ZIMBABWE

MINISTRY OF PRIMARY AND SECONDARY EDUCATION

MATHEMATICS AND SCIENCE

INFANT (EARLY CHILDHOOD DEVELOPMENT - GRADE 2) SYLLABUS

2015-2022

Curriculum Development Unit
P.O.BOX MP133
Mount Pleasant
Harare

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TABLE OF CONTENTS

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1.0 PREAMBLE

1.1 Introduction

The Infant Mathematics and Science syllabus document covers one of the seven learning areas in the infant school curriculum. This syllabus involves mathematical and scientific learning through practical activities such as matching, ordering, measuring, classifying and identifying amongst others. This learning phase seeks to give learners an appreciation of Mathematics and Science as learning areas in their education and to equip them with life skills through discovery and problem solving. The syllabus is also designed to enable a smooth transition from Infant to Junior school learning. The learners will be assessed through continuous assessment.

1.2 Rationale

The aim is to enable the learners to understand mathematical and scientific concepts as they are central to most facets of everyday life and enterprise skills. The learning area cuts across many fields of endeavor and this will help the learners to understand and apply these concepts in those fields and in the job market. The syllabus promotes problem solving, innovativeness, confidence and self actualisation.

1.3 Summary of Content

The syllabus is designed to cover the first four years of Infant Education in Mathematics and Science, which will form the basis for Junior Education for all learners. The content to be covered will include identifying, classifying, comparing, numbering, ordering and measuring of objects. The learners will be exposed to mathematical and scientific language. The syllabus will enable learners to manipulate objects and interact with their environment.

1.4 Assumptions

It is assumed that the learners:

- can group objects according to colour, size and shape;
- can use their senses;
- can identify objects in their environment;
- can share;
- can make simple patterns;
- know that buying and selling takes place;
- know time such as morning, afternoon and evening.

1.5 Cross Cutting Themes

Mathematics and science learning will encompass and have a universal thrust on the following cross cutting themes:

- Financial literacy
- Collaboration
- HIV and AIDS

- Heritage studies
- Children's Constitutional Rights and Responsibilities
- Gender
- ICT
- Environmental issues
- Disaster Risk management

2.0 PRESENTATION OF THE SYLLABUS

The Mathematics and Science syllabus is a single document covering Infant Education i.e. ECD A, ECD B, Grade 1 and 2. It constitutes Preamble, Aims, Objectives, Topics, Scope and Sequence, Competency matrix and Assessment. The scope and sequence chart shows the progression of topics from ECD `A' to Grade 2. The competency matrix shows the breadth and depth of content to be covered. Inclusive in this syllabus, is a list of resources to be used during teaching and learning.

3.0 AIMS

The syllabus aims to enable learners to:

3.1 develop and show a positive attitude towards Mathematics and Science;

3.2 progress smoothly from Infant to Junior Primary school learning;

3.3 use and communicate mathematical and scientific information to develop critical thinking and problem solving skills;

3.4 acquire mathematical and scientific concepts and skills for use as tools in life.

3.5 develop sound mathematical and scientific skills that will enable them to interact more meaningfully with their environment;

3.6 develop an awareness of the importance of culture in the learning of Mathematics and Science;

3.7 develop psycho-social skills such as self-control and free expression of emotions and contribute to the holistic development of the learner.

4.0 SYLLABUS OBJECTIVES

Learners should be able to:

4.1. use mathematical and scientific terms;

4.2 carry out calculations accurately;

4.3 estimate, approximate and measure to an appropriate degree of accuracy;

4.4 interpret and analyse tables, charts and graphs and use them in conducting simple investigations;

4.5 interpret and apply Mathematics and Science in life situations;

4.6 explore scientific and mathematical ideas and come up with conclusions and innovations;

4.7 apply scientific and mathematical concepts and skills for environmental sustainability;

4.8 demonstrate problem solving abilities in mathematics and science;

4.9 use local materials to design and modify simple technological devices;

4.10 demonstrate a positive attitude towards Mathematics and Science.

5.0 METHODOLOGY AND TIME ALLOCATION

The syllabus is based on a learner-centered approach in the teaching and learning of infants. The pace of learning will be determined by the individual learner's readiness to absorb and master skills, concentrating on a hands on approach. The teaching and learning process must be inclusive, gender sensitive and encourage collaboration. This will promote self-confidence, science ethics, *Unhu/Ubuntu/Vumunhu* and children's rights as well as responsibilities among others. The recommended methodologies is designed to promote and lay a firm foundation for problem solving and critical thinking in mathematics and science in life. In this regard the recommended approach emphasizes concept development through immersion in problem solving where the new concepts are applicable. The learners should be allowed to develop their own solutions with the teacher providing guidance where necessary. The use of Information and Communication Technology (ICT) is recommended as a problem solving tool.

5.1 Methodology

The methods suggested below, though not exhaustive, are mutually supportive of problem solving:

a) Discovery;
b) Experimentation;
c) Group work;
d) Projects;
e) Song and dance;
f) Poems and rhymes;
g) Questioning and answer
h) Educational Tours;
i) Imitation.
j) Discussion
k) Investigation

N.B The above should be enhanced by the application of child centered and multi-sensory approaches as well as principles of individualisation, concreteness, totality and wholeness and stimulation should be employed to enhance the suggested teaching methods.

5.2 Time Allocation

Time allocation per week is as follows:

LEVEL	TIME ALLOCATION PER WEEK
ECD	1 hour 40 minutes
GRADES 1 AND 2	2 1/2 hours.

Learners should engage in at least two educational tours per year, one environmental expo and an annual young scientist exhibition

6.0 TOPICS

6.1 Mathematical play
6.2 Manipulative and block play
6.3 Science, mathematics and discovery play
6.4 Number and science concepts
6.5 Number operations
6.6. Measures
6.7 Relationships in science and mathematics.

7.0 SCOPE AND SEQUENCE

TOPIC	ECD A	ECD B	GRADE 1	GRADE 2
MATHEMATICAL PLAY	• Match objects and pictures to colour	• Match objects and pictures to: - Colour - size	• Match objects and pictures to - shape	
	• Order objects and pictures to colour	• Order objects and pictures to: - Size - type	• Order objects and pictures in - sequence of size and type	• Order objects and pictures to - events
	• Shapes of different objects	• Shapes and names of different objects	• Shapes and uses of different objects	• Properties of different shapes
MANIPULATIVE AND BLOCK PLAY	• Objects in the environment • Construction- Bundles • Object matching	• Objects can be joined, fitted and bonded. • Objects can be matched to complete patterns.	• Construction of different objects using similar materials • Construction of different objects using different materials • Complete jigsaw puzzles.	• Structures can be dismantled and reconstructed
	Moving Objects • Objects move when pushed, pulled, lifted or thrown • Different body parts can move objects	• Tools can assist motion of objects	• Electricity, batteries and solar energy can assist motion of objects.	• Objects make different sounds when moved.
	Balancing • Some objects can balance on top of each other	• Some objects can balance on body parts.	• Objects can be balanced using tools	• Objects can balance on a scale.
	Fastening • Textiles can be fastened	• Some objects have different fastenings		

TOPIC	ECD A	ECD B	GRADE 1	GRADE 2
SCIENCE, MATHEMATICS AND DISCOVERY PLAY	Human body • The body parts • Human beings are of different sexes	• Different body parts have different functions.	• The body parts need care • The human body is made up of different parts.	• People use their senses of sight, hearing, touch, taste and smell to interact with the environment. • Other animals use their senses to survive in the environment.
	Water • Sources of water • Sources of water can be dangerous • Water makes things wet • Water has different uses	• Some plants and animals live in water • Some objects sink in water • Water flows.	• Some objects float in water • Water is used in many ways by people, animals and plants. • Water can be dangerous • Water is colourless, odourless and tasteless	• Water takes the shape of a container • Water takes different forms • Water is found in other environments • Water can be conserved.
	Plants • There are different types of plants • Plants have different uses	• Plants have different colours • Plants have different heights.	• Plants have different parts • Some plants have flowers and bear fruits. • Some plants have thorns and prickles.	• Different types of plants have similar parts • Some plants are cultivated while others grow naturally • Some plants are dangerous and poisonous • Different plants grow in different climatic conditions.
	Animals • Names of animals • Animals make different sounds	• Domestic and wild animals • Animals move differently.	• Different domestic animals found in the local environment. • Animals have different habitats.	• Animals have different uses. • Animals have different features. • Animals have similar features.
	Soil • Soil has different colours	• Soil has different uses • Soil is the main medium in which plants grow.	• Soil is a habitat for some animals. • Soil needs to be cared for.	• Soil has different texture. • Soil has different density • Loose soil can take the shape of the container • Most plants need soil and water to grow.

TOPIC	ECD A	ECD B	GRADE 1	GRADE 2
	Health, Nutrition and Safety • Personal hygiene • Good eating habits are important for health	• Diseases can be identified • Diseases can be prevented and cured.	• Personal and good hygiene promote good health. • A balanced diet promotes good health • Causes of accidents • Care of the environment	• Accidents can be prevented. • Safety rules should be observed. • Forms of child abuse • Child abuse can be prevented. • Good relationships contribute to good health.
	• Weather changes from time to time	• Weather influences dressing	• Weather influences human activities • Elements of weather can be measured	• Weather causes changes in vegetation • Weather changes form a pattern over a period of time
	• Air is everywhere	• Air makes objects move.	• Air takes up space.	• Air is necessary for things to live.
	Simple Machines • There are different types tools • Tools make work easier • Tools are simple machines	• There are different types of machines • Machines are made by people.	• Machines make work easier. • Machines can be repaired.	• Some machines produce heat and sound • Magnets can pull and repel some materials • A magnet can be used to make another magnet by induction.
	Light • There are different sources of light	• The sun appears to be in different positions at different times of the day.	• The sun gives out heat and light. • Light travels in a straight line.	• Some objects in the environment give out heat and light. • Light and heat have effects on the environment. • Light can be reflected.
	Fire • Properties of fire • Safety measures	• Fire has many uses	• Fire can be put out in different ways.	• Fire can destroy the environment.

TOPIC	ECD A	ECD B	GRADE 1	GRADE 2
	Electricity • Appliances that use electricity • Safety measures	• Electricity has different uses in the home	• There are different forms of electricity. • Ways of saving electricity	• There are different electrical appliances. • There are different sources of electricity. • Electricity can destroy the environment.
NUMBER AND SCIENCE CONCEPTS	• Count objects from 1 to 5.	• Count objects from 1 to 10. • Objects and animals can be counted. • Ordinal numbers from 1st to 5th.	• Count objects from 1 to 50. • Objects can be grouped into sets. • Ordinal numbers from 1st to 10th. • Number line 0 to 50 • Numerical order • Approximations and estimations.	• Count from 1 to 100. • Count in pairs. • Numbers can be used for such purposes as indicating home addresses, ages, telephone numbers and birth dates. • Sets can be sequenced, compared and matched. • Ordinal numbers from 1st to 20th. • Fractions – proper fractions (denominators 2 and 4).
NUMBER OPERATIONS	• Addition games • Subtraction games	• Addition games and rhymes • Subtraction games and rhymes	• Addition of whole Numbers with the sum of up to 50. • Subtraction of whole numbers within the range 0 to 50.	• Addition of whole numbers with sum of up to 100 • Subtraction of whole numbers within the range 0 to 100 • Multiplication (with products less than or equal to 100) • Division where the dividend is 50 or less.
MEASURES	Money • Identify coins (1c to 9c)	Money • Buying and selling using 1c to 9c	• Money (up to 50c)	• Money (up to $1,00)
	Time • Sequence of events	Time • Different times of the day	Time • days of the week • today, yesterday tomorrow	Time • Months of the year • Time on hour and on ½ hour
	Mass • Using 'heavy 'and 'light'	Mass • Order by mass/weight through lifting objects.	Mass • Compare masses using, 'heavier', 'lighter'	Mass • Weigh using non standard units

TOPIC	ECD A	ECD B	GRADE 1	GRADE 2
			• Length , width and heights can be compared using non-standard units	• Use of standard measures of length • Perimeter
			• Rates of movements can be compared	• Rate of moving objects and performing tasks differ
				Area • Compare and measure area using non-standard units and by counting squares.
	Volume • Compare objects using bigger than and smaller than.	• Capacity of different containers	• Compare capacity using non-standard units.	• Measure capacity using non-standard units and litres.
				Shapes • Recognise differences and similarities of shapes
RELATIONSHIPS IN SCIENCE AND MATHEMATICS			• Work with data • Depict data using objects.	• Work with data • Depict data using pictures and diagrams.

8.0 COMPETENCY MATRIX

8.1 ECD A: TOPIC: MATHEMATICAL PLAY

SUB-TOPIC	LEARNING OBJECTIVES Learners should be able to:	CONTENT (Attitude, skill, knowledge)	SUGGESTED ACTIVITIES	SUGGESTED RESOURCES
MATCHING	• match familiar objects to colour • match pictures to colour	• Objects matching • Picture matching	• Comparing similar objects to colour • Pairing objects to colour • Matching blocks to colour	• Mathematical play area, Manipulative and block play area, Science and discovery play area. Blocks, coloured pictures, coloured shapes, seeds, cups, hats, satchels, lunch boxes
ORDERING	• arrange objects according to colour • arrange pictures according to colour	• Objects of different shapes	• Sorting similar objects according to colour • Matching pictures to colour.	• Leaves, buttons, fabrics, bottle tops, and coloured pictures
SHAPES	• identify different plane and solid shapes	• plane and solid shapes	• Handling objects of different shapes • Observing and classifying objects of different shapes	• Play areas such as indoor and outdoor • Balls, blocks, crayons, boxes, plane shapes and objects in the environment

8.2 ECD A SKILL 2: SPEAKING/ SIGNING

TOPIC	LEARNING OBJECTIVES Learners should be able to:	CONTENT	NOTES AND SUGGESTED ACTIVITIES	SUGGESTED RESOURCES
OBJECTS IN THE ENVIRONMENT	• name the objects in a set • group objects according to size , shape and colour	• objects • shapes	• Identifying the objects in a set • Sorting the objects according to size, shape and colour	• Seeds, bottle tops, wood , tins, empty containers, pictures, sticks, string, straws , reeds, rubber bands, matching cards and coloured shapes.
CONSTRUCTION	• construct bundles	• bundles	• Threading different hollow materials to form belts, earrings, necklaces and bangles	• Pods, string, mealie cobs, hollow seeds and nuts •
OBJECTS MATCHING	• paste on a corresponding object • match pieces to form patterns	• objects • shapes	• Gluing pictures on a corresponding object • Sorting pieces to form patterns	• Seeds, bottle tops, wood , tins, empty containers, paste, pictures, sticks, string, straws , reeds, rubber bands, matching cards and coloured shapes.
MOVING OBJECTS	• identify objects that roll and those that do not roll • roll objects of different weights • pull, push, lift and throw different objects using hands and legs	• Some objects roll • Objects move when pushed, pulled, lifted or thrown depending on force applied. • Different body parts can move objects.	• Naming objects that roll and those that do not • identifying objects that move when pushed or pulled • rolling objects on different surfaces • pulling, pushing, lifting and throwing objects • Investigating force needed when moving objects	• Bricks, blocks, balls, light tyres, tissue rolls, tins and toys.
BALANCING	• identify objects that balance on top of each other	• objects which balance	• Balancing objects on top of each other	• bricks, tins, blocks, boxes, bottles and balls
FASTENING	• name different fastenings • demonstrate fastening	• Textiles can be fastened	• Stating different fastenings • Practising fastenings such as zips, buttons, hooks and eyes.	• Zips, buttons, hooks and eyes, clothes and bags.

ECD A: TOPIC: SCIENCE, MATHEMATICS AND DISCOVERY PLAY

TOPIC	LEARNING OBJECTIVES Learners should be able to:	CONTENT	NOTES AND SUGGESTED ACTIVITIES	SUGGESTED RESOURCES
HUMAN BODY	• identify and name parts of the human body. • group boys and girls in the classroom. • differentiate between male and female	• The body parts • Human beings are of different sexes.	• Singing rhymes and playing games while naming the body parts, for example, (head and shoulders, knees and toes) • Identifying and naming parts of the human body. • Counting body parts. • Identifying boys and girls in the classroom. • Sorting pictures according to sex. • Fitting jigsaw puzzles of male and female.	• Music and dance • Language and book play area. • ECD play centres • Dolls, cut out pictures, puzzles, pairs of scissors for cutting, rhymes, • Music and dance play area
WATER	• identify sources of water. • identify dangers associated with sources of water • state properties of water • state different uses of water at home and school • describe and demonstrate the different uses of water.	• Sources of water • dangers associated with sources of water • Water makes things wet • Water has different uses	• Listing sources of water • Discussing dangers associated with sources of water and suggesting solutions**(risk management)** • Watching and discussing videos on risks associated with sources of water • Playing with water using different containers and objects. • Using water for washing and laundry. • Using water for preparing food and drink. • Identifying other uses of water. • Discussing sources and uses of water	• Various containers, water, dam, water tap, pond, pictures of water sources, clothes, video clips, papers and dolls.
PLANTS	• name and identify different kinds of plants. • list the different uses of plants	• Different types of plants. • Plants have different uses.	• Observing and naming plants • Identifying and describing plants. • Classifying plants according to their uses. • Discussing dangers associated with some plants	• Ropes, hoes, pencils, blocks, parks, forests, garden, orchards, plants and wood.

TOPIC	LEARNING OBJECTIVES Learners should be able to:	CONTENT	NOTES AND SUGGESTED ACTIVITIES	SUGGESTED RESOURCES
ANIMALS	• name animals • identify sounds made by different animals from recordings • imitate sounds made by different animals.	• Name animals • Animals make different sounds	• identifying animals • Moulding animals • Recording animal sounds • Playing recordings of animal sounds • Conducting nature walk and listening to different animal sounds • Making sounds of animals	• Charts, toys, pictures of animals, animals in the local environment, clay, plasticine, videos and DVDs showing animals.
SOIL	• name different types of soil according to colour.	• Soil has different colours	• Collecting different coloured soil • Naming different types of soil in different containers.	• Samples of soil and containers
HEALTH, NUTRITION AND SAFETY	• identify ways of caring for the body • name good eating habits	• Personal hygiene • Good eating habits are important for health	• Naming ways of caring for the body. • Discussing good eating habits.	• Toothbrushes, tooth paste, water, books with songs and stories, poems, rhymes, charts on health issues, pictures, audio tapes, dolls and food samples.
WEATHER	• describe weather changes.	• Weather changes from time to time	• Discussing changes in weather conditions • Singing and reciting rhymes about weather	• Local environment, weather charts and pictures showing weather patterns.
AIR	• demonstrate the presence of air.	• Air is everywhere	• Flying light objects.	• Feathers, plastic bags, paper kites, newspapers, balloons and cotton wool.
SIMPLE MACHINES	• name simple tools used for cutting, digging and weeding • demonstrate lifting objects with and without tools. • operate simple machines.	• Tools make work easier	• Identifying simple tools used for cutting, digging and weeding • Lifting objects with and without levers. • Pushing toys and wheel burrows.	• Egg beaters, broomsticks, small objects for lifting up wheel burrows, tricycles, pair of scissors and remote control
LIGHT	• identify different sources of light	• Different sources of light	• Stating sources of light. • Discussing the importance of light	• Torches, solar lights, electric lights, gas lamps, candles and firewood.

TOPIC	LEARNING OBJECTIVES Learners should be able to:	CONTENT	NOTES AND SUGGESTED ACTIVITIES	SUGGESTED RESOURCES
FIRE	• identify characteristics of fire • describe safety measures when using fire.	• Properties of fire • Safety measures	• Naming the characteristics of fire • Demonstrating safety precautions when using fire. • Watching and discussing videos on dangers and characteristics of fire • Practising fire drills.	• Outdoor environment, fire extinguishers, sand buckets, tree branches, fire escapes, video clips, fire-places and sand-bags.
ELECTRICITY	• identify various electrical appliances • state the safety measures when using electricity.	• Appliances that use electricity • Safety measures	• Naming the various appliances that use electricity • Watching and discussing videos on dangers of electricity • Discussing safety measures when using electricity.	• Torches, radios, tape recorders, power driven toys, electrical appliances, science and discovery play, outdoor play area, dramatic play area and video clips.

ECD A: TOPIC: NUMBER AND SCIENCE CONCEPTS

TOPIC	LEARNING OBJECTIVES Learners will be able to:	CONTENT	NOTES & SUGGESTED ACTIVITIES	SUGGESTED RESOURCES
NUMBER	• say and count objects up to 5.	• Count objects	• Counting and saying numbers from 1 to 5.	• Counters, stones, blocks, seeds and bottle tops **NOTE: Teachers must make learners aware of the danger of putting things in the ears, nose and mouth hence increasing disaster risk management awareness.**

ECD A: TOPIC: NUMBER OPERATIONS

TOPIC	LEARNING OBJECTIVES Learners will be able to:	CONTENT	NOTES & SUGGESTED ACTIVITIES	SUGGESTED RESOURCES
ADDITION	• demonstrate addition of numbers • sing addition rhymes	• Addition games and rhymes	• Playing traditional addition games in groups • Playing modern addition games in groups • Chanting addition rhymes • role playing addition	• outdoor play area, counters, charts, DVDs, computers and smart phones
SUBTRACTION	• demonstrate subtraction of numbers • sing subtraction rhymes	• Subtraction games and rhymes	• Playing traditional subtraction games in groups • Playing modern subtraction games in groups • Miming subtraction rhymes • role playing subtraction	• outdoor play area, counters charts, DVDs, computers and smart phones

ECD A: TOPIC: MEASURES

TOPIC	LEARNING OBJECTIVES Learners should be able to:	CONTENT	NOTES AND SUGGESTED ACTIVITIES	SUGGESTED RESOURCES
MONEY	• identify coins • count coins • give value of combination of coins	• Recognition of coins in use (1c and 5c) • Counting coins up to 9c • Value of combination of coins up to 9c	• Identifying 1c and 5c coins • Combining coins to a given value of up to 9c • Making paper coins by tracing and drawing	• Real coins and paper coins
TIME	• identify sequences of events	• Sequencing events	• Arranging pictures of events in sequence	• Cards and pictures of sequential events (growing maize, egg to chicken, baby to old age)
MASS	• distinguish between 'heavy'and 'light'	• Heaviness and lightness	• Identifying given objects • Guessing which objects are heavy/light • Confirming guesses by lifting objects and determining whether heavy or light	• Real objects such as stones, seeds, leaves, papers, feathers, tins and bottles.
VOLUME	• compare solid objects	• Amount of space occupied by a solid object	• Distinguishing sizes of objects by observation • Investigating how size affects the amount of liquid a solid object displaces	• Solid objects of various sizes such as stones, water and containers for use in water displacement

ECD B: TOPIC: MATHEMATICAL PLAY

TOPIC	LEARNING OBJECTIVES Learners should be able to:	CONTENT	NOTES AND SUGGESTED ACTIVITIES	SUGGESTED RESOURCES
MATCHING	• match objects to colour and size • match pictures to colour and size	• Match objects and pictures	• Comparing blocks using color and size • Matching different objects to colour and size • Pairing pictures using colour and size • Sorting picture cards.	• Play areas such as indoor and outdoor, picture cards, blocks, bottle tops and objects in the environment.
ORDERING	• arrange objects in order of size and type in sequence	• Order objects and pictures according to size and type	• Grouping objects in order of size and type starting from the smallest to the biggest and vice versa • Sequencing pictures according to size and order.	• Play areas such as indoor and outdoor, pictures, fabrics, containers of buttons, fabric and other object from the local environmental
SHAPES	• identify objects of different plane shapes • name different plane shapes • identify shapes from the description given	• Objects of different shapes • Names of different plane shapes	• objects of different plane shapes • Identifying different shapes such as circle, square, triangle and rectangles • Naming shapes from description given • Singing rhymes of shapes	• Play areas such as indoor and outdoor, shape books, boxes, plane shapes, round shoe polish container, tables and objects in the environment
CONSTRUCTION	• bond a variety of objects • construct different objects using different materials • match pieces to form patterns	• Construction to make bonds, objects and patterns	• Tying objects to form bonds • Pasting bonded objects on to surfaces • Constructing different objects using different materials • Identifying pieces that can be matched to form patterns	• Play areas such as indoor and outdoor, objects in the environment, blocks, reeds, paste, rubber bands, pictures, seed pods and bottle tops

ECD B: TOPIC: MANIPULATIVE BLOCK PLAY

TOPIC	LEARNING OBJECTIVES Learners should be able to:	CONTENT	NOTES AND SUGGESTED ACTIVITIES	SUGGESTED RESOURCES
CONSTRUCTION	• bond and fit objects together • thread hollow materials using string • construct patterns • identify pieces that can be matched to form patterns	• objects can be joined, fitted and bonded	• Connecting interlocking toys to form different objects • Threading hollow materials to form bangles, necklaces and belts • Making houses, toy cars and animals • Counting number of material to form a pattern • Sequencing objects to form a pattern	• Match boxes, shoes, polish tins, inter-locking blocks, beads strings, seeds, bottle tops, wires, coloured shapes and straws
MOVING OBJECTS	• demonstrate the use of tools in moving objects	• tools can assist motion of objects	• Identifying objects that move on wheel and rollers; • Constructing a toy car that moves on wheels or rollers	• Shoe polish tins, pieces of wire, pieces of wood, tissue rolls and plastic bottles
BALANCING	• balance objects using body parts	• some objects can balance on body	• Balancing objects on their heads, hands and legs • Playing balancing games such as bottle race and potato race	• balls, plastics bottles , tins, water jugs and potatoes
FASTENING	• identify different fastenings • demonstrate fastening skills	• some objects have different fastenings	• Naming different fastenings • **Tying shoe-laces and other fastenings to equip them with responsibility skills**	• clothes bags, shoes, belts and watches

ECD B: TOPIC: SCIENCE, MATHEMATICS AND DISCOVERY PLAY

TOPIC	LEARNING OBJECTIVES Learners should be able to:	CONTENT	NOTES AND SUGGESTED ACTIVITIES	SUGGESTED RESOURCES
HUMAN BODY	• describe functions of human body parts	• Different body parts have different functions.	• Identifying and discussing body parts and their functions. • Singing rhymes describing functions of the human body parts	• Music and dance, dolls, pictures, puzzles, pair of scissors, rhymes and songs.
WATER	• identify plants and animals that live in water. • state objects that sink in water • demonstrate that water flows.	• Some plants and animals live in water • Some objects sink in water • Water flows	• Observing plants and animals that live in water. • Naming plants and animals that live in water. • Identifying objects that sink in water. • Experimenting with objects that sink in water. • Illustrating that water flows	• Various containers, water, dam, tap, pond, pictures of water sources, clothes, papers, stones and soap.
PLANTS	• observe and name colour of plants flowers • observe plants	• Plant flowers have different colours • Plants have different heights.	• Identifying and naming colours of plant flowers • Observing plants growing close to the ground, those with the same height with learners and those that grow very big.	• Plants in the local environment
ANIMALS	• identify animals • classify domestic and wild animals. • imitate movements of wild animals and domestic animals.	• Domestic and wild animals • Animals move differently.	• Naming domesticated animals. • Listing wild animals. • Role playing of wild and domesticated animals. • Grouping domestic and wild animals.	• Charts, toy animals, pictures of animals, realia, videos and DVDs of animals.
SOIL	• identify different uses of soil. • observe plants growing in the soil.	• Soil has different uses • Soil is the main medium in which plants grow.	• Discussing the different uses of soil • Identifying different plants growing in the soil.	• The local environment.

TOPIC	LEARNING OBJECTIVES Learners should be able to:	CONTENT	NOTES AND SUGGESTED ACTIVITIES	SUGGESTED RESOURCES
HEALTH, NUTRITION AND SAFETY	• name common diseases • identify common diseases. • state ways of preventing and curing diseases.	• Diseases can be identified • Diseases can be prevented and cured.	• Stating common diseases in the local environment. • Naming common diseases. • **Outlining ways of preventing and curing diseases emphasising disaster risk management.**	• Charts, ashes, water, soap and other detergents
WEATHER	• describe how weather changes influence dressing. • name suitable clothes for different weather conditions.	• Weather influences dressing	• Discussing how weather changes influence dressing. • Identifying clothes for different weather conditions. • Discussing clothes for different weather conditions.	• Weather charts, pictures and different clothes.
AIR	• demonstrate the presence of air. • experiment to see the movement of objects caused by air.	• Air makes objects move.	• Flying light objects. • Breathing in and out. • Filling the plastic bags with air and releasing them.	• Feathers, plastic bags, paper kites, newspapers, balloons and cotton wool.
SIMPLE MACHINES	• name simple machines used in their local environment. • making simple machines.	• Simple machines • Machines are made by man	• Identifying simple machines used in the local environment. • Constructing simple machines.	• Wire, bottle tops, wood, clay, charts and pictures.
LIGHT	• describe the position of the sun at different times of the day.	• The sun appears to be in different positions at different times of the day.	• Noting that the sun appears to be in different positions at different times of the day. • Discussing and describing its position at different times.	• The sun, aluminum foil, tinted glasses and smoked paper. **NOTE: Teachers should advise learners not to look directly at the sun and should use tinted, smoked glass or aluminum foil.**

TOPIC	LEARNING OBJECTIVES Learners should be able to:	CONTENT	NOTES AND SUGGESTED ACTIVITIES	SUGGESTED RESOURCES
FIRE	• name the uses of fire • Illustrate different uses of fire.	• Uses of fire.	• Stating the uses of fire • Making illustrations on the uses of fire.	• Wood, paper, matches, grass, fire-place, gas, stove, paraffin stove and charcoal **NOTE: Teachers should make learners aware of the dangers associated with fire**
ELECTRICITY	• state uses of electricity. • Illustrate the uses of electricity.	• Uses of electricity	• Discussing the uses of electricity • Demonstrating different uses of electricity. • Carrying out simple experiments using batteries. • Switching electrical appliances on and off under supervision • Using battery operated appliances under supervision • Watching and discussing videos on the uses of electricity	• Torches, torch cells, radios, tape recorders, power driven toys, electrical appliances, solar panels, video clips, invertors and batteries.

ECD B: TOPIC: NUMBER AND SCIENCE CONCEPTS

TOPIC	LEARNING OBJECTIVES Learners should be able to:	CONTENT	NOTES AND SUGGESTED ACTIVITIES	SUGGESTED RESOURCES
NUMBER	• say numbers • count objects • count objects and animals • say ordinal numbers	• Count objects from 1 to 10 • Objects and animals can be counted • Ordinal numbers from 1st to 5th.	• Listing numbers from 1 to 10 • Stating objects from 1 to 10. • Identifying objects and animals from 1 to 10 • Stating ordinal numbers from 1st to 5th.	• Stones, counters, empty plastic containers, outdoor play area, bottle tops, small blocks, power points, music Grouping domestic and wild animals and dance.

ECD B: TOPIC: NUMBER OPERATIONS

TOPIC	LEARNING OBJECTIVES Learners will be able to:	CONTENT	NOTES AND SUGGESTED ACTIVITIES	SUGGESTED RESOURCES
ADDITION	• play traditional addition games for numbers • play modern addition games for numbers • sing addition rhymes for numbers	• Addition games and rhymes (1 up to 10)	• playing traditional addition games in groups • playing modern addition games in groups • Miming addition rhymes	• Outdoor play area, counters, charts, DVDs, computers and smart phones
SUBTRACTION	• play traditional subtraction games • play modern subtraction games • sing subtraction rhymes	• Subtraction games and rhymes within the range	• playing traditional subtraction games in groups • playing modern subtraction games in groups • Chanting subtraction rhymes	• Outdoor play area, counters, charts, DVDs, computers and smart phones

ECD B : TOPIC: MEASURES

TOPIC	LEARNING OBJECTIVES Learners should be able to:	CONTENT	NOTES AND SUGGESTED ACTIVITIES	SUGGESTED RESOURCES
MONEY	• use money to purchase in unit numbers	• Money: buying and selling (1c to 9c)	• Role playing on buying and selling, such as. playing 'shop' in the dramatic play area	• Coins items for shop such as sweets, fruits paper coins
TIME	• tell the activities they carry out during the day in sequence • arrange pictures of what people do in terms of time of the day • arrange pictures that show different times of the day	• Different times of the day: - morning - afternoon - evening	• Arranging pictures that tell different times of the day • Narrating activities they do in the morning, afternoon and evening	• Manipulative and block play area, Language and Book play area, cardboard clock and pictures depicting various times of the day
MASS	• compare objects according to mass • order objects according to mass	• Objects can have different masses	• Comparing masses of different objects by lifting • Comparing their own masses by using see-saws	• Manipulative and block play area, Science and discovery play area, solid objects such as stones and see-saws
VOLUME	• compare the capacity of containers of different shapes • use terms such as holds more than, same as, or less than to quantify	• Capacity of different containers	• Pouring contents/substance from one container to another capacity • Experimenting with containers of the same or different capacities	• Manipulative and block play area, Science and discovery play area, water, sand, seeds and containers of the same or different shapes

GRADE 1: TOPIC: MATHEMATICAL PLAY

TOPIC	LEARNING OBJECTIVES Learners should be able to:	CONTENT	NOTES AND SUGGESTED ACTIVITIES	SUGGESTED RESOURCES
MATCHING	• match familiar objects and pictures to shapes	• Objects and pictures • Shapes	• identifying objects and pictures • matching objects, blocks and pictures to shapes	• Play areas such as indoor and outdoor, Objects in the environment, pictures, containers of different sizes and fabrics
ORDERING	• arrange objects and pictures according to length, width and type	• Length and width	• Classifying objects and pictures according to length, width and type • Sequencing objects and pictures according to type	• Play areas such as indoor and outdoor, objects in the environment, pictures, containers of different sizes and fabrics
SHAPES	• make pictures using shapes • construct models using shapes	• Shapes and objects	• Cutting out shapes • Making pictures using shapes • Constructing models using shapes	• Play areas such as indoor and outdoor, objects in the environment, balls, bottles, blocks, crayons and scissors

GRADE 1: TOPIC: MANIPULATIVE BLOCK PLAY

TOPIC	LEARNING OBJECTIVES Learners should be able to:	CONTENT	NOTES AND SUGGESTED ACTIVITIES	SUGGESTED RESOURCES
CONSTRUCTION	• construct different objects using similar and different materials • complete jigsaw puzzle	• Construction of different objects	• Arranging different materials to form pillars • Making block pillars using similar and different materials • Designing models such as classrooms block or dams • Constructing and completing puzzles	• building blocks, card board boxes, rubber bands, paste, string, plastic, match boxes, kaylite, wire and pictures
MOVING OBJECTS	• use electricity to move objects	• Batteries and solar energy can assist motion of objects	• Playing with electrical toys	• electrical toys, batteries
BALANCING	• identify tools that can be used to balance objects	• Objects can be balanced using tools	• Balancing objects on levers • Playing see-saw games	• levers, see-saws, containers with sand, sugar and packets

GRADE 1: TOPIC: SCIENCE, MATHEMATICS AND DISCOVERY PLAY

TOPIC	LEARNING OBJECTIVES Learners should be able to:	CONTENT	NOTES AND SUGGESTED ACTIVITIES	SUGGESTED RESOURCES
HUMAN BODY	• care for their body parts • name different parts of the human body	• The body parts need care • The human body is made up of different parts	• Discussing and demonstrating care of the body parts • Identifying different parts of the human body	• Manipulative and block, Language and book play areas, Outdoor science and discovery play areas, puzzles, pictures, pair of scissors and charts dolls showing different parts
WATER	• identify objects that float in water • describe and demonstrate the uses of water • name and identify dangers of water • state the properties of water	• some objects float in water • water is used in many ways by people, animals and plants • Water can be dangerous • Water is colourless, odourless and tasteless	• Experimenting with objects that float and sink • Using water for watering plants • Watching and discussing animals bathing and drinking water • Identifying other uses of water • Touching, smelling and tasting clean water • Discussing the dangers of hot, dirty, contaminated,, deep water and flooded rivers	• Manipulative and block , Science and discovery, Outdoor play areas, containers, pictures of water sources and water, video clips of animals, objects such as, feathers and papers
PLANTS	• identify different parts of a plant • Identify plants that have flowers and bear fruits • describe plants that have thorns and prickles	• Plants have different parts • Some plants have flowers and bear fruits • Some plants have thorns and prickles	• Naming different parts of a plant • Classifying of plants that have flowers and bear fruits • Observing plants with thorns and prickles • Drawing plants	• Art and craft area facts ,Science and discovery areas, Manipulative and block play areas, plants, fruit seeds and pictures
ANIMALS	• list domestic and wild animals in the local environment • name and identify habitats of animals • draw and label animals	• Different domestic and wild animals found in the local environment • Animals have different habitats	• Naming domesticated and wild animals • Matching animals to their habitats • Drawing and labelling animals	• Art and craft area, dramatic play area, Science and discovery, outdoor play areas, pictures of animals, charts and real animals

TOPIC	LEARNING OBJECTIVES Learners should be able to:	CONTENT	NOTES AND SUGGESTED ACTIVITIES	SUGGESTED RESOURCES
SOIL	• identify animals that live in the soil • name methods of caring for the soil	• Soil is a habitat for some animals • Soil needs to be cared for	• **Observing animals in the soil** • Demonstrating ways of caring for the soil such as mulching and growing plants • Discussing soil preservation methods including indigenous knowledge systems	• Science and discovery, Manipulative and block , Art and craft, outdoor play areas, knowledgeable resource person on local culture • Soils and pictures
HEALTH, NUTRITION AND SAFETY	• state ways of caring for the body • name healthy and unhealthy foods • describe how objects can cause accidents • describe ways of caring for the environment	• Personal and good hygiene promotes good health • A balanced diet promotes good health • Objects can cause accidents • The environment needs care	• Dramatizing consequences of good and bad health habits • Discussing health related pictures • Naming objects that may cause accidents in and around the school • Discussing the importance of clean environment • Collecting rubbish in the environment	• Dramatic, Outdoor, Science and discovery play areas, print media such as charts, books, poems and pamphlets on health issues
WEATHER	• describe how changes in weather influence human activities • measure elements of weather using non-standard units	• Weather influences human activities • Elements of weather can be measured	• Singing and reciting rhymes about the weather • Observing changes and activities to weather conditions • Making models of objects that are used for measuring weather	• Outdoor, Science and discovery play areas, weather chart local environment, kites, containers and maize stalks.
AIR	• demonstrate that air takes up space	• Air takes up space	• Blowing and filling plastic bags, balloons with air and releasing the air • Making patterns using blown balloons	• Science and discovery, Manipulative and block play areas, balloons, plastic paper bags , bicycle and pumps
SIMPLE MACHINES	• demonstrate how machines make work easier • repair machines	• Machines make work easier • Machines can be repaired	• Identifying machines that make work easier • Demonstrate how machines work • Mending toy machines • Constructing models of simple machines	• Science and discovery, Manipulative and block play areas, Technology play areas, wheelbarrows, carts, tricycles, bottle openers and toys

TOPIC	LEARNING OBJECTIVES Learners should be able to:	CONTENT	NOTES AND SUGGESTED ACTIVITIES	SUGGESTED RESOURCES
LIGHT	• recognise that the sun gives out heat and light • demonstrate that light travels in a straight line	• The sun gives out heat and light • Light travels in a straight line	• Demonstrate that the sun gives out heat • Observe that the sun gives out light • Illustrating that light travels in a straight line	• Science and discovery , outdoor and Technology play areas, torches, sun, video clips on the sun, boxes, magazines and candles
FIRE	• name objects used to put out fire • describe ways of putting out fire	• Fire can be put out	• Identifying objects used to put out fire • Demonstrating ways of putting out fire	• Outdoor play area, fire extinguisher, sand, buckets and sand bags
ELECTRICITY	• identify sources of electricity • describe ways of saving electricity	• Sources of electricity • Ways of saving electricity	• Naming sources of electricity • Discussing ways of saving electricity	• Science and discovery, Outdoor play areas, batteries, technology play areas, torch, video clips on sources of electricity, solar and electric appliances

GRADE 1: TOPIC: NUMBER AND SCIENCE CONCEPTS

TOPIC	LEARNING OBJECTIVES Learners should be able to:	CONTENT	NOTES AND SUGGESTED ACTIVITIES	SUGGESTED RESOURCES
NUMBER	• read within the range • write numbers within the range • count in ascending and descending order on the number line • identify missing numbers • count the number of objects in a set • build a set with the same number of objects as a given number • say ordinal numbers in the range • arrange numbers from the smallest to the biggest and vice versa • compare numbers • round off numbers to the nearest ten • estimate quantities of objects	• Count objects from 1 to 50 • Number line 0 to 50 • Objects can be grouped into sets • Ordinal numbers from 1st to 10th • Numerical order • Approximations and estimations	• Counting, saying, reading and writing in numerals the numbers 0 to 50 inclusive • Counting forward and backwards • Playing a game of missing numbers • Completing a sequence • Matching numbers and sets • Arranging and telling positions of objects according to some given order • Standing in a queue and the class identify positions • Listing numbers in correct order • Comparing numbers using the terms greater than or less than (> ,< or =) • Telling numbers nearer to 10, 20, 30, 40 and 50 • Approximating quantities and check by counting	• Counters, number stripes, number cards, objects in a sequence, number line with numbers 0 to 50, electronic games on numbers, number line with some missing numbers and power point slides on numbers.

GRADE 1 :TOPIC: NUMBER OPERATIONS

TOPIC	LEARNING OBJECTIVES Learners should be able to:	CONTENT	NOTES & SUGGESTED ACTIVITIES	SUGGESTED RESOURCES
ADDITION	• add whole numbers • demonstrate addition using signs and addition terms • add whole numbers using calculators	• Addition of whole numbers to a sum not exceeding 50 using concrete objects	• Combining/putting together of two given sets of objects • Finding the sum using the number line • Using and writing + and = signs and addition terms such as count on, plus, add, sum, altogether, make and total • **Consolidating addition using calculators to enhance understanding of modern technology** • Playing games involving addition	• Counters, charts, number lines, smart phones and calculators
SUBTRACTION	• subtract whole numbers within the range • using concrete objects without equal addition • demonstrate subtraction using signs and subtraction terms	• Subtraction of whole numbers within the range 0 to 50	• Using objects to demonstrate subtraction by taking away • Finding the difference between two numbers by matching the objects and using the number line • Using the minus – and = signs as well as terms like minus, count back, take away, from • **Consolidating subtraction using calculators** • Playing games involving subtraction	• Counters, charts, number line, smart phones and calculators

GRADE 1: TOPIC: MEASURES

TOPIC	LEARNING OBJECTIVES Learners should be able to:	CONTENT	NOTES AND SUGGESTED ACTIVITIES	SUGGESTED RESOURCES
MONEY	• identify coins in use • give compositions of coins	• Recognition of coins in use up to 50c • Value of combination of coins up to 50c	• Collecting coins up to 50c • Breaking down of bigger denominations into smaller denominations diagrammatically up to 50c • Singing money rhymes • **Playing shop games to acquire financial literacy skills**	• Real coins up to 50c and paper coins **NB Learners should not put coins in their ears, mouth and nose**
TIME	• name days of the week • tell what the present day is, the following day and the previous day	• Recognizing days of the week • Telling time in terms of the present day, tomorrow and yesterday	• Listing the days of the week in their correct sequence • Using today, tomorrow and yesterday in sentences • Singing time rhymes	• Flash cards, class time tables and calendars
MASS	• compare mass	• Objects can have different masses	• Making balance scales • Comparing mass of different objects and say which one is heavier or lighter	• Balance scales, see-saws, stones, sand, seeds, grass and feathers
LENGTH	• Use non-standard units to compare measurements	• Lengths, widths, heights can be compared using non-standard units	• Comparing lengths, widths, heights using non-standard units	• Pencils, pens, feet, ropes, string and stick.
RATE	• use the words 'quicker' or 'slower' to describe movements and performing of tasks	• Speed of movements can be compared	• Comparing rate of learners running, walking, reading and performing tasks	• Pendulums and sand glasses
VOLUME	• compare capacity of containers using non-standard units	• Comparing capacity using non-standard units	• Using non-standard measures to compare capacity and volumes	• Containers, spoons, cups, bottles

GRADE 1 :TOPIC: RELATIONSHIPS IN SCIENCE AND MATHEMATICS

TOPIC	LEARNING OBJECTIVES Learners should be able to:	CONTENT	NOTES AND SUGGESTED ACTIVITIES	SUGGESTED RESOURCES
DATA HANDLING	• represent data using concrete objects	• Data can be represented using concrete objects	• Sorting objects into different categories • Representing data by creating vertical columns of colour blocks (whose heights depend on available number of blocks of each type) • Representing data by creating vertical and horizontal columns of objects in different categories • Discussing which category is the most or least common	• Seeds, shapes, leaves, bottle top, colour blocks, charts with vertical and horizontal lines

GRADE 2: TOPIC: MATHEMATICAL PLAY

TOPIC	LEARNING OBJECTIVES Learners should be able to:	CONTENT	NOTES AND SUGGESTED ACTIVITIES	SUGGESTED RESOURCES
MATCHING				
ORDERING	• arrange objects and pictures according to length, width and type • arrange pictures according to events	• Objects and pictures • Order pictures to events - length - width	• Classifying objects and pictures according to length, width and type • Sequencing objects and pictures to type • Sorting pictures to sequence of events	• Play areas such as Mathematical, Manipulative and block, Outdoor, objects in the environment, pictures, containers of different sizes and fabrics
SHAPES	• make pictures using shapes • construct models using shapes • name shapes from the descriptions • draw different shapes	• Shapes and objects • Properties of different shapes	• Cutting shapes • Constructing pictures using shapes • Making models using shapes • Forming shapes using their bodies • Identifying shapes from descriptions • Sketching different shapes	• Play areas such as Mathematical, Manipulative and block, outdoor, objects in the environment, balls, bottles, blocks, crayons and scissors
CONSTRUCTION	• complete puzzles	• Puzzles	• Counting materials and items • Constructing and completing puzzles	• Play areas such as Mathematical, Manipulative and block, outdoor jigsaw puzzles, coloured shapes and matching cards

GRADE 2: TOPIC: MANIPULATIVE BLOCK PLAY

TOPIC	LEARNING OBJECTIVES Learners should be able to:	CONTENT	NOTES AND SUGGESTED ACTIVITIES	SUGGESTED RESOURCES
CONSTRUCTION	• dismantle and reconstruct objects • extend and divide constructed structures.	• Structures can be dismantled and reconstructed	• Breaking down model structures, detachable toys, jigsaw puzzles. • Counting pieces joined • Re-building model structures, toys, puzzles • Creating model structures of their own choice • Lengthening and dividing constructed structures • Stating safety measures at a construction site • Touring construction site in their locality	• card board boxes, match boxes, wooden blocks and plastic toys

GRADE 2 TOPIC: MANIPULATIVE BLOCK PLAY

TOPIC	LEARNING OBJECTIVES Learners should be able to:	CONTENT	NOTES AND SUGGESTED ACTIVITIES	SUGGESTED RESOURCES
MOVING OBJECTS	• identify sounds made by objects	• Objects make sounds when moved	• **Pulling and pushing objects on rough and smooth surfaces.** Describing sounds made when pulling or pushing objects	• Blocks, tins, tissue rolls, plastic bottles, polish tins, balls, rough and smooth surfaces
BALANCING	• construct balance scales • balance objects on a scale	• Objects can balance on a scale	• Making balance scales • Using weights to balance on a scale	• scales, tins, water sand, stones and chalk boxes

GRADE 2 TOPIC: SCIENCE, MATHEMATICS AND DISCOVERY PLAY

TOPIC	LEARNING OBJECTIVES Learners should be able to:	CONTENT	NOTES & SUGGESTED ACTIVITIES	SUGGESTED RESOURCES
HUMAN BODY	• investigate how people use their senses • demonstrate and describe use of human senses in interacting with the environment	• Human senses	• Experimenting on the use of human senses	• Familiar objects for seeing, hearing, feeling, tasting, smelling and blind folds
WATER	• identify the different forms of water • illustrate that water takes the shape of a container • name places where water is found in different environments • state ways of conserving water	• Water takes the shape of a container • Water takes different forms • Water is found in different environments • Water can be conserved	• Pouring water into containers of different shapes • Experimenting to show the different forms of water • Stating different forms of water • Listing places where water is found in different environments • Suggesting ways of conserving water	• Water, containers, bottles, ice, boiling water, print media and charts
PLANTS	• state different types of plants • draw and label parts of a plant • identify similar parts on different plants • name plants that are grown and those that grow naturally • identify dangerous and poisonous plants • describe different places where different plants grow	• Different types of plants have similar parts • Some plants are grown while others grow naturally • Some plants are dangerous and poisonous • Different plants grow in different environments	• Identifying different types of plants • Drawing plants and labelling parts • Classifying plants into cultivated plants and those that grow naturally • Discussing dangerous and poisonous plants • Observing plants growing in different places • Naming places where different plants grow • Watching videos plants on different environment	• Local environment, different plants and print media

TOPIC	LEARNING OBJECTIVES Learners should be able to:	CONTENT	NOTES & SUGGESTED ACTIVITIES	SUGGESTED RESOURCES
ANIMALS	• state uses of animals • identify the features of animals • identify the similar features on animals	• Animals have different uses • Animals have different features • Animals have similar features	• Listing different uses of animals • Observing different features on animals • Naming similar features on animals • **Touring to observe different animals and appreciate our national heritage**	• Animals, game parks and print media
SOIL	• Investigate properties of different types of soil • describe soil texture • compare different soil density • demonstrate that plants need soil and water to grow	• Soil has different texture • Soil has different densities • Loose soil can take the shape of the container • Most plants need soil and water to grow	• Carrying out experiments with soil • Collecting soil samples • Feeling wet and dry soils • Describing different soil textures • Comparing different soil densities • Pouring and observing loose soil into different containers to establish that it takes the shape of a container • Sowing plant seeds in moist and dry soil	• Soil samples, containers, water, plant seeds and print media
HEALTH, NUTRITION AND SAFETY	• describe ways of preventing accidents • identify safety rules and explain their importance • state various forms of child abuse • suggest ways of preventing child abuse • explain how good relationships contribute to good health	• Accidents can be prevented • Safety rules should be observed • Forms of child abuse • Child abuse can be prevented • Good relationships contribute to good health	• Discussing ways of preventing accidents • Explaining safety rules • Discussing forms of child abuse • **Identifying pictures portraying child abuse in relation to children`s rights and responsibilities** • Giving ways of preventing child abuse • Discussing how good relationships contribute to good health	• Illustrations of road signs, sharp household tools such as knives, Print media (pictures, charts showing child abuse) resource persons, videos on abuse

TOPIC	LEARNING OBJECTIVES Learners should be able to:	CONTENT	NOTES & SUGGESTED ACTIVITIES	SUGGESTED RESOURCES
WEATHER	• state the changes in vegetation caused by weather • record weather changes over a period of time • compare weather changes over a period of time	• Weather causes changes in vegetation • Weather changes form a pattern over a period of time	• Observing and discussing the changes in vegetation caused by weather changes • Recording weather changes • Comparing weather changes over a period of time • Watching videos on weather changes and their effects	• Weather chart, local environment, video clips on weather and weather station
AIR	• state the uses of air	• Uses of air	• Discussing uses of air such as breathing, (plants and animals) ventilation, inflating balls and bicycles	• Ventilated rooms, balls, balloons, bicycle pumps, kites, birds, earoplanes and pressure pump
SIMPLE MACHINES	• Demonstrate that simple machines produce that heat and sound • manipulate small magnets to show that they repel and attract objects • use magnets to make other magnets	• Some machines produce heat and sound • Magnets can pull and repel some materials • A magnet can be used to make another magnet by induction	• Rubbing hands and objects to produce heat and sound • Observing simple machines producing heat and sound • Repelling and attracting objects using magnets • Making magnets by induction	• Small magnets, small pieces of metal such as paper clips, iron filings and nails and simple machines
LIGHT	• list objects that give out heat and light • investigate the effects of light and heat in the environment • illustrate how light can be reflected	• Objects give out heat and light • Heat and light have effects • Light can be reflected	• Naming objects that give out heat and light • Finding out the effects of light and heat in the environment • Demonstrating that light is reflected.	• Sun, fire, paraffin, burner, torches, mirrors and magnifying glasses

TOPIC	LEARNING OBJECTIVES Learners should be able to:	CONTENT	NOTES & SUGGESTED ACTIVITIES	SUGGESTED RESOURCES
FIRE	• describe ways through which fire can destroy the environment	• Fire can destroy the environment	• Observing a burnt area in the local environment • Discussing ways through which fire destroys the environment • Watching and discussing videos on destruction by fire	• Print media,local environment and video clips
ELECTRICITY	• identify different electrical appliances • explain possible dangers of electricity in the environment • describe safe ways of using electricity	• Electrical appliances • Dangers of electricity • Safe ways of using electricity	• Naming electrical appliances • **Suggesting possible dangers of electricity in the environment as a way of managing disasters and reducing risks** • Practising safe ways of using electricity	• Print media, electrical appliances, batteries, solar panels and bare electric wires

GRADE 2: TOPIC: NUMBER AND SCIENCE CONCEPTS

TOPIC	LEARNING OBJECTIVES Learners should be able to	CONTENT	NOTES AND SUGGESTED ACTIVITIES	SUGGESTED RESOURCES
NUMBER	• say, read number within • write numbers within the range • count in twos • identify their home addresses, ages, telephone numbers and birth dates using numbers • arrange sets of numbers in order of magnitude • tell positions in a sequence • say ordinal numbers in the range. • divide objects into halves and quarters • draw shapes and shade them to represent fractions • compare fractions	• Count objects from 1 to 100 • Count objects in pairs • Use of numbers to identify home addresses, ages, telephone numbers and birth dates • Sequencing , comparing and matching sets • Ordinal numbers from 1^{st} to 20^{th} • Fractions – proper fractions with denominators 2 and 4	• Counting, saying, reading and writing in numerals the numbers 0 to 100 inclusive • Counting in twos • Playing pair games • Writing their home addresses, ages, telephone numbers and birth dates using numbers. • Sequencing sets of numbers in order of magnitude • Forming a queue and identify learners' positions • Arranging and filing the position of an object in relation to other objects. • Dividing objects into two equal parts • Dividing objects into four equal parts • Representing halves and quarters diagrammatically by colouring or shading • Expressing the shaded part as a fraction • Comparing fractions using <, > and = signs.	• Counters, number stripes, number cards, various objects in a sequence, number line with numbers 0 to 100, number line with some missing numbers, different objects like oranges, shapes, circles, quarters, power point presentations slides, sets of objects and charts

GRADE 2: TOPIC: NUMBER OPERATIONS

TOPIC	LEARNING OBJECTIVES Learners should be able to:	CONTENT	NOTES & SUGGESTED ACTIVITIES	SUGGESTED RESOURCES
ADDITION	• add whole numbers • demonstrate the addition process	• Addition of whole numbers to a sum not exceeding 100	• Reinforcing basic addition facts through mental work • Adding numbers to a sum not exceeding 100 • Adding numbers using addition signs and terms such as plus, count on, sum • Solving problems on addition based on everyday context • **Consolidating addition using modern technology such as calculators**	• Charts, number line, rulers, counters, calculators, computers and smart phones
SUBTRACTION	• subtract whole numbers within the range • demonstrate the subtraction process • subtract numbers within the range using calculators	• Subtraction of whole numbers within the range 0 to 100	• Reinforcing basic subtraction facts through mental work • Subtracting two numbers within the range 0 to 100 • Solving problems on subtraction based on everyday context	• Charts, number line, rulers, counters, calculators, computers and smart phones
MULTIPLICATION	• multiply using repeated addition • calculate the product of two numbers by counting sets	• Multiplication (with products less than or equal to 100) through repeated addition	• Using sets to get product • Writing exercises using the bracket notation to show multiplication process such as 2(2) = 4 • Solving problems on multiplication based on everyday context • **Finding the product of two numbers using calculators and computers to incorporate technology in learning**	• Charts, number line, rulers , counters, calculators, computers and smart phones

TOPIC	LEARNING OBJECTIVES Learners should be able to:	CONTENT	NOTES & SUGGESTED ACTIVITIES	SUGGESTED RESOURCES
DIVISION	• find the quotient by sharing equally • recall basic division facts	• Division (where the dividend is 50 or less)	• **Demonstrating division by sharing equally to promote collaboration** • Using sets to demonstrate division for multiples of 2, 5 and 10 up to 100 • Dividing using calculators. • Solving problems on division based on everyday context	• Charts, number line, rulers, counters, calculators, computers and smart phones

GRADE 2 :TOPIC: MEASURES

TOPIC	LEARNING OBJECTIVES Learners should be able to:	CONTENT	NOTES AND SUGGESTED ACTIVITIES	SUGGESTED RESOURCES
MONEY	• identify coins • give compositions of coins • calculate change	• Recognition of coins up to $1 • Change in buying and selling	• Recognising coins up to $1 • Giving possible compositions of coins up to $1 • Breaking down bigger denominations into smaller denominations diagrammatically • **Role playing buying and selling hence acquiring financial literacy**	• Real coins, calculator, paper coins, money, items in the shop area
TIME	• read months of the year • write months of the year • read and say time	• Recognising months of the year • Telling time on clock faces showing hourly and half hourly	• Stating months of the year in the correct order • Identifying the hour hand and minute hand • Illustrating the clockwise direction on the clock face • Reading time to the hour and half hourly • Solving simple problems involving time	• Clock faces, watches and calendars
MASS	• weigh objects using non-standard units	• Weighing	• Making balance scales • **Comparing mass of objects using non-standard units, balance scales hence disaster risk management on carrying capacity.** • Discussing the importance of balance in disaster risk management • Solving simple problems involving mass	• Balance scales, bricks, stones, soil, pieces of chalk seeds, cubes of same size made from wood or clay and bottle tops
LENGTH	• measure lengths of objects • calculate perimeter of objects	• Standard measures of length • Perimeter	• Measuring lengths in cm up to 1m • Finding perimeter by measuring • Solving simple problems involving length and perimeter	• 30 cm rulers, metre rules, tape measures, strings, objects such as books, tables, bottles and shapes

TOPIC	LEARNING OBJECTIVES Learners should be able to:	CONTENT	NOTES AND SUGGESTED ACTIVITIES	SUGGESTED RESOURCES
RATE	• compare rate	• Speed of performing tasks	• Selecting learners to perform tasks and letting them describe them as 'fast', or 'slow', 'faster' or 'slower', 'fastest' or 'slowest'. • **Performing tasks and measuring rate of performance using time devices which will help in developing time management**	• Stop watches and Sand bottles
AREA	• measure and compare area	• Measurement and comparisons of area	• Counting squares in shapes • Comparing and measuring surface area of objects	• Objects such as flat rectangular, triangular shapes and rectangular pieces of cloth
VOLUME	• measure capacity	• standard and non-standard units of capacity	• Determining the number of non-standard units in a litre and vice versa • Showing that the quantity of a substance that can go into a container is dependent on the size of the container	• Different sized containers, bottles, jugs and buckets
SHAPES	• describe plane and solid shapes	• Similarities and differences of shapes	• Drawing and labeling objects with triangular, rectangular, circular and square faces • **Modeling shapes relation to their environment** • Tracing out plane shapes from identified solid shapes	• Rectangular, circular, triangular and square shapes and clay or plasticine

GRADE 2: TOPIC: RELATIONSHIPS IN SCIENCE AND MATHEMATICS

TOPIC	LEARNING OBJECTIVES Learners should be able to:	CONTENT	NOTES AND SUGGESTED ACTIVITIES	SUGGESTED RESOURCES
DATA HANDLING	• depict data using pictures and bar graphs	• pictogram • bar graphs	• Collecting and recording data from the school premises • Representing collected data in rows and columns pictures or diagrams • Discussing which category is the most or least common	• Stastical data, within the school, charts with vertical and horizontal lines

9.0 ASSESSMENT

This syllabus' scheme of assessment is grounded on the principle of inclusivity. Arrangements, accommodations and modifications must be visible in continuous assessments to enable candidates with special needs to access assessments.

9.1 Assessment Objectives

Learners should be able to:

9.1.1 recall, recognise and use mathematical and scientific terms;

9.1.2 carry out calculations accurately;

9.1.3 estimate, approximate and use appropriate degrees of accuracy;

9.1.4 Read, interpret and analyse tables, charts and graphs and use them in conducting simple investigations;

9.1.5 interpret and apply Mathematics and Science in life situations;

9.1.6 explore scientific and mathematical ideas and come up with conclusions and innovations;

9.1.7 apply scientific and mathematical concepts and skills for environmental sustainability;

9.1.8 demonstrate problem solving abilities in mathematical and scientific skills;

9.1.9 use local materials to design and modify simple technological devices;

9.2 Scheme of Assessment

Learners will be assessed using continuous assessment.

Level	Form of Assessment	Weighting
ECD	Continuous Assessment	100%
Grade 1 and 2	Continuous Assessment	100%

LEVEL	FORM OF ASSESSMENT	ASSESSMENT TASKS	NATURE	FREQUENCY
ECD (0-3year) ECD (A) ECD (B)	Continuous	• Singing • Drawing • Dancing • Colouring • Story telling • Speaking • Listening • Counting • Playing children's games	➢ Practical ➢ Can be done individually or in Groups	✓ Daily basis
GRADE 1	Continuous	• Singing • Drawing • Dancing • Colouring • Story telling • Speaking • Listening • Counting • Playing children's games • Written Exercises • Theory tests	➢ Practical ➢ Can be done individually or in Groups	✓ Daily basis ✓ Every Fortnight ✓ Once per Month

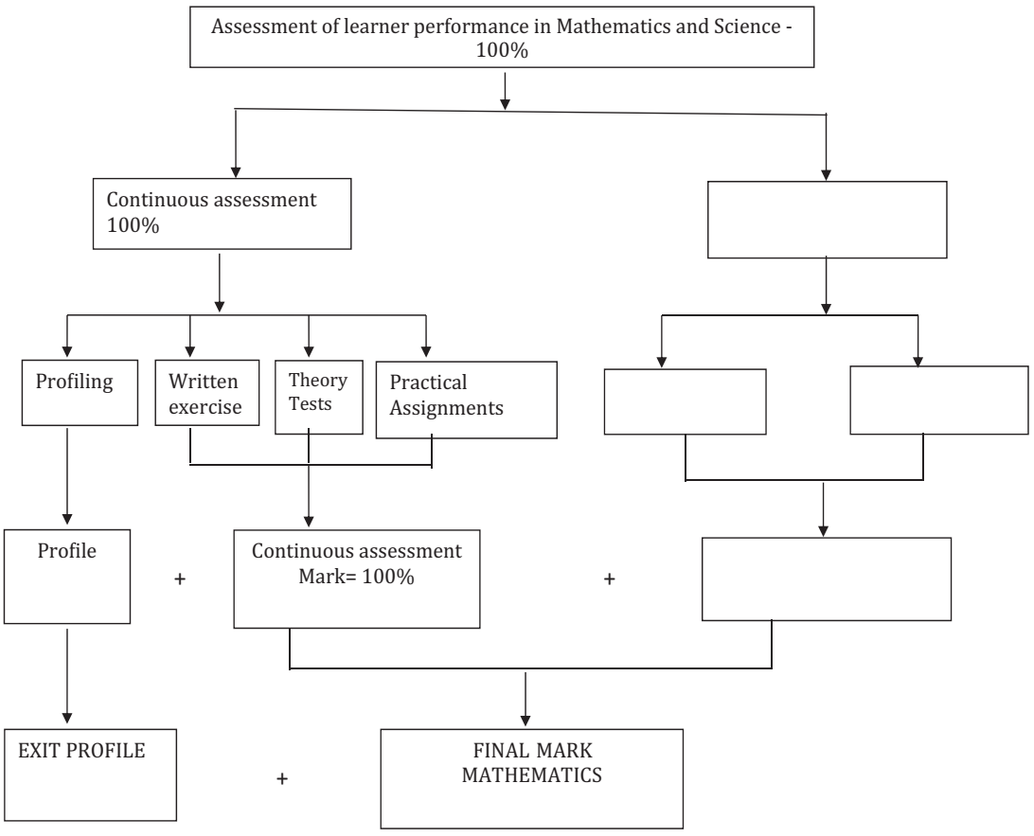
GRADE 2	Continuous	• Singing • Drawing • Dancing • Colouring • Story telling • Speaking • Listening • Counting • Playing children's games • Written Exercises • Theory tests	➢ Practical ➢ Can be done individually or in Groups	✓ Daily basis ✓ Weekly ✓ Once per Month

9.3 Assessment Criteria

Assessment Instruments:

- Checklists
- Rating Scale
- Observation Guide
- Exercises
- Theory

9.4 Assessment Model



Continuous assessment: (100%)

a) Assessment of content (tests and written assignments).
b) Projects(practical and folio)
c) Profiling (soft skills)

Soft skills will be assessed using checklists, rating scales and observation guides.

Skills Weighting

The weighting of the skills to be assessed will be as follows:

Skill	Continuous %
Knowledge	15
Routine manipulation	25
Understanding and application	35
Problem solving	25
Total	**100**