KENYA INSTITUTE OF CURRICULUM DEVELOPMENT

A skilled and Ethical Society

PRIMARY SCHOOL EDUCATION CURRICULUM DESIGN

MATHEMATICAL ACTIVITIES

GRADE 3

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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.

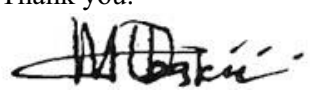
The Kenya Institute of Curriculum Development (KICD) reviewed the curriculum and rationalised the number of learning areas in 2024. The review and rationalisation process was informed by several factors, among them, the recommendations of the Presidential Working Party on Education Reforms (PWPER) and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

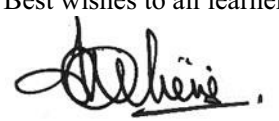
The Kenya Institute of Curriculum Development (KICD) Act Number 4 of 2013 (Revised 2019) mandates the Institute to develop and review curricula and curriculum support materials for basic and tertiary education and training. The curriculum development process is guided by research, international best 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 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) • *Ordering objects* • *Position of objects*	By the end of the sub-strand, the learner should be able to: 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: • 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) • *Counting forward and backward* • *Place value* • *Reading and writing numbers*	By the end of the sub-strand, the learner should be able to: 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: • 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,	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.	• play games involving whole numbers up to 1000 using digital devices and other resources with peers.	
Core Competencies to be developed: • 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: • 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): • 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) • *Addition of numbers* • *Creating number patterns*	By the end of the sub-strand, the learner should be able to: a) add a 3-digit number to up to a 2-digit number without regrouping with 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: • 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	1. How do you arrange numbers when adding downwards? 2. How can you get the next number in a given pattern?

		e) create number patterns involving addition up to 1000, f) practise the addition of numbers using digital devices or other resources.	apparatus (abacus and place value tins), ● create and work out missing numbers in patterns involving addition up to 1000, ● use digital devices or other resources for activities involving additions.	
Core Competencies to be developed: ● 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.				
Values: Respect: learner portrays patience as he/she works with peers to practise addition horizontally and vertically using place value apparatus.				
Pertinent and Contemporary Issues (PCIs): Sustainable consumption: the learner improvises place value apparatus such as an abacus, place value tins, or pockets using locally available materials.				
Link to other learning areas: The learner can relate the skills used in creating patterns to the pattern-making skills in Creative 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 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: ● 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,	1. When do you regroup during subtraction? 2. How do you identify the missing number in a number pattern involving subtraction?

		patterns involving subtraction up to 1000, f) appreciate subtraction in real-life situations.	• work out missing numbers in patterns involving subtraction up to 1000.	
Core Competencies to be developed: • 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.				
Values: • 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.				
Pertinent and Contemporary Issues (PCIs): Problem-solving skills: learner works out missing numbers in subtraction of up to 3-digit numbers with single regrouping using a variety of strategies.				
Link to other learning areas: The learner can relate skills used in discussion 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	**1.5 Multiplication** (10 lessons) *Multiplication of numbers*	By the end of the sub-strand, the learner should be able to: 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: • 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.	1. How can you work out multiplication using repeated addition? 2. How do we model multiplication as repeated addition?
Core Competencies to be developed: • 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) *Division of numbers*	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: ● 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.	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) *Identifying fractions*	By the end of the sub-strand the learner should be able to: a) identity, $\frac{1}{4}$ 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: • 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

Level / Indicator	Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Ability to identify the position of objects from 1st to 20th and write the position in number symbols and words.	The learner identifies and writes the position of objects from 1st to 20th in number symbols and words correctly and fluently.	The learner identifies and writes the position of objects from 1st to 20th in number symbols and words correctly.	The learner identifies and writes the position of objects between 1st to 15th in number symbols or words correctly.	The learner identifies and writes the position of objects between 1st to 10th 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) • *Measuring length* • *Addition and subtraction of length*	By the end of the sub-strand, the learner should be able to: 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: ● 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,	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?

			• record videos of classmates measuring length then play back the video and share experiences.	

Core Competencies to be developed:

- 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

Values:

Unity: the learner appreciates peers' effort as they measure the lengths of various objects in and around the classroom.

Pertinent and Contemporary Issues (PCIs):

- 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.

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.

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
2.0 Measurement	**2.2 Mass** (6 lessons) • *Measuring mass* • *Addition and subtraction of mass*	By the end of the sub-strand, the learner should be able to: 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: • 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) • *Measuring capacity* • *Addition and subtraction of capacity*	By the end of the sub-strand, the learner should be able to: 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: • 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) • *Minute as a unit of time* • *Reading and writing time* • *Adding and subtracting time*	By the end of the sub-strand, the learner should be able to: a) identify the minute as a unit of measuring time, b) read and tell time using '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: • 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?

		without conversion in real-life situations, g) subtract time involving hours and minutes without conversion in real-life situations, h) appreciate reading and telling time using digital and analogue clocks.	• 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.	

Core Competencies to be developed:

- 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.

Values:

- 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.

Pertinent and Contemporary Issues (PCIs):

Social Cohesion: learner takes turns in activities and conversations as they read and tell time on analogue and digital clocks.

Link to other learning areas:

The learner can relate the skills used in drawing the clock face to drawing skills in Creative 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* • *Adding and subtracting money* • *Converting money*	By the end of the sub-strand, the learner should be able to: a) identify Kenyan currency notes up to sh.1000, b) count money in different denominations up to sh.1000, c) add 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: • 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?

		g) use the money to buy up to 3 items involving balance, h) appreciate spending and saving money in real-life situations.	• share their own experiences with shopping activities, • play digital games involving money with peers.	
Core Competencies to be developed: • Citizenship: learner counts Kenyan currency notes in different denominations up to sh. 1000. • Digital Literacy: learner uses digital devices to play games involving money.				
Values: • 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.				
Pertinent and Contemporary Issues (PCIs): Financial Literacy: learner role plays buying and selling items in the classroom model shop. Sustainable consumption: the learner uses locally available materials from the environment to model Kenyan currency.				
Link to other learning areas: The learner can relate the skills used in modelling the Kenyan currency denominations to modelling skills in Creative Activities.				

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) • *Moving along a straight line* • *Right and left turn*	By the end of the sub-strand, the learner should be able to: 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: • 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) *Identifying, modelling, and drawing shapes*	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: ● 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

Level / Indicator	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
● 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,	● Observation, ● Written test, ● Oral questions, ● Aural questions, ● Peer assessment, ● Self-assessment
Non-formal Activities that Support Learning ● 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