



KENYA INSTITUTE OF CURRICULUM DEVELOPMENT

A skilled and Ethical Society

PRE PRIMARY SCHOOL CURRICULUM DESIGN

MATHEMATICAL ACTIVITIES

PRE PRIMARY II

First Published 2017

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PRE PRIMARY TWO (LEVEL II)

Suggested Themes

1. Our Neighbourhood

- Work done by our neighbours
- Things in our neighbourhood
 - structures
 - shops/kiosks/markets
 - animals
 - Physical features
 - Plants

2. Our School

- Our teachers
- People in our school
- Our school compound
- Buildings in our schools
- Ways/road to our school

3. Our Market

- Things found in the market
- Buying and selling
- People found at the market

4. Animals

- Domestic animals
- Wild animals
- Importance/use of animals

5. Weather Conditions

- Sunny
- Cloudy
- Rainy
- Windy

6. Water

- Sources of water
- Uses of water
- Storage of water

7. Hospital

- People in the hospital
- Buildings in the hospital
- Activities in the hospital
- Clothes worn by people in the hospital
- Tools and items used in the hospital

8. Time

- Telling time through daily routine
- Days of the week
- Popular public holidays

9. Transport

- By foot
- By bicycles
- By boat/ship
- By motorcycles
- By animals
- By motor vehicles

- By train
- By aeroplane

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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 FOR PRE PRIMARY

S/No	Activity Learning Area	Number of Lessons per week
1.	Language Activities	5
2.	Mathematical Activities	5
3.	Creative Activities	6
4.	Environmental Activities	5
5.	Religious Activities	3
	Pastoral Instruction Programme	1
Total		25

LEVEL LEARNING OUTCOMES

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

- a) Demonstrate basic literacy and numeracy skills for learning
- b) Apply creative and critical thinking skills in problem solving
- c) Practice appropriate etiquette for interpersonal relationships
- d) Explore the immediate environment for learning and enjoyment
- e) Demonstrate acquisition of physical, emotional, spiritual, aesthetic and moral development
- f) Demonstrate appreciation of the country and its rich, diverse cultural heritage for harmonious living
- g) Develop interests, talents and character for positive contribution to the society.

ESSENCE STATEMENT

Mathematics is the science of numbers and shapes and what they mean. It is science of logic, quantity, structure, order and arrangement. Mathematical activities at the Pre Primary level empower children to engage in basic analysis of problems and to develop appropriate solutions in day-to-day life. These activities help to develop mental processes that enhance logical and critical thinking, accuracy and problem solving; all of which are important building blocks for school readiness. They also enhance the learner's development and acquisition of basic pre-number, number, measurement and geometry skills during early years. In addition, mathematical activities help learners develop core competencies, acquire values and, be aware of pertinent and contemporary issues. Learning of mathematical concepts and skills at Pre Primary is mainly play based, activity based, inquiry based and theme based. Learners are guided through varied, appropriate and meaningful group activities to enhance acquisition of basic mathematical skills and concepts. Themes provide contexts for learning basic mathematical concepts at Pre Primary. Mathematical concepts and skill learned at PP2 are prerequisite for learner's smooth transition to Grade 1.

SUBJECT GENERAL LEARNING OUTCOMES

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

- a) use acquired classroom skills to solve problems in daily life,
- b) demonstrate basic number concepts as a basis for future learning,
- c) develop interest in measurement and dispositions in physical and social world,
- d) utilize basic geometrical concepts acquired as a foundation for future learning,
- e) develop values and competencies for harmonious co-existence in the society,
- f) manage pertinent and contemporary issues for appropriate adjustment to daily life demands.

THEME: OUR NEIGHBOURHOOD

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Questions
1.0 Pre-Number Activities	1.1 Sorting and Grouping (8 lessons)	By the end of the Sub Strand, the learner should be able to: a) identify play objects in the immediate neighbourhood, b) list similarities among play objects, c) state differences among play objects, d) group play objects according to a given attribute, e) appreciate play objects in the immediate neighborhood.	The learner is guided to: <ul style="list-style-type: none"> • collect play objects from the school neighbourhood as they observe safety, • look at and talk about play objects from the school neighborhood with different colour, size, shape, use or texture (toys, wood blocks, bottle tops, plastic bottles), • in pairs or groups, identify similarities of play objects by colour size, shape, use or texture, • in pairs or groups, identify the differences among play objects by colour, size, shape, use or texture, • in groups or pairs, share play objects and, sort and group them according to colour, size, shape, texture or use, • relate given attributes to other objects in the school environment, • sing songs related to sorting and grouping play objects, • sort and group pictures of objects according to a given using digital devices or other resources. 	<ol style="list-style-type: none"> 1. Which objects do you play with at school? 2. How can you group objects you play with at school?

Core Competencies to be developed:

Critical thinking and problem solving: learners sort and group play objects according to colour, size, shape use or texture.

Values:

Love: learners work together in groups as they share play objects while sorting and grouping.

PCIs:

Learners observe safety as they collect play objects from the school neighbourhood.

Link to Other Learning Areas:

Learner relates colour and shapes to colouring activities in Creative Activities.

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THEME: OUR NEIGHBOURHOOD

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Questions
1.0 Pre-Number Activities	1.2 Matching and Pairing (8 lessons)	By the end of the Sub Strand, the learner should be able to: a) identify similarities among play objects, b) list differences among play objects, c) match play objects according to a given attribute, d) appreciate the use of play objects from the immediate neighborhood.	The learner is guided to: <ul style="list-style-type: none"> • collect a variety of play objects from the school neighborhood carefully, • talk about similarities and differences among play objects from the school neighbourhood, • demonstrate how to match and pair play objects from the school neighborhood according to likeness/ sameness or use, • in groups, match and pair play objects according to likeness/ sameness or use as they observe safety, • talk about the use of play objects matched or paired, • sing songs/recite poems on use of play objects from the school neighborhood, • match and pair play pictures of objects according to a given using digital devices or other resources. 	<ol style="list-style-type: none"> 1. How can you match play objects from the school neighbourhood? 2. How can you pair play objects from school neighbourhood?

Core Competencies to be developed:

Communication and collaboration: learners talk to and work with each other in groups while matching and pairing play objects.

Values:

Unity: learners work harmoniously in groups as they match and pair play objects.

PCIs:

Learners observe safety as they collect and match and pair play objects.

Link to Other Learning Areas:

Learner recites poems on the use of play objects that enhances reciting of poems in Language Activities.

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THEME: OUR NEIGHBOURHOOD				
Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question
1.0 Pre-Number Activities	1.3 Ordering (8 Lessons)	By the end of the Sub Strand, the learner should be able to: a) identify play objects of different sizes in the immediate neighbourhood, b) arrange play objects according to size in ascending order, c) arrange play objects according to size in descending order, d) appreciate different play objects in the immediate neighborhood.	The learner is guided to: <ul style="list-style-type: none"> • collect play objects in the school neighborhood and observe safety, • talk about different play objects in the school neighborhood in relation to size, • in group, arrange play objects according to size in ascending order, • in group, arrange play according to size in descending order, • arrange picture of objects according to size in ascending and descending order using digital devices or other resources. 	How do you order play objects in the school neighbourhood?
Core Competencies to be developed: Citizenship: learners work in groups to order play objects according to size in ascending and descending manner.				
Values: Unity: learners work amicably in groups to accomplish the task on ordering play objects according to size in ascending and descending manner.				
PCIs: Learners carefully collect play objects for ordering from the school neighborhood to enhance safety measures.				
Link to Other Learning Areas: Learner relates new vocabulary in ordering different play objects to reading skills in Language Activities				

THEME: OUR NEIGHBOURHOOD

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question
1.0 Pre-Number Activities	1.4 Patterns (8 lessons)	By the end of the Sub Strand, the learner should be able to: a) identify similarities among play objects in the immediate neighbourhood, b) list differences among play objects , c) make patterns using play objects according to a given attribute, d) enjoy making patterns with different play objects from the immediate neighbourhood.	The learner is guided to: <ul style="list-style-type: none"> • observe and talk about different play objects in the school neighbourhood, • in groups, arrange play objects to make pattern (shape, colour) as they observe safety, • fill in the missing play objects in a pattern, • observe and talk about different patterns on clothes, foot prints, buildings, flower gardens, • draw different shapes using digital devices or other resources to make patterns, • make patterns using digital devices or other resources. 	How can you arrange these play objects to make patterns?

Core Competencies to be developed:

Creativity and imagination: learners make patterns using different play objects creatively.

Values:

Respect: learners exercise patience and take turns as they make patterns in groups.

PCIs:

Learners observe safety as they to arrange play objects to make patterns.

Link to Other Learning Areas:

Learner relates making patterns using different play objects to pattern making in Creative Activities

Assessment Rubric

Level Indicator	Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Ability to identify similarities and differences among play objects.	Identifies more than four similarities and differences among play objects correctly.	Identifies four similarities and differences among play objects correctly.	Identifies three similarities and differences among play objects correctly.	Identifies one similarity or difference among play objects correctly.
Ability to group play objects according to given attributes.	Groups play objects according to four attributes correctly and consistently.	Groups play objects according to four attributes correctly.	Groups play objects according to three attributes correctly.	Groups play objects according one attribute correctly.
Ability to match play objects according to given attributes.	Matches play objects according to given attributes correctly and systematically.	Matches play objects according to given attributes correctly.	Matches play objects according to given attributes partially correct.	Matches play objects according to given attributes partially correct with continuous assistance.
Ability to arrange play objects according to size in	Arranges play objects according to size in	Arranges play objects according to size in	Arranges play objects according to size in	Arranges play objects according to size in

ascending and descending order.	ascending and descending order correctly and consistently.	ascending and descending order correctly.	ascending or descending order correctly.	ascending or descending order with continuous support.
Ability to make patterns using play objects according to a given attribute.	Makes patterns using play objects according to two attributes creatively and accurately.	Makes patterns using play objects according to two attributes creatively.	Make patterns using play objects according to two attributes creatively and partially correct.	Make patterns using play objects according to two attributes with continuous support.

THEME: OUR SCHOOL

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question
2.0 Numbers	2.1 Rote Counting (6 Lessons)	By the end of the Sub Strand, the learner should be able to: a) rote count numbers 1-30 for developing numeracy skills, b) rote count numbers 1-30 using actions, c) enjoy rote counting in everyday life.	The learner is guided to: <ul style="list-style-type: none"> • rote count numbers 1-30, • in small groups or pairs, rote count numbers 1-30 using actions (clapping, nodding, jumping, skipping, and hopping) carefully, • in small groups or pairs, perform singing games or rhymes related to rote counting, • listen to radio or television educational programmes on rote counting, • watch video clips on rote counting with actions. 	How can you count numbers 1 – 30?
Core Competencies to be developed: Self -efficacy: learners rote count 1-30 using actions.				
Values: Respect: learners take turns to rote count numbers 1-30 in groups or pairs.				
PCIs: Learners rote count using actions carefully to enhance safety.				
Link to Other Learning Areas: Learner relates singing songs, recite rhymes and use actions to singing games in Creative Activities.				

THEME: OUR SCHOOL

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question
2.0 Numbers	2.2 Number Recognition (8 Lessons)	By the end of the Sub Strand, the learner should be able to: a) identify number symbols 1-20 for developing numeracy skills, b) arrange number flash cards 1-20 for developing symbolic representation of numbers, c) appreciate use of numbers in everyday life experience.	The learner is guided to: <ul style="list-style-type: none"> • observe and read number symbols on number flash cards or number charts, • in pairs or groups, identify number symbols on flashcard or charts, • in pairs or groups, identify number symbols found on different objects in the school compound, • in groups or pairs, match numbers symbols that look alike, • in pairs or groups, play number recognition games such as fishing game, domino games, skittle game, snake and ladder games, treasure hand, • arrange number flashcards for numbers 1-20, • identify and type number symbols using digital devices or form number symbols using other resources. 	Which number can you see on the flashcard?
Core Competencies to be developed: Digital literacy: learners use digital devices to identify and type number symbols.				
Values: Unity: learners amicably work in groups to arrange numbers flash cards for numbers 1-20.				

PCIs:

Learners' self-esteem is enhanced as they sing songs and recite rhymes on numbers in groups.

Link to Other Learning Areas:

Learner relates reading of numbers on flash cards with reading other symbols in Language Activities.

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THEME: OUR SCHOOL

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Questions
2.0 Numbers	2.3 Counting Concrete Objects (8 lessons)	By the end of the Sub Strand, the learner should be able to: a) identify concrete objects found in school, b) count concrete objects found in school 1-20 for developing numeracy skills, c) match number symbols 1-20 with concrete objects, d) appreciate the use of one to one correspondence in real life.	The learner is guided to: <ul style="list-style-type: none"> • collect, observe and talk about concrete objects found in school, • count concrete objects found in school 1-20, • in groups or pairs, learners count concrete objects in their class up to 20, • play counting games involving counting objects found in school 1-20, • match number symbols with concrete objects found in school for numbers 1-20, • count concrete pictures of objects from 1-20 using digital devices or other resources, • play video games on counting concrete objects. 	<ol style="list-style-type: none"> 1. How many objects are these? 2. Which number matches these objects?
Core Competencies to be developed: Critical thinking and problem solving: learners count and match concrete objects to their corresponding number.				
Values: Respect: learners take turns in counting concrete objects 1-20.				

PCIs:

Learners observe hygiene as they use concrete objects to count without licking them

Link to Other Learning Areas:

Learner relates playing counting games to singing games in Creative Activities.

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THEME: OUR SCHOOL

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Questions
2.0 Numbers	2.4 Number Sequencing (8 Lessons)	By the end of the sub strand, the learner should be able to: a) identify number symbols 1-20 for ordering numbers, b) arrange number cards in sequence 1-20 for appreciation of increase in value, c) enjoy arranging numbers in sequence in day to day life experiences.	The learner is guided to: <ul style="list-style-type: none"> • randomly pick number cut outs or number cards from a pile and identify the number 1-20, • arrange numbers 1-20 in sequence by placing the appropriate number cards or cut outs, • in pairs or groups learners, share number cards/cut-outs and complete missing numbers in sequence by placing the appropriate number cards or cut – outs, • sing songs on number sequence comprising numbers 1-20, • complete number puzzles using digital devices or other resources, • arrange numbers in sequence from 1-20 using digital devices or other resources, • find the missing number in given pattern of numbers using digital devices or other resources. 	<ol style="list-style-type: none"> 1. Which number is written on the card/chart/board? 2. Which number comes before this number?
<p>Core Competencies to be developed: Critical thinking and problem solving: learners identify numbers symbols 1-20 and fill missing numbers in a sequence</p>				

Values:

Love: learners share number cut-out and cards in groups while sequencing numbers.

PCIs:

Learners sing songs in groups on number sequence which enhance their self-esteem.

Link to Other Learning Areas:

Learner relates singing songs on number sequence to singing games in Creative Activities.

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THEME: OUR SCHOOL

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question
2.0 Numbers	2.5 Number Value (8 Lessons)	By the end of the sub strand, the learner should be able to: a) identify play objects in the school environment, b) relate the number symbols with groups of play objects in the school environment, c) appreciate the value of numbers in their daily life experiences.	The learner to be guided to: <ul style="list-style-type: none"> • collect play objects in the school environment carefully and talk about them, • relate number symbols and their values up to 20, • in groups or pairs, count play objects and relate them to the number symbol up to 20, • in groups or pairs, complete number value puzzles up to 20, • match and pair number symbols with corresponding quantity of objects using digital devices or other resources. 	Which group has 3,4,5,...20 objects?
<p>Core Competencies to be developed: Critical thinking and problem solving: learners match the objects to its correspondence number symbol.</p>				
<p>Value: Responsibility: learners collect materials from the school environment for use in number value activities.</p>				
<p>PCIs: Learners carefully collect play objects to ensure safety.</p>				
<p>Link to Other Learning Areas: Learner relates collecting of play objects in the school environment to maintaining cleanliness of the environment in Environmental Activities.</p>				

THEME: OUR SCHOOL

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Questions
2.0 Numbers	2.6 Number Writing (8 Lessons)	By the end of the Sub Strand, the learner should be able to: a) identify number symbols up to 20 for symbolic representation, b) form numbers symbols 1-20 on a surface for representing quantities of objects, c) write number symbols 1-20 on a surface for enjoyment, d) appreciate the use of numbers within their school environment.	The learner is guided to: <ul style="list-style-type: none"> • identify number symbols 1-20 on flash cards, number cut-outs, • in groups, or pairs, form number symbols 1- 20 carefully by tracing, modeling, threading, joining dots and colouring, • write number symbols 1-20 on a surface, • use digital or other resources to form number symbols 1-20, • type number symbols from 1-20 using digital devices, • use number symbols found on materials in their school environment such as calendar to tell date and clock to tell time. 	<ol style="list-style-type: none"> 1. Which number symbol is this? 2. How do we form these number symbols (1, 2, 3, 4, 5, 6, 7, 8, 9,10.....20)
<p>Core Competencies to be developed: Imagination and creativity: learners trace, model, thread, join dots and colour number cut-outs up to 20.</p>				
<p>Values: Respect: learners exercise patience while working in group or pairs to form number symbols 1-20.</p>				

PCIs:

Learners observe safety as they carefully form number symbols 1-20 in different ways.

Link to Other Learning Areas:

Learner relates tracing, modeling and colouring of number up to 20 to picture making in Creative Activities.

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THEME: OUR SCHOOL

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question
2.0 Numbers	2.7 Putting Together (10 Lessons)	By the end of the Sub Strand, the learner should be able to: a) identify groups of similar play objects in the school environment for counting, b) put similar play objects together with a sum not exceeding 9, c) enjoy the activities of putting together play objects in everyday life experiences.	The learner is guided to: <ul style="list-style-type: none"> • collect different groups of similar play objects in school for counting carefully, • observe and talk about similar play objects within the school environment, • in small groups or pairs, put similar play objects together with a sum not exceeding 9 and count, • sing songs related to putting together with sums not exceeding 9 e.g. 1 little brown bird sitting on a wall along came another one and that made two, • count and put together pictures of similar objects to get sums of not more than nine (9) using digital devices or other resources, • listen to and watch video programmes on the concept of putting together. 	How many play objects are in the basket?
Core competencies to be developed: Collaboration and communication: learners in groups or pairs put together similar play objects with a sum not exceeding 9 and count.				
Values: Respect: learners exercise patience while putting together play objects.				

PCIs:

Learners carefully collect similar play objects for counting to ensure safety.

Link to Other Learning Areas:

Learner relates collecting similar play objects from the school environment to environmental cleanliness in Environmental Activities.

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THEME: OUR SCHOOL

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Questions
2.0 Numbers	2.8 Taking Away (8 Lessons)	By the end of the Sub Strand, the learner should be able to: a) identify different groups of similar concrete objects in the school environment, b) take away fewer concrete objects from groups not more than 9, c) enjoy the activities of taking away fewer concrete objects from groups in the day to day life experiences.	The learner is guided to: <ul style="list-style-type: none"> • collect different groups of similar concrete objects from the school environment as they observe safety, • count concrete objects in different groups, • take away not more than 9 concrete objects from different groups, • in pairs or groups, take away not more than 9 concrete objects from groups and count the remainder, • take away all objects in each group and notice “nothing” remains (zero), • sing songs or recite poems related to taking away, • use digital devices or other resources to take away pictures of objects from pictures of groups of objects not more than nine (9), • listen to and watch video programmes on the concept of taking away. 	<ol style="list-style-type: none"> 1. How many objects are in each group? 2. How many objects are left after taking away some objects?
<p>Core Competencies to be developed: Critical thinking and problem solving: learners take away not more than 9 objects from groups of similar objects and count the remainder.</p>				

<p>Values: Respect: learners exercise patience and take turns as they carry out take away activities in groups.</p>
<p>PCIs: Learners observe safety as they collect concrete objects to use in taking away activities.</p>
<p>Link to Other Learning Areas: Learner relates collecting of different groups of similar objects from the environment to keeping the environment clean in Environmental Activities.</p>

Assessment Rubrics

Level Indicator	Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Ability to rote count numbers 1-30.	Rote counts numbers 1-30 and beyond correctly.	Rote counts numbers 1-30 correctly.	Rote counts numbers up to 20 correctly.	Rote counts numbers up to 10 correctly.
Ability to identify number symbols 1-20.	Identifies number symbols 1-20 and beyond correctly.	Identifies number symbols 1-20 correctly.	Identifies number symbols 1-10 correctly.	Identifies number symbols 1-5 correctly.
Ability to count concrete objects 1-20.	Counts concrete objects 1-20 and beyond correctly.	Counts concrete objects 1-20 correctly.	Counts concrete objects 1-10 correctly.	Counts concrete objects 1-5 correctly.
Ability to arrange number cards in sequence 1-20.	Arranges number cards in sequence 1-	Arranges number cards in sequence 1-20 correctly.	Arranges number cards in sequence 1-10 correctly.	Arranges number cards in sequence 1-5 correctly.

	20 and beyond correctly.			
Ability to relate the number symbols with groups of play objects.	Relates up to 20 and beyond play object to their corresponding number symbols correctly.	Relates up to 20 play objects to their corresponding number symbols correctly.	Relates up to 10 play objects to their corresponding number symbols correctly.	Relates up to 5 objects to its corresponding number symbols correctly.
Ability to write number symbols 1-20.	Write number symbols 1-20 and beyond accurately.	Writes number symbols 1-20 accurately.	Writes number symbols 1-10 accurately.	Writes number symbols 1-5 accurately.
Ability to put similar objects together with a sum not exceeding 9.	Puts similar objects together with a sum exceeding 9 correctly.	Puts similar objects together with a sum up to 9 correctly.	Puts similar objects together with a sum up to 5 correctly.	Puts similar objects together with a sum up to 5 correctly with continuous support.
Ability to take away concrete objects from groups not more than 9 and tell the remaining objects.	Takes away concrete objects from groups exceeding 9 and tell the remaining objects correctly.	Takes away concrete objects from groups up to 9 and tell the remaining objects correctly.	Takes away concrete objects from groups up to 5 and tell the remaining objects correctly.	Takes away concrete objects from groups up to 5 and tell the remaining objects correctly with continuous support.

THEME: OUR MARKET

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Questions
3.0 Measurement	3.1 Sides of Objects (8 Lessons)	By the end of the sub strand, the learner should be able to: a) identify concrete objects found in the market, b) state sides of concrete objects found in the market, c) compare different sides of concrete objects found in the market, d) enjoy measuring sides of concrete objects using arbitrary units.	The learner is guided to: <ul style="list-style-type: none"> • collect, observe and talk about different concrete objects found in the market (manila paper, books, calendar), • identify sides of different concrete objects found in the market (manila paper, books, calendar) • compare concrete objects found in the market with different sides (long, short), • in groups or pairs, measure sides of concrete objects found in the market using arbitrary units (hand - span, foot, sticks) as they observe safety, • watch a video clip on measuring sides of objects using arbitrary units. 	<ol style="list-style-type: none"> 1. Which of these sides is long or short? 2. How will you tell which side is longer or shorter?
Core Competencies to be developed:				
Learning to learn: learners appreciate that different sides of objects differ in size.				
Values:				
Love: learners share arbitrary units and take turns to measure sides of objects.				
PCIs:				
Learners to observe safety as they measure sides of concrete objects.				
Link to Other Learning Areas:				
Learner relates acquired vocabulary such as long and short to new words they learn in Language Activities.				

THEME: OUR MARKET

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Questions
3.0 Measurement	3.2 Mass (Heavy and Light) (8 lessons)	By the end of the Sub Strand, the learner should be able to: a) identify concrete objects found in the market, b) compare heavy and light concrete objects found in the market, c) appreciate different mass of concrete objects found in the market.	The learner is guided to: <ul style="list-style-type: none"> • collect carefully, observe and talk about concrete objects found in the market, • lift different heavy and light concrete objects carefully, • in groups or pairs, compare heaviness of different concrete objects found in the market, • in groups or pairs, play games involving lifting of heavy and light objects (play on a see saw; back to back lifting), • watch a video on comparison of heavy and light objects. 	<ol style="list-style-type: none"> 1. Which object is heavy or light? 2. How can you tell the object is heavy or light?
Core Competencies to be developed: Learning to learn: learners realize that different concrete objects have different mass (heavy and light).				
Values: Respect: learners exercise patience while lifting concrete objects in turns to determine their mass (heavy and light).				
PCIs: Learners carefully collect and lift concrete objects to ensure safety.				
Link to Other Learning Areas: Learner relates acquired vocabulary of “heavy and light” as they lift different concrete objects to their daily use in Language Activities.				

THEME: OUR MARKET

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Questions
3.0 Measurement	3.3 Capacity (how much a container can hold) (8 Lessons)	By the end of the Sub Strand, the learner should be able to: a) identify containers of different sizes, b) compare containers of different sizes, c) enjoy comparing containers of different sizes in the immediate environment.	The learner is guided to: <ul style="list-style-type: none"> • collect carefully, observe and talk about containers of different sizes • fill and empty small and large containers using sand or water, • compare big and small containers by telling how many small ones fill the big ones and vice versa as they observe hygiene, • in groups or pairs, tell how much a container can hold compared to another one of a different size, • watch a video on filling and emptying containers of different sizes. 	<ol style="list-style-type: none"> 1. How many small containers can fill a big container? 2. Which container holds more/less water/sand?
Core Competencies to be developed:				
Critical thinking and problem solving: learners tell how much a container can hold compared to another one of a different size.				
Values:				
Responsibility: learners work together to carry out filling and emptying activities to determine capacity of different containers.				
PCIs:				
Learners observe hygiene as they carefully collect concrete objects and do emptying and filling activities (not to drink dirty water).				

Link to Other Learning Areas:

Learner relates water and soil in filling and emptying activities to natural resources in Environmental Activities.

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THEME: OUR MARKET

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question
3.0 Measurement	3.4 Time (Daily routine) (8 lessons)	By the end of the Sub Strand, the learner should be able to: a) name tools used for telling time, b) compare sizes of shadows at different times of the day, c) arrange flashcards of days of the week in a sequence, d) arrange flashcards of the months of the year in a sequence, e) appreciate the use of different tools for telling time.	The learner is guided to: <ul style="list-style-type: none"> • talk about tools used to tell time such as clock, calendar, watches, • talk about vocabulary related to time (morning, noon, evening), and daily activities done at different times of the day, • compare sizes of shadows at different times of the day (morning, noon, evening), • name days of the week and months of the year, • in groups or pairs, arrange flashcards of days of the week and months of the year, • watch a video on activities done at different times. 	How do we tell time every day?
Core Competencies to be developed: Citizenship: learners learn to be responsible, ethical and socially connected individuals as they work in groups.				
Values: Love: learners share flashcards on days of the week and months of the year while arranging while arranging them in sequence.				

PCIs:

Learners work harmoniously in groups or pairs to arrange flashcards on days of the week and months of the year in sequence to foster social cohesion.

Link to Other Learning Areas:

Learner relates arranging flashcards on days of the week and months of the year in sequence to pre-reading skills of arranging pictures on daily routine in Language Activities.

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THEME: OUR MARKET

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question
3.0 Measurement	3.5 Money (Kenyan currency)-coins. (8 Lessons)	By the end of the sub strand, the learner should be able to: a) identify different Kenyan currency coins used in the market, b) count money in one Kenyan shilling coins up to 20, c) appreciate the value of different coins of Kenyan currency in everyday life.	The learner is guided to: <ul style="list-style-type: none"> • look at and talk about different coins in Kenyan currency; Ksh.1, Ksh.5, Ksh.10 and Ksh.20, • identify Kenyan coins; Ksh.1, Ksh.5, Ksh.10, Ksh.20 • count Ksh.1 coin up to 20. • in groups or pairs, count Ksh.1 coin up to 20, • in groups or pairs, identify the number symbols on the coins as 1,5,10 or 20, • watch a video of different Kenyan currency coins using digital devices or other resources. 	What can you see on the coin?
Core Competencies to be developed: Citizenship: learners identify different Kenyan currency coins used in the market (Ksh.1, Ksh.5, Ksh.10, Ksh.20).				
Values: Responsibility: learners take turns counting Kenyan currency coins Ksh.1 up to 20.				
PCIs: Learners identify Kenyan currency coins for distinguishing one coin from the other to financial literacy.				

Link to Other Learning Areas:

Learner relates acquired new vocabulary related to different coins in Kenyan currency (Ksh.1, Ksh.5, Ksh.10, Ksh.20) to their use in reading skill in Language Activities.

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THEME: OUR MARKET

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question
3.0 Measurement	3.6 Area (Surfaces of Objects) (8 Lessons)	By the end of the Sub Strand, the learner should be able to: a) identify surfaces of concrete objects found in the market, b) count small similar objects that cover a given surface of concrete object, c) appreciate different surfaces of concrete objects in everyday life.	The learner is guided to: <ul style="list-style-type: none"> • collect concrete objects (books, manila paper, calendar) found in the market and observe their different surfaces, • identify surfaces of different objects found in the market as large or small, • in groups or pairs, cover different surfaces of concrete objects using small similar objects, and count the number of small similar objects used (objects not exceeding 20), • shade or colour surfaces of different drawn picture of objects using digital devices or other resources. 	How many small similar can cover a given surface?
<p>Core Competencies to be developed: Critical thinking and problem solving: learners cover different surfaces using small similar objects and count small similar objects that cover a given surface.</p>				
<p>Values: Love: learners share concrete object as they work in groups.</p>				
<p>PCIs: Learners amicably work in groups to cover different surfaces using small similar objects which enhances social cohesion.</p>				
<p>Link to Other Learning Areas: Learner relates shading or colouring of surfaces of different drawn picture of objects to colouring in Creative Activities.</p>				

Assessment Rubric

Level Indicator	Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Ability to compare different sides of concrete objects, and identifies long and short sides.	Compares sides of concrete objects, identifies long and short sides correctly and consistently.	Compares two sides of concrete objects and identifies long and short sides correctly.	Compares two sides of concrete objects and identifies long or short sides correctly.	Compares two sides of concrete objects and identifies long or short sides correctly with continuous support.
Ability to compare heavy and light concrete objects	Compares heavy and light concrete objects correctly and talk about them.	Compares heavy and light concrete objects correctly.	Compares heavy and light concrete objects partially correct.	Compares heavy and light concrete objects partially correct with continuous support.
Ability to compare containers of different sizes.	Compares containers of different sizes correctly and accurately.	Compares containers of different sizes correctly.	Compares containers of different sizes partially correct.	Compares containers of different sizes partially correct with continuous support.
Ability to compare sizes of shadows at different times of the day	Compares sizes of shadows at different times of the day accurately and talk about them	Compares shadows at different times of the day accurately	Compares shadows at different times of the day partially accurate	Compares shadows at different times of the day partially accurate with continuous support.
Ability to arrange flashcards of days of	Arranges flash cards of days of the week and	Arranges flashcards of days of the week	Arranges flash cards of days of the week	Arranges some flashcards of days of the

the week and the months of the year correctly.	months of the year correctly and talk about them	and months of the year correctly.	or months of the year correctly.	week or months of the year correctly
Ability to identify Kenyan currency coins for distinguishing one coin from the other.	Identifies Kenyan currency coins: ksh.1, ksh.5, ksh.10, ksh.20 and beyond correctly.	Identifies four Kenyan currency coins: ksh.1, ksh.5, ksh.10, ksh.20 correctly.	Identifies any three of Kenyan currency coins ksh.1, ksh.5, ksh.10, ksh.20 correctly.	Identifies any two of Kenyan currency coins: ksh.1, ksh.5, ksh.10, ksh.20 correctly.
Ability to count small similar objects used to cover given surfaces of concrete objects.	Counts small similar objects used to cover given surfaces of concrete objects correctly and talk about them.	Counts small similar objects used to cover given surfaces of concrete objects correctly.	Counts small similar objects used to cover given surfaces of concrete objects partially correct.	Counts small similar objects used to cover given surfaces of concrete objects partially correct with continuous support.

THEME: OUR MARKET

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question
4.0 Geometry	4.1 Lines (3 lessons)	By the end of the Sub Strand, the learner should be able to: a) identify lines on concrete objects found in the market, b) form lines using concrete objects, c) enjoy forming lines using concrete objects found in the market.	The learner is guided to: <ul style="list-style-type: none"> • observe concrete objects (books, charts, woodblocks, string/ropes) /models of objects found in the market and talk about lines found in them (straight, wavy and zig zag), • in groups or pairs, to form lines- straight, wavy and zig zag (arranging concrete objects one after the other, modelling or joining dots) as they observe safety, • watch videos of children singing while moving on a straight, wavy and zig zag lines. 	What can you see on these objects?
Core Competencies to be developed: Citizenship: learners bond socially as they work together in groups to identify and form lines.				
Values: Unity: learners amicably work together in small groups to identify and form lines.				
PCIs: Learners observe safety as they arrange concrete objects to form lines.				
Link to Other Learning Areas: Learner relates joining dots to form lines to joining dots to form pictures in Creative Activities.				

Theme: Our Market				
Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Questions
4.0 Geometry	4.2 Shapes (5 Lessons)	By the end of the Sub Strand, the learner should be able to: a) identify shapes on concrete objects found in the market, b) form shapes using concrete objects, c) appreciate shapes of concrete objects found in the market.	The learner is guided to: <ul style="list-style-type: none"> • observe concrete objects or picture of concrete objects found in the market (fruits, utensils, chairs, tables, eggs) and talk about shapes on the objects (rectangle, circle, triangle, square and ovals) • in groups or pairs form shapes -rectangle, circle, triangle, square and ovals- by arranging concrete objects one after the other, modelling or joining dots as they observe hygiene, • in groups or pairs, colour and paint pictures of drawn shapes, • watch videos clips of different shapes on digital devices or use other resources. 	<ol style="list-style-type: none"> 1. What are these objects? 2. How do these objects look like?
Core competencies to be developed: Imagination and creativity: learners form different shapes by modelling and joining dots.				
Values: Responsibility: learners work harmoniously in groups to form shapes.				
PCIs: Learners to observe hygiene as they form different shapes using different materials.				

Link to other activity areas:

Learner relates colouring of drawn pictures of shapes, joining dots to form shapes and modelling shapes to colouring, joining dots and modelling in Creative Activities.

Assessment Rubric

Level Indicator	Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Ability to identify and form lines using concrete objects.	Identifies and forms lines using concrete objects correctly and accurately.	Identifies and forms lines using concrete objects correctly.	Identifies and forms lines using concrete objects partially correct.	Identifies and forms lines using concrete objects partially correct with continuous support.
Ability to identify and form shapes using concrete objects.	Identifies and forms shapes using concrete objects accurately and neatly.	Identifies and forms shapes using concrete objects accurately.	Identifies and forms shapes using concrete objects partially accurate.	Identifies and forms shapes using concrete objects partially accurate with continuous support.

Appendices

Appendix I: Suggested Resources

Theme: Our Neighbourhood		
Strands	Sub Strand	Suggested Resources
Pre-Number Activities	1.1 Sorting & grouping	Locally available materials of different colours, texture, use, types and sizes such as leaves flowers, pebbles, shells, paper cut outs, bottle tops, seeds, feathers, fruits, beads, pictures, Computers.
	1.2 Matching and Pairing	Locally available materials (pens, books, sticks, shapes, cut-outs, wood/plastic blocks, clothing, utensils, pebbles, balls, flash cards)
	1.3 Ordering	Flash cards, blocks, bottle tops, bottles, sticks, beads, straws, cut outs, pebbles
	1.4 Patterns	Pencils, books, crayons, paint, paper cut-outs, leaves.
Theme: Our School		
2.0 Numbers	2.1 Rote counting (1-30)	
	2.2 Number recognition (1-20)	Number flash cards/charts/calendar, clay, plasticine, number lines, number bags, number cut outs, fishing basket and rod, flannel boards, bottles
	2.3 Counting concrete objects (1-20)	Bottle tops, pencils, books, sticks, pebbles, tables, rubbers, wood/block blocks
	2.4 Number sequencing (1-20)	Flash cards, charts, number cut outs, calendars, number line
	2.5 Number Value	Counters, realia classroom objects, flash cards, models, number charts, objects in the environment, toys
	2.6 Number writing- (1-20)	Calendar, plasticine, pebbles, clock face, number charts, number flashcards,

	2.7 Putting together	Number cut outs, number charts, puzzle pieces, counters, sticks and wood/plastic blocks.
	2.8 Taking away	Counters (sticks; blocks, pebbles, bottle tops)
Theme: Our Market		
3.0 Measurement	3.1 Sides of objects (Long/short)	Objects of different lengths such as sticks, calendar, manila paper, books, pencils, pieces of paper, strings, objects in the class
	3.2 Mass (heavy and light)	Sand, bottles of water, stones, woodblocks, chairs, tables, fruits
	3.3 Capacity (how much a container can hold)	Containers of various sizes, water sand, seeds, bottles
	3.4 Time (Daily routines)	Clock face, pictures, picture cut outs, watch, radio, mobile phones, calendars, shadow positions at different times of the day
	3.5 Money (Kenyan currency) Coins	Coins(Ksh.1, Ksh.5, Ksh.10, Ksh.20), tins, boxes, papers pencils, shop corner
	3.6 Area (surfaces of objects)	Pieces of paper, bottle tops, hands, feet, wood/plastic blocks, manila paper, calendar, books
Theme: Our Market		
4.0. Geometry	4.1 Lines (straight/wavy /zig zag)	books, charts, chalk boards, ropes, strings
	4.2 Shapes (rectangle, circle, triangle, oval, square)	books, black board, roof, eggs, fruits, window frames/window panes, clock, pictures/models or pictures of objects found on the market

Note:

The following digital 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, Internet among others.

Appendix II: Suggested Assessment Methods and Tools

1. Written tests
2. Projects
3. Observation Schedules
4. Observation checklist
5. Portfolio
6. Assessment Rubric

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Appendix III: Community Service Learning Guidelines

CSL 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

- 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**

- 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.