



REPUBLIC OF KENYA

LOWER PRIMARY LEVEL CURRICULUM DESIGNS

GRADE 1

**MATHEMATICS ACTIVITIES
FOR LEARNERS WITH HEARING IMPAIRMENT**



KENYA INSTITUTE OF CURRICULUM EDUCATION

2024

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FOREWORD

The Government of Kenya 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 2019, 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 implementation of Competency Based Curriculum involves monitoring and evaluation to determine its success. After the five-year implementation cycle, a summative evaluation of the primary education cycle was undertaken to establish the achievement of learning outcomes as envisaged in the Basic Education Curriculum Framework. The Government of Kenya constituted a Presidential working Party on Education Reforms (PWPER) in 2022 to address salient issues affecting the education sector. PWPER made far reaching recommendations for basic education that necessitated curriculum review. The recommendations of the PWPER, monitoring reports, summative evaluation, feedback from curriculum implementers and other stakeholders led to rationalisation and review of the basic education curriculum.

The reviewed Grade one curriculum designs for learners with Hearing Impairments build on competencies attained by learners at Pre-primary level. Emphasis at this grade is the development of basic literacy, numeracy and skills for interaction with the environment.

The curriculum designs present National Goals of Education, essence statements, general and specific expected learning outcomes for the subjects as well as strands and sub strands. The designs also outline suggested learning experiences, key inquiry questions, core competencies, Pertinent and Contemporary Issues (PCIs), values, and assessment rubric.

It is my hope that all Government agencies and other stakeholders in Education will use the designs to plan for effective and efficient implementation of the CBC.

HON. EZEKIEL OMBAKI MACHOGU, CBS
CABINET SECRETARY,
MINISTRY OF EDUCATION

PREFACE

The Ministry of Education (MoE) nationally implemented Competency Based Curriculum (CBC) in 2019. Grade one is the first grade of Primary education level while Grade 6 is the final grade of the level in the reformed education structure.

The reviewed Grade two curriculum furthers implementation of the CBC from Pre Primary level. The curriculum provides opportunities for learners to focus in a field of their choice to form a foundation for further education and training and/or gain employable skills. This is very 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 **nurturing every learner's potential**.

Therefore, the Grade two curriculum designs for learners with Hearing Impairments are intended to enhance the learners' development in the CBC core competencies, namely: 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 sub strands and the other aspects of the CBC. They also offer several suggested learning resources and a variety of assessment techniques. It is expected that the designs will guide teachers to effectively facilitate learners to attain the expected learning outcomes for Grade one and prepare them for smooth transition to Grade two. Furthermore, it is my hope that teachers will use the adapted designs to make learning interesting, exciting and enjoyable.

DR. BELIO KIPSANG', CBS
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ACKNOWLEDGEMENT

The Kenya Institute of Curriculum Development (KICD) Act Number 4 of 2013 (Revised 2019) mandates the Institute to develop and review (SNE adapt) curricula and curriculum support materials for basic and tertiary education and training. The curriculum development process for any level of education involves thorough research, international benchmarking and robust stakeholder engagement. Through a systematic and consultative process, the KICD conceptualised the Competency Based Curriculum (CBC) as captured in the Basic Education Curriculum Framework (BECF) 2017, that responds to the demands of the 21st Century and the aspirations captured in the Constitution of Kenya 2010, the Kenya Vision 2030, East African Community Protocol, International Bureau of Education Guidelines and the United Nations Sustainable Development Goals (SDGs).

KICD receives its funding from the Government of Kenya to facilitate successful achievement of the stipulated mandate and implementation of the Government and Sector (Ministry of Education (MoE) plans. The Institute also receives support from development partners targeting specific programmes. The revised Grade one curriculum designs for learners with Hearing Impairments were developed and adapted with the support of the World Bank through the Kenya Primary Education Equity in Learning Programme (KPEELP); a project coordinated by MoE. Therefore, the Institute is very grateful for the support of the Government of Kenya, through the MoE and the development partners for policy, resource and logistical support. Specifically, special thanks to the Cabinet Secretary-MoE and the Principal Secretary – State Department of Basic Education,

I also wish to acknowledge the KICD curriculum developers and other staff, all teachers, educators who took part as panelists; the Semi-Autonomous Government Agencies (SAGAs) and representatives of various stakeholders for their roles in the development and adaptation of the Grade one curriculum designs for learners with Hearing Impairments. In relation to this, I acknowledge the support of the Chief Executive Officers of the Teachers Service Commission (TSC) and the Kenya National Examinations Council (KNEC) for their support in the process of developing and adapting these designs. Finally, I am very grateful to the KICD Council Chairperson and other members of the Council for very consistent guidance in the process.

I assure all teachers, parents and other stakeholders that this curriculum design will effectively guide the implementation of the CBC at Grade one and preparation of learners with Hearing Impairments for transition to Grade two.

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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 to acquire a sense of nationhood and patriotism. It should also promote peace and mutual respect for harmonious coexistence.

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

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

a) **Social Needs**

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

b) **Economic Needs**

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

c) **Technological and Industrial Needs**

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

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

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

4 **Promote sound moral and religious values**

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

5. **Promote social equity and responsibility**

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

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

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

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

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

8. **Good health and environmental protection**

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

LEARNING AREAS TIME ALLOCATION

S/ No.	Learning Area	Lesson
1	Mathematical Activities for Learners with Hearing Impairment	5
2	English Language Activities for Learners with Hearing Impairment	5
3	Environmental Activities for Learners with Hearing Impairment	4
4	Creative Activities for Learners with Hearing Impairment	7
5	Religious Education Activities	3
6	Kiswahili language activities for Learners with Hearing Impairment	4
7	Kenyan Sign Language Activities	2
8.	Pastoral/ Religious Instruction Programme	1
	Total	31

PRIMARY EDUCATION GENERAL LEARNING OUTCOMES

By the end of Primary education level, the learner with hearing impairment should be able to:

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

ESSENCE STATEMENT

Mathematics is a learning area that involves computation in numbers and arithmetic, shapes, spatial relations and information processing in the form of data. It is a vehicle of development and improvement of a country's economic development. By learning mathematics, learners develop an understanding of numbers, logical thinking skills and problem-solving skills. Mathematics is applied in business, social and political worlds. At this level mathematics will build on the competencies acquired by the learner in the early years of education. Further, this design has been adapted to ensure that learners who are Deaf and those with Hard of Hearing learn effectively. The adaptations include suggestions for provision of sign interpretation on aspects that require use of sound, use of digital devices with assistive technology, use of visual aids such as charts, maps and diagrams, use of hands-on activities, guided demonstrations, purposeful pairing and use of adapted learning resources. The design has also incorporated alternative learning outcomes and activities to enhance the acquisition of sign language vocabulary to learners with Hearing Impairments.

GENERAL LEARNING OUTCOMES

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

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	<p>1.1 Pre-Number Activities</p> <p>(20 lessons)</p>	<p>By the end of the sub-strand, the learner should be able to:</p> <p>a) sign terms related to pre-number activities for learning,</p> <p>b) group objects according to size, colour, shape, texture and use in different situations,</p> <p>c) match objects according to size, colour and shape in the environment,</p> <p>d) sequence objects in ascending and descending order at school,</p> <p>e) make patterns using real objects involving size and shape,</p> <p>f) appreciate the use of sorting and grouping items in day-to-day activities.</p>	<ul style="list-style-type: none"> ● In groups learners are guided to collect different types of safe objects from their immediate environment or observe pictures of various objects within the environment. ● In groups learners are guided to identify and sign the vocabulary related to attributes of objects collected such as colour, shape, size, texture and use. ● In groups learners are guided to observe pictures of items of different attributes. ● In group learners are guided to identify items of different colours, textures, shapes, sizes and use. ● In groups, learners observe a demonstration on grouping, sorting, sequencing or patterns and then practise. ● In pairs learners are guided to sort items depending on size, colour, texture, shape and use. ● In groups, learners are guided to group items according to size, colour, texture, shape and use. ● In pairs, learners are guided to sign vocabularies as used in pre number activities such as sort, group, pair, match, pattern, order, ascending, descending. ● In groups learners are guided to sort objects that are mixed up according to size. ● In pairs, learners are guided to sort objects that are mixed up according to colour. 	<ol style="list-style-type: none"> 1. How can we group objects? 2. How can we arrange objects?

			<ul style="list-style-type: none">● In groups, learners are guided to sort objects that are mixed up according to shape.● In pairs, learners are guided to sort objects that are mixed up according to texture.● In groups, learners are guided to sort objects that are mixed up according to how they are used and group them together.● In pairs, learners are guided to pair objects of the same colour, size, shape, texture and use.● In groups, learners are guided to match objects according to size, colour and shape.● In pairs, learners are guided to order objects according to size from smallest to biggest and vice versa.● In groups, learners are guided to make patterns using real objects.● In pairs, learners are guided to arrange edible items like fruits, cereals, for example beans, maize and rice according to size, colour, shape and how they are stored at home.	
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Core Competencies to be developed:

- Learning to Learn: learning independently as the learner sorts and matches objects according to colour, texture, size, shape and use.
- Communication and Collaboration: Speaking engagingly skills as learner pairs objects of the same colour, size, shape, texture and use clearly stating.

Values:

- Unity: working cooperatively together in groups to pair and match objects according to size, colour and shape.
- Respect: while working in groups' learner appreciate diverse opinion.
- Responsibility: learners recognize their roles when collecting and sorting objects from their immediate environment

Pertinent and Contemporary Issues (PCIs):

Care for the environment as learner utilize different types of objects from the immediate environment, handle with care during sorting and grouping and safely dispose or store them.

Link to other learning areas:

The learner is able to relate the skills of environmental activities to safely identify objects from the school compound.

Learning Resources

- Marbles,
- Sticks,
- Stones,
- Grains,
- Manual number chart.

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question(s)
1.0 Numbers	1.2 Whole Numbers (25 lessons)	<p>By the end of the sub-strand, the learner should be able to:</p> <ul style="list-style-type: none"> a) sign read numbers forward up to 50. b) count numbers forward up to 20, c) count numbers forward up to 50, d) count numbers backwards up to 30, e) represent numbers 1-30 using concrete objects, f) fingerspell, sign read and write numbers 1-50. g) identify missing numbers in number patterns up to 20, h) appreciate number patterns by creating and extending patterns during play activities, i) play games involving numbers 1-50 using digital devices or other resources. 	<ul style="list-style-type: none"> ● Learners in pairs or groups are guided to read by signing numbers forward up to 50 on flashcards and manila papers. ● Learners in pairs or groups are guided to count, while signing or singing in increments of 1's and 2's up to 20, starting from any point using concrete objects, such as number cards, as well as body parts. ● Learners in pairs or groups are guided to take turns in counting numbers forward up to 50. ● Learners in pairs or groups are guided to count numbers backwards from 30. ● Learners in pairs or groups are guided to play games that involve representing numbers 1-30 using concrete objects. ● Learners in pairs or groups are guided to sign numbers 1-50 in symbols. ● Learners in pairs or groups are guided to sign and write numbers 1-50 in symbols. ● Learners in pairs or groups are guided to practice writing and signing numbers 1-10 in words. ● Learners in f pairs or groups are guided to identify missing numbers in number patterns up to 20. ● Learners in pairs or groups are guided to create patterns with numbers up to 20 and share with other groups. 	How many ways can we count from 1-20?

			<ul style="list-style-type: none"> ● Learners in pairs or groups are guided to watch a signed or captioned video on whole numbers using digital devices or other resources. ● learners to be guided to visit online sites to play games involving numbers 1-50 using digital devices or other resources. 	
<p>Core Competencies to be developed:</p> <ul style="list-style-type: none"> ● Digital Literacy: interacting with digital technology skills as learners play games involving whole numbers using digital devices to complete number puzzles. ● Creativity and imagination: Networking skills as learners create number patterns in groups and extend patterns during play activities. 				
<p>Values: Respect: as learners work together taking turns in counting numbers forward up to 50.</p>				
<p>Pertinent and Contemporary Issues (PCIs): Life Skills and human sexuality: Creative and critical thinking skills as learners create number patterns and extend patterns during play activities.</p>				
<p>Link to other learning areas:</p> <ul style="list-style-type: none"> ● The learner is able to relate the skill used in creating number patterns to the concept of patterns in Creative Arts. - ● The learner is able to relate the skills used in the concept of reading and writing numbers in words and in symbols to functional reading and writing in English Language Activities. 				

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
1.0 Numbers	1.3 Addition (25 lessons)	<p>By the end of the sub-strand, the learner should be able to:</p> <ol style="list-style-type: none"> device sign ‘addition’ and ‘equal’ symbols for effective communication, model addition as putting objects together, use ‘+’ and ‘=’ symbols in signing addition sentences, use ‘+’ and ‘=’ signs in writing addition sentences, add 2- single digit numbers in different situations, add 3- single digit numbers in different contexts, add a 2- digit number to a 1- digit number without regrouping with sum not exceeding 50, 	<ul style="list-style-type: none"> In pairs or groups learners are guided to sign addition and equal symbols. In pairs or groups, learners are guided to use ‘+’ and ‘=’ signs in writing additional sentences. In pairs or groups, learners are guided to safely put two groups of objects together and count to get the total. In pairs or groups learners are guided to add 2- single digit-numbers with a sum of 10 using concrete objects. In pairs or groups, learners are guided to add 2- single digit numbers by counting on. In pairs or groups, learners are guided to add 3- single digit numbers using concrete objects. In pairs or groups, learners are guided to add 3- single digit numbers by counting on. In pairs or groups, learners are guided to add a 2- digit number to a 1- digit number without regrouping horizontally and vertically with sum not exceeding 50. In pairs or groups, learners are guided to make number patterns involving addition with numbers up to 50. 	<p>How can you add a 2- digit number to a 1- digit number?</p>

		<p>h) work out missing numbers in patterns involving addition of whole numbers up to 50,</p> <p>i) play games involving addition using digital devices or other resources.</p>	<ul style="list-style-type: none"> ● In pairs or groups, learners are guided to play games involving addition using digital and other resources. ● In pairs or groups, learners are guided in class to watch a signed or captioned video on addition then in pairs or groups discuss and practice related questions. 	
<p>Core competencies to be developed:</p> <ul style="list-style-type: none"> ● Learning to Learn: self-discipline skills as learners play games involving addition using digital devices and other resources. ● Digital literacy operates: interacting with digital technology skills as the learners use the digital device to search and watch captioned videos in addition. 				
<p>Values: Responsibility: solving problems actively as learners group objects together and count to get the total.</p>				
<p>Pertinent and Contemporary Issues (PCIs): Life Skills and human sexuality: Creative and critical thinking as learners create number patterns and extend patterns during play activities.</p>				
<p>Link to other learning areas: The learner is able to relate signing skills with counting numbers using signs in mathematics activities and sign language activities.</p>				
<p>Suggested learning resources:</p> <ul style="list-style-type: none"> ● Place value chart, Abacus basic addition facts, Number line drawn on the ground/floor, Table, Sticks, Marbles, Stones, Grains etc. 				

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Questions
1.0 Numbers	1.4 Subtraction (20 lessons)	<p>By the end of the sub-strand, the learner should be able to:</p> <ul style="list-style-type: none"> a) sign terms related to subtraction, b) use ' - ' and ' =' symbols in signing subtraction sentences, c) model subtraction as 'taking away' using concrete objects, d) use the ' - ' and '= ' signs in writing subtraction sentences, e) subtract single digit numbers, subtract a 1- digit number from a 2- digit number without regrouping, f) work out missing numbers in patterns involving subtraction of whole numbers up to 50, g) play games involving subtraction using 	<ul style="list-style-type: none"> ● In pairs or groups learners are guided to fingerspell and sign subtraction and equal symbol. ● In pairs or groups learners are guided to use ' - ' and ' =' signs in writing subtraction sentences. ● Learners in pairs or groups are guided to model subtraction using concrete objects. ● In pairs or groups, learners are guided to use ' - ' and '= ' signs in writing subtraction sentences. ● Learners in pairs or groups to be guided to subtract by counting backwards. ● Learners in pairs or groups are guided to subtract using concrete objects. ● In pairs or groups learners are guided to create subtraction sentences related to basic addition facts. ● Learners in pairs or groups are guided to use number cards or charts safely to work out the subtraction of a 1- digit number from a 2-digit number. ● In pairs learners are guided to create patterns involving subtraction on flash cards or 	How do you subtract a single digit number from a 2-digit number?

		digital devices and other resources.	charts and paste them on the wall and share with groups.	
Core Competencies to be developed:				
<ul style="list-style-type: none"> ● Learning to learn: Works with care and attention to details; as learners subtract numbers by counting backwards on their own. ● Communication and Collaboration: Teamwork as learner work in groups and pairs to create number patterns 				
Values:				
<ul style="list-style-type: none"> ● Responsibility: Accountability skills as learners take care of concrete objects used in subtraction. ● Love: respect as learners share their ideas and each other's opinion. 				
Pertinent and Contemporary Issues (PCIs):				
<ul style="list-style-type: none"> ● Social cohesion: learner works with peers to create patterns involving subtraction. 				
Link to other learning areas:				
The learner is able to relate the skills of writing subtraction sentences to functional writing in English Language Activities.				
Suggested learning resources				
<ul style="list-style-type: none"> ● Sticks, marbles, stones, grains, basic addition facts table, number line drawn on the ground/floor 				

Suggested Assessment Rubrics

Level Indicator	Exceeds Expectation	Meets Expectation	Approaches Expectation	Below Expectation
Ability to sign terms related to numbers including number concepts, whole numbers, addition and subtraction	Signs all terms related to numbers, including number concepts, whole numbers, addition and subtraction including both common and less obvious terms.	sign terms related to numbers accurately with good articulation, but may require prompts for less common terms	sign terms related to numbers with some accuracy, but may struggle with less obvious terms	sign terms related to numbers with some inconsistency and may rely on fingerspelling for the most common terms
Ability to sign read and write numbers 1 to 50 in symbols and numbers 1 to 10 in words.	The learner sign reads and writes numbers 1 to 50 in symbols and 1 to 10 in words correctly and consistently.	The learner sign reads and writes numbers 1 to 50 in symbols and 1 to 10 in words correctly.	The learner sign reads and/or writes numbers 1 to 40 in symbols and/or 1 to 10 in words correctly.	The learner sign reads and/or writes numbers 1 to 30 in symbols and/or 1 to 5 in words partially correctly.
Ability to identify missing numbers in number patterns up to 20.	The learner identifies missing numbers in number patterns up to 20 correctly and consistently.	The learner identifies missing numbers in number patterns up to 20 correctly.	The learner identifies missing numbers in number patterns up to 15 correctly.	The learner identifies missing numbers in number patterns up to 10 partially correctly.
Ability to add a 2-digit number to a 1-digit number without regrouping with a sum not exceeding 50.	The learner adds a 2-digit number to a 1-digit number without regrouping with a sum not exceeding 50 correctly and systematically.	The learner adds a 2-digit number to a 1-digit number without regrouping with a sum not exceeding 50 correctly.	The learner adds a 2-digit number to a 1-digit number without regrouping with a sum not exceeding 30 correctly.	The learner adds a 2-digit number to a 1-digit number without regrouping with a sum not exceeding 20 correctly.

Ability to subtract a 1-digit number from any a 2-digit number up to 50 without regrouping.	The learner subtracts a 1-digit number from a 2-digit number up to 50 without regrouping correctly and systematically.	The learner subtracts a 1-digit number from a 2-digit number up to 50 without regrouping correctly.	The learner subtracts a 1-digit number from a 2-digit number up to 30 without regrouping correctly.	The learner subtracts a 1-digit number from a 2-digit number up to 20 without regrouping correctly.
Ability to work out missing numbers in patterns involving addition and subtraction of whole numbers up to 50.	The learner works out missing numbers in patterns involving addition and subtraction of whole numbers up to 50 correctly and systematically.	The learner works out missing numbers in patterns involving addition and subtraction of whole numbers up to 50 correctly.	The learner works out missing numbers in patterns involving addition or subtraction of whole numbers up to 40 correctly.	The learner works out missing numbers in patterns involving addition or subtraction of whole numbers up to 20 correctly.

STRAND 2.0 MEASUREMENT

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
<p>2.0 MEASUREMENT</p>	<p>2.1 Length (10 lessons)</p>	<p>By the end of the sub-strand, the learner should be able to:</p> <ul style="list-style-type: none"> a) sign terms related to length for effective communication, b) collect objects of different lengths from the immediate environment, c) compare length of objects using longer than, shorter than and same as, d) measure length using arbitrary units, e) appreciate measuring length using arbitrary units. 	<ul style="list-style-type: none"> ● In pairs or groups learners are guided to fingerspell and sign terms such as length, measure, short and long. ● In pairs or groups learners are guided to collect objects of different lengths from the immediate environment. ● In pairs or groups learners are guided to compare objects directly to identify objects which are longer than, shorter than or same as other objects. ● In pairs or groups learners are guided to measure lengths using arbitrary units such as hand spans or walking steps and discuss the measurements from the various groups. ● In pairs or groups learners are guided to measure lengths of different objects in their immediate environment. 	<ol style="list-style-type: none"> 1. How do you compare the length of two objects? 2. Which objects can be used to measure the length of the teacher’s table?
<p>Core competencies to be developed:</p> <ul style="list-style-type: none"> ● Learning to learn: Independently from skills learned, learners explore complex problems by building understanding through research as learners will compare the length of their shadows and determine the difference. ● Self-efficacy: learner measures lengths of different objects in their immediate environment. 				

Values: <ul style="list-style-type: none">● Patriotism: learners take care of their surroundings as they collect objects of different lengths from the immediate environment.● Unity: working in groups to measure length and even practise signs for the new vocabularies
Pertinent and Contemporary Issues (PCIs): Life skills and human sexuality: Self-awareness as learners measure lengths using arbitrary units such as hand spans or walking steps.
Link to other learning areas: The learner is able to relate the concept of using objects from the environment for learning to the concept of resources in the environment in Environmental Activities.

Strand	Sub-Strand	Specific Learning Outcomes	Suggested learning experiences	Suggest Key Inquiry Question(s)
2.0 Measurements	2.2 Mass (10 lessons)	By the end of the sub-strand, the learner should be able to: <ol style="list-style-type: none"> a) sign vocabularies related to mass for effective communication, b) collect objects with different mass from the immediate environment, c) compare mass of two objects using heavier than, lighter than or same as, d) measure mass using arbitrary units, e) appreciate measuring mass using arbitrary units in the environment, f) play games involving mass using digital devices or other resources. 	<ul style="list-style-type: none"> ● In groups, learners are guided to fingerspell and sign vocabularies related to mass, such as mass, heavy, light, lighter than heavier than. ● In pairs learners are guided to collect safe objects of different mass from their immediate environment. ● Learners in pairs fingerspell and sign the objects collected from the environment. ● Learners in groups discuss and use safe objects to identify those heavier than, lighter than or same as. ● Learners in pairs or groups use an identified empty container of known mass to measure the mass of other objects such as mass of beans, maize or flour as accurately as possible. ● Learners individually or pairs to play games involving mass using digital devices. 	<ol style="list-style-type: none"> 1) How can you compare the mass of two or more objects? 2) How can you show that an object is heavier than, lighter than or same as your mathematics textbook?

Core Competencies to be developed:

- Communication and collaboration: Speaking skills as a learner contributes to a group discussion and use safe objects to identify those heavier than, lighter than or same as.
- Digital Literacy: learner uses digital devices to play games involving mass.

Values:

- Integrity: shares equally identified empty containers to measure the mass of other objects.

Pertinent and Contemporary Issues (PCIs):

Environmental Education and Climate Change as learners collect containers to be used and properly dispose or recycle them after use.

Links to other learning areas:

Learner relates skills in measuring mass and different containers to consumer education containers and packets in Environmental activities.

Suggested Learning Resources

Course book, Stones, Pieces of wood, Items of same mass

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question
<p>2.0 Measurement</p>	<p>2.4 Time (8 lessons)</p>	<p>By the end of the sub-strand, the learner should be able to:</p> <ul style="list-style-type: none"> a) sign terms related to time for signing fluency, b) identify days of the week relate days of the week to various activities, c) identify months of the year, d) appreciate activities that are done on different days of the week, e) use a beam or ray of light to differentiate between the day and night. 	<ul style="list-style-type: none"> ● In pairs or groups learners are guided to sign (day), (week) and the 7 days of the week. ● Learners in groups or pairs guided to identify and fingerspell days of the week. ● Learners in pairs or groups to be guided to practise signs for a (year) and (12) months of the year. ● Learners to sing by signing songs or rhymes related to days of the week. ● Learners to tell and write days of the week the way they follow each other. ● Learners in pairs or groups to identify activities that take place during the days of the week such as raising flags on Monday and Friday. ● In groups learners are guided to sing by signing songs or rhymes related to the months of the year. ● Learners in pairs or groups are guided to identify and use different sources of lights to differentiate between day and night. 	<p>Why do we raise flag on Monday's and Friday's only?</p>

Core competence to be developed:

- Creativity and Imagination: Making observations as learners reuses containers of different capacities at home and at school.
- Learning to learn: Self-discipline as learner works in pairs or groups counting number used to fill a large container.

Values:

Responsibility: Observes safety and caution as they fill other containers.

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
2.0 Measurement	2.3 Capacity (12 lessons)	By the end of the sub-strand, the learner should be able to: <ol style="list-style-type: none"> sign capacity and terms related to capacity, collect containers of different capacities from the immediate environment, compare capacity of two containers using more than, less than and same as, measure capacity using arbitrary units, re-use empty containers of different capacities to keep items, play digital games involving capacity. 	<ul style="list-style-type: none"> In pairs, learners are guided to fingerspell and sign terms related to capacity such as capacity, more than, less than. In groups learners are guided to collect safe containers of different sizes from the environment. Learners in pairs or groups empty and fill water in different containers to establish which holds more, which holds less, and which holds the same. Learners in pairs or groups carefully fill basins with water, using different small containers. The learners in groups count the number of small containers they use to fill the basin. Learners in pairs or groups to be guided to discuss and re-use containers of different capacity at home and school. 	How can we find out which of two containers hold more, less or the same as?
<p>Core competence to be developed:</p> <ul style="list-style-type: none"> Respect: Acceptance for others and appreciates diverse opinion. Self-efficacy: Knowing and saying my needs as a learner identifies different activities in different times. Communication and collaboration: learner discusses and tells his or her birth month to peers. 				

Values:

- Peace: harmoniously sing by signing songs or rhymes related to days of the week, months and year together.
- Responsibility: Accountability as a learner care for own, others and school property.

Pertinent and Contemporary Issues (PCIs):

Patriotism as learner identifies activities that take place during the days of the week such as raising flag on Monday and Friday.

Link to other learning areas:

Learner relates skills of consistency of time to song, dance and rhythm in Creative Arts

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

			from the model classroom shop without balance.	
Core competence to be developed:				
<ul style="list-style-type: none"> ● Citizenship: Social awareness recognizes and sorts out different Kenyan currency coins sh.1, 5, 10, 20 and 40 according to their value. ● Communication and Collaboration: Signing and observation demonstrates buying and selling items from the classroom model shop 				
Values:				
<ul style="list-style-type: none"> ● Integrity: Honesty in role play buying up to 2 items from the model classroom shop and paying the correct money. ● Patriotism: Dedication exhibits honesty in dealing with Kenyan currencies by the court of arm on the faces of coins. 				
Pertinent and Contemporary Issues (PCIs):				
Safety and security recognize dangers of handling money.				
Link to other learning areas:				
Learners relate the skills of money value to social environment enterprise projects in Environmental activities.				

Assessment Rubrics

Level Indicator	Exceeds Expectation	Meets Expectation	Approaches Expectation	Below Expectation
Ability to sign terms related measurement	Signs all terms related measurements such as length, mass, time, money and capacity including less common terms	Signs terms related measurement such as length, mass, time, money and capacity	such as length, mass, time, money and capacity but may struggle some specific categories or miss less obvious terms.	such as length, mass, time, money and capacity with limitations relying on fingerspelling to sign some terms
Ability to compare lengths of objects using longer than, shorter than and same as.	The learner compares lengths of objects using longer than, shorter than and same as accurately and comprehensively.	The learner compares lengths of objects using longer than, shorter than and same as accurately.	The learner compares lengths of objects using any two of; longer than, shorter than or same as accurately.	The learner compares lengths of objects using any one of; longer than, shorter than or same as.
Ability to compare capacity of two containers using more than, less than and same as.	The learner compares capacity of two containers using more than, less than and same as accurately and consistently.	The learner compares capacity of two containers using more than, less than and same as accurately.	The learner compares capacity of two containers using any of two; more than, less than and same as accurately.	The learner compares capacity of two containers using any one of; more than, less than and same as.
Ability to identify and relate days of	The learner identifies and relates days of the week to	The learner identifies and relates days of the week to various activities correctly.	The learner identifies and relates some days of the week	The learner identifies some days of the week.

the week to various activities.	various activities correctly and consistently.		to various activities accurately.	
Ability to identify Kenyan currency coins sh.1, sh. 5, sh.10, sh. 20 and sh. 40 and sh. 50 note.	The learner identifies Kenyan currency coins sh.1, sh.5, sh.10, sh.20 and sh.40 and sh.50 note correctly and consistently.	The learner identifies Kenyan currency coins sh.1, sh.5, sh.10, sh.20 and sh.40 and sh.50 note correctly.	The learner identifies at least 4 of Kenyan currency coins sh.1, sh.5, sh.10, sh.20 or sh.40 or sh.50 note accurately.	The learner identifies at least 2 of Kenyan currency coins sh.1, sh.5, sh.10, sh.20 or sh.40.

STRAND 3.0 GEOMETRY

Strand	Sub-strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
<p>3.0 GEOMETRY</p>	<p>3.1 Lines (6 lessons)</p>	<p>By the end of the sub-strand, the learner should be able to:</p> <ul style="list-style-type: none"> a) sign words related to lines for learning, b) identify straight lines in different situations, c) draw straight lines on different surfaces, d) identify curved lines in different situations, e) draw curved lines on different surfaces, f) observe lines in different objects from the environment. 	<ul style="list-style-type: none"> ● Learners in pairs or groups are guided to fingerspell and sign words related to lines such as straight lines, curved lines, circle and semi-circle. ● Learners in pairs or groups are guided to stand behind/ besides each other facing the same side and identify what they have formed as a straight line. ● Learners in pairs or groups are guided to mark two points on the ground and use a stick/a string to join the two points to make a straight line. ● Learners in pairs or groups are guided to practise drawing straight lines on the ground and in their books. ● Learners in groups to form a semi-circle and one of them to draw a line around it and identify the semi- circle drawn as a curved line. ● Learners in groups to practise drawing curved lines on the charts and attach them in their portfolio. ● Learners in groups are guided to look and identify lines from different objects in the environment. 	<p>How do you make a line?</p>

Core Competence to be developed:

- Learning to learn: Develop relationships as learners works with peers to draw a straight line.
- Self-efficacy: learner recognises straight and curved lines from real objects in the environment

Values:

Unity: Cooperation by working together to form lines.

Pertinent and Contemporary Issues (PCIs):

Environmental awareness as learners maintains cleanliness and order as they form lines.

Link to other learning areas:

The learner **is able to** relate the concept of drawing lines to the concept of Drawing in Creative Activities. .

Strand	Sub-strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
3.0 Geometry	3.2 Shapes (6 lessons)	By the end of the sub-strand, the learner should be able to: a) sign the three terms related to shapes for effective communication, b) identify rectangles, triangles and circles in objects from the environment, c) make patterns involving rectangles, triangles, and circles, d) appreciate the beauty of patterns in different fabrics.	<ul style="list-style-type: none"> ● Learners in groups are guided to fingerspell and sign rectangles, triangles and circles objects from the environment. ● Learners in pairs or groups classify safe objects from the environment according to their shapes as rectangles, triangles or circles. ● Learners work individually to make patterns of their choice using the three shapes. ● Learners in groups make and colour patterns, to attach them in their portfolio and share with other groups. 	<ol style="list-style-type: none"> 1. How can shapes be identified in class? 2. Why are shapes important?
<p>Core-Competence to be developed:</p> <ul style="list-style-type: none"> ● Creativity and imagination: believes in creativity; as the learner independently makes patterns of their choice using rectangles, triangles and circles. ● Learning to Learn; learner uses safe objects from the environment to recognize different shapes such as rectangles, triangles and circles. 				
<p>Values: Love: making patterns and colouring them and sharing with other groups.</p>				
<p>Pertinent and Contemporary Issues (PCIs): Environmental awareness as learners maintains cleanliness and recognize different shapes such as rectangles, triangles and circles. Creative thinking: learners make patterns of their choice using shapes.</p>				
<p>Link to other learning areas: The learner is able to relate the skills used in making and colouring patterns to drawing and decoration skills in Creative Activities. in shape identification to colouring shapes in creative activities.</p>				

ASSESSMENT RUBRICS

Level/Indicator	Exceeds Expectation	Meets Expectation	Approaches Expectation	Below Expectation
Ability to sign the terms related to geometry.	sign the terms related to lines and shapes with appropriate facial expressions and body language.	sign the terms related to line and shapes.	signs terms related to lines and shapes with limited facial expression and body language	sign term related to lines and shapes with noticeable struggles.
Ability to draw straight and curved lines	draws straight and curved lines consistently smooth, controlled, and accurate with straight lines being perfectly straight, and curved lines maintain consistent curvature	draws straight and curved lines with straight lines generally straight, and curved lines maintain a good degree of curvature	draws straight and curved lines with straight lines having slight bends, and curved lines may lack consistent curvature	draws straight and curved lines with poor control and inconsistent thickness Straight lines deviate significantly from straightness, and curved lines lack consistent curvature
Ability to make patterns involving rectangles, triangles, and circles	makes patterns involving rectangles, triangles, and circles using different sizes and orientations to create complex and visually interesting patterns.	makes patterns involving rectangles, triangles, and circles with some complexity and visual appeal	makes patterns involving rectangles, triangles and circles with a limited variety of shapes and sizes, resulting in simpler patterns	makes patterns involving rectangles, triangles and circles relying primarily on one or two shapes and sizes, resulting in very basic and repetitive patterns.

APPENDICES

Appendix 1: Suggested Learning Resources

STRANDS	SUB- STRANDS	RESOURCES
NUMBERS	NUMBER CONCEPT	Counters such as sticks, stones and grains
	WHOLE NUMBERS	Sticks, marbles, stones, grains, a number line drawn on the ground/floor
	ADDITION	Place value chart, abacus basic addition facts, number line drawn on the ground/floor, table, sticks, marbles, stones, grains and many more
	SUBTRACTION	Sticks, marbles, stones, grains, basic addition facts table, number line drawn on the ground/floor
MEASUREMENTS	LENGTH	Books, pencils, sticks, bottles, rulers and others
	MASS	Items of different mass such as books, stones, pieces of wood, items of same mass
	CAPACITY	Containers of different sizes, water, sand, soil and others
	TIME	Charts with days of the week and months of the year in order
	MONEY	Kenya currency coins (sh. 1, sh. 5, sh.10, sh.20, sh.40), notes (sh.50) and classroom shop
	CAPACITY	Containers of different sizes, water, sand, soil and others
GEOMETRY	LINES	Sticks, strings and objects in the classroom
	SHAPES	Cut- outs of rectangles, circles, and triangles of different sizes

ICT Devices That May Be Used

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,
- DVD players,
- Scanners,

Appendix 2: Suggested Assessment Methods and Tools

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

Community Service Learning at Early Years Education (PP1&2 and Grade 1-3)

At this level, the goal of the CSL activity is to provide linkages between concepts learnt in the various Learning Activities and the real-life experiences. Learners begin to make connections between what they learn and the relevance to their daily life. 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 activity within the school. The safety of the learners should also be taken into account when selecting the CSL 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	<ul style="list-style-type: none">● 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 (locally available materials)● Stagger the activities across the term (Set dates and time for the activities)● Communicate to 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	<ul style="list-style-type: none">● 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 that will be conducted **annually**. The thematic areas for the integrated CSL activity will be derived from the broader categories of the PCIs and concepts from the various Learning Areas. The teachers are expected to vary the themes yearly to allow learners to address different PCIs within their contexts. There should be a linkage between the skills from the learning areas and the themes.

The integrated CSL activity will take a Whole School Approach (WSA) where the entire school community is involved (learners, parents/caregivers/guardians, school administration, teachers). Parents/caregivers/guardians are key stakeholders in the planning and execution of the CSL activity. Although the teacher takes the lead role in the planning and integration of the CSL activity, learners will be expected to participate actively in the whole process.

The CSL activity provides an opportunity for the development of core competencies and the nurturing of various values. The teacher is expected to vary the core competencies and values emphasised in the activity yearly.

Assessment of the CSL Activity

Assessment of the integrated CSL activity will focus on 3 components namely: skills from various learning areas applied in carrying out the activity, and core competencies developed and values nurtured. Assessment should focus on both the process and 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.