learner is guided to: <ul style="list-style-type: none"> • jointly use metre sticks to measure various distances and record their results, • prepare 5 metre long strings with knots at intervals of one metre to measure long distances, • in teams, measure the lengths of the 4 walls in their classroom and add the lengths, • measure the length of the chalkboard and the teacher’s table in metres and work out the difference in length, • work out questions involving the addition of length in real-life situations, • work out subtraction of length in metres based on real-life situations, • work with peers to estimate distances around the school compound up to 10 metres, measure and compare results, 	<ol style="list-style-type: none"> 1) How can the length of a chalkboard be measured using a metre stick? 2) How can the distance between the flag post and the staffroom be measured using a 5 metres long string?

			<ul style="list-style-type: none"> record videos of classmates measuring length then play back the video and share experiences. 	
<p>Core Competencies to be developed:</p> <ul style="list-style-type: none"> Digital Literacy: the learner uses digital devices to record videos of classmates measuring length. Critical thinking and Problem-solving: learner works out questions involving the addition of length in real-life situations 				
<p>Values: Unity: the learner appreciates peers' effort as they measure the lengths of various objects in and around the classroom.</p>				
<p>Pertinent and Contemporary Issues (PCIs):</p> <ul style="list-style-type: none"> Self-efficacy: the learner estimates distances around the school compound up to 10 metres, measures the actual distances, and compares results. Social Cohesion: learner works harmoniously with peers to estimate distances around the school compound. 				
<p>Link to other learning areas: The learner can relate skills used in preparing 5-metres long strings with knots at intervals of one metre to weaving skills in Creative Activities.</p>				

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
2.0 Measurement	2.2 Mass (6 lessons) <ul style="list-style-type: none"> • <i>Measuring mass</i> • <i>Addition and subtraction of mass</i> 	By the end of the sub-strand, the learner should be able to: <ol style="list-style-type: none"> a) measure mass in kilograms, b) add mass in kilograms, c) subtract mass in kilograms, d) estimate mass up to 5 kilograms, e) appreciate measuring the mass of objects in kilograms. 	The learner is guided to: <ul style="list-style-type: none"> • collect safe materials to be used to measure mass in their immediate environment, • make masses of 1kg using sand or soil by measuring against the kilogram standard unit, • measure the mass of different objects in kilograms using a beam balance and share experiences, • role play addition of mass in kilograms using items in the classroom model shop, • work out the differences between the masses of items in the classroom model shop, • compare the masses of items in the classroom model shop with a 5kg mass, • estimate the mass of items up to 5kg, • measure the masses of items to confirm their actual mass, • play digital games involving mass. 	How can you make a 1kg mass using a beam balance?

Core competencies to be developed:

- Self-efficacy: the learner role plays the addition of mass in kilograms using items in the classroom model shop.
- Critical thinking and Problem-solving: learner makes masses of 1kg using sand or soil by measuring against the kilogram standard unit.

Values:

- Respect: the learner shares experiences on measuring the mass of different objects.
- Unity: learner shares resources amicably as they make masses of objects to use in learning.

Pertinent and Contemporary Issues (PCIs):

Safety: learner safely collects materials needed for learning from their immediate environment.

Link to other learning areas:

The learner can relate skills used in preparing a mass of different objects to moulding in Creative Activities.

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
2.0 Measurement	2.3 Capacity (8 lessons) <ul style="list-style-type: none"> • <i>Measuring capacity</i> • <i>Addition and subtraction of capacity</i> 	By the end of the sub-strand, the learner should be able to: <ol style="list-style-type: none"> a) measure capacity in litres, b) add capacity in litres, c) subtract capacity in litres, d) estimate capacity up to 5 litres, e) appreciate measuring the capacity of containers in litres. 	The learner is guided to: <ul style="list-style-type: none"> • collect safe materials in their immediate environment to be used to measure capacity, • discuss and measure the capacity of different containers using 1-litre containers, • in turn, practise the addition of capacity in litres in real-life situations, • in turn, practise subtraction of capacity in litres in real-life situations, • estimate capacity of containers up to 5 litres, • measure the actual capacity of the containers to confirm their capacity in litres, • play digital games involving capacity in real-life situations with peers. 	How can the capacity of a container be measured?

Core Competencies to be developed:

- Self-efficacy: the learner estimates the capacity of containers up to 5 litres, measures the actual capacities of the containers, and compares the measurements.
- Communication and Collaboration: learner discusses and measures the capacity of different containers using 1-litre containers.

Values:

- Unity: learner in turn, practises the addition of capacity in litres in real-life situations.
- Responsibility: learner cares for the items for measuring capacity.

Pertinent and Contemporary Issues (PCIs):

Social Cohesion: learner plays digital games involving capacity in real-life situations with peers.

Link to other learning areas:

The learner can relate the collection of safe materials in their immediate environment for learning to 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 (10 lessons) <ul style="list-style-type: none"> • <i>Minute as a unit of time</i> • <i>Reading and writing time</i> • <i>Adding and subtracting time</i> 	By the end of the sub-strand, the learner should be able to: <ol style="list-style-type: none"> a) identify the minute as a unit of measuring time, b) read and tell time using ‘past’ and ‘to’ the hour using the clock face, c) read and tell time using the digital clock or analogue clock, d) write time using ‘past’ and ‘to’ the hour, e) estimate time in hours, f) add time involving hours and minutes 	The learner is guided to: <ul style="list-style-type: none"> • draw a clock face on a manila paper or any other resource, divide the clock face into two equal parts using a line passing through the centre, and discuss what each division represents, • discuss the divisions on the clock face, • locate a minute on the clock face and discuss it as a unit of measuring time, • discuss how to tell time on the clock face using “past” and “to” the hour, • in turns, read and tell time on an analogue clock, • discuss how the digital clock operates and share their findings with others, 	How do we read and tell time using digital and analogue clocks?

		<p>without conversion in real-life situations,</p> <p>g) subtract time involving hours and minutes without conversion in real-life situations,</p> <p>h) appreciate reading and telling time using digital and analogue clocks.</p>	<ul style="list-style-type: none"> ● in turns, read and tell time on a digital clock, ● team up to estimate time in hours, ● add time in hours and minutes without conversion, ● subtract time in hours and minutes without conversion, ● discuss the importance of keeping time in real-life situations. 	
<p>Core Competencies to be developed:</p> <ul style="list-style-type: none"> ● Communication and Collaboration: the learner discusses how to tell time on the clock face using “past” and “to” the hour. ● Learning to Learn: the learner reads and tells time on analogue and digital clocks. 				
<p>Values:</p> <ul style="list-style-type: none"> ● Respect: learner accommodates diverse opinions as they discuss the importance of keeping time in real-life situations. ● Peace: learner displays tolerance as they in turn read and tell time on a digital clock. 				
<p>Pertinent and Contemporary Issues (PCIs):</p> <p>Social Cohesion: learner takes turns in activities and conversations as they read and tell time on analogue and digital clocks.</p>				
<p>Link to other learning areas:</p> <p>The learner can relate the skills used in drawing the clock face to drawing skills in Creative Activities.</p>				

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
2.0 Measurement	2.5 Money (10 lessons) <ul style="list-style-type: none"> • <i>Kenyan currency</i> • <i>Adding and subtracting money</i> • <i>Converting 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 notes up to sh.1000, b) count money in different denominations up to sh.1000, c) add money involving different denominations up to a sh.1000, d) subtract money involving different denominations up to a sh.1000, e) represent the same amount of money in different denominations, f) convert money into different denominations, 	The learner is guided to: <ul style="list-style-type: none"> • use locally available materials to model Kenyan currency denominations for use in learning, • sort Kenyan currency notes according to their value up to sh.1000, • count Kenyan currency notes in different denominations up to sh1000, • subtract money up to sh.1000 in real-life situations, • add money up to sh.1000 in real-life situations, • role play changing money into different denominations up to sh. 1000 in the classroom model shop, • role play buying up to 3 items involving balance using the money models up to sh.1000 in the classroom model shop, 	How can money be represented in different denominations?

		<p>g) use the money to buy up to 3 items involving balance,</p> <p>h) appreciate spending and saving money in real-life situations.</p>	<ul style="list-style-type: none"> • share their own experiences with shopping activities, • play digital games involving money with peers. 	
<p>Core Competencies to be developed:</p> <ul style="list-style-type: none"> • Citizenship: learner counts Kenyan currency notes in different denominations up to sh. 1000. • Digital Literacy: learner uses digital devices to play games involving money. 				
<p>Values:</p> <ul style="list-style-type: none"> • Patriotism: learner exhibit honesty as they sort out Kenyan currency notes according to their value up to sh.1000. • Responsibility: learner engages in assigned roles and duties as they role play buying and selling in the classroom model shop. 				
<p>Pertinent and Contemporary Issues (PCIs):</p> <p>Financial Literacy: learner role plays buying and selling items in the classroom model shop.</p> <p>Sustainable consumption: the learner uses locally available materials from the environment to model Kenyan currency.</p>				
<p>Link to other learning areas:</p> <p>The learner can relate the skills used in modelling the Kenyan currency denominations to modelling skills in Creative Activities.</p>				

SUGGESTED ASSESSMENT RUBRIC

LEVEL INDICATOR	Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Ability to add and subtract length in metres.	The learner adds and subtracts length in metres accurately and proficiently.	The learner adds and subtracts length in metres accurately.	The learner adds or subtracts length in metres accurately.	The learner adds or subtracts length in metres partially accurately.
Ability to add and subtract mass in kilograms.	The learner adds and subtracts mass in kilograms accurately and proficiently.	The learner adds and subtracts mass in kilograms accurately.	The learner adds or subtracts mass in kilograms accurately.	The learner adds or subtracts mass in kilograms partially accurately.
Ability to add and subtract capacity in litres.	The learner adds and subtracts capacity in litres accurately and proficiently.	The learner adds and subtracts capacity in litres accurately.	The learner adds or subtracts capacity in litres accurately.	The learner adds or subtracts capacity in litres partially accurately.
Ability to read and write time using 'past' and 'to'	The learner reads and writes time using 'past' and 'to' accurately and fluently.	The learner reads and writes time using 'past' and 'to' accurately.	The learner reads or writes time using 'past' and 'to' accurately.	The learner reads or writes time using 'past' or 'to' partially accurately.
Ability to add and subtract time involving hours and minutes without conversion	The learner adds and subtracts time involving hours and minutes without conversion accurately and proficiently.	The learner adds and subtracts time involving hours and minutes without conversion accurately.	The learner adds or subtracts time involving hours and minutes without conversion accurately.	The learner adds or subtracts time involving hours or minutes without conversion partially accurately.

Ability to identify Kenyan currency notes up to sh.1000	The learner identifies Kenyan currency notes up to sh.1000 correctly and consistently.	The learner identifies Kenyan currency notes up to sh.1000 correctly.	The learner identifies Kenyan currency notes up to sh.500 correctly	The learner identifies Kenyan currency notes up to sh.200 correctly.
Ability to count money in different denominations up to sh.1000.	The learner counts money in different denominations up to sh.1000 correctly and consistently.	The learner counts money in different denominations up to sh.1000 correctly.	The learner counts money in different denominations up to sh.700 correctly.	The learner counts money in different denominations up to sh.500 correctly.
Ability to add and subtract money involving different denominations up to sh.1000.	The learner adds and subtracts money involving different denominations up to sh.1000 correctly and consistently.	The learner adds and subtracts money involving different denominations up to sh.1000 correctly.	The learner adds or subtracts money involving different denominations up to sh.700 correctly.	The learner adds or subtracts money involving different denominations up to sh.500 correctly.
Ability to represent money in different denominations.	The learner represents sh.1000 in different denominations correctly.	The learner represents sh. 500 in different denominations correctly.	The learner represents sh. 200 in different denominations correctly.	The learner represents sh. 100 in different denominations correctly.

STRAND 3.0: GEOMETRY

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
3.0 Geometry	3.1 Position and Direction (5 lessons) <ul style="list-style-type: none"> • <i>Moving along a straight line</i> • <i>Right and left turn</i> 	By the end of the sub-strand, the learner should be able to: <ol style="list-style-type: none"> a) move along a straight line from a point, b) identify the right and left side from a point, c) turn to the right from a point, d) turn to the left from a point, e) appreciate the use of directions in real-life situations. 	The learner is guided to: <ul style="list-style-type: none"> • team up to move along a straight line from a given point outside the classroom, • play a game of moving to the right and left sides from a point with peers, • team up to move straight outside the classroom then turn to the right, • team up to move straight outside the classroom then turn to the left, • role play games with peers involving moving objects such as toy cars or models on a road, • play digital games with peers involving movement on straight lines and turning to the left and right. 	What is the importance of directions in real-life situations?

Core Competencies to be developed:

- Digital Literacy: the learner uses digital devices to play games involving movement on straight lines, to the right and left.
- Collaboration: the learner teams up with others to move along a straight line from a given point outside the classroom.

Values:

- Unity: the learner plays games involving moving along a straight line and then turning left or right peers.
- Respect: the learner takes turns in activities as they move straight outside the classroom and then turn to the left.

Pertinent and Contemporary Issues (PCIs):

- Positive discipline: learner follows laid down procedures to carry out activities as they move along a straight line from a given point outside the classroom.
- Social Cohesion: the learner gives others equal opportunities to share responsibilities as they play games.

Link to other learning areas:

The learner can relate the concept of position and direction to the concept of location in Environmental Activities.

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
3.0 Geometry	3.2 Shapes (4 lessons) <i>Identifying, modelling, and drawing shapes</i>	By the end of the sub-strand, the learner should be able to: a) identify the shapes in a combined shape made of two different shapes, b) draw a combined shape made of 2 shapes, c) model a combined shape made of two shapes, d) appreciate the use of combined shapes in the environment.	The learner is guided to: <ul style="list-style-type: none"> ● make paper cut-outs of different shapes, ● sort out the paper cut-outs according to their shapes, ● name the different shapes made from the paper cut-outs, ● name and discuss shapes in their immediate environment, ● draw combined shapes found in the environment that are made of 2 different shapes, e.g. the hut, ● use locally available materials to model a combined shape made of 2 different shapes, ● play digital games involving shapes with peers. 	What shapes can you identify in your school?

Core Competencies to be developed:

- Creativity: the learner draws combined shapes found in the environment that are made of 2 different shapes.
- Digital Literacy: learner plays digital games involving shapes with peers.

Values:

- Social Justice: the learner accommodates peers' opinion as they name the different shapes made from the paper cut-outs.
- Responsibility: learner uses locally available resources sparingly as they model a combined shape made of 2 different shapes.

Link to PCIs:

Creative thinking: the learner uses locally available materials to model combined shapes.

Link to other learning areas:

The learner can relate the skills used in drawing combined shapes to drawing skills in Creative Activities.

SUGGESTED ASSESSMENT RUBRIC

Indicator \ Level	Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Ability to identify the right and left side from a point.	The learner identifies the right and left sides from a point accurately and consistently.	The learner identifies the right and left sides from a point accurately.	The learner identifies the right and left sides from a point partially accurately.	The learner identifies the right or left side from a point partially accurately.
Ability to turn to the right and the left from a point.	The learner turns to the right and the left from a point accurately and consistently.	The learner turns to the right and the left from a point accurately.	The learner turns to the right and the left from a point partially accurately.	The learner turns to the right or the left from a point partially accurately.
Ability to identify shapes from a figure made of two different shapes	The learner identifies shapes from a figure made of two different shapes accurately and proficiently.	The learner identifies shapes from a figure made of two different shapes accurately.	The learner identifies shapes from a figure made of two different shapes partially accurately.	The learner identifies one shape from a figure made of two different shapes partially accurately.
Ability to draw and model a combined shape made of 2 shapes.	The learner draws and models a combined shape made of 2 shapes accurately and creatively.	The learner draws and models a combined shape made of 2 shapes accurately.	The learner draws and models a combined shape made of 2 shapes partially accurately.	The learner draws or models a combined shape made of 2 shapes partially accurately.

APPENDIX 1: COMMUNITY SERVICE LEARNING AT LOWER PRIMARY

At this sub-level, the goal of the CSL activity is to provide links between concepts learnt in the various Learning Activities and real-life experiences. Learners begin to make connections between what they learn and the relevance to their daily lives. CSL is hosted in the Environmental Activities learning area. The class teacher is expected to:

- identify and guide learners to undertake age-appropriate, whole-class integrated CSL activities within the school, and
- consider learner safety when selecting the activity.

The following steps for the integrated CSL activity should be staggered across the school terms:

Steps in carrying out the integrated CSL activity

1) Preparation

- Determine the activity for the learners.
- Map out the targeted core competencies, values, and specific learning areas skills for the CSL activity.
- Identify resources required for the activity (focusing on locally available materials).
- Stagger the activities across the term (set dates and times).
- Communicate with learners, parents/caregivers/guardians, school administration, teachers, and other relevant stakeholders in the school community.
- Identify and develop assessment tools.

2) Implementation of CSL Activity

- Assigning roles to learners.
- Ensure every learner actively participates in the activity
- Observe learners as they carry out the CSL activity and record feedback.
- Use an appropriate assessment tool to assess both the process and the product (assess learner's work from the beginning to the end product)
- Assess the targeted core competencies, values and subject skills.

3) Reflection on the CSL Activity

Conduct a self-evaluation session with learners on the integrated CSL activity undertaken by discussing the following:

- what went well and why?
- what did not go well and why?
- what can be done differently next time?
- what they have learnt?

There will be **one** integrated CSL activity conducted **annually**. The thematic areas for this activity will be derived from the broader categories of the PCIs and concepts from the various Learning Areas. Teachers are expected to vary the themes yearly to allow learners to address different PCIs within their contexts. There should be a link between the skills from the learning areas and the chosen themes.

The integrated CSL activity utilises a Whole School Approach (WSA), involving the entire school community (learners, parents/caregivers/guardians, school administration, teachers). Parents/caregivers/guardians are crucial stakeholders in the planning and execution of the CSL activity. While the teacher leads the planning and integration, learners will be expected to actively participate throughout the process.

The CSL activity provides an opportunity to develop of core competencies and nurture various values. The teacher will vary the emphasised core competencies and values each year.

Assessment of the CSL Activity

Assessment of the integrated CSL activity will focus on three components namely:

- skills from various learning areas applied in carrying out the activity,
- core competencies developed, and
- values nurtured.

Assessment should focus on both the process and the end product of the CSL activity. The teacher will assess learners in groups using various tools such as an observation schedule, checklist, rating scale, or any other appropriate assessment tool.

APPENDIX 2: SUGGESTED LEARNING RESOURCES, ASSESSMENT METHODS, AND NON-FORMAL ACTIVITIES

Suggested Learning Resources	Suggested Assessment Methods
<ul style="list-style-type: none"> ● Approved curriculum support materials, ● Resources found in a home; bedding, water, cleaning, utensils, cutlery, laundry equipment, food items. ● Digital devices, ● Journals, magazines, pictures, charts, flashcards ● Paints and painting brushes, drawing materials ● Seeds, tree seedlings, soil samples ● Assorted farm tools, ● Charcoal, firewood, ● Plastic containers ● Resource persons ● Waste paper, clothing materials, knitting yarn, scissors, ● Personal protective equipment-gloves, aprons, gumboots, masks, 	<ul style="list-style-type: none"> ● Observation, ● Written test, ● Oral questions, ● Aural questions, ● Peer assessment, ● Self-assessment
<p>Non-formal Activities that Support Learning</p> <ul style="list-style-type: none"> ● School routine activities ● Games and sports ● Clubs and societies 	

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.

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