



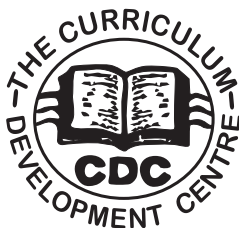
Republic of Zambia
Ministry of Education

PRE-MATHEMATICS AND SCIENCE

TEACHING MODULE

EARLY CHILDHOOD EDUCATION

LEVEL 1: 3-4 Years
TERM 2



Developed by the Curriculum Development Centre
Lusaka
2025

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Quality, life- long education for all which is accessible, inclusive and relevant to individual, national and global needs.

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PREFACE

The Pre-Mathematics and Science Teaching Module level 1 has been developed in line with the Competence Based Education principles which seek to link education to real life experiences. This Module contains content and activities based on the Pre-Mathematics and Science syllabus for level 1 and serves as a guide to the teacher on how to handle learning activities and content which is age-appropriate for learners aged 3 to 4 years. The Module aims to facilitate the provision of quality education that is aligned with the Competence-Based Curriculum (CBC). Furthermore, the Module aims to support the teacher on how to help learners attain the competences, knowledge, skills, values and positive attitudes that enable learners to live and grow into productive and useful members of their family, communities and the Zambian society as a whole.

The activities and content provided in this Module helps the teacher to facilitate holistic development of learner's physical, mental, emotional, social, and moral faculties. The suggested activities are designed to offer learners hands-on experiences through manipulation of real objects, interaction with artificial and natural environments and learning through play. Thus, the learning will develop the competences needed for their personal and national development.

The module aims to support Early Childhood Education Teachers in the implementation of the CBC in the absence of approved teaching and learning materials. It therefore reflects the Ministry's unwavering commitment to making this journey as smooth as possible for Teachers. However, teachers are encouraged to supplement this module with their own research and innovations in order to address any gaps that may arise during implementation.

It is hoped that this module will make learning Pre-Mathematics and Science more meaningful and enjoyable as it is highly activity-based. Consequently, this Module aims to harness and enhance these innate abilities, support in building a solid foundation for Science, Technology, Engineering and Mathematics (STEM) education and smooth transition to lower primary.



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The Pre-Mathematics and Science Teaching Module have been developed through a collaborative and consultative efforts of many individuals, institutions and organisations that were accorded an opportunity to develop the learning activities. We would, therefore, like to express our sincere profound gratitude to individuals, institutions and organisations that provided the technical input to the successful development of this Pre-Mathematics and Science Teaching Module. These include; class teachers and lecturers from Colleges of Education. Special gratitude is extended to the officers from the Zambia Educational Publishing House (ZEPH) for applying their typesetting skills in aligning the content in this module.

Finally, we appreciate the commitment and hard work of the staff at the Curriculum Development Centre in ensuring the successful completion of the module development process.



Charles Ndakala, (Dr.)
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HOW TO USE THIS MODULE

Read the Module Introduction to understand the learning activities, teaching and learning materials needed, and assessment guide;

1. **Prepare the teaching and learning materials:** Gather all necessary materials and resources before conducting the learning activity.
2. **Follow the learning activity:** Conduct the activity as outlined, using the suggested activities and tasks.
3. **Assess and Evaluate:** Use the assessment guides to evaluate learners' understanding, progress and attainment of the prescribed competences from the syllabus.
4. **Adapt and Modify:** Be flexible and willing to adapt the activity to meet the diverse needs of your learners.
5. **Use of Simple language and Code switching:** When giving instructions to the learners, it is important to use simple English language or code switching in a familiar local language that is easy to understand. Use simple words and phrases that learners can understand. By using simple language and code switching, you can help learners build a strong foundation in language and communication.

Tips for Successful Implementation

- Create a positive and supportive learning environment for learners
- Encourage active participation and engagement from the learners
- Use visual aids and real-life examples to reinforce learning
- Provide opportunities for learners to practice and apply what they have learned

INTRODUCTION

The Pre-Mathematics and Science Teaching Module is designed for Early Childhood Education learners, focusing on foundational concepts in Mathematics and Science. The module is divided into sections with specific learning activities, aimed at sparking curiosity, nurturing foundational skills. It aims to create a dynamic and stimulating environment where learners can joyfully discover the wonders of Mathematics and Science. This module provides guidance to teachers on how to help learners key competences such as Collaboration, Communication, Creativity thinking, Critical thinking, problem-solving, aiming to harness and enhance these innate abilities in learners, building a solid foundation for STEM education and smooth transition to lower primary education level.

Suggested Teaching and Learning Materials

Early childhood education is crucial for cognitive, social-emotional, and physical growth. Effective teaching materials are essential for engaging, interactive, and play-based learning experiences. These materials foster a love for learning, promote academic readiness, and develop essential skills. These materials are flexible and adaptable to meet diverse needs and interests. The module provides guidance on suggested materials, but it is not conclusive and teachers should improvise based on the learning environment.

Learning Environment Set Up

A well-designed learning environment is key for learner's cognitive, social-emotional, and physical development, fostering curiosity, independence, self-confidence, and a desire for learning. The learning environment set-up aims to create a safe, inclusive, and engaging space.

- **Natural Environment:** A natural learning environment is a setting where learners explore and learn naturally, often without explicit instruction or formal teaching, such as in school surroundings
- **Man-Made Environment:** Man-made learning environments are intentionally designed safe spaces, such as classrooms, laboratories, and libraries, designed for formal instruction, hands-on activities, and games and songs
- **Technological Learning Environment:** Access educational apps, games, and software for learning, including game-based platforms, virtual platforms, and simulations, to engage learners and promote learning

Safety in the Learning Environment

Introducing clear safety rules and expectations in an engaging manner can help learners develop life skills for safety and responsibility in the learning environment, allowing them to focus on learning and having fun.

Suggested Teaching Methodology

Teaching Pre-Mathematics and Science to learners requires methods that are engaging, hands-on and developmentally appropriate. Below are some of the prescribed effective teaching methodologies to be used in the learning activities:

- Play-based learning
- Nature walk
- Group work/Collaboration

- Demonstration
- Problem Solving

The choice of teaching methodology should align with learners' desired competence and consider resources, space, and equipment availability. Teachers should have reasons for choosing a method and employ strategies to make lessons interesting.

Learning Activities

Learning activities are intentional educational experiences aimed at promoting learning, engagement, and achievement among learners. Facilitated by teachers, they help acquire new knowledge, skills, attitudes, and behavior change. To create an inclusive environment, teachers should use a “hook” to introduce new learning activities in an interactive and interesting way.

Icons used in this Module

This module utilises icons as visual symbols or graphics to represent instructions, enhancing the learning experience for learners. Icons categorize and organise instructions, making navigation easier for teachers.

 Key Terms	 Assessment Guide	 Skills developed
 Learner Activity	 Tips/Safety precaution	 Key learning points/Summary

Assessment Methods

Assessment is important in Early Childhood Education, guiding instruction, learning, and progress. Formative and summative assessments are used, with formative focusing on ongoing evaluation and summative providing comprehensive evaluations at specific points. This module highlights some of the various types of assessments suitable for early childhood learners.

Formative Assessments

- **Observations:** Watching learners as they play, learn, and interact with others.
- **Checklists:** Using standardised or teacher-created checklists to track children's progress and development.
- **Performance tasks** (Portfolios): Collections of learners' work samples, artwork, and achievements over time
- **Feedback:** Engaging in conversations and interviews with learning to assess their thinking, understanding, and communication skills.

Summative Assessments

- **Performance Tasks:** Designing specific tasks that require learners to demonstrate their learning and to assess their learning, creativity, and communication skills.
- **Rubrics:** Using rubrics to assess children's work and provide feedback on their performance.

Time Allocation

The standard period allocation for Pre-Mathematics and Science at Early Childhood Education level has been prescribed in the Zambia Education Curriculum Framework (ZECF) of 2023. The minimum teacher–learner contact time is **5 hours** per week for ages 3-4 years, translating into **10 periods**. The duration for a single period is **30 minutes**.

Key Competences To Be Developed

S/N	Competence	Descriptors
1	Analytical Thinking	<ul style="list-style-type: none"> Identify patterns Compile data, create mental images and address issues Evaluate solutions
2	Communication	<ul style="list-style-type: none"> Use mathematical/scientific language in different situations. Express oneself using different media and symbols Ask for feedback
3	Creativity and Innovation	<ul style="list-style-type: none"> Explore the objects around them. Show creativity and innovativeness Explore areas of interest
4	Collaboration	<ul style="list-style-type: none"> Solving puzzle in groups Play with peers to build relationships Participate in and express themselves through play activities
5	Critical Thinking	<ul style="list-style-type: none"> Ask and answer simple questions Classify objects according to their attributes Manipulate different objects Solve simple problems in life Match different things according attributes Arrange objects according to attributes Compare similarities or differences between objects Explore the environment
6	Environmental Sustainability	<ul style="list-style-type: none"> Dispose waste in the designated place. Adhere to best practices in environmental management. Identify a clean environment. Identify types of waste in local environment.
7	Problem Solving	<ul style="list-style-type: none"> Make connections/link with the inner world or social environment Use numeracy patterns and relations to solve problems. Manipulate numbers, shapes and symbols to complete a task

Term 2

TOPIC 2: Understanding My Body

Introduction

This topic Understanding my Body is designed to help learners know their bodies. From our heads to our toes, learners will discover all the incredible things our bodies can do. This topic has one subtopic focusing on the external human body parts. This learning experience aims to help learners develop a basic understanding of their bodies, including body parts, senses, and functions

Key Competences:

- Analytical thinking
- Critical thinking
- Communication
- Collaboration

Sub-Topic 1: The External parts of the Human Body

Introduction

The External parts of the human body include Head and face (hair, eyes, ears, nose, mouth), Upper body (neck, shoulders, arms, hands, fingers), Lower body (chest, hips, legs, feet, toes) and other external parts (skin, nails). These external parts work together to protect the body, facilitate movement, and enable interaction with the environment.

Specific Competence:

- Care for the external parts of the Human body



KEY TERMS

- **Function:** The natural action or intended purpose of a person or thing in a specific role.
- **Measurement:** The act or process of finding the size, height or weight of something.
- **Hygiene:** Is the set of practices performed to preserve health.
- **Safety:** The freedom of being protected from danger or harm

Key Concepts:

- Measurement
- Identification
- Function
- Hygiene

Learning Activities

The learning activities are designed to help learners explore the external parts of their bodies. From the head to toes, learners will discover the different parts that make us who we are. The learning activities are developed with a focus on supporting learners to learn about the external parts of the human body and how they help us move, sense, and interact with the world around us. There are four learning activities to help learners identify the external parts of the human body and know their functions.

LEARNING ACTIVITY 1:

Identifying the parts of the human body

This activity is designed to help learners identify the parts of the external human body parts (head, eyes, nose, arms, legs, hands, feet) through games and songs. This will enable learners lay the groundwork for their overall development, health and future learning.

Activity 1.1 Identify the external body parts through the song

This song requires learners to touch the mentioned body part while singing step-by-step “Head, Shoulders, Knees, and Toes” song to learners. This will help learners identify their own external body parts.

Suggested Teaching and Learning Materials

- **Natural Materials:** Learners

Learning Environment set up:

- **Natural Environment:** School surroundings/any safe space
- **Artificial Environment:** Classroom building

HOOK: *Do you know what makes you, YOU? It's your amazing body! Your body is like a superhero that helps you run, play, eat, sleep, and so much more*

Teacher's Roles:

- Start this activity with the ‘hook’ to allow learners reflect on their bodies
- Familiarise yourself with the song (head and shoulders, knees and toes) and its actions

Song: *This classic learners' song is a fun way to learn about different body parts, promoting physical activity and coordination while encouraging learners to identify and name various external body parts.*

*“Head and Shoulders, Knees and Toes”
(Tune: Traditional children's song)
Head and shoulders, knees and toes,
Knees and toes.
Head and shoulders, knees and toes,
Knees and toes.
Eyes and ears and mouth and nose,*

Mouth and nose.

Eyes and ears and mouth and nose,

Mouth and nose.

Head and shoulders, knees and toes,

Knees and toes.

Head and shoulders, knees and toes,

Knees and toes.

- Practice the actions that accompany each body part in the song.
- Introduce the song to the learners, let them touch the body part you mention in the song. Allow them to make mistakes and be corrected by other learners. Let them have fun when singing it.



LEARNER ACTIVITY

Singing and touching their head, hands, shoulders, knees, toes, eye, nose, ears, mouth



ASSESSMENT GUIDE

- Observe that learners are touching the correct body part mentioned in the song.
- Ask questions to the learners to test their understanding of their body parts and their functions.
- Create a story to go along with the song, such as adventure where the learners have to find different body parts



TIPS

- Add props, such as hats or scarves, to make the song more engaging and fun.
- Make the song more challenging by adding more complex actions or by having the learners perform the actions in a specific order.
- Incorporate movement into the song, such as marching or jumping, to make it more engaging and fun.
- Ensure that this activity is performed in a safe place.
- This can be used as daily song and incorporate it as a daily routine activity.



SKILLS DEVELOPED

Communication, collaboration, motor, fine and Gross motor skills

Activity 1.2 Identifying the external parts of the body using Simon Says – Game

This is an activity which will help learners learn and identify body parts through active listening and movement. It can be played inside or outside the classroom so as to explore.

Suggested Teaching and Learning Materials:

- **Natural materials:** Learners

Learning Environment setup: School surroundings/ any suitable safe space

Teacher's Roles

- One learner to represent Simon and say 'Simon says touch your head' let the other learners do as Simon says.
- Ask learners to play "Simon says" game using external body parts (e.g., Simon says touch your nose or Simon says wiggle your fingers etc.)



TIPS

Let learners only follow the instruction if it only begins with "Simon says".



LEARNER ACTIVITY

- Taking turns to represent Simon
- Listening carefully to "Simon says" instructions and only follow the instructions that start with "Simon says".
- Doing action of what "Simon says".



ASSESSMENT GUIDE

- Observe the actions performed by the learners to make sure that they are in line with what Simon says
- Ask learners questions according to their performance.



SKILLS DEVELOPED

Analytical thinking, Communication and Collaboration

ACTIVITY 1.3: Identifying external parts of the body using the follow the leader song

In this activity the leader is chosen to perform different body part actions, such as touching their toes or clapping their hands. The other learners follow what the leader does. This activity will help them improve their flexibility / motor coordination.

Suggested Teaching and Learning Materials:

- **Natural Materials:** Learners

Learning Environment set-up:

- **Artificial Environment:** classroom

Teacher's Roles:

- Choose a learner to lead the game. This can be a volunteer or any learner who is comfortable with leading others.
- Explain the concept of the game to the learners, saying something like, "We're going to play a game called Follow the leader. Our leader will do different actions with

their body, and we have to follow along!”

- Remind the learners that it’s important to follow the leader’s actions carefully and to have fun.
- Let the leader start performing the different body part actions, such as touching their nose or hopping on one foot while singing follow, follow, follow – follow the leader.

Song: Follow the Leader”: This interactive song encourages learners to follow actions and movements, promoting physical activity and coordination while developing their ability to follow instructions and work together

“Follow the Leader”

(Tune: Traditional children’s song)

Follow the leader, follow the leader,

Do what I do, do what I do.

(Touch your head)

Touch your head, touch your head,

Do what I do, do what I do.

(Clap your hands)

Clap your hands, clap your hands,

Do what I do, do what I do.

(Stomp your feet)

Stomp your feet, stomp your feet,

Do what I do, do what I do.

(Touch your toes)

Touch your toes, touch your toes,

Do what I do, do what I do.

Follow the leader, follow the leader,

Do what I do, do what I do.

- Encourage the learners to follow the leader’s actions
- Continue the song for several rounds, with the leader performing different actions and the other learners following
- After a few rounds, consider switching leaders to give another learner a chance to lead the group



LEARNER ACTIVITY

- Observing the demonstrations done by the leader
- Following the instructions by the leader performing different body actions and singing along the song (e.g. clapping their hands, stamping their feet)



ASSESSMENT GUIDE

- Observe the learners to make sure that they are performing the correct actions
- Create bingo cards with pictures of different body parts. Call out the body parts, and have children mark the corresponding pictures

- Use visual aids: Display pictures or diagrams of the human body to help children visualize and identify body parts. Ask them questions to understand their thinking
- Use puzzles suitable for the age level, with large pieces and simple designs and let the learners come up with the human body. This can be done in pairs.

**TIPS**

- Pair children with a partner or in small groups to promote teamwork and social interaction.
- Adapt the game to accommodate different learning styles and abilities.
- Make it fun: Play music, use fun props, and maintain a positive atmosphere to keep children engaged and motivated.

**SKILLS DEVELOPED**

Communication, Collaboration, Critical thinking and Observation

LEARNING ACTIVITY 2:

Relating external parts of the human body to their functions

HOOK: “Can you touch your nose with your finger? How do you think your nose helps you smell your favorite food?”

Activity 2.1 Demonstrating Body Part Movement

This activity is based on body part movement exploration. This will enable learners develop gross and fine motor skills, spatial awareness, and self-expression, while promoting physical, cognitive, and emotional growth in the learners.

Suggested Teaching and Learning Materials

- **Artificial Material:** Pictures showing external parts of the body (e.g. arms, legs, hands, feet), radio (music)

Learning Environment set up:

- **Natural Environment:** school surroundings (A safe and open space for learners to move around)
- **Artificial Environment:** Classroom

Teacher’s Roles

- Begin the activity by using the hook
- Let the learners demonstrate different movements and actions that can be done with various body parts in front of a class (e.g. eyes for seeing....)

Hand Movements: “Clap your hands!” Clap your hands together to make a sound.

Foot Movements: “Tap your feet!” Tap your feet on the ground to make a sound.

Arm Movements: “Wave your arms!” Wave your arms in the air to show movement.
Leg Movements: “Jump up and down!” Jump up and down to show movement.

- Encourage learners to explore and try different movements and actions.
- Provide feedback and encouragement to learners as they explore and try new movements.
- Ask for a volunteer to perform new body part actions in front of a classroom while other learners follow
- Use music to enhance the movement exploration experience.



LEARNER ACTIVITY

- Doing like the teacher say and exploring different movements and actions that can be done with various body parts (e.g., clapping hands, tapping feet).
- Trying new movements and actions with guidance from the volunteer
- Making own movements and actions using different body parts.



ASSESSMENT GUIDE

- Observe learners as they participate in the movement exploration activity.
- Evaluate learners’ understanding of different body parts and their functions.



SKILLS DEVELOPED

Communication, fine and gross motor, cognitive and social emotional skills

LEARNING ACTIVITY 3:

Demonstrating Personal Hygiene Habits

This activity requires learners to demonstrate personal hygiene habits of their body/environment. This will help learners to get rid of germs, stay clean and healthy.

HOOK: “Who here loves playing outside? What do we do when we get dirty from playing outside?”

Activity 3.1: Demonstrating daily hygiene routines

This activity helps learners to look at the daily hygiene routines such as bathing of the body/washing of the face, brushing teeth, combing hair, washing of hands before eating and after visiting the toilet. This will enable learners develop hygiene habits and stay free from diseases.

Suggested Teaching and Learning Materials

- **Natural Material:** water
- **Artificial Materials:** soap, toothpaste (stick for brushing teeth from a non-poisonous tree), toothbrush (salt, ashes...), cup, basin, sponge

Learning Environment set up:

- **Natural Environment:** school surroundings/ any safe space
- **Artificial Environment:** buildings (classroom, bathroom, toilet...)

Teacher's Roles:

- Introduce the activity using the hook
- Ask learners to demonstrate how to wash their hands after playing outside
- Remind learners to bath, brush teeth, comb the hair and wear clean uniform/clothes.
- Put a washing point of hands.
- Demonstrate washing of hands before eating during break time and after toilet time with soap

**LEARNER ACTIVITY**

- Demonstrating how to wash hands after playing outside
- Demonstrating how to brushing teeth after every meal
- Washing hands at the washing point before eating and after visiting the toilet with soap.

**TIPS**

- Always observe the cleanliness of learners (uniform, hair, nails, teeth...) at school all the time.
- Encourage the learners to use age-appropriate materials (tooth brush, toothpaste). This can be done while singing and to be wearing a clean uniform/cloths

**ASSESSMENT GUIDE**

- Observe learners as they participate in the activities
- Evaluate learners' performance and give proper guidance for safety purposes.

Suggested songs to use: Twinkle, Twinkle, Little Star, this is the way we brush our teeth and the Wheels on the Bus.

Using "Twinkle, Twinkle, Little Star" for Hygiene Habits:

Adaptation:

(Tune: "Twinkle, Twinkle, Little Star")

Brush, brush, shine so bright,

Clean your teeth with all your might.

Morning and night, it's fun to do,

Keep your smile shining fresh and new.

Or:

Wash, wash, hands so clean,

Soap and water, a perfect team.

*Rub-a-dub-dub, get those germs away,
Keep your hands clean every single day.*



TIPS

You can also use any local songs to suite the learners



SKILLS DEVELOPED

Cognitive, Gross and Fine motor skills and Social-Emotional skills

LEARNING ACTIVITY 4:

Comparing Lengths of Body Parts Using Non-Standard Units

This activity will help learners compare lengths of body parts using non-standard units such as sticks, arm spans, hand spans, finger length, foot lengths or a string. This will promote problem solving skills and numeracy literacy in the learners' everyday real life.

HOOK: *“Who Can show me how long your arm is using your hand as a ruler? How many hands long is your arm? Let's explore and compare the lengths of different external body parts using everyday objects as our measuring tools*

Activity: 4.1: “Body Part Measurement Adventure” - Long or Short

This activity promotes measurement skills, comparison, and critical thinking while encouraging collaboration and creativity among learners.

Suggested Teaching and Learning Materials

- **Natural materials:** Learners

Learning Environment set up:

- School surroundings/ any suitable safe space

Teachers Roles:

- Introduce the activity using a hook
- Ask learners to be in pairs/ small groups
- Ask each pair to measure the length of different body parts (e.g., arm, hand, foot, or finger) using non-standard units
- Let each pair/small group identify the longest and shortest body parts



LEARNER ACTIVITY

- Measuring length of different body parts (e.g., arm, hand, foot, or finger) using non-standard units
- Identifying the longest and shortest external body parts

**ASSESSMENT GUIDE**

- Observe learners measuring length of different body parts (e.g., arm, hand, foot, or finger) using non-standard units
- Ask learners' questions as they decide the longest and shortest body parts from each pair/group and evaluate their reasoning.

**SKILLS DEVELOPED**

Cognitive, Gross and Fine motor skills and Social-Emotional skills

Activity 4:2 Body Parts Measurement

This activity requires learners to compare the size or length of body parts. We can measure the body parts by looking at how long or how tall or how wide something is. This enhances problem solving, making connections, curiosity and exploration.

Suggested Teaching and Learning Materials

- **Natural Materials:** sticks, arms, feet
- **Artificial Materials:** blocks, pencils, markers, papers

Learning Environment set up:

- School surroundings/ any suitable safe space

Teacher's Roles:

- Put learners in pairs. Let the learners take turns to perform this activity.
- Guide the learners on how to measure a body part of a peer (e.g. an arm) using sticks, Blocks, pencils, markers, papers etc.
- Ask learners how many pencils or sticks were counted when measuring the peer
- Allow learners to practice measuring their own body parts using any of learning materials independently

**LEARNER ACTIVITY**

- Measuring body parts using blocks, pencils (e.g. arm....)
- Counting the number of pencils, blocks... that are on the arm of the peer
- Comparing the lengths of different body parts using blocks, pencils, sticks...
- Communicating their findings.

**TIPS**

Use different non-standard units such as foot, fingers and so on and sing with the learners to make the lesson more fun. Assess learners understanding and provide feedback.

Suggested songs: The Wheels on the Bus, Five Little Monkeys

Using the song "The Wheels on the Bus" for Body Parts:

Adaptation:

(Tune: “The Wheels on the Bus”)

*The eyes in the head go blink, blink, blink,
Blink, blink, blink, blink, blink, blink.
The eyes in the head go blink, blink, blink,
All through the day.*

*The ears on the head go listen, listen, listen,
Listen, listen, listen, listen, listen, listen.
The ears on the head go listen, listen, listen,
All through the day.*

*The mouth on the face goes eat, eat, eat,
Eat, eat, eat, eat, eat, eat.
The mouth on the face goes eat, eat, eat,
All through the day.*

**Using the song “Five Little Monkeys” for Body Parts:
Adaptation:**

(Tune: “Five Little Monkeys”)

*Five little fingers, swinging from the hand,
Swinging from the hand, swinging from the hand.
Five little fingers, swinging from the hand,
Learning about our body parts today.*

*Four little toes, wiggling on the floor,
Wiggling on the floor, wiggling on the floor.
Four little toes, wiggling on the floor,
Learning about our body parts today.*

*Three little ears, listening to the sound,
Listening to the sound, listening to the sound.
Three little ears, listening to the sound,
Learning about our body parts today.*



ASSESSMENT GUIDE

- Observe learners to ensure that the measuring is well done
- Ask learners questions like who has the longest arm to assess their understanding.



SKILLS DEVELOPED

Communication, Critical thinking, Fine Motor Skills and gross, Problem -Solving skills.

Activity 4.2: Footprint/palm comparison

This activity requires learners to develop the measurement skills by comparing and measuring the length of footprints using non-standard units, fostering critical thinking and problem-solving abilities.

- **Natural Materials:** sticks, arms, footprint stamps
- **Artificial Materials:** Blocks, pencils, markers, papers, record sheet, basin (containing paint – face paint of any locally made paint such as mulberry, charcoal)

Learning Environment set up:

- School surroundings/ any suitable safe space

Teacher's Roles

- Put learners in pairs
- Ask two learners to take turns to deep their feet in paint and step on a plain paper (or floor)
- Ask learners to compare the sizes of their feet in pairs
- Provide opportunities for learners to explore and learn about measuring lengths using footprints.
- Offer guidance and support as learners engage in the comparison activity.
- Evaluate learners' understanding and ability to compare and measure lengths using footprints.



LEARNER ACTIVITY

- Taking turns to deep their feet in paint and step on a plain paper (or floor)
- Comparing the sizes of their feet in pairs



ASSESSMENT GUIDE

- Observe learners during the comparison activity to assess their understanding.
- Provide verbal feedback to learners on their ability to compare and measure lengths using footprints.
- Evaluate learners' footprint measurements and comparisons
 - Whose footprint is longer?*
Compare the length of two footprints
 - Whose footprint is shorter?*
Compare the length of two footprints
 - How many blocks long is your footprint?*
Measure the length of a footprint using blocks.



TIPS

- Use simple language and instructions to ensure learners understand the activity.
- Make the activity fun and engaging by using games and challenges.
- Encourage learners to support and help each other during the active



SKILLS DEVELOPED

Communication, critical thinking, Fine Motor Skills and gross cognitive, Gross and Fine Motor Skills and problem-solving skills

TOPIC 3: Exploring the Sky and Seasons

Introduction

This topic covers only one subtopic namely, Time and Seasons. Learning about sky and seasons exploration significantly impacts learner understanding of pattern and cycle recognition, which are essential for understanding how time works. This recognition aids in developing a sense of routine and anticipation for future events. Ultimately, learners develop an awareness of time progression beyond just days and months. They begin to appreciate the intricate connections between natural phenomena and the passage of time, fostering a deeper comprehension of how these elements influence daily life and cultural practices. As a result, this understanding enriches their overall educational experience, encouraging curiosity and active engagement with the world around them.

Key Competences:

- Analytical Thinking,
- Communication,
- Critical thinking,
- Collaboration,
- Problem solving,

Sub-Topic 1: Time and Seasons

Introduction

The subtopic Times and Seasons is meant to help learners tell time by the activities of the day. It will help learners appreciate what we do at different times. The daily activities includes waking up in the morning, enjoying breakfast, playing outside, having lunch, taking a nap, and enjoying Dinner. What time do these activities happen can help learners to tell time.

Specific Competence

- Tell time by activities of the day



KEY TERMS

- **Time**-A measure of the duration of events
- **Daily activities**-Regular tasks performed throughout the day (e.g., waking up, eating, playing, sleeping)
- **Morning**-The early part of the day (typically 6:00 AM - 12:00 PM)
- **Afternoon**-The middle part of the day (typically 12:00 PM - 6:00 PM)
- **Evening**-The late part of the day (typically 6:00 PM - 12:00 AM)
- **Schedule**-A plan or timetable for the day
- **Routine**-A regular or repetitive pattern of activities

Key concept

- Telling time

Learning Activities

There are five learning activities designed under this subtopic, Time and Seasons to help learners explore their daily routine. This is meant to help learners appreciate what time we do different activities, like waking up, eating breakfast, playing outside, and having dinner. This introduction sets the stage for learning activities that focus on telling time by activities of the day, making it relatable and engaging for learners.

LEARNING ACTIVITY 1:

Telling time by using activities of the day

This activity is intended to support learners to tell time by using activities of the day. There are two sub activities that will be used to engage learners on how to tell time.

Hook: “What is the first thing you do in the morning when you wake up?”

Activity 1.1: Telling time using activities of the day

In this activity, learners will link the activity performed with the time depicted by the position of the sun in the sky. This can help learners develop the sense of linking life events to particular time of the day.

Suggested Teaching and Learning Materials:

Artificial Materials: Pictures or illustrations of daily activities (e.g., waking up, eating breakfast, playing outside, having lunch, taking a nap, having Dinner)

Learning Environment Set-up:

- Classroom environment (Artificial Environment)

Teacher`s Roles:

- Introduce this activity using the hook stated already
- Provide learners with the suggested materials in carrying out the activity.
- Ask learners to demonstrate an activity they do in the morning when you wake up.
- Ask one volunteer learner to perform an activity (e.g. washing the face, laying on the bed, taking breakfast).
- Provide learners with pictures/illustrations of daily activities (e.g., waking up, eating breakfast, playing outside, having lunch, taking a nap, having Dinner)
- Ask the other learners to display the picture depicting the time of the activity. (e.g. morning afternoon, sun setting)

- Responding to the hook by providing different opinions



ASSESSMENT GUIDE

- Observe learners link the activity to the corresponding picture depicting time of activity



TIPS

- Provide additional support and scaffolding to the learners in terms of relating the activity to the picture depicting daily activities of the day
- Ensure learners to switch roles when carrying out activities.



SKILLS DEVELOPED

Analytical thinking Communication, Collaboration, Observation.

Activity 1.2: Telling time using pictures of activities of the day

This activity requires that learners tell time using pictures of activities of the day. This will enhance learners' skill of colouring, events of the day and telling time.

Suggested Teaching and Learning Materials:

Artificial Materials: Pictures or illustrations of daily activities (e.g., waking up, eating breakfast, playing outside, having lunch, taking a nap, having Dinner)

Learning Environment Set-up:

- Classroom environment (Artificial Environment)

Teacher's role:

- Provide learners with the materials that they may require in carrying out the activity.
- Put learners in pairs/ groups.
- Show learners the pictures or illustrations of daily activities
- Ask learners to arrange the activities in order (e.g., waking up, eating breakfast, etc.
- Ask one learner to display a picture showing an activity (e.g., waking up).
- Ask the other learner to display the corresponding picture that shows the time of an activity (e.g., sun rising).
- Arranging the activities in order (e.g., waking up, eating breakfast, etc.



LEARNER ACTIVITY

- Displaying a picture showing an activity (e.g., waking up).
- Displaying the corresponding picture that shows the time of an activity (e.g., sun rising).

**ASSESSMENT GUIDE**

- Evaluate learners as they arrange the activities in order (e.g waking up, eating break fast and so on)
- Observe learners as they relate the pictures to the corresponding activities of the day
- Ask learners why they pick that particular picture of the time of the day and not the other pictures.

**TIPS**

- *Ask as many probing questions as possible to measure their level of understanding*
- *Provide additional support and scaffolding such as how to relate the two pictures to the corresponding daily activities to tell time or providing one-on-one instructions.*
- *Ensure that learners switch roles in performing activities.*
- Ask learners why they pick that particular picture of the time of the day and not the other pictures. Ask as many probing questions as possible to measure their level of understanding

**SKILLS DEVELOPED**

Communication, collaboration, analytical thinking and observation.

LEARNING ACTIVITY 2:

Telling the days of the week

In this activity, learners will tell the days of the week, from Monday to Saturday the days. This activity is designed to be interactive and engaging, helping learners develop a sense of the days of the week and their connection to daily activities.

Hook: “What is the day today?”

Activity 2.1: Telling the days of the week using the train game

This activity requires learners to tell the days of the week by linking the days to the colors assigned to them. This activity will enhance their understanding of the days of the week.

Suggested Teaching and Learning Materials:

Artificial Materials: train-shaped posters, water paints of different colours.

Learning Environment set-up:

- Classroom environment (Artificial environment)

Teacher's Roles:

- Create toy train-cars

- Divide the train poster or cardboards (by painting them different colors) into sections each representing the days of the week (e.g., Sunday-yellow, Monday – blue, Tuesday-red, Wednesday-green and so on).
- Provide learners with toy train-cars posters.
- Ask learners to arrange the train cars in sequence starting with the first day of the week using day-color identification.



LEARNER ACTIVITY

- Identifying each day of the week by colours assigned to the days of the week (e.g., Sunday-yellow, Monday – blue, Tuesday-red, Wednesday-green and so on).
- Arranging the toy train-cars in sequence starting with the first day of the week using day-color identification.



ASSESSMENT GUIDE

- Observe learners sequence the days of the week in order starting with the first day of the week using day-color identification.
- Ask learners why they pick that particular picture of the time of the day and not the other pictures. Ask as many probing questions as possible to measure their level of understanding



SKILLS DEVELOPED

Analytical thinking, Communication, Collaboration, , Fine and gross motor skills.

Activity 2.2: Days of the Week Chart

This activity is designed to be interactive and engaging, helping learners develop a sense of the days of the week and their connection to daily activities.

Suggested Teaching and Learning Materials:

Artificial Materials:

- A large chart or poster with the days of the week (Sunday to Saturday)
- Pictures or illustrations of daily activities (e.g., school, sports, family time)
- Stickers or markers

Learning Environment set-up:

- Classroom environment (Artificial environment)

Teacher's Roles:

- Show learners the chart and introduce the days of the week
- Ask learners to share their favorite activities and match them to the corresponding day of the week
- Use stickers or markers to mark the activities on the chart

- Encourage learners to explore the chart and identify patterns or routines of the week



LEARNER ACTIVITY

- Sharing their favorite activities and matching them to the corresponding day of the week
- Exploring the chart and identifying patterns or routines of the days of the week



ASSESSMENT GUIDE

- Observe learners sequence the days of the week in order starting with the first day of the week using day-color identification.
- Ask learners why they pick that particular picture of the time of the day and not the other pictures. Ask as many probing questions as possible to measure their level of understanding

Follow-up Activities:

- **Sequencing:** Ask learners to sequence events or activities in the correct order (e.g., “What comes after Monday?”)
- **Storytelling:** Encourage learners to create a story or scenario that takes place over the course of a week



ASSESSMENT GUIDE

- Participation: Note learners’ participation and engagement during the activity
- Identification: Observe learners’ ability to identify and match activities with corresponding days of the week

Verbal Questions:

- **Recitation:** Ask learners to recite the days of the week in order
- **Activity association:** Ask learners to associate specific activities with corresponding days (e.g., “What day do you go to school?”)

Chart Review:

- **Accuracy:** Review learners’ charts for accuracy in matching activities with days of the week
- **Completeness:** Check if learners have included all days of the week and relevant activities

LEARNING ACTIVITY 3:

Recognising the features of daytime and nighttime

In this activity, learners will learn about the characteristics of daytime and nighttime. This will help learners understand the natural cycles of the world. Distinguishing between day and night lays the foundation for understanding more complex time concepts such as hours, days, weeks and months. There are two sub activities in this activity.

Hook: “Look out the window! Is it bright and sunny or dark and starry? Let’s look at the features of the daytime and nighttime!”

Activity 3.1: Story about “Chilonga’s Day and Night”

This activity is designed to engage learners through storytelling, promoting recognition and understanding of the features of day and night

Suggested Teaching and Learning Materials:

Artificial materials:

- A story about a character (Chilonga) who experiences daytime and nighttime activities
- Pictures or illustrations of daytime and nighttime features

Learning Environment set-up:

- Classroom Environment (Artificial Environment)

Teacher’s Roles:

- Tell a story that takes place during the day and the night. Read the story about Chilonga’s day and night, highlighting the characteristics of each (e.g., sunshine, birds chirping, stars, moon)
Sample story: *“Chilonga’s Day and Night” tells the story of a character who wakes up in the morning, plays outside in the sunshine, has lunch, takes a nap, and then enjoys the stars and moon at night*
- As the story is being told, show learners pictures that depict day time and night time (e.g., daytime - sun, clouds, trees, birds and night time - moon, stars).
- Ask learners to identify pictures that represent day time and those that represent night time.
- Encourage learners to share their own experiences and observations about daytime and nighttime



TIPS

Use a puppet when telling a story. In a case where a puppet is not available, use a sock. Get a clean colourful sock, use markers or paint to draw or paint puppet’s features on the sock. Use glue (or sew) to attach buttons or other materials for eyes, nose and mouth.



LEARNER ACTIVITY

- Depicting features such as (daytime - sun, clouds, trees, birds) and (night time - moon, stars) from the pictures
- Identifying pictures that represent day time and those that represent night time.
- Sharing their own experiences and making observations about daytime and nighttime

**ASSESSMENT GUIDE**

- Observe learners recognising and identifying the features of daytime and nighttime
- Evaluate learners' as they share the differences between day and night

**TIPS**

Avoid scaring learners by using pictures of the night that may cause fear or anxiety.

**SKILLS DEVELOPED**

Analytical thinking, Communication, Observation and imagination.

Activity 3.2: Colouring pictures of daytime and nighttime

This activity requires learners to recognise the characteristics of daytime and nighttime. This activity will help learners develop an understanding of daytime and nighttime. It will also enhance the learners' observation skills encouraging them to notice and record changes in their environment.

Suggested Teaching and Learning Materials:

Artificial Materials: Plain papers, pencils, crayons, paints, painting brushes.

Learning Environment Set-up:

- Classroom Environment (Artificial environment)

Teacher's Roles:

- Provide learners with painting and drawing materials.
- Ask the learners to colour pictures of their favourite daytime (e.g., the sun rising, trees, birds in trees) and nighttime (e.g., the moon and stars in the sky).

**LEARNER ACTIVITY**

- Colouring pictures of their favourite daytime and nighttime.

**ASSESSMENT GUIDE**

- Observe learners colouring pictures of their favourite day and night.
- Ask learners why they pick that particular colour of the time of the day and not the other colours. Ask as many probing questions as possible to measure their level of understanding on time of the day.

**TIPS**

- Caution learners to be careful when using paint so they do not mess up their uniforms.
- Provide learners with non-toxic paints, markers and crayons.



Communication, collaboration, analytical thinking, creativity, fine motor skills and imagination.

LEARNING ACTIVITY 4:

Identifying visible components of day (sun) and night (moon, stars).

In this activity, learners will appreciate natural cycles and the interconnectedness of the components of the environment. The activity will enhance learners' skill of observation and appreciate their surroundings. There are three sub activities in this activity.

Hook: *Learners describe the appearance of the sky.*

Activity 4.1: Story about the sun, the moon and the stars.

This activity will teach learners about the visible components of day and night. Understanding the visible components of day and night encourages critical thinking.

Suggested Teaching and Learning Materials:

Artificial Materials: Pictures of the sun, moon and stars.

Learning Environment set-up:

- Classroom environment (Artificial environment)

Teacher's Roles:

- Ask learners to listen to the story of the sun, the moon and the stars.
- Tell the learner a story about the sun, the moon and the stars.



Use a puppet when telling a story. In case the puppet is not available, use a sock.

Title: Benny's Day and Night Adventure

Benny was curious little bear who loved to explore. One day, he decided to go on an adventure to learn about the day and night.

In the morning, Benny looked out of his window and saw a bright, shining sun. "Wow!" he exclaimed. The sun is up! It must be day time!"

Benny went outside to play and felt the warm sun on his fur. He saw birds flying in the sky and flowers blooming in the garden.

As the day went on, Benny noticed that the sun began to set. The sky turned pink and orange, and the stars started to twinkle.

"Look!" Benny cried. "The moon is up! And look at all the stars!"

Benny's friend, a wise old owl named Olwen, perched on a nearby tree.

"Hello Benny!" She hooted. "I see you are learning about the day and night."

"Yes!" Benny replied. "I saw the sun during the day, and now I see the moon and stars at night."

Olwen nodded. "That's right, Benny! The sun is visible during the day, and the moon and the stars are visible at night."

Benny beamed with pride. "I am so glad I learned about the day and night", he exclaimed.

This is the end of the story.

○ Ask learners the following questions:

- i) What is the name of the bear in this story?
- ii) What did Benny want to learn in his adventure?
- iii) When he looked out of his window, what did Benny see?
- iv) Why did Benny think it was day time when he looked out of his window?
- v) When he went outside to play how did he feel?
- vi) When the sun began to set, what did Benny notice about the sky?
- vii) When the sun had set, what did he see in the sky?
- viii) Who was Benny's friend?
- ix) What did Benny's friend tell Benny about the time when the sun, the moon and the stars are visible?



LEARNER ACTIVITY

Listening to the story told by the teacher.

○ Answering questions asked by the teacher.

Expected Answers

- 1) Benny
- 2) Day and night
- 3) A bright, shining sun
- 4) Because the sun was up
- 5) He felt the warm sun on his fur
- 6) The sky turned pink and orange.
- 7) He saw the moon and the stars.
- 8) A wise old owl named Olwen.
- 9) The sun is visible during the day while the moon and the stars are visible at night.



ASSESSMENT GUIDE

- Observe the attention of the learners as they listen to the story.
- Evaluate learners' by asking them questions as the story is being told.



TIPS

- Incorporate gestures to ensure learners are attentive when telling the story.



SKILLS DEVELOPED

Analytical thinking, Communication, Observation,

Activity 4.2: Identifying visible Components of the day and night using sorting game

In this activity, learners will sort pictures that are visible during the day (sun, clouds) and at night (moon, stars).

Suggested Teaching and Learning Materials:

- **Technological Materials:** Tablets, ipads, smart phones

Learning Environment set-up:

- Classroom environment (Artificial environment)

Teacher's Role:

- Create a sorting activity game on the gadgets for the learners to sort pictures of objects visible during the day and pictures of objects visible during the night.
- Put the learners in pairs/small groups.
- Provide learners with necessary gadgets (tablets, ipads, smart phones) that contain the sorting activity game (use picture cards in the absence of technological gadgets).
- Ask the learners to sort pictures or objects that are visible during the day (sun, clouds, birds) and during the night (moon, stars).



LEARNER ACTIVITY

- Sorting pictures of objects that are visible during the day (sun, clouds) and during the night (moon, stars).



ASSESSMENT GUIDE

- Observe the learners as they sort the pictures of objects that are visible during the day (sun, clouds) and during the night (moon, stars).
- Ask learners questions as they sort the pictures to understand their thinking



TIPS

Provide additional support and scaffolding such as how to sort pictures or objects or providing one-on-one instructions.

**SKILLS DEVELOPED**

Communication, Collaboration, Problem Solving and Observation

LEARNING ACTIVITY 5:**Creating patterns using natural materials**

This activity is designed to engage learners in creative and critical thinking, promoting an appreciation for the natural world and its many patterns. There are two sub activities which can be used to engage learners in creating patterns using natural materials.

Activity 5.1: Formation of shadows using “Nature’s Patterns”

This activity requires learners to discover how shadows are formed and change their shapes as the sun changes position. Learners will develop their observation skills, learning to notice and record changes.

Suggested Teaching and Learning Materials:

- **Natural Materials:** leaves, sticks, rocks, clouds, shadows...
- **Artificial Materials:** Paper or canvas for documentation

Learning Environment set-up:

- School environment (Natural environment)

Teacher’s Roles:

- Take learners on a nature walk to observe and collect natural materials
- Ask learners to go back to class after picking materials from the environment
- Let learners create patterns using the collected materials (e.g., arranging leaves in a sequence, creating shadow art)
- Document the patterns by drawing them
- Ask learners to describe their patterns

**LEARNER ACTIVITY**

- Taking a nature walk to observe and collect natural materials
- Getting back to class after picking materials from the environment
- Making and describing patterns using the collected materials (e.g., arranging leaves in a sequence, creating shadow art)



ASSESSMENT GUIDE

- Observe learners taking a nature walk to observe and collect natural materials
- Evaluate learners creating patterns using the collected natural materials (e.g., arranging leaves in a sequence, creating shadow art)
- Ask learners to describe and explain their patterns



TIPS

Ensure adequate and proper supervision to prevent accidents and ensure learners' safety during nature walk



SKILLS DEVELOPED

Communication, Collaboration and Observation

Activity 5.2: Shadow formation investigation

This activity requires learners to discover how shadows are formed and change their shapes as the sun changes position. Learners will develop their observation skills, learning to notice and record changes.

Suggested Teaching and Learning Materials:

Natural Materials: Sticks, trees, buildings

Learning Environment set-up:

- School environment (Natural environment)

Teacher's Roles:

- Take the learners for a nature walk around the School surroundings
- Ask the learners to observe the shadows of the objects change their shape and position as the day progresses
- Ask learners to discuss the activities done at each particular position of the shadow (going for break, knocking off time)



LEARNER ACTIVITY

- Observing the formation of shadows of the objects.
- Discussing the change in shape and position of shadows formed by objects.
- Discussing the activities done when the shadow reaches certain position (e.g., going for break)

**ASSESSMENT GUIDE**

- Observe learners take note of change of position and shape of the formed shadows
- Ask learners why shadows have changed shape and position
- Ask learners about the activities that are done when the shadow reaches certain positions

**TIPS**

- Tall objects give perfect results as the change in shape and position is clearly noticed in the shadow.
- Objects must not be too close to each other to avoid one object obstructing the other.
- Let the learners observe shadows even at home and allow them to share their observations with peers.

**SKILLS DEVELOPED**

Communication, collaboration, observation and comparison.

LEARNING ACTIVITY 6:

Recognising the Seasons in Zambia

This activity is designed to engage learners in a fun and interactive way, promoting recognition and understanding of the seasons in Zambia. There are three sub activities in this activity.

Hook: Let's talk about when we need umbrellas, coats, and hats. Can you share a season experience?

Activity 6.1: Season-Object matching game

In this activity, learners will identify the season by associating it with the activities done in that particular season. Learners will develop the skill of relating events, situations and phenomena to their cause.

Suggested Teaching and Learning Materials:

- **Artificial Materials:** hat, umbrella, coat, sun glasses, scarf, gloves.

Learning Environment set-up:

- Outside the Classroom (Natural Environment)

Teacher's Roles:

- Take the learners outside and ask them how the day is.
- Collect different objects/ items that are used in different seasons of the year (e.g., hat, umbrella, coat, sun glasses, scarf, gloves).
- Put all the collected objects/ items in one place.
- Ask a learner to pick an item and demonstrate how to use it.
- Ask the other learners to mention the season in which the item that was picked is used.



LEARNER ACTIVITY

- Picking an item and demonstrate how to use it.
- Mentioning the season in which the item that was picked is used.



ASSESSMENT GUIDE

- Observe learners as they demonstrate how to use the item they have picked.
- Listen to the learners as they mention the season in which the picked item is used.



SKILLS DEVELOPED

Communication, analytical thinking, observation, fine and gross motor skills.

Activity 6.2: Season Identification Story

This activity requires learners to identify the season from the story. The activity will help learners remember and recall important details such as characteristics, events and sequence of seasons in Zambia.

Suggested Teaching and Learning Materials:

- **Artificial Materials:** Pictures of things found in each particular season.

Learning Environment set-up:

- Classroom Environment (Artificial Environment)

Teacher's Roles:

- Create stories about activities that are done in each season (hot season– wearing sunglasses, hats; wet season - wearing rain coats, carrying umbrellas; cold season – wearing coats, gloves, scarfs).
- Tell learners a story about each particular season.
- Ask learners to identify activities done in the season according to the story.

- Ask learners to identify the season by relating it to the activities that are done in that season.
- Note: use a puppet when telling a story. In case the puppet is not available, use a sock.



LEARNER ACTIVITY

- Listening to the story told by the teacher.
- Identifying the activities done in the season according to the story (hot season – wearing sunglasses, hats; wet season - wearing rain coats, carrying umbrellas; cold season – wearing coats, gloves, scarfs).
- Identifying the season by relating it to the activities that are done in that season.



ASSESSMENT GUIDE

- Observe learners as they listen to the story.
- Evaluate learners' attention by asking them questions as the story is being told.



TIPS

- Incorporate gestures to ensure learners are attentive when telling the story.



SKILLS DEVELOPED

Communication, analytical thinking, observation, comprehension.

Activity 6.3: identifying Seasons

This activity requires learners to mention the season by relating the activities done by people in different seasons. The activity will enhance the learners' understanding of weather changes brought about by changes in the seasons.

Suggested Teaching and Learning Materials:

- **Artificial Materials:** Projector, computer, phone or pictures.

Learning Environment set-up:

- Classroom environment (Artificial Environment)

Teacher's Roles:

- Find a video which shows different activities done by people in different seasons (e.g. wearing of coat, gloves, hat, scarf, carrying an umbrella).
- Set the projector to display activities done by people during different seasons.
- Show learners different activities done by people in different seasons in the video (e.g. wearing of coat, gloves, hat, scarf, carrying an umbrella).

- Ask the learners to mention the season corresponding to the activities shown in the video.
- Note: Use as many examples as possible for seasonal activities done in the area where learners are found (farming, fishing, hunting, ceremonies etc).



LEARNER ACTIVITY

- Watching the video showing people performing different activities.
- Mentioning the season corresponding to the activities shown in the video.



ASSESSMENT GUIDE

- Observe learners as they identify and mention the season corresponding to the activities shown in the video.



TIPS

- Ensure that every learner takes part in the activity.



SKILLS DEVELOPED

Communication, collaboration, analytical thinking, observation and comparison.

LEARNING ACTIVITY 7:

Observing Weather Changes

In this activity learners will observe weather changes. The following are some activities you can use to teach learners based on their abilities and your environment.

Hook: “*Why are you wearing / not wearing a jersey today?*”

Activity 7.1 Observing Weather changes during Nature Walk

This activity requires learning to take place both outside and inside the classroom environment to explore both environments (artificial and natural environments). It will encourage learners to observe and notice changes in their environment. Which in turn can foster curiosity and encourage learners to ask questions about the world around them.

Suggested Teaching and Learning Materials:

- **Artificial Materials:** weather chart, pictures or objects related to different weather conditions.
- **Technological Materials:** Tablet, smartphone

Learning Environment set-up:

- Natural environment. (outside the classroom)

Teacher's Roles:

- Make a simple weather chart with pictures or symbols for different weather conditions (e.g., sunny, cloudy, rainy, windy).
- Start with the hook to connect this activity. (Note: *use the hook depending on the weather pattern for the day*).
- Take learners on a short walk outside to observe weather conditions.
- Ask learners the following questions:
 - ☑ “What can we see in the sky today?”
 - ☑ “Have you ever seen a big, fluffy cloud?”
- After making observations take learners back to the classroom and receive feedback about what they observed.
- Show a simple weather forecast on a tablet or smartphone or show different pictures of different weather conditions to introduce the concept. (e.g., sunny, rainy, windy).
- Ask learners to stick different pictures against pictures on the weather chart according to what they saw outside

**LEARNER ACTIVITY**

Taking a short walk outside the classroom

- Observing weather conditions outside the classroom environment.
- Getting back to classroom and giving feedback on what they saw outside
- Sticking the correct picture about what they observed outside on the weather chart

**ASSESSMENT GUIDE**

- Observe how learners actively participate in the weather chart activities (e.g., Are they identifying weather types correctly?)

**TIPS**

- Encourage learners not touch or smell plants, flowers or any other objects that may be harmful.

**SKILLS DEVELOPED**

Communication, Collaboration, Fine motor skills and creativity.

Activity 7.2: Weather Sorting game

This activity helps learners learn about weather conditions through sorting. This includes sunny, rainy, windy, and cloudy days, which is foundational for scientific understanding. This activity promotes critical thinking, problem-solving, and categorization skills while introducing learners to different weather conditions.

Suggested Teaching and Learning Materials:

Artificial Materials:

- Flashcards depicting different weather conditions (sunny, rainy, cloudy, windy)
- Weather-Related Objects (Small toy umbrellas, sunglasses, hats, gloves, rain boots, picture of clouds, etc.)

Learning Environment set-up:

- Artificial environment (inside classroom)

Teacher's Roles:

- Set-up different stations for different weather conditions in class.
- Show learners images or objects representing sunny, rainy, windy, and cloudy days.
- Present the weather-related objects and pictures to learners.
- Ask learners to sort them into categories (e.g., sunny items with sunglasses, rainy items with umbrellas etc.).
- Ask learners to place the weather objects in the correct designated area of the classroom.
(Note: Set corners for different weather conditions)
- Ask learners questions such as
 1. "What would you wear on a rainy day?" or
 2. "What do you see outside when it's windy?"



LEARNER ACTIVITY

- Sorting the weather-related objects and pictures into categories (e.g., sunny items with sunglasses, rainy items with umbrellas etc.)
- Placing weather objects in the correct designated area of the classroom



ASSESSMENT GUIDE

- Observe learners sorting the weather-related objects and pictures into categories (e.g., sunny items with sunglasses, rainy items with umbrellas...)
- Observe learners Placing weather objects in the correct designated area of the classroom.



TIPS

- Choose materials that are non-toxic
- Ensure that small objects, such as weather symbols or pictures, are not a choking hazard.

**SKILLS DEVELOPED**

Fine motor skills, collaboration, communication and creativity skills

Activity 7.3: Weather Scavenger Hunt

A Weather Scavenger Hunt is a fun and engaging outdoor activity that helps learners with weather concepts in an interactive way. This activity helps develop an understanding of weather patterns, natural observations, and enhances their cognitive and motor skills.

Suggested Teaching and Learning Materials:**Artificial Materials:**

- Pictures/illustrations showing different weather conditions (e.g., clouds, rain, wind).
- Clipboards and Markers

Learning environment set-up:

- Natural Environment (the playground, a schoolyard, or nearby park)

Teacher's Roles:

- Decide on the weather-related items to be included in the scavenger hunt. Examples include sunny skies, clouds, wind, rain, puddles, etc.
- Prepare a simple scavenger hunt checklist in terms of pictures
- Hide the pictures on the checklist in different places.
- Show learners how to identify basic weather characteristics, such as noticing if the sky is clear (sunny), or if it's raining (rainy)
- Divide learners into small groups or pairs, each with a scavenger hunt checklist.
- Let the learners explore the outdoor area to look for weather characteristics on the checklist.
- The first group to find all the pictures on the checklist should be appreciated.

**LEARNER ACTIVITY**

- Exploring the outside environment
- Looking for and identifying various weather conditions pictures (e.g. sunny, cloudy, windy, rainy).
- Marking off the items they find on the checklist

**ASSESSMENT GUIDE**

- Observe how well learners are engaging with the task. Are they able to identify weather conditions on the checklist? Are they working well with their peers?
- Evaluate each group's checklist to ensure they identified the weather conditions correctly.
- Have a group conversation where learners share their findings?
- Ask open-ended questions about their observations (e.g., "What did you notice about the wind today?").



TIPS

Ensure safety, especially if the weather conditions are not ideal for outdoor activity (e.g., avoid extreme temperatures, lightning, or severe coldness).



SKILLS DEVELOPED

Collaboration, Observation skills, Critical Thinking, Communication, gross motor skills and fine Motor Skills.

LEARNING ACTIVITY 8:

Seasonal Playground Adventure

This activity is about Comparing pictures of the same place during different seasons. This activity promotes observation, comparison, and communication skills in learners while introducing them to basic seasonal concepts. It fosters curiosity about the natural world and encourages learner to make connections between what they see and the time of year.

Hook: *“look at the two pictures of our playground! one is sunny and happy and the other one is wet and cold. Can you find the differences?”*

Suggested Teaching and Learning Materials:

- **Artificial Materials:** Two pictures of the same place in two different seasons

Learning Environment set-up:

- Artificial environment (Inside classroom)

Teacher’s Roles:

- Start with a hook to allow learners to look at two different pictures.
- Show learners two pictures of the same place, one from the rainy season and one from the dry season.
- Ask learners to look at the pictures.
- Ask learners to point out the differences between two pictures of the same place, one from the rainy season and one from the dry season



LEARNER ACTIVITY

Looking at the two pictures of the same place, one from the rainy season and one from the dry season

- Pointing out the differences two pictures of the same place, one from the rainy season and one from the dry season

**ASSESSMENT GUIDE**

- Observe learners to point out the differences and similarities between the two pictures of the same place, one from the rainy season and one from the dry season
- Evaluate learners' ability to say what they noticed about the changes in the place's appearance. For instance, "What happened to the trees when it was rainy?" or "What happens to the grass when it's dry?"

**SKILLS DEVELOPED**

Critical Thinking, Observation skills, Collaborative skills, communication skills, creativity, fine motor skills.

LEARNING ACTIVITY 9:**Understanding why some changes happen over time**

This activity is about exploring why some changes happen over time in terms of the weather, day or the sky. This activity is designed to help learners appreciate that things change over time for instance, growing, moving and getting older. Similarly, the weather changes over time because of things like the sun shining, clouds moving, and seasons coming and going. Sometimes it's sunny, sometimes it's rainy, and sometimes it's cold or hot.

Hook: "Let's look out the window! What is the sky like today? Is it sunny, cloudy or rainy?"

Suggested Teaching and Learning Materials:

- **Artificial Materials:** Pictures of different weather conditions (e.g. sunny, cloudy, or rainy)
- **Technological Materials:** Tablet, smartphone, laptops (video showing a sunny day or rainy day or cloudy day)

Learning Environment set-up:

- **Artificial Environment** (inside classroom)
- **Natural Environment** (outside the classroom)

Note: the environment set-up for the activity depends of the weather for the day. You can chose an appropriate environment depending on the weather.

Teacher's Roles:

- Start with the hook to connect to this activity
- Show learners pictures or video of different weather conditions (e.g. sunny, cloudy, or rainy)
- Ask learners to identify some changes.
- Ask simple questions, such as "What's the sky like today?" or "What was the sky like yesterday?"



LEARNER ACTIVITY

Identifying some changes in the pictures or video shown.



ASSESSMENT GUIDE

- Observe learners identifying changes in the pictures or video shown.
- Evaluate the responses provided by the learners



SKILLS DEVELOPED

Communication, Collaboration, Observation, Critical thinking

LEARNING ACTIVITY 10:

Our changing environment

This activity is about recognising the effects of climate change on the local environment. This activity promotes observation, critical thinking, and creativity in learners while introducing them to basic climate change concepts.

HOOK: *“Hey dear learners! Do you know what is happening to ur environment? It’s getting warmer, colder and that is changing our world. Let’s look at what is happening and how it affects us!”*

Suggested Learning Materials:

- **Technological Materials:** Tablets, phones, computers for showing changes in the local environment, such as changes in plant growth, animal habitats, or weather patterns in terms of sunny or cold
- **Natural Materials:** plants, animal habitats

Learning Environment set-up:

- **Artificial Environment:** classroom
- **Technological Environment:** Computers, smartphones,
- **Natural Environment:** outside classroom

Teacher’s Roles:

- Introduce the activity using the hook
- Take learners on a nature walk to observe changes in the local environment, such as changes in plant growth, animal habitats, or weather patterns in terms of sunny or cold
- Show learners a short video illustrating climate change effects caused by human activities. (e.g., floods, animals and crops dying due to extreme temperatures, streams drying up).
- Ask learners to say what they have observed and how it might be related to climate change.



LEARNER ACTIVITY

Taking a nature walk to observe changes in the local environment, such as changes in plant growth, animal habitats, or weather patterns in terms of sunny or cold

- Watching a short video illustrating climate change effects caused by human activities. (e.g., floods, animals and crops dying due to extreme temperatures, streams drying up).
- Mentioning what they observed and how it might be related to climate change.



ASSESSMENT GUIDE

- Observe learners taking a nature walk to identify changes in the local environment, such as changes in plant growth, animal habitats, or weather patterns in terms of sunny or cold
- Show learners a short video illustrating climate change effects caused by human activities. (e.g., floods, animals and crops dying due to extreme temperatures, streams drying up). Ask learners open ended questions about what they have seen on climate change in the video
- Evaluate learners saying what they observed and how it might be related to climate change



SKILLS DEVELOPED

Communication Skills, Problem-Solving Skills, collaboration, critical Thinking.

Expected Standard:

- Time told accordingly

Summative Assessment Guide

This summative assessment guide is suggested to evaluate learners' understanding and application of the concepts learned, while also promoting creativity and critical thinking.

1. Time Telling: Create a poster or chart showing a typical day, with pictures or illustrations of activities and corresponding times (e.g., breakfast)
2. Days of the Week: Create a calendar or chart showing the days of the week, with pictures or illustrations of activities or events associated with each day
3. Day and Night: Create a model showing the characteristics of daytime (sun) and nighttime (moon, stars)
4. Nature Patterns: Collect natural materials (e.g., leaves, sticks, rocks) and create patterns or designs
5. Seasons in Zambia: Create a poster or chart showing the different seasons in Zambia (cold, hot, and wet), with pictures or illustrations of activities or events associated with each season

6. Weather Changes: Observe and record changes in the weather over time, using pictures or illustrations
7. Comparing Seasons: Compare pictures of the same place during different seasons and discuss why some changes happen over time

Assessment Criteria:

- Accuracy: Accuracy in telling time, identifying days of the week, and recognizing characteristics of daytime and nighttime
- Creativity: Creativity in creating patterns using natural materials
- Understanding: Understanding of the seasons in Zambia,



KEY LEARNING POINTS

Time and Daily Routines:

- Telling time using activities of the day (e.g., breakfast at 8:00 am)
- Identifying the days of the week and associating them with activities or events

Day and Night:

- Recognising the features of daytime (sun) and nighttime (moon, stars)
- Identifying visible components of day and night

Nature and Patterns:

- Creating patterns using natural materials (e.g., clouds, shadows)
- Observing and describing natural phenomena (e.g., weather changes)

Seasons in Zambia:

- Recognising the seasons in Zambia (cold, hot, and wet)
- Associating activities or events with each season
- Comparing pictures of the same place during different seasons

Climate Change:

- Recognising the effects of climate change in the local environment
- Discussing why some changes happen over time

TOPIC 4: Understanding Materials

Introduction

The topic Understanding materials provides learners with a chance to explore different materials in the local environment. It will help learners to discover the different types of materials that surround us, from the softness of fabric to the hardness of metal. You can think of all the different materials you use every day. Materials are a fundamental building block of our modern world, surrounding everything from the natural resources that surround us to synthetic substances that power our technologies. This topic aims to engage learners and encourage them to think about the materials they encounter, setting the stage for a fun and interactive learning experience focused on understanding materials.

Key Competences:

- Analytical thinking
- Critical thinking
- Communication
- Collaboration

Sub-Topic 1: Shapes and Patterns

Introduction

Shapes and Patterns is a fundamental concept in mathematics and art that involves recognising, creating, and understanding various shapes and patterns. It is all about exploring and discovering the relationships between different shapes, colours and design. Shapes are self-contained areas with boundaries, such as squares, circles, triangles and rectangles. Shapes can be found in various forms in our daily lives, from the sun in the sky to the wheels on a car. Patterns are repeated sequences of shapes, colours, or objects which help learners develop predictive thinking as they learn to anticipate what comes next. Patterns can be found in nature, art, music, and everyday life. By exploring shapes and patterns, learners can develop essential skills, build creativity, and lay the foundation for more advanced mathematics and art concepts.

Specific Competence

- Create simple shapes



KEY TERMS

- **Shapes-** are self-contained areas with boundaries, edges and corners.
- **Patterns-** repeated sequence or arrangement of objects according to colour, shapes or other elements.
- **Sorting-** process of arranging items based on defined criteria.
- **Matching-** the process of identifying and pairing identical or similar objects, shapes, colours or patterns.
- **Grouping-** process of organizing items into categories based on shared characteristics.

Key Concepts

- Shapes
- Patterns

Learning Activities

These learning activities are designed to engage learners in a fun and interactive way, promoting shape recognition, pattern understanding, and creativity. There are seven learning activities that will be used to help learners to explore different materials in the local environment.

LEARNING ACTIVITY 1:

Exploring different materials in the local environment-Nature walk

This activity is a nature walk adventure. It is designed to help learners to explore the amazing materials that surround us in our local environment. As they walk, guide them to keep their eyes peeled for different textures, colours, and shapes. What materials can they find? How are they used in nature? Let the learners discover the wonders of the natural world together. This activity aims to spark curiosity and encourage young learners to engage with their surroundings, setting the stage for a fun and interactive learning experience focused on exploring different materials in the local environment.

HOOK: *“Let’s go on a treasure hunt! What hidden treasures can we find in our own backyard or garden? Today, we are going on an adventure to look for amazing materials that surround us; from leaves to stones to soil.”*

Suggested Teaching And Learning Materials

- **Natural materials:** Leaves, stones, sticks, plants...

Learning Environment set up:

- outside classroom or any safe place outside the classroom

Teacher’s Roles:

- Start with the hook to connect to the activity
- Take the learners outside for nature walk. Take learners on a short nature walk outside the classroom to explore and collect various local materials
- Ask the learners to collect the materials (stones, leaves, sticks, flowers) of their choice and manipulate them.
- Ask the learners to mention the colours of the materials they picked (red flower picked – response is red, yellow flower picked – response is yellow).
- Ask the learners to describe the texture of the materials (e.g., the stone is rough/ smooth, the flower is soft).
- Ask learners to pick stones of different sizes and tell which one is heavy and light (e.g., the bigger stone is heavier than the smaller one, the smaller stone is lighter than the bigger one).

**LEARNER ACTIVITY**

- Taking a nature walk
- Collecting and manipulating materials picked from the local environment
- Mentioning the colours of the materials they have picked from the local environment (e.g., red leaf, yellow flower).
- Describing the texture of the materials they have picked (e.g., rough stone, smooth/ soft flower).
- Picking stones and telling which stone is heavier/ lighter and bigger/ smaller.

**ASSESSMENT GUIDE**

- Observe the learners as they are manipulating the materials.
- Evaluate the responses from learners in terms of; (rough/ smooth, soft/ hard, smaller/ bigger).

**TIPS**

Clear the place from all objects that can be dangerous to learners.

**SKILLS DEVELOPED**

Critical thinking, analytical thinking, communication, problem solving, memory, concentration, fine and gross motor skills and hand-eye coordination.

LEARNING ACTIVITY 2:

Constructing shapes using various materials.

This activity is about constructing shapes. It is designed to help learners to use all sorts of materials like blocks, sticks, and even playdough to construct different shapes. This activity aims to spark curiosity and creativity, setting the stage for a fun and interactive learning experience focused on constructing shapes using various materials.

Activity 2.1: Making shapes using natural materials

This activity is designed to help learners explore the local environment to pick natural materials and make different shapes. Learners are expected to use natural materials like leaves, sticks, and rocks to make different shapes. This activity aims to spark curiosity and creativity, setting the stage for a fun and interactive learning experience focused on making shapes using natural materials.

Suggested Teaching and Learning Materials:

- **Natural Materials:** Stones, leaves, sticks, clay

Learning Environment set up:

- School surroundings (Natural environment)

Teacher's Roles

- Take learners outside the classroom/ any safe place within the school surroundings
- Collect various natural materials from the environment such as Stones, leaves, sticks, clay...
- Asks learners to make different shapes (circle, rectangle, square) out of the natural materials provided (sticks, leaves, stones, clay).



LEARNER ACTIVITY

- Going outside the classroom.
- Making different shapes (circle, rectangle, square) using the natural materials provided



ASSESSMENT GUIDE

- Observe learners as they make different shapes out of natural materials.
- Ask learners to relate the shape made to the artificial materials provided.



SKILLS DEVELOPED

Critical thinking and problem solving, analytical thinking, communication and vocabulary, shape recognition and identification, fine motor skills and hand-eye coordination

Activity 2.1: Constructing shapes using stones and bottle Tops

This activity is designed to give an opportunity to learners to use variety of materials to construct shapes. Learners will use stones and bottles tops to make shapes. Other materials such as blocks, sticks, and even playdough can be used to construct different shapes. This activity will help learners develop more understanding of shapes and develop their fine and gross motor skills as they will be constructing using stones and bottle tops.

Suggested Teaching and learning Materials:

- **Natural Materials:** Stones of different sizes,
- **Artificial Materials:** Bottle tops of different colours

Learning Environment set up:

- **Natural Environment:** Any safe place outside the classroom

Teacher's Roles:

- Provide the suggested materials stones of different sizes and bottle tops of different colours
- Take learners outside the classroom.
- Put learners in groups and give them stones of different sizes and bottle tops of different colours.
- Ask the learners to construct shapes (circle, square, rectangle, triangle) using the provided stones and bottle tops following a pattern. Alternating colours of bottle tops will be very attractive.



LEARNER ACTIVITY

- Going outside the classroom.
- Constructing shapes (circle, square, rectangle) using the stones and bottle tops in groups according to patterns of their choice



ASSESSMENT GUIDE

- Observing learners as they are constructing shapes
- Evaluate the shapes made by learners



SKILLS DEVELOPED

- Collaboration, communication, critical thinking, analytical thinking, fine and gross motor skills.

LEARNING ACTIVITY 3:

Making lines using real objects

This activity is developed to explore the world of lines. Using everyday objects, learners will discover how to create different kinds of lines and shapes. This activity aims to generate excitement and curiosity, setting the stage for an engaging and interactive learning experience. Lines are all around us and we can find them in nature, art, and even in our homes. By using real objects, we will discover how to create straight lines, curved lines and more. There are two sub -activities which learners should engage in making lines using real objects.

HOOK: *“Let’s make a masterpiece! Can you show me how to make a straight line using sticks / straws? What other onbjects can we use to make different kinds of lines?”*

Activity 3.1: String and Rope Lines

Manipulating strings and ropes will help learners develop their fine motor skills and also it will allow learners to think creatively and explore different possibilities.

Suggested Teaching and Learning Materials:

- **Natural Materials:** sticks, stones, fiber, maize seed
- **Artificial Materials:** string/straws, rope (bottle tops, shoelace, sand, ruler, bowl, plate, water bottle, coin)

Learning Environment set-up:

- School surroundings (Natural environment)
- classroom building/any suitable safe space (Artificial environment)

Teacher's Roles:

- Provide learners with strings/straws and ropes
- Place the string on the floor or a table to form straight, wave, or looped lines.
- Introduce the activity by referring to the hook stated above
- Ask learners to make lines and patterns using different real objects
- Repeat the process with multiple real objects (bottle tops, plates, water bottles, coins, bowls, yarn, shoelace, sand box, sticks, stones, fiber, maize seed).
- Ask learners to make different lines.



LEARNER ACTIVITY

- Making lines and patterns using different real objects



ASSESSMENT GUIDE

- Observe learners making the lines using different real objects provided
- Evaluate the lines made by learners using different real objects



SKILLS DEVELOPED

Collaboration, communication, creativity and hand-eye coordination

Activity 3.2: Making Stone and Shell Paths

This activity is designed to engage learners in a fun and interactive way, promoting creativity, fine motor skills, and an understanding of patterns and geometry. This activity will help learners demonstrate fine motor skills in manipulating materials such as stones and shells. Similarly, learner will demonstrate problem-solving skills in making the paths.

Suggested Teaching and Learning Materials:

- **Natural Materials:** stones, beans, sand, leaves
- **Artificial Materials:** egg shells, bottle caps, sandbox

Learning Environment set-up: School surroundings or classroom building/any suitable safe space (Natural or Artificial Environment)

Teacher's Roles

- Prepare a flat surface (floor, outdoor ground, sandbox or a large tray with sand, water spray bottle)
- Provide the suggested materials or any other suitable materials
- Ask learners to make a path using stones and shells on paper or in a sandbox
- Demonstrate to the learners how to create different patterns and designs using the materials
- Let the learners arrange the objects to make different types of lines.
- Ask learners to create pathways using straight or curved designs
- Guide learners to place stones in a row to form the main path
- Let the learners add shells along the sides or mix them with stones for patterns

**LEARNER ACTIVITY**

- Making paths using stones and shells on paper or in a sandbox
- Arranging the objects to make different types of lines.
- Making pathways using straight or curved designs
- Adding shells along the sides or mix them with stones for patterns

**TIPS**

Teacher to ensure the learning environment is safe and free from hazards

**ASSESSMENT GUIDE**

- Observing learners during making of paths
- Evaluating the final paths made
- Ask learners to reflect on their paths made

**SKILLS DEVELOPED**

Problem – solving, creativity, critical thinking and fine motor skills.

LEARNING ACTIVITY 4:**Creating 2 Dimensional (2D) Shapes Diagrams**

This activity is about helping learners understand and recognize basic 2D shapes (circle, square, rectangle, triangle etc.). They will also develop an understanding of sides and corners. This activity will help learners explore the world of 2D shapes. Using various materials, learners will make diagrams to learn about different shapes, such as squares, circles, and triangles. This activity aims to generate excitement and curiosity, setting the stage for an engaging and interactive learning experience focused on 2D shapes and geometry

HOOK: “Let’s make shapes! “Can you find the shapes in this picture? Let’s use blocks, stickers, or drawings to create our own (2D) shapes! What kind of shape can you make with three sides?”

Activity 4.1: Shape collage with coloured paper

This activity is about making shapes and designs using colorful paper. This activity aims to generate creativity, setting the stage for a fun and interactive learning experience focused on shapes and collage art. Working with different shapes and colors helps learners to identify and name basic shapes (circle, square, triangle, rectangle) and it allow learners to experiment making different designs and patterns.

Suggested Teaching and Learning Materials:

- **Artificial Materials:** Coloured paper scissors, glue and a large paper/ box, pictures of cut out of basic Two-dimensional (2D) shapes (circle, square, triangle, and rectangle)

Learning Environment set-up:

- School surroundings (Natural environment)
- Classroom building/any suitable safe space (Artificial Environment)

Teacher’s Roles:

- Prepare the colored papers on the floor
- Put learners in their small groups
- Provide learners with pictures of cut out of basic 2D shapes (circle, square, triangle, and rectangle) from the colored paper.
- Give learners a large sheet (e.g. manila, cut box) and let them arrange the shapes to create a picture (e.g. a house and a human body using all the 2D shapes).
- Introduce the activity using the hook stated above
- Have learners glue the shapes down and discuss the names and properties of each shape
- Ask learners to make 2 different collages.



LEARNER ACTIVITY

- Arranging the shapes to create a picture (e.g. a house and a human body using all the 2D shapes).
- Gluing the shapes down and discuss the names and properties of each shape
- Making 2 different collages.



ASSESSMENT GUIDE

- Evaluate learners making a collage
- Observe learners describing their collage and the objects used

**SKILLS DEVELOPED**

Creativity, collaboration, communication, Fine Motor Skills and problem solving

LEARNING ACTIVITY 5:**Making 3 dimensional (3D) shapes**

This activity looks at Three-dimensional (3D) shapes in a fun and hands-on way. This activity aims to spark curiosity and creativity, setting the stage for an engaging and interactive learning experience focused on 3D shapes. Three-dimension shapes are solid objects that have three dimensions: length, width and height. This activity is about helping learners understand and recognize basic 3D shapes (building blocks, a ball, a box etc.). It can also help learners develop an understanding of sides.

HOOK: *“Let’s build and create! Today, we are going to make three dimensional (3D) shapes using different materials like blocks, clay or paper. Can you imagine building a cube, a sphere or a pyramid?”*

Activity 5.1 Build with Blocks

This activity designed to help learners use blocks to build amazing structures such as a tall tower, a long bridge, or house. This activity provides an opportunity to use their imagination and problem-solving skills to build something interesting. This activity helps learners develop self-confidence and self-esteem through their creations and also to persevere and try again when faced with challenges.

Suggested Teaching and Learning Materials:

- **Artificial Materials:** blocks, bottle tops, boxes

Learning Environment set-up:

- School surroundings (Natural environment)
- Classroom building/any suitable safe space (Artificial environment)

Teacher’s Roles:

- Provide building blocks of different 3D shapes, size and color
- Put the learners in to two groups
- Introduce the activity using the hook stated already
- Let the learners stack, sort and create structures while discussing the shapes
- Encourage learners to build specific structures, such as (a bridge, a castle, house)
- Ask learners to use different coloured blocks to add texture and interest.
- Ask learners to describe their creations and to explain their building process.

**TIPS**

Demonstrate how to stack and connect blocks to make a structure where necessary



LEARNER ACTIVITY

- Stacking, sorting and making structures while discussing the shapes
- Building specific structures, such as (a bridge, a castle, house)
- Using different colored blocks to add texture and interest.
- Describing what they have made



TIPS

- Ask open ended questions to the learners to test their understanding such as
- Why have you decided to build such?
- How tall should the building be?
- What shape do you think this block will make?



ASSESSMENT GUIDE

- Observe manipulate blocks and interact
- Assess social cooperation in group session



SKILLS DEVELOPED

Creativity, collaboration, communication, fine motor skills and problem solving skills

Activity 5.2: Clay and soil Shape Molding

This activity will help the learners appreciate 3D shapes. This activity is designed to help learners mold and shape clay and soil into amazing 3D creations. Learners should be allowed explore and have fun with clay and soil shape molding. This activity aims to generate excitement and creativity, setting the stage for a fun and interactive learning experience focused on shape molding and creativity.

Suggested Teaching and Learning Materials:

- **Natural Materials:** Clay, mud or wet soil (easily moldable, sticks, leaves, or seeds for decorating)

Learning Environment set-up:

- School surroundings (Natural environment)

Teacher's Roles

- Provide learners with clay or soil and various shaping tools to explore different textures and shapes.
- Allow the learners to mix clay or mud with a bit of water until its soft and easy to shape
- Ask the learners mold the ball and a hut and press patterns into the shapes using tools like sticks, leaves, or seeds
- Allow the shapes made by the learners to dry in the sun

**LEARNER ACTIVITY**

- Exploring with the natural materials (clay, water, soil, etc.)
- Molding the ball and the hut to form 3D shapes
- Decorating by pressing patterns into shapes using natural tools

**TIPS**

- After the activity, let learners explain which shapes they made, how they made them, and how they identified the shapes (e.g. “my ball is round with no edges.”).
- Use clean and natural materials (free from sharp objects)
- Always do the activity under adult supervision, especially when using tools or water

**ASSESSMENT GUIDE**

- Observing learners during the molding process
- Evaluating the final creation and process used
- Asking learners to reflect on their creation and process

**SKILLS DEVELOPED**

Collaboration, Creativity, Critical thinking, Fine motor skills,

LEARNING ACTIVITY: 6

Comparing shapes of different materials according to size and colour

This activity is designed to help learners to explore and compare different shapes made from various materials, like blocks, foam, or paper. Ask learners questions like: Which shape is bigger or smaller? Which colour is brighter or darker. This activity aims to generate excitement and curiosity, setting the stage for an engaging and interactive learning experience focused on comparing shapes by size and colour. This activity is all about comparing shapes according to size and colour. The activity will help learners develop critical thinking, problem solving and comparing skills.

HOOK: *Which one is bigger - the red square or the blue circle? Let's look and compare shapes made of different materials, like blocks, foam, or paper, and see how they differ in size and colour!"*

Activity 6.1: Shape Comparison

This activity is designed to engage learners in a fun and interactive way, promoting critical thinking, problem-solving, and an understanding of shape properties. Shape pattern is an activity of recognising, creating and extending patterns that involves both colour and different sizes.

Suggested Teaching and Learning Materials:

- **Artificial Materials:** Cut outs and small boxes of different shapes, sizes and colour.

Learning Environment set up: Classroom/Outside classroom on a safe space.

Teacher's Roles:

- Provide learners with a set of shapes and ask them to sort by size, colour, or material.
- Introduce the activity using the hook stated above
- Ask learners to compare specific shapes and answer questions like: Which shape is bigger or smaller? Which colour is brighter or darker?



TIPS

Use everyday objects to demonstrate shape comparison in real-world contexts.



LEARNER ACTIVITY

- Comparing specific shapes
- Responding to questions such as:
 1. Which shape is bigger or smaller?
 2. Which color is brighter or darker?



ASSESSMENT GUIDE

- Observe learner's participation and engagement during the activity
- Observe the learner's ability to complete the pattern correctly considering colour and size
- Ask learners to say the process of completing the pattern in order to find out their understanding and critical thinking.
- Use the record card to record the feedback from learners



SKILLS DEVELOPED

Communication, Analytical thinking, Cognitive thinking, problem solving.

Activity 6.2 Shape Relay Game

This activity is developed to enable learners play a Shape Relay game; where they will run, identify, and match different shapes. Learners will respond to questions such as; Can you recognise a square, circle, or triangle? Allow learners to work together as a team and see who can complete the relay first. A shape relay is a physical game that learners can do to compare shapes by colour and size. It helps learners to develop physically and builds confidence and team work. This activity aims to generate excitement and energy, setting the stage for a fun and interactive learning experience focused on shape recognition and teamwork

Suggested Teaching and Learning Materials

- **Artificial Materials;** Shape cards, or pictures, cones or markers

Learning Environment set-up:

- School surroundings or any safe space outdoor

Teacher's Roles:

- Set up the relay area with cones or markers
- Put the learners into two manageable teams. A learner from each team to run and pick a shape and places it in a correct box according to colour and size.
- A team which finishes first wins the relay.
- Place boxes of different sizes and colour
- Ask learners to place the shapes on different sizes and colours in the boxes



LEARNER ACTIVITY

- Running to a point where the shapes are, pick the shapes and place them in the boxes provided according to colour and size
- A team finishing first wins the shape relay game



ASSESSMENT GUIDE

- Observe how the learners are participating in the relay
- Ask the learners questions during the relay to find out their understanding of shapes
- Observe the learners progress during the activity and record feedback on the color and size of shape identification on the learners check list provided



SKILLS DEVELOPED

Communication, collaboration, problem solving and analytical thinking.



TIPS

- Ensure the surface is smooth and safe for learners to use. Ensure learners to switch roles when carrying out activities.
- Ask each team to explain why the sorting was done the way they did and clear all the misconceptions

LEARNING ACTIVITY: 7

Tracing and drawing shapes using different materials

This activity is designed to help learners explore different shapes by tracing and drawing them with various materials like crayons, markers, and paint. This activity allows learners to experiment and see what amazing shapes they can make. Therefore, this activity aims to spark creativity and curiosity, setting the stage for a fun and interactive learning experience focused on shape recognition and artistic expression. The activity helps learners to develop fine motor skills, hand eye coordination and creativity.

HOOK: *“Let’s get creative! Can you draw a circle, square, or triangle? Let’s experiment and see what amazing shapes we can make!”*

Activity 7.1 Sand tracing and drawing

This activity is designed help learners explore the world of shapes by tracing and drawing them in the sand. This activity aims to generate excitement and curiosity, setting the stage for a fun and interactive learning experience focused on shape recognition and creative expression. Sand tracing and drawing is an interactive activity that learners can do to create designs patterns and shapes in the sand using different tools or fingers.

Suggested Teaching and Learning Materials

- **Natural Materials:** Sticks, fingers, sand
- **Artificial Materials:** Trays, shape templates

Learning Environment set - up:

- classroom (artificial environment)
- School surroundings or any safe space outdoor (natural envirnemnt)

Teacher’s Roles:

- Prepare the material and demonstrate to trace and draw in the sand using the template and stencils
- Allow learners to explore and play with the sand, getting familiar with its texture
- Provide shape cards or examples and ask learners to trace the shapes in the sand using various tools
- Encourage learners to create their own designs and patterns in the sand



LEARNER ACTIVITY

Learners in groups tracing and drawing shapes in the sand using sticks or fingers

**ASSESSMENT GUIDE**

- Observe learners fine motor skills during the activities
- Ask the learners about the work and the process they used
- Record the feedback on the checklist provided

**SKILLS DEVELOPED**

Communication, collaboration and fine motor skills

Activity 7.2 Shape Art Exploration

This activity is designed to take learners on a shape art adventure. Learners will explore different shapes, colours, and textures to make amazing artworks. You can help learners to make a shape collage, paint a geometric design, or draw a shape-inspired picture. This activity aims to spark imagination and excitement, setting the stage for a fun and interactive learning experience focused on shape recognition, creativity, and artistic expression. This is an activity that is done by interacting with materials, it helps learners develop creativity, fine motor skills through tracing and drawing.

Suggested Teaching and Learning materials:

- **Natural Materials:** Beans, Rice, Sand, charcoal.
- **Artificial Materials:** Shapes templates (circle, square, rectangle, triangle) crayons, pencils, play, glitters, powder paint

Learning Environment set up:

- Classroom (Artificial environment)
- School surroundings or any safe space outdoor (Natural environment)

Teacher's Roles:

- Make shape templates using card boxes by cutting card boxes into shapes (circle, triangle, square and rectangle)
- Set up stations for tracing and drawing, considering the number of the learners
- Show learners the different materials for tracing and drawing
- Demonstrate how to trace and draw using the materials provided
- Ask learners to trace shapes using sand, rice or beans on the tracing station
- Ask learners to draw shapes on drawing station using the pencil, crayons, play dough
- Ask learners to sprinkle some glitters or powder or paint to beautify the shapes
- Allow learners to explore and switch between tracing and drawing stations

**LEARNER ACTIVITY**

- Tracing by passing the pencil or crayon outside the shape template
- Drawing shapes by pouring the sand on rice to make the space that was left from the shape cutout different
- Pouring some glitters or powder or paint to beautify the shapes



ASSESSMENT GUIDE

- Observe how the learners are using the tracing and drawing tools
- Observe the learner's creativity and imagination
- Observe learners during the activity to assess their problem solving and critical thinking skills.
- Ask learners questions to find out whether they can recognise and identify different shapes



TIPS

Make enough materials for every learner to have an experience of tracing and drawing



SKILLS DEVELOPED

Communication, collaboration, problem solving, creativity and fine motor skills

LEARNING ACTIVITY: 8

Sink or Float Exploration

This activity is designed to take learners on a sinking or floating adventure. You are required to collect different materials like rocks, leaves, and plastic toys, and let learners determine whether they'll sink or float in water. This activity aims to spark curiosity and encourage critical thinking, setting the stage for a fun and interactive learning experience focused on buoyancy, prediction, and scientific exploration.

HOOK: *"What do you think will happen if we drop a stone into the water? Will it sink or float? What about a leaf or plastic toy? Let's find out and explore the magic of sink or float!"*

Suggested teaching and learning materials:

- **Natural Materials:** leaves, stones
- **Artificial Materials:** pieces of plastics, plastics toys, pencils, basins,

Learning Environment set up:

- classroom (Artificial environment)
- School surroundings or any safe space outdoor (Natural environment)

Teacher's Roles:

- Introduce the activity using the stated hook stated already
- Take learners out side
- Provide various materials and have learners predict whether each will sink or float.
- Ask learners to gather the materials and fill the basins with water
- Place the basins filled with water in front of learners
- Ask the learner to determine which material will sink and or float in the basins

**LEARNER ACTIVITY**

Gathering materials and placing them in a basin filled with water

- Determining which materials will sink or float in to the basin of water

**TIPS**

Ensure that the materials learners are collecting are safe and clean.

**ASSESSMENT GUIDE**

- Observe learners' participation in the activity
- Ask the learners to discuss the results of the activity
- Record the feedback on your activity check list

**SKILLS DEVELOPED**

Communication, collaboration, critical thinking and analytical thinking.

Expected Standard: Shapes created successfully

**KEY LEARNING POINTS**

Exploring Materials and Shapes

- Material Exploration: Identify and describe various materials in the local environment.
- Shape Construction: Construct shapes using different materials (e.g., blocks, sticks, playdough).
- 2D and 3D Shapes: Make and recognise 2D and 3D shapes using various materials.

Shape Properties and Comparisons

- Size and Color Comparisons: Compare shapes of different materials according to size and color.
- Tracing and Drawing: Trace and draw shapes of different materials.

Real-World Applications

- Real Objects and Lines: Make lines using real objects and explore their properties.
- Sink or Float: Collect various materials, predict whether each will sink or float, and discuss the reasons behind their predictions.

Skills and Concepts Developed

- Spatial Awareness: Develop spatial awareness and visual processing skills.
- Creativity and Self-Expression: Encourage creativity and self-expression through shape construction and exploration.

- Critical Thinking: Develop critical thinking skills through material exploration, shape construction, and prediction activities.

Sample Assessment Items

“Shape Exploration and Material Investigation” Assessment

Part 1: Material Exploration (10 points)

- Task: Collect and identify 5 different materials from the local environment.
- Criteria: Can identify and describe each material correctly.

Part 2: Shape Construction (20 points)

- Task: Construct 3 different shapes using various materials (e.g., blocks, sticks, playdough).
- Criteria: Can create and describe each shape correctly.

Part 3: 2D and 3D Shapes

- Task: Create 2D and 3D shapes using various materials.
- Criteria: Can identify the differences between 2D and 3D shapes.

Part 4: Shape Comparisons

- Task: Compare shapes of different materials according to size and color.
- Criteria: Can compare and describe the shapes correctly.

Part 5: Real-World Applications

- Task: Make lines using real objects and predict whether a material will sink or float.
- Criteria: Can make lines using real objects and predict correctly.

Part 6: Tracing and Drawing

- Task: Trace and draw shapes of different materials.
- Criteria: Can trace and draw shapes correctly.

Part 7: Sink or Float

- Task: Collect various materials and predict whether each will sink or float.
- Criteria: Can predict correctly and explain reasons for a material to sink or float.

Assessment Tools:

- **Observation Checklist:** Observe learners during activities and note their ability to complete tasks.
- **Shape Construction Rubric:** Evaluate learners’ shape construction skills based on criteria.
- **Material Exploration Worksheet:** Have learners complete a worksheet to identify and describe materials.

Assessment Objectives:

- **Material Exploration:** Assess learners’ ability to identify and describe materials.
- **Shape Construction:** Evaluate learners’ ability to construct shapes using various materials.
- **2D and 3D Shapes:** Assess learners’ understanding of 2D and 3D shapes.
- **Real-World Applications:** Evaluate learners’ ability to apply shape concepts to real-world situations.

Sub-Topic 2: Light and Shadows

Introduction:

This subtopic Light and Shadows introduces learners to fundamental concepts of light and shadows through hands-on exploration. Light, like sunshine or lamp light, makes things visible. Shadows, dark shapes on the ground or wall, appear when something blocks light. Understanding these definitions helps learners grasp light and shadow concepts. This subtopic has learning activities will help learners understand the basic concept of shadow formation in a simple and engaging way.

Specific Competence

- Demonstrate how shadows are formed.



KEY TERMS

- **Light Source:** Something that produces light (e.g., sun, lamp).
- **Bright:** Having a lot of light.
- **Shadow:** A dark area created when an object blocks light.

Key Concepts

- Light
- Shadow

Learning Activities

These learning activities are designed to engage learners in the formation of shadows. This activity will help learners appreciate how shadows are formed when something blocks the light from passing through. This activity introduces the concept of shadow formation in a simple and engaging way for learners. There are three learning activities designed to help learners explore the formation of shadows.

LEARNING ACTIVITY 1:

Formation of shadows

This activity is designed to help learners explore the formation of shadows using a source of light. This activity encourages hands-on exploration and understanding of shadow formation. There are two sub-activities that will engage learners in exploring the formation of shadows using a source of light.

HOOK: *Let's play with light! What happens when we shine a flashlight on our hands? Can we make our own shadow puppets?*

Activity 1.1: Object Shadows

Suggested Teaching and Learning Materials:

- **Natural Materials:** trees, people
- **Artificial Materials:** Buildings, chairs, books, toys, bottles, paper, wall

Learning Environment set-up:

- School surroundings / any suitable safe space (Natural environment)

Teacher's Roles:

- Start with the hook and connect it to this activity.
- Ask one volunteer learner to choose an object
- Ask the learner to shine the light on the object
- Ask other learners to observe the shadow formed on the wall or paper
- Take the learners outside the classroom where there are trees and buildings within the school surroundings.
- Ask the learners to observe the shadows of the trees and buildings (let them state which shadows are big and which ones are small, long shadows and short shadows)
- Ask the learners to place the objects (chair, toys, bottles, books, toys) in the sunlight.
- Ask the learners to observe the shadows formed by natural materials (trees, people) and shadows formed by artificial materials (buildings, bottles, chairs, toys, books).



LEARNER ACTIVITY

One volunteer learner choosing an object

- Volunteer learner shining the light on the object
- Observing the shadow formed on the wall or paper
- Going outside the classroom where there are trees and buildings within the school surroundings.
- Observing the shadows of the trees and buildings (let them state which shadows are big and which ones are small, long shadows and short shadows)
- Placing the objects (chair, toys, bottles, books, toys) in the sunlight.
- Observing the shadows formed by natural materials (trees, people) and shadows formed by artificial materials (buildings, bottles, chairs, toys, books).



ASSESSMENT GUIDE

- Observe learners as they observe shadows created by natural and artificial materials.
- Evaluate learners' explanations on the formation of shadows.



TIPS

Artificial objects (chair, toys, books, toys) must not be closer to natural objects (trees) to avoid light obstruction.

**SKILLS DEVELOPED**

Communication, collaboration, observation, analytical thinking and critical thinking.

Activity 1.2: Shadow Tracing

This activity helps learners to develop observation and fine motor skills while exploring the formation of shadows.

Suggested Teaching and Learning Materials:

- **Artificial Materials:** chair, book, toys, flashlight, flip charts, pencils

Learning Environment set-up:

- Classroom environment (Artificial environment)

Teacher's Roles:

- Provide learners with artificial materials (e.g., blocks, books, toys, flashlight, flip charts, pencils).
- Put the learners in groups.
- Stick the flip chart on the wall and place the object (e.g., blocks, books, toys) between the source of light and the wall where the flip chart is stuck (use a very bright flashlight).
- Direct light from the flashlight onto the object (cover the windows in the room for the shadow to be visible).
- Ask one learner to hold the object between the source of light and the wall while the other learner traces the shadow formed on the flip chart.

**LEARNER ACTIVITY**

- One learner holding the object between the source of light and the wall
- Tracing the shadow formed on the flip chart.
- Switching roles in doing the activity.

**ASSESSMENT GUIDE**

- Take note of learners as they trace shadows formed by directing light from the flashlight onto the object.

**TIPS**

Ask learners to switch roles when doing the activity.



SKILLS DEVELOPED

Communication, collaboration, gross and fine motor skills.

LEARNING ACTIVITY 2:

Observing Sunny Day Shadows

This activity is designed to assist learners to observe shadows outside on a sunny day and discussing how objects need to block light to form shadows. Teaching young learners about sunny day shadows lays foundational knowledge for light and shadow concept and promotes interactive learning. This learning activity has two sub-activities that will engage learners in observing shadows formed on a sunny day.

HOOK: *Look outside! On a sunny day, our bodies make shadows. What other objects outside make interesting shadows? Let's go on a shadow hunt!"*

Activity 2.1: Light and Shadow Exploration

This engaging and interactive activity introduces learners to fundamental concepts of light and shadow fostering their curiosity, creativity and scientific thinking.

Suggested Teaching and Learning Materials:

- **Natural Materials:** Sun, trees,
- **Artificial Materials:** bottles, buildings

Learning Environment set-up:

- School surroundings or any suitable safe space outdoor (Natural environment)
- classroom (Artificial environment)

Teacher's Roles:

- Take the learners outside the classroom within the school surroundings.
- Place an object (e.g., bottle, chair) in front of the tall object, e.g., a tree, building so that when the sun changes position the shadow created by the sun is cast on the object.
- Ask learners to observe the shadow created by the object.
- Ask learners to observe what happens to the shadow of the object when the sun changes position and the shadow created by the tall object is cast on the other object, e.g., bottle, chair.



LEARNER ACTIVITY

- going outside the classroom.
- observing the shadow formed by the object (e.g., bottle, chair) placed in the sunlight.
- observing what happens to the shadow of the object (e.g., bottle, chair) when the sun changes position and the shadow formed by the tall object (e.g., tall tree, building) is cast on the other object, e.g., bottle, chair.

**ASSESSMENT GUIDE**

- Observe learners as they interact with the outside classroom environment.
- Evaluate learners' ability to observe the shadow formed by the object correctly
- Evaluate learners responses to questions as they observe the disappearance of a shadow created by the smaller object

**TIPS**

This activity can best be done in the morning or afternoon when objects create distinct shadows.

**SKILLS DEVELOPED**

Communication, collaboration, gross and fine motor skills.

Activity 2.2: Shadow formation

This activity is about how shadows are formed. This activity is designed to help learners appreciate that when an object blocks light, a shadow appears. This activity sparks curiosity and encourages learners to investigate shadow formation.

Suggested Teaching and Learning Materials:

- **Artificial Materials:** blocks, toys

Learning Environment set-up:

- Classroom (Artificial environment)

Teacher's Roles:

- Provide the objects (e.g., blocks, toys) on the desk.
- Ask learners to pick the provided objects and shine light on object forming the shadows using flashlight
- Asks learners to observe the shadows formed by the objects.
- Asks learners to block light falling on the object by placing a book between the light source and the object.
- Asks learners to discuss what happens when light falling on the object is block.

**LEARNER ACTIVITY**

- Picking objects and shining the light on the objects to form shadows
- Observing the shadows formed by the objects
- Blocking light falling on the object by placing a book between the light source and the object.
- Discussing how blocking of light falling on the object affects the formation of shadows.

**ASSESSMENT GUIDE**

- Take note of learners as they observe how objects block light to form shadows.
- Take note of the discussion by learners on how blocking of light falling on the object affects the formation of shadows.



SKILLS DEVELOPED

Communication, collaboration and analytical thinking

LEARNING ACTIVITY 3:

Comparing shapes of different shadows

This activity is about comparing shapes of different shadows according to length and width. This activity helps learners to develop observation and comparison skills while exploring shadow shapes. There are two sub-activities in this activity.

HOOK: *Let's shine some light on shapes! Do different objects make different shadows? Can we find out which objects make round, square, or long shadows?"*

Activity 3.1: Shadow shape comparison

Shadow shape comparison develops and enhances mathematical and scientific skills in learners that are a foundation for higher level thinking.

Suggested Teaching and Learning Materials:

- **Natural Materials:** trees, people
- **Artificial Materials:** broom, ball, blocks, toys

Learning Environment set-up:

- School surroundings/ any suitable safe space (Natural Environment)

Teacher's Roles:

- Takes the learners outside the classroom.
- Places the objects (e.g., blocks, toys, balls) outside in the sunlight.
- Asks learners to observe the shadows created by the objects.
- Asks learners to compare the shadows formed by the objects (e.g., the shadow formed by the broom stick is longer than the shadow formed by the ball).



LEARNER ACTIVITY

Going outside the classroom.

- Observing the shadows created by the objects placed in the sunlight.
- Comparing the shadows formed by the objects (e.g., the shadow formed by the broom stick is longer than the shadow formed by the ball, the shadow formed by the book is wider than the shadow formed by the pencil).



ASSESSMENT GUIDE

Questions and answer:

- Which object made a round shadow?
- Why do you think shadows are different shapes?

Evaluation:

- Accuracy in predicting and sorting shadow shapes.
- Understanding of object shape and shadow relationship

**TIPS**

- Provide learners with objects of various lengths and widths.
- This activity can best be conducted in the morning or afternoon when objects produce distinct shadows which are easy to compare.

**SKILLS DEVELOPED**

Communication, collaboration, analytical thinking, gross and fine motor skills.

Activity 3.2: Shadow shapes sorting

Learning shadow shapes sorting helps learners develop understanding of spatial relationships and dimensions.

Suggested Teaching and Learning Materials:

- **Artificial Materials:** Broom, ball, blocks, toys, pencils, crayons, books, flashlight

Learning Environment set-up:

- Classroom environment (Artificial Environment)

Teacher's Roles:

- Provides different objects (e.g., blocks, toys, pencils, books).
- Asks learners to observe the shadows created by the objects.
- Asks learners to compare the shadows formed by the objects (e.g., the shadow formed by the broom stick is longer than the shadow formed by the ball).
- Asks learners to sort the objects with longer shadows formed on one side and objects with shorter shadows formed on the other side. Likewise, objects with wider shadows on one side and objects with narrower shadows on the other side.

**LEARNER ACTIVITY**

- Going outside the classroom.
- Observing the shadows formed by the objects placed in the sunlight.
- Comparing the shadows formed by the objects (e.g., the shadow formed by the broom stick is longer than the shadow formed by the ball, the shadow formed by the book is wider than the shadow formed by the pencil).
- Sorting objects with longer shadows formed (e.g., broom stick,) on one side and objects with shorter shadows created by objects (e.g., crayons, pencils) on the other side. Likewise, objects that formed wider shadows (e.g., shadows created by books, ball) on one side and objects that formed narrower shadows (broom stick, pencil) on the other side.



ASSESSMENT GUIDE

- Observe learners' ability to identify and sort shadows by shape (e.g., round, square, long)
- Evaluation: Accuracy in sorting shadows



TIPS

Provide learners with materials with different lengths and widths.



SKILLS DEVELOPED

Communication, collaboration, analysis, gross and fine motor skills

Expected Standard: Formation of shadows demonstrated correctly

Key Learning Points

- Shadows form when objects block light.
- Objects' shapes affect shadow shapes.
- Light source affects shadow size and direction.
- Shadows can vary in length and width.

Summary Assessment Guide

This assessment evaluates learners' competence in understanding shadow formation and observation skills

Tasks:

1. Shadow formation: Use a light source and object to make a shadow. Explain how the shadow forms.
2. Shadow Observation: Observe and record shadows outside on a sunny day. Identify objects blocking light.
3. Shadow Comparison: Compare shadow shapes and sizes of different objects.

Criteria:

1. Demonstrates understanding of shadow formation (light blocking).
2. Accurately observes and records shadows.
3. Compares shadow shapes and sizes effectively.

APPENDIX: SAMPLE LESSON PLAN

School: Mambilima Primary School

Date: 12/04/2025

Teachers Name: Naomi Phiri

Duration: 30 minutes

Level: 1 (3-4 years)

Total Enrolment: 15

Girls: 8

Learning Area: *Pre-Mathematics and Science*

Boys: 7

Topic: Understanding materials

Sub Topic: Shapes and Patterns

General Competences (to be aligned with the learning activity...)

- ☒ Critical thinking,
- ☒ Communication,
- ☒ Collaboration
- ☒ Problem solving,

Specific Competences:

- ☒ Creating simple shapes

Lesson goal: To help learners make shapes (circle, square, triangle, rectangle)

Rationale:

In this lesson learners will create shapes according to size and colour. learners will develop Cognitive skills (critical thinking), Fine-motor skills (eye hand coordination) and Creative skills (imagination). Demonstration method will be used. This is lesson 1 of 5 lessons in the topic.

Prior Knowledge: Learners have an idea on shapes

References:

- ☒ ECE Pre-mathematics and Science Syllabi (2025) page 20
- ☒ Pre- Mathematics and Science module, (2025) page 13

Note: *There should be at least three references cited*

Learning Environment: Classroom (artificial environment)

Learning and Teaching Materials:

- ☒ **Artificial Materials;** various shape templates, Paper, Crayons/markers, Scissors, Glue

Expected Standard: Shapes created successfully

Part	Teacher's Roles	Learner's Activities	Methods	Assessment Criteria
Introduction 5 minutes	<ul style="list-style-type: none"> ○ Introduce the lesson using the following hook: <i>Let's get creative! Can you show me how to make a circle, square, or triangle? What shapes can you find around us? Let's draw and discover!</i> ○ Show examples of shapes. 	<ul style="list-style-type: none"> ○ Observing examples of shapes displayed ○ Showing the teacher how to make circle, square, or triangle with the shapes 	<ul style="list-style-type: none"> ○ Question and answer. ○ Demonstration 	<ul style="list-style-type: none"> ○ Observe their interaction with the materials
Development 15 minutes	<ul style="list-style-type: none"> ○ Provide cut out shapes ○ Ask learners tracing shapes. ○ Ask learner to make a picture using different shapes. ○ Observe learners' ability to identify and make shapes. 	<ul style="list-style-type: none"> ○ Observing provided cut out shapes ○ Tracing shapes. ○ Making a picture using different shapes. 	<ul style="list-style-type: none"> ○ Guided discovery method ○ Question and answer 	<ul style="list-style-type: none"> ○ Observe the learners during the activities. ○ Evaluate the shapes created
Conclusion 5 minutes	<ul style="list-style-type: none"> ○ Ask learners to say 1. What shape is this? 2. Find something in the room that's this shape? 	<ul style="list-style-type: none"> ○ Saying what the shape is ○ Exploring the room and Finding shapes in the room that of the shape 	<ul style="list-style-type: none"> ○ Question and answer ○ Demonstration 	Question and answer to gauge learners' understanding about shapes.
Homework 5 minutes	<ul style="list-style-type: none"> ○ Ask learners to go make shapes at home. ○ Sharing their findings at school. 	<ul style="list-style-type: none"> ○ Making shapes according to colour and size at home ○ Displaying the shapes at school. 	<ul style="list-style-type: none"> ○ Question and answer 	Record on the feedback.

Evaluation; (During lesson evaluation consider the following points highlighted below)

Lesson delivery

1. Was the lesson delivered according to the plan?
2. Do activities align with specific competences?

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