

KENYA INSTITUTE OF CURRICULUM DEVELOPMENT

A skilled and Ethical Society

PRIMARY SCHOOL EDUCATION CURRICULUM DESIGN

MATHEMATICAL ACTIVITIES GRADE 2

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.

HON. EZEKIEL OMBAKI MACHOGU, CBS CABINET SECRETARY,

MINISTRY OF EDUCATION

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 corporates 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.

DR. BELIO R. KIPSANG, CBS

PRINCIPAL SECRETARY STATE DEPARTMENT FOR

EARLY LEARNING AND BASIC EDUCATION

MINISTRY OF EDUCATION

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, Sem i-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 Comm ission (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.

PROF. CHARLES O. ONG'ONDO, PhD., MBS.

DIRECTOR/CHIEF EXECUTIVE OFFICER

KENYA INSTITUTE OF CURRICULUM DEVELOPMENT

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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 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) • Numbers in symbols • Number games	By the end of the sub-strand, the learner should be able to: 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: 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?

- 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:

- 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) • Counting numbers forward and backward • Place value • Missing numbers	By the end of the substrand, the learner should be able to: 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: 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.	 play a game of putting number cards in place value tins or pockets (ones and tens) according to the place value of digits. 	
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- 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.

Values:

- 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.

Pertinent and Contemporary Issues (PCIs):

- 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.

Link to other learning areas:

- 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) Addition of numbers Missing numbers 	By the end of the sub-strand, the learner should be able to: a) add a 2-digit number to a 1-digit number without and with regrouping with 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: 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. 	 How are horizontal addition sentences written vertically? When do we regroup during addition?

play games with peers
involving addition using
digital devices or other
resources,

- 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.

Values:

- 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.

Pertinent and Contemporary Issues (PCIs):

- Critical thinking: learner works out missing numbers in patterns involving addition.
- Friendship formation: learner plays games with peers involving addition using different resources.

Link to other learning areas:

- 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) • Subtraction of numbers • Missing numbers	By the end of the sub-strand, the learner should be able to: 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: 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?

- 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) • Multiplication of numbers • Multiplication sign	By the end of the substrand, the learner should be able to: a) represent multiplication as repeated addition using numbers 1, 2, 3, by 2 and 3, b) write repeated addition sentences as multiplication using 'x' 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: use counters or other concrete objects to represent multiplication as repeated addition, model multiplication as repeated addition using concrete objects, practice using 'x' 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?

• 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.	

- 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.

Values:

- 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.

Pertinent and Contemporary Issues (PCIs):

- 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.

Link to other learning areas:

The learner relates the skills used in improvising learning materials to waste management skills in Environmental Activities.

Strand	Sub- Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
1.0 Numbers	1.6 Division (8 lessons) • Division of numbers • Division sign	By the end of the sub-strand, the learner should be able to: 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 '÷' 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: 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 '÷', 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?

- 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) Identifying fractions	By the end of the substrand, the learner should be able to: a) identify a ½ as part of a whole in different situations, b) identify a ¼ as part of a whole in different situations, c) apply fractions in dayto-day activities, d) appreciate use of fractions in daily life activities.	 The learner is guided to: use papers, pencils, and a pair of scissors to make circular paper cutouts 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 ½, make rectangular paper cut-outs and fold them into two equal parts to get half of a whole written as ½, fold circular paper cut-outs to get 4 equal parts and identify one of the parts as a ¼ 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?

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

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

Ability to subtract a 2-	The learner subtracts a	The learner subtracts a	The learner subtracts a	The learner subtracts
digit number from a 2- 2-digit number from a 2		2-digit number from a	2-digit number from a	a 2-digit number
digit number without	digit number without and	2-digit number without	2-digit number without	from a 2-digit
and with regrouping.	with regrouping	and with regrouping	and with regrouping	number without or
	correctly and	correctly.	partially correctly.	with regrouping
	systematically.			partially correctly.
Ability to multiply 1-	The learner multiplies 1-	The learner multiplies	The learner multiplies	The learner
digit numbers by 1, 2,	digit numbers by 1, 2, 3,	1-digit numbers by 1,	1-digit numbers by any	multiplies 1-digit
3, 4, 5 and 10.	4, 5, and 10 accurately	2, 3, 4, 5 and 10	3 to 5 of; 1, 2, 3, 4, 5, or	numbers by any 2 of;
	and systematically.	accurately.	10 accurately.	1, 2, 3, 4, 5, or 10.
Ability to represent	The learner represents	The learner represents	The learner represents	The learner
division as equal	division as equal sharing	division as equal	division as equal	represents division as
sharing and grouping	and grouping up to the	sharing and grouping	sharing or grouping up	equal sharing or
up to number 20 by 2.	number 20 by 2	up to the number 20 by	to the number 15 by 2	grouping up to
	accurately and	2 accurately.	accurately.	number 10 by 2.
	systematically.			
Ability to divide	The learner divides	The learner divides	The learner divides	The learner divides
numbers up to 25 by 4	numbers up to 25 by 4	numbers up to 25 by 4	numbers up to 20 by 4	numbers up to 15 by
and 5 without a	and 5 without a	and 5 without a	or 5 without a	4 or 5 without a
remainder.	remainder accurately and	remainder accurately.	remainder accurately.	remainder.
	systematically.			
Ability to identify a $\frac{1}{2}$	The learner identifies a $\frac{1}{2}$	The learner identifies a	The learner identifies a	The learner identifies
and a $\frac{1}{4}$ as part of a	and a $\frac{1}{4}$ as part of a whole	$\frac{1}{2}$ and a $\frac{1}{4}$ as part of a	$\frac{1}{2}$ and a $\frac{1}{4}$ as part of a	$a \frac{1}{2}$ or an as part of a
whole.	correctly and	whole correctly.	whole partially	with partially
	systematically.		correctly.	correctly.

STRAND 2.0 MEASUREMENT

Strand	Sub-	Specific Learning	Suggested Learning Experiences	Suggested Key
	Strand	Outcomes		Inquiry Question(s)
2.0 Measurement	2.1 Length (6 lessons) Measuring length	By the end of the substrand, the learner should be able to: a) measure length using fixed units, b) identify the metre as a unit of measuring length, c) measure length in metres, d) appreciate measuring length using fixed units in real-life situations.	 The learner is guided to: 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?

Core Competencies to be developed:

- 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
2.0 Measurement	2.2 Mass (6 lessons) Measuring mass	_	 The learner is guided to: 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 	•
		objects in kilograms, d) appreciate measuring mass using fixed units in real-life situations.	 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. 	

- 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) Measuring capacity	By the end of the substrand, 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 reallife situations.	 The learner is guided to: 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. 	 Why do containers have different capacities? Which commodities can be measured in terms of litres?

- 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) • Months of the year • Days in a month • Calendar • Minute and hour hand • Reading and writing time	By the end of the substrand, the learner should be able to: 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: 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.	 discuss the importance of keeping time for different 	
	activities.	

Core Competencies to be developed:

- 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.

Values:

- 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.

Pertinent and Contemporary Issues (PCIs):

- 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.

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.

Strand	Sub-Strand	Specific Learning Outcomes	Suggested learning experiences	Suggested Key Inquiry Question(s)
2.0 Measurement	 2.5 Money (10 lessons) Kenyan currency Counting money Addition in money 	By the end of the substrand, the learner should be able to: 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: 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	Exceeds Expectations	Meets Expectations	Approaches	Below Expectations
INDICATOR			Expectations	
Ability to measure the	The learner measures	The learner measures	The learner measures	The learner measures
length in metres, mass	length in metres, mass	length in metres, mass	any 2 of; length in	any 1 of; length in
in kilograms, and	in kilograms, and	in kilograms, and	metres, mass in	metres, mass in
capacity in litres.	capacity in litres	capacity in litres	kilograms, and capacity	kilograms, or
	accurately and	accurately.	in litres accurately.	capacity in litres.
	systematically.	-		
Ability to read the	The learner reads the	The learner reads the	The learner reads the	The learner reads the
calendar in terms of	calendar in terms of	calendar in terms of	calendar in terms of any	calendar in terms of
day and date.	day, month, and year	day, month, and year	2 of; day, month, and	any; day, month, or
	accurately and	accurately.	year accurately.	year.
	fluently.			
Ability to read and	The learner reads and	The learner reads and	The learner reads or	The learner reads or
write time by the	writes time by the hour	writes time by the	writes time by the hour	writes time by the
hour from the clock	from the clock face	hour from the clock	from the clock face	hour from the clock
face.	accurately and fluently.	face accurately.	accurately.	face partially
		-		accurately.
Ability to identify	The learner identifies	The learner identifies	The learner identifies	The learner identifies
Kenyan currency coins	Kenyan currency coins	Kenyan currency	Kenyan currency coins	Kenyan currency
and notes up to sh.100.	to sh. 40 and notes up	coins to sh. 40 and	up to sh. 40 or notes up	coins up to sh. 20 or
	to sh.100 accurately and	notes up to sh.100	to sh.100 accurately.	sh.50 note.
	names their features.	accurately	_	

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

STRAND 3.0 GEOMETRY

Strand	Sub-Strand	Specific Learning	Suggested Learning Experiences	Suggested Key
		Outcomes		Inquiry Question(s)
3.0 Geometry	 3.1 Lines (5 lessons) Straight lines Curved lines 	By the end of the substrand, the learner should be able to: 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: 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?

Core Competencies to be developed:

- 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) Drawing shapes and patterns	By the end of the sub-strand, the learner should be able to: 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: 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?

Core Competencies to be developed:

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