



South Sudan

Primary Science

2

Primary Science has been written and developed by Ministry of General Education and Instruction, Government of South Sudan in conjunction with Subjects experts. This course book provides a fun and practical approach to the subject of Science, and at the same time imparting life long skills to the pupils.

The book comprehensively covers the Primary 2 syllabus as developed by Ministry of General Education and Instruction.

Each year comprises of a Pupil's Book and teacher's Guide.

The Teacher's Guides provide:

- Full coverage of the national syllabus.
- A strong grounding in the basics of Science.
- Clear presentation and explanation of learning points.
- A wide variety of practice exercises, often showing how Science can be applied to real-life situations.
- It provides opportunities for collaboration through group work activities.
- Stimulating illustrations.



All the courses in this primary series were developed by the Ministry of General Education and Instruction, Republic of South Sudan. The books have been designed to meet the primary school syllabus, and at the same time equipping the pupils with skills to fit in the modern day global society.

This Book is the Property of the Ministry of General Education and Instruction.

This Book is not for sale.

Any book found on sale, either in print or electronic form, will be confiscated and the seller prosecuted.

Funded by:



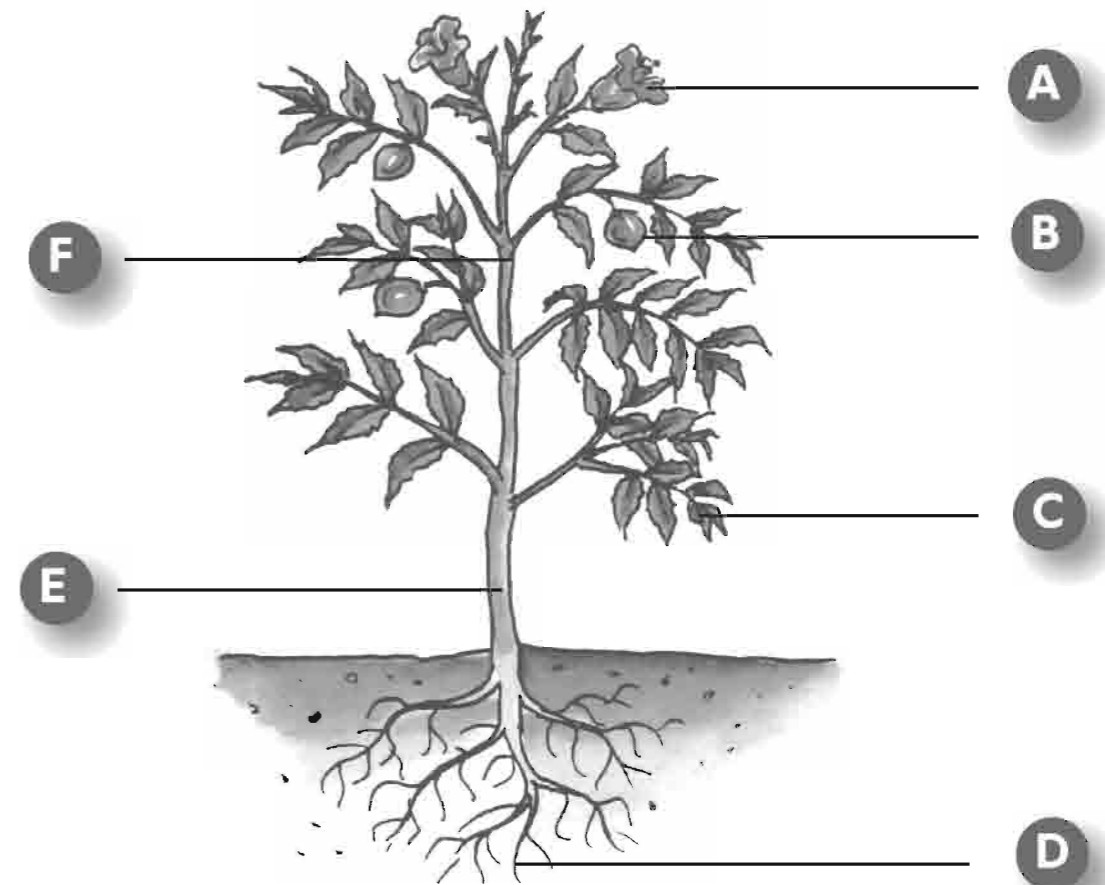
South Sudan

Primary Science



2

Teacher's Guide



This Book is the Property of the Ministry of General Education and Instruction.

This Book is not for sale.

Funded by:



How to take care of your books.

Do's

1. Please cover with plastic or paper. (old newspaper or magazines)
2. Please make sure you have clean hands before you use your book.
3. Always use a book marker do not fold the pages.
4. If the book is damaged please repair it as quickly as possible.
5. Be careful who you lend your schoolbook to.
6. Please keep the book in a dry place.
7. When you lose your book please report it immediately to your teacher.

Don'ts

1. Do not write on the book cover or inside pages.
2. Do not cut pictures out of the book.
3. Do not tear pages out of the book.
4. Do not leave the book open and face down.
5. Do not use pens, pencils or something thick as a book mark.
6. Do not force your book into your schoolbag when it is full.
7. Do not use your book as an umbrella for the sun or rain.
8. Do not use your book as a seat.

Science

Teacher's Guide



This book is the property of the Ministry of General Education and Instruction.

THIS BOOK IS NOT FOR SALE

Funded by:



GLOBAL
PARTNERSHIP
for EDUCATION

quality education for all children

Published in 2018 by,
Longhorn Publishers (K) Ltd.,
Funzi Road, Industrial Area,
P.O. Box 18033 – 00500,
Nairobi, Kenya.

©2018, THE REPUBLIC OF SOUTH SUDAN, MINISTRY OF GENERAL EDUCATION
AND INSTRUCTION.

All rights reserved. No part of this book may be reproduced by any means graphic, electronic, mechanical, photocopying, taping, storage and retrieval system without prior written permission of the Copyright Holder.

Pictures, illustrations and links to third party websites are provided in good faith, for information and education purposes only.

Table of Content

Introduction.....	1
Unit 1: Health and Hygiene.....	13
1.1 Care of the body.....	16
1.2 How germs spread	23
1.3 Designing a poster on use of soap	24
1.4 How animals clean themselves	25
Unit 2: Plants and Animals.....	26
2.1 Plant	29
2.2 Animals	32
Unit 3: Sense Organs	37
3.1 Senses	40
3.2 Sounds of different pitches and volume	45
3.3 Shadow formation	46
Unit 4: The Weather	48
4.1 Weather symbols	51
4.2 Weather changes	52
4.3 How animals and plants respond to different weather conditions	53
4.4 Importance of air	54
Unit 5: Safe Water	56
5.1 Importance of safe drinking water	59
5.2 Making water clean and safe.....	60
Unit 6: Soil	63
6.1 Types of soil	66
6.2 Components of soil.....	67
6.3 Soil structure	68
6.4 Importance of soil	68

Unit 7: Simple Machines70
7.1 and 7.2 Making and using rollers72
7.3 Things that use wheels 73

Introduction

Book organisation

This teacher's guide is organised into two main sections. Part 1 is the general introduction section detailing information on competence based curriculum and pedagogical issues.

The main elements of Part 1 are:

- Background information to the new curriculum - It gives a brief overview of the general requirements of the new South Sudan competence-based curriculum including the guiding principles, the competences the students are expected to acquire and crosscutting issues to be addressed during learning.
- Basic requirements for an effective Science lesson - It highlights the teacher's and learner's roles for effective teaching and learning of Science, teaching and learning resources, grouping learners for learning and teaching methods

Part 2 provides a topic -to - topic guide to the teacher on how to facilitate learners to acquire the knowledge, skills and attitudes envisaged in each unit. This part is therefore structured into units.

The main elements of each unit guide are:

- Unit heading
- Unit syllabus
- Contribution to learner's competences: The section explains how the unit/topic will facilitate the learner to acquire the specified competences. These competences will be discussed in detail later in the next section.
- Cross cutting issues to be addressed

The section outlines the specific cross cutting issues that will be addressed through infusion as the learners do the activities and interact with concepts planned for the unit. This is meant to make the teacher conscious on and be on the look out for suitable opportunities through out the teaching and learning process in the entire unit to address the cited cross cutting issues. These issues will be discussed in detail later in this section.

Note: a unit or topic may not necessarily address all the cross cutting issues outlined in the curriculum.

- Teaching methodologies-The section lists down the main teaching and learning methods that the teacher can employ in the unit.
- Background information -This section outlines key knowledge, skills, attitudes and values that learners need to have acquired earlier that will facilitate easier acquisition of the new knowledge, skills, attitudes and values envisaged in this unit. It also guides the teacher on how to find out that the learners possess them before they start learning the concepts in this unit, and how to help learners in case they do not possess them.
- Suggested teaching and learning activities- This section provides guidance to the teacher on how to facilitate students to learn by doing the activities outlined in the student's book. It also guides the teacher on how to assess the learning.

Background information on the new curriculum

The aim of the South Sudan Competence-based Curriculum is to develop in the learners competences that will enable them interact with the environment in more practical ways.

It clearly defines the knowledge, skills and attitudes that the learner should acquire by doing the specified learning activities.

a. Learner's competences to be attained

Competencies are statements of the characteristics that learners should demonstrate, which indicate they have the ability to do something to the required level of performance. The following are the four competencies envisaged in this curriculum:

1. Critical and creative thinking

Science lessons and activities facilitate learners to acquire these competences by giving them opportunities to:

- Plan and carry out investigations, using a range of sources to find information.
- Sort and analyse information and come to conclusions.
- Suggest and develop solutions to problems, using their imaginations to create new approaches.
- Evaluate different suggested solutions.

2. Communication

Science lessons and activities facilitate learners to acquire these competences by giving them opportunities to:

- Read and comprehend critically a variety of types and forms of texts during research activities.

- Write reports on scientific investigations and activities.
- Speak clearly and communicate ideas and science related information coherently.
- Listen and comprehend scientific facts presented by fellow classmates, group members, teachers and resources persons.
- Use a range of media, technologies and languages to communicate messages, ideas and opinions.

3. Cooperation

Science lessons and activities facilitate learners to acquire these competences by giving them opportunities to:

- Work collaboratively towards common objectives when doing activities.
- Be tolerant of others and respectful of differing views, when working together.
- Adapt behaviour to suit different situations.
- Negotiate, respect others' rights and responsibilities, and use strategies to resolve disputes and conflicts.
- Contribute to environmental sustainability.

4. Culture and identity

Science lessons and activities facilitate learners to acquire these competences by allowing them to:

- Take pride in South Sudanese identity and the diverse nature of South Sudanese society.
- Build understanding of South Sudanese heritage in relation to the wider world.
- Appreciate and contribute to the development of South Sudanese culture.
- Value diversity and respect people of different races, faiths, communities, cultures, and those with disabilities.

(b) Cross-cutting issues to be addressed during learning

These are issues that are of high national priority and hence have been incorporated in the learning process. The three cross-cutting issues for that should be addressed through the teaching/learning process are:

(i) Environment and sustainability

A well-conserved environment is obviously key to our health and survival. It is therefore important for the Science teacher to make use of the opportunities that arise

in the process of teaching and learning Science through activities to sensitise learners on the importance of conserving the environment. One way is by ensuring that the learners always dispose off the waste materials at the end of an activity in ways that do not pollute the environment.

(ii) Peace education

Peace is critical for a society to flourish and for every individual to focus on personal and national development.

The Science teacher needs to be in the fore front in educating his/her students on the need for peace, for example by encouraging group work in the learners activities and showing the them ways of solving peacefully interpersonal problems that occasionally arise during interactions and discussions.

(iii) Life Skills

Learners need to progressively acquire some skills abilities and behaviors that will help them effectively deal with the events and challenges of everyday life. Such skills include first aid, communication skills, conflict resolution, basic ICT skills etc. The Science teacher should as much as possible facilitate the learners to acquire these skills whenever an opportunity arises in the lesson execution

Basic requirements for an effective Science lesson

Teacher's role and basic skills for effective Science lesson

The teacher is the most important resource for an effective Science lesson.

(a) Some of the key roles of the Science teacher include:

- Organising the classroom to create a suitable learning environment.
- Preparing appropriate materials for learning activities.
- Engaging students in variety of learning activities.
- Encouraging and accepting student autonomy and initiative.
- Allowing student responses to drive lessons, shift instructional strategies,
- Familiarizing themselves with learners' understandings of concepts before sharing their own understandings of those concepts.
- Encouraging learners to engage in dialogue, both with the teacher and one another.

- Engaging students in experiences that pose contradictions to their initial hypotheses and then encouraging discussion.
- Providing time for learners to construct relationships and create metaphors.
- Using a variety of teaching and assessment methods.
- Adjusting instructions to the level of the learner.
- Nurturing learners' natural curiosity.
- Motivating learners to make them ready for learning.
- Coordinate learners' activities so that the desired objectives can be achieved.
- Assessing learners' activities and suggest solutions to their problems.
- Assisting learners to consolidate their activities by summarising the key points learnt.

(b) Some of the key skills that the Science teacher should have include:

- Creativity and innovation.
- Makes connections/relations with other subjects.
- A high level of knowledge of the content.
- Effective disciplining skills to manage the classroom adequately.
- Good communicator.
- Guidance and counselling.

Learner 's role in learning Science

Learning takes place only when the learner acquires the intended knowledge, skills and attitudes. As such, learning is a highly personal and individual process. Thus, a learner must be actively engaged in the learning exercise.

For active participation in learning, the learner should:

- Raise questions about what is observed.
- Suggest solutions to the problems observed.
- Take part in planning investigations with appropriate controls to answer specific questions.
- Carry out investigations to search for answers with the help of materials in search of patterns and relationships while looking for solutions to problems.

- Work collaboratively with others, communicating their own ideas and
- Considering others' ideas.
- Expressing themselves using appropriate Science terms and representations in writing and talking.
- Engaging in lively public discussions in defence of their work and explanations.
- Applying their learning in real-life contexts.
- Reflecting critically on the processes and outcomes of their inquiries.

Teaching and learning resources

These are things that the teacher requires during the teaching process. They include:

- The classroom
- Textbooks
- Wall charts and wall maps
- Materials and apparatus

Various tools and equipment

- Science models
- Resource persons
- Firms such as hydroelectric power stations, engineering firms among others

(a) Classroom as a learning environment

A Classroom generally refers to the place where learning takes place. Learners learn from everything that happens around them, such as the things that they hear, see, touch, taste, smell and play with.

Classroom organisation

- It is important for the teacher to make the classroom an attractive and stimulating environment. This can be done by:
- Carefully arranging the furniture in the classroom in an organised way to allow free movement of learners and the teacher.
- Putting up learning and teaching aids on the walls. Examples are wall charts, pictures and photographs.
- Displaying teaching models.

- Providing objects for play for example toys.
- Having a display corner in the classroom where learners display their work.
- Setting a corner for storing materials so as not to obstruct learners or distract them.
- Spreading out the learners evenly so that they do not interfere with one another's activities.
- Setting up the materials for the series of lessons or activities going on for a number of days or weeks in a location where they do not interfere with other daily activities
- Organising the sitting arrangement such that learners face the lighted areas of the room.
- Choosing the most appropriate location for the teacher and the chalkboard such that they are visible to all learners and the teacher has a good view of all learners in the class.

(b) Apparatus and materials

For learners to study Science through the activity method, a number of materials and apparatus are required. The important role played by materials in learning has been felt for centuries. This is noted for instance in the old Chinese proverb that says:

When I hear I forget

When I see I remember

When I do I understand

Since Science is highly practical subject, materials help the teacher to convey his/ her points, information or develop skills simply and clearly, and to achieve desired results much faster.

Some of the materials that a teacher requires for Science activities and calculations can be collected from the local environment.

Many others can be improvised while some have to be purchased. Whether collected, improvised or purchased, there are certain materials that are valuable to have around almost all the time.

These include:

(i) Science Kit

A science kit is a special box containing materials, apparatus and equipment necessary to conduct an array of experiments. The content of the Science kit depends on the

curriculum requirements per level. Most science kits are commercially available and target particular levels of learners. However, the teacher is encouraged to come up with a kit based on the syllabus requirement.

(ii) Models

A model refers to a three-dimensional representation of an object and is usually much smaller than the object. Several models are available commercially in shops. Examples of Science models include models of electric motors, hydraulic systems among others. These models can be purchased by schools for use during Science activities.

(iii) Resource persons

A resource person refers to anybody with better knowledge on a given topic area. Examples include health practitioners such as doctors, nurses and laboratory technologists, agricultural extension officers, environmental specialists among others. Depending on the topic under discussion, the teacher can organize to invite a resource person in that area to talk to learners about the topic. The learners should be encouraged to ask as many questions as possible to help clarify areas where they have problems.

(iv) Improvisation

If each learner is to have a chance of experimenting, cheap resources must be made available. Complicated apparatus may not always be available in most schools. Such sophisticated equipment made by commercial manufacturers are usually expensive and majority of schools cannot afford them. The teacher is therefore advised to improvise using locally available materials as much as possible.

(vi) Scheduling learning activities and venues

Some of the activities suggested in the student's book require good planning and scheduling in order to get accurate results. An example is observing some effects of environmental factors on plant growth illustrated in unit 14. The teacher should therefore think ahead while making the scheme of work so that the prevailing weather pattern and the most appropriate timing are considered.

Grouping learners for learning activities

Most of the Science activities suggested in the student's book are carried out in groups and therefore the teacher should place 2 or 3 desks against each other and then have a group of learners sitting around those desks.

In certain activities, the teacher may wish to carry out a demonstration. In this case, the learners should be sitting or standing in a semicircle, or arranged around an empty shape of letter "U" such that each learner can see what the teacher is doing clearly

and without obstruction or pushing. If the learners are involved in individual work, each learner can work on the floor or on the desk or a portion of the desk if they are sharing. In this case, they need not face each other.

Grouping learners for learning has increasingly become popular in recent years. In fact, the shift from knowledge-based to competence curriculum will make grouping the norm in the teaching process.

Learning group can be formed based on one or a number of the following considerations:

Similar ability grouping

- Mixed ability grouping
- Similar interests grouping
- Common needs grouping
- Friendship grouping
- Sex-based grouping

Grouping learners in a Science class has several advantages that include:

- The individual learner's progress and needs can easily be observed.
- The teacher-learner relationship is enhanced.
- A teacher can easily attend to the needs and problems of a small group.
- Materials that were inadequate for individual work can now be easily shared.
- Learners can learn from one another.
- Cooperation among learners can easily be developed.
- Many learners accept correction from the teacher more readily and without feeling humiliated when they are in a small group rather than the whole class.
- Learners' creativity, responsibility and leadership skills can easily be developed.
- Learners can work at their own pace.

The type of "grouping" that a teacher may choose may be dictated by:

- The topic or task to be tackled.
- The materials available.
- Ability of learners in the class (fast, average, slow).

Class size

There is no one method or approach to teaching that is appropriate to all lessons. A teacher should, therefore, choose wisely the method to use or a combination of methods depending on the nature of the topic or subtopic at hand.

Teaching methods

There are a variety of possible methods in which a teacher can help the learners to learn. These include:

- (a) Direct exposition
- (b) Discovery or practical activity
- (c) Group, class or pair discussion
- (d) Project method
- (e) Educational visit/ field trips
- (f) Teacher demonstration
- (g) Experimentation/Research

The particular technique that a teacher may choose to use is influenced by several factors such as the:

- Particular group of learners in the class.
- Skills, attitudes and knowledge to be learned.
- Learning and teaching aids available.
- Local environment.
- Teacher's personal preference
- Prevailing weather condition.
- Requirements of Science syllabus

(a) Direct exposition

This is the traditional way of teaching whereby the teacher explains something while the learners listen. After the teacher has finished, the learners may ask questions. However, in a competence-based curriculum, this technique should be used very minimally.

(b) Guided Discovery

In this technique, the teacher encourages learners to find out answers to problems by themselves. The teacher does this by:

- Giving learners specific tasks to do.
- Giving learners materials to work with.
- Asking structure or guided questions that lead learners to the desired outcome. Sometimes learners are given a problem to solve and then left to work in an open-ended manner until they find out for themselves.

This is the most preferred method of teaching in the implementation of competence-based curriculum.

(c) Group/class discussion or pair work

In this technique, the teacher and learners interact through question and answer sessions most of the time. The teacher carefully selects his/her questions so that learners are prompted to think and express their ideas freely, but along a desired line of thought. The method leads learners from the known to unknown in a logical sequence; and works well with small groups. The method boosts confidence in learners and improves interpersonal and communication skills.

The main disadvantage of this method is that some learners maybe shy or afraid to air their opinions freely in front of the teacher or their peers. It may give the more confident learners a chance to dominate the others.

(d) Project method

In this approach, the teacher organizes and guides a group of learners or the whole class to undertake a comprehensive study of something in real life over a period of time such as a week or several weeks.

Learners using the project method of studying encounter real life problems, which cannot be realistically brought into a normal classroom situation. A project captures learners' enthusiasm, stimulates their initiative and encourages independent enquiry. The teacher, using the project method, must ensure that the learners understand the problem to be solved and then provides them with the necessary materials and guidance to enable them carry out the study.

The main disadvantage of this method is that if a project is not closely supervised, learners easily get distracted and therefore lose track of the main objective of their study. Studying by the project method does not work well with learners who have little or no initiative.

(e) Educational visits and trips and nature walks

This is a lesson conducted outside the school compound during which a teacher and the learners visit a place relevant to their topic of study. An educational visit/nature walk enables learners to view their surroundings with a broader outlook that cannot be acquired in a classroom setting. It also allows them to learn practically through first-hand experience. In all “educational visit/nature walk lessons”, learners are likely to be highly motivated and the teacher should exploit this in ensuring effective learning. However, educational visits are time consuming and require a lot of prior preparation for them to succeed. They can also be expensive to undertake especially when learners have to travel far from the school.

(f) Demonstration lessons

In a demonstration, the teacher shows the learners an experiment, an activity or a procedure to be followed when investigating or explaining a particular problem. The learners gather around the teacher where each learner can observe what the teacher is doing. It is necessary to involve the learners in a demonstration, for example by:

- Asking a few learners to assist you in setting up the activity.
- Requesting them to make observations.
- Asking them questions as you progress with the demonstration.

This will help to prevent the demonstration from becoming too teacher centred.

When is a demonstration necessary?

A teacher may have to use a demonstration, when:

- The experiment/procedure is too advanced for learners to perform.
- The experiment/ procedure is dangerous.
- The apparatus and materials involved are delicate for learners to handle.
- Apparatus are not enough for all learners or groups.

Refer to Pupils Book pages 1-27

Learn about	Key inquiry questions
<p>Learners should know that germs cannot be seen with naked eye and they should learn how they are spread, recognise the dangers, and understand how they can prevent their spread. They should learn how to keep their bodies clean and the correct way to wash their faces, hands, hair and other parts of the body using water and soap.</p> <p>They may perform simple activities to investigate soap; (for example smear oil on their hands, then wash them with water with and without soap and observe and talk about the differences and explain why.) They should experiment washing dirty hands with and without soap and find which is more effective. They should discuss how they can make such a test fair.</p> <p>They should learn individually or in groups and talk about the idea of hygiene and how to develop a healthy lifestyle.</p> <p>The children may go to a health centre to observe posters on the walls and talk with medical personnel to find out basic ways of spread of germs and ways of preventing this.</p>	<ul style="list-style-type: none"> • How and why do you keep your body clean? • Why do we use soap and clean water for washing our bodies? • How does soap change the feel of oil? • How are germs spread? • How can the spread of germs be prevented? • How can they design a poster to help other children know about using soap and the danger of germs? • How can we keep ourselves clean if we do not have any soap? • How do animals such as dogs and chicken keep themselves clean without soap?

Learning outcomes		
Knowledge and understanding	Skills	Attitudes
<ul style="list-style-type: none"> Understand the importance of keeping the body clean and the dangers of micro-organisms / 'germs'. 	<ul style="list-style-type: none"> Practise washing different parts of the body using soap and water. Describe what soap does to oil Discuss how to make a fair test when washing with and without soap. Explain to others how to prevent diseases. 	<ul style="list-style-type: none"> Appreciate the importance of keeping the body clean. Appreciate the importance of a healthy lifestyle.
<p>Contribution to the competencies:</p> <p>Critical thinking: recognizing dangers of germs</p> <p>Co-operation and communication: in carrying out the activities</p> <p>Communication: Explaining to others</p>		
<p>Links to other subjects:</p> <p>Life Skills: health and hygiene</p>		

Introduction to the unit

Health education plays an important role in the community hygiene. To prevent illness and have positive health attitude, correct and complete knowledge of health is necessary. Health is cleanliness and cleanliness is one of the main defenses against diseases, whether contagious or self-generated. In this lesson we will discuss the actual meaning of health and hygiene, so that the aim of good health can be achieved through sanitary habits and healthy way of living.

Competences to be attained

1. Co-operation

Encourage learners to work as a team through group discussions. Allow learners to freely interact with one another. Let them associate with one's culture and abilities through resources sharing and exchange of ideas. The principle of co-operation should be listening to understand but not listening to respond. All learners should be given equal opportunities.

2. Communication

During group discussions, encourage learners to share their opinions, suggestions and ideas freely. This way they will build on their language command as well as ability to participate in discussions. Ask them questions and give them a chance to attempt answering in the simplest way possible. This way, they will build on their confidence and soon develop the love and passion for the subject. Allow some room for learners to make mistakes and then correct them in nice way lest they will feel demoralized.

3. Critical and creative thinking

Use probing questions during the lessons to elicit critical thinking in learners. Help them develop a thinking culture as they try to relate the unit with the questions given to them. These questions should however trigger the idea of what they should expect from the unit. Use videos, pictures and photographs to make learners discuss the activities therein. Ask learners to come up with diagrams that illustrate learning aspects this encourages creativity.

4. Culture and identity

Make learners to research on ways in which they can use the knowledge acquired from the unit in improving the living conditions of their communities. The greatness of a nation lays in the ability of its people to integrate skills and knowledge with national development and growth. Learners should know that knowledge and culture are mutually inclusive.

Cross cutting issues

1. Environmental awareness and sustainability

Learners should endeavor to keep and maintain a clean environment. By doing this, they not only prevent diseases but also be aware of the importance the environment is for sustainability purposes.

2. Peace and values of education

Throughout the unit, learners are actively involved in discussing issues as a group. Learners should be made aware of the need to accommodate everyone's ideas and opinions. Through the discussions they will at times agree or disagree on issues at hand. They should be made to embrace the views of others and treat them as a learning process. Any form of intolerance should be highly condemned.

Meaning of new words

- **Germ**s-organisms that cause diseases
- **Preening** – to clean
- **Odour**- bad smell
- **Dissolves** – become or cause to become incorporated into a liquid so as to form a solution
- **Campaign** – to make people aware of an issue affecting them

1.1 Care of the body

Activity 1: Refer to learner's book page 1

In pairs (Communication and cooperation)

1. Organise learners into pairs.
2. Show them picture and charts of hygienic activities. Alternatively they can look at the pictures in the learner's book.
3. Let them discuss how the activities are related to caring of the body. Do they practise such activities at home?
4. Ask learners to practise reciting the poem provided in class.
5. Thereafter, ask them probing questions about the poem.
6. You will tackle each activity of cleaning various parts of the body separately.

Activity 2: *Refer to learner's book page 2*

1. Place different cleaning materials on the desk or table.
2. Guide learners into sorting them and writing the items that are only needed in brushing teeth.
3. Put learners into groups of four.
4. Guide learners in discussing picture and charts on brushing teeth.
5. Take learners through steps for brushing teeth.
6. Ask oral questions on brushing teeth such as:
 - a) How does your tongue feel when you pass it through your teeth?
 - b) How does your mouth smell after brushing?
 - c) What else can you use if there is no toothpaste at home?
 - d) How do you hold a toothbrush?
7. Guide learners in discussing pictures on importance of brushing teeth.
8. Ask oral questions on importance of brushing teeth.
9. Guide learners in saying importance of brushing teeth.
 - Share your experiences on teeth loss and toothaches.
 - How can teeth loss and tooth aches be prevented?
10. Make a journal on brushing teeth for learners to fill for eight days.
11. Assist learners in practising singing the song provided in the learners book as a fun activity.
12. Instruct learners to attempt check your progress 1 (a)

Lesson assesment

Observation

Each learner to do a presentation on brushing teeth.

Answers to check your progress 1a

Refer to learner's book page 4

- a) Get toothbrush and soak it in water.
- b) Add toothpaste.
- c) Brush your teeth inside, outside and sideways.
- d) Put clean water in a cup and rinse your mouth by gurgling.
- e) Repeat the steps till your mouth is clean.

Homework

Fill a twenty one day journal by indicating the number of times you brushed your teeth. Do a research on how your family members brush their teeth. How often do the family members brush their teeth? State reasons as to why they choose to brush their teeth? What are some of the reasons for not brushing their teeth after every meal? Refer other items for brushing teeth to your family members other than toothbrush and toothpaste.

Activity 3: Refer to learner's book page 4

Allow learners to review the previous lesson by mentioning the importance of brushing teeth. Display teaching aids and let them identify the teaching aids.

1. Guide learners through the procedure for cleaning the face.
2. Guide them in washing their faces.
3. Ask oral questions on cleaning face.
 - a) Why do we use clean water to wash our face?
 - b) Why is it that we are not allowed to share face towels?
 - c) Is it right to wash your face at the same time with someone else?
 - d) Why do we need to close our eyes when washing?
4. Guide learners to discuss pictures and video on importance of washing the face
5. Allow learners to present their points on importance of washing their faces.
6. Instruct learners to attempt check your progress 1 (b)

Check your progress 1b

Refer to learner's book page 5

1. a) Ears
b) Nose
c) Eyes
d) Mouth
2. Mucus, sweat and dirt

Activity 4 and 5: Refer to learner's book pages 6 and 7

1. Let learners name materials used in cleaning hair.
2. Ask oral questions on hair such as:
 - a) Where do we find hair on our bodies?
 - b) What is the colour of the hair?
 - c) Why do we clean our hair?
 - d) What will happen to our hair if we do not clean it?
3. Discuss the pictures on cleaning of the hair with the learners.
4. Take learners through the steps for cleaning the hair as you demonstrate.
5. Instruct learners to attempt check your progress 1c.

Lesson assesment

Product

Pick random learners to say the steps for cleaning the hair.

Answers to check your progress 1c

Refer to learner's book page 8

Check for correct hair cleaning items.

Homework

Colour and cut out black and white pictures of materials used in cleaning hair and mount them on a manilla paper.

Pick the three best displays and hang in the classroom.

Activity 6: *Refer to learner's book page 8*

1. Ask learners to name materials used in cleaning the nose.
2. Guide learners in reading a speech bubble in the learner's book.
3. Discuss pictures on cleaning the nose.
4. Demonstrate how the nose is cleaned.
5. Ask oral questions on cleaning of the nose.
 - a) How do we clean the nose?
 - b) What do we use to clean nose?
6. Instruct learners to attempt check your progress 1 d.

Lesson assesment

Pick random learners to say the steps for cleaning nose.

Answers to check your progress 1d

Refer to learners book page 11

1. Stop flies from coming to our face and to look presentable.
2. Diagram of handkerchief or a piece of cloth.

Lesson assesment

Product

Check if learners can clean their noses properly.

Activity 7: *Refer to learner's book page 11*

1. Ask learners how they clean their ears, let them name materials used in cleaning ears.
2. Discuss the pictures on cleaning ears.
3. Take learners through the steps for cleaning ears.
4. Demonstrate how cleaning of ears is done.
5. Ask oral questions on cleaning ears.
 - a. What do we call dirt formed in the ear?

- b. Why should we keep our ears clean?
- c. What are some of the ear diseases you know?
- d. What happens when you do not clean your ears?
- e. Why should we never insert things in our ears?

Lesson assesment

Pick random learner to say the steps for cleaning ears.

Answers to check you progress 1e

Refer to learner's book page 12

1. Wax and dirt
2. Everyday when we bathe.

Activity 8: Refer to learner's book page 12

1. Discuss pictures on washing hands.
2. Demonstrate how to wash hands.
3. Ask oral questions on washing hands.
 - a. Why do we need to keep our fingernails short?
 - b. When are we supposed to wash our hands?
 - c. Why do we wash our hands?
4. Assist learners in singing the song suggested in the Fun corner activity.

Activity 9: Refer to learner's book page 15

1. Ask learners probing questions such as: Is it a must to wash our hands using soap? Why?
2. Guide learner in doing the activity as suggested in the learner's book. Let them discover the importance of using soap when washing.

Answers to check your progress 1f

Refer to learner's book page 16

1. To keep them clean from germs.
2. Long nails harbour germs.

Activity 10: Refer to learner's book page 17

1. Discuss pictures on importance of washing legs.
2. Take learners through the steps for washing legs as you demonstrate.
3. Ask oral questions on washing legs.
 - a. How many times are we supposed to clean our legs?
 - b. Which part of the leg is in contact with the ground?

Answers to Check your progress 1g

Refer to learner's book page 18

Check for correct items drawn

Activity 11 and 12: Refer to learner's book pages 18 and 20

1. Ask learners to name materials used in cleaning the whole body.
2. Discuss pictures on bathing.
3. Discuss steps on washing the whole body by demonstrating how to wash the whole body using a doll.
4. Guide learners in discussing pictures on washing the whole body.
5. Ask oral questions.
 - a) How many times are we supposed to bathe?
 - b) Which parts of the body should we give more attention when taking a bath?
 - c) What happens when we do not take bath regularly?
6. Ask learners how they clean their bodies when there is no soap

Lesson assessment

Product

Learners should be able to name materials for and how to clean the body properly.

Answers to check your progress 1h

Refer to learner's book page 20

1.
 - a) Running
 - b) Jogging

- c) Digging
 - d) Walking
 - e) Playing football
2.
 - a) Clean water
 - b) Towel
 - c) Soap
 3.
 - i. False
 - ii. True
 - iii. True
 - iv. False
 - v. True
 4. Check for correct items drawn
 5. To make the skin moist

1.2 How germs spread

Activities 13 and 14: Refer to learner's book page 21 and 22

1. Play a video on spreading of diseases from a sick person to a healthy person.
2. Guide a discussion on video watched and the story read.
3. Allow each group to do a presentation on diseases that can be spread from a sick person.
4. Guide learners in discussing pictures on how diseases from the mouth, nose and eyes can be spread as illustrated in the learners book.
5. Ask oral questions
 - a) How do people get infected with diarrhoea and cholera?
 - b) Which disease affects the nose, mouth and eyes?
 - c) What are some of ways of spreading those diseases?

Answers to Check your progress 1i

Refer to learner's book page 23

1. Fruits and vegetables
2. Washing hands and foods regularly

Homework

Visit a nearby food vendor and interact with him or her. Ask the the following research questions.

- Which are some of the foods eaten raw?
- Which foods have to be cooked before eating?
- What are the hygienic practices observed when handling food?
- Does the vendor have a clean source of water for cooking and bathing?
- How often does he or she clean her kitchen and place of eating?

1.3 Designing a poster on use of soap

Activity 15: Refer to learner's book page 24

1. Organise a visit to a nearest health centre and ask learners to observe pictures on different posters.
2. Ask learners to pick out details found in each poster as they go round the health centre.
3. Guide learners in doing presentations on details found in a poster.
4. Supervise learners as they color and cut out black and white pictures.
5. Demonstrate how to make a poster on uses of soap and dangers of germs.
6. Guide learners in making poster on uses of soap and dangers of germs as a fun activity.
7. Pick the best posters and display them for the other learners to see. Hang them in the classroom, school kitchen and on the school noticeboard.

Lesson assesment

Product

Check for learners knowledge on the importance of information found on posters.

Answers to Check your progress 1j

Refer to learner's book page 25

1. Steps of cleaning hands with soap.
2. Diseases caused by germs and how to prevent them.

1.4 How animals clean themselves

Activity 16: Refer to learner's book page 26

1. Ask oral questions on how animals clean themselves, such as:
 - Have you ever seen any animal clean up?
 - How did they do it?
2. Guide learners in discussing different ways that a dog and chicken clean up.
3. Pick learners to demonstrate different ways dogs and chicken clean up.
4. Watch a video on chicken or dogs cleaning up. Thereafter, discuss pictures of animals cleaning up.

Lesson assesment

Product

Check if learners know the importance of animals cleaning themselves.

Answers to check your progress 1 k

Refer to learners book page 27

1. Animals clean themselves by
 - a. Licking
 - b. Nibbling
 - c. Body shaking
 - d. Rolling on the ground
2. To prevent germs and pests

Refer to Pupil's Book pages 28-52

Learn about	Key inquiry questions
<p>Learners should know how plants and animals can be grouped according their habitats.They can do this individually and as a class by collecting plants from the school environment, identifying their parts and naming them.</p> <p>They should learn how to closely observe animals that live at home and identify the wild ones, including minibeasts and birds, by talking about and drawing them. They may visit zoos and national parks to compare how the habitats are similar and different from their local one.</p> <p>They learn how to recognize differences and similarities among the animals and plants in relation to their habitats, such as birds are light and can live in trees but rats are heavy and live in holes in the ground. In both cases they want to be safe and that is how they can survive.</p>	<ul style="list-style-type: none"> • Where do animals live? • Where do we find common plants? • How do you identify parts of a plant? • Why are there more animals and plants near rivers and ponds? • Why are some animals coloured brown? • Why do some animals have bright colours? • Why do large animals tend to live above ground but smaller ones live underground or in trees?

Learning outcomes		
Knowledge and understanding	Skills	Attitudes
<ul style="list-style-type: none"> • Understand similarities and differences between animals according to their habitats. • Identify different types of plants and their parts. 	<ul style="list-style-type: none"> • Group animals and plants according to their habitats. • Observe plants and animals in their locality. • Identify and name different parts of a plant. • Investigate safely where minibeasts live. 	<ul style="list-style-type: none"> • Curiosity in learning about plants and animals. • Appreciate the importance of plants and animals.

Contribution to the competencies:**Critical thinking:** identifying animals and plants and identifying their parts**Co-operation and Communication:** group activities**Links to other subjects:**

Social Studies

Environment and Sustainability: immediate environment**Introduction to the unit**

Animals and plants, both domesticated and wild, can be found almost anywhere on the planet earth. Domesticated plants and animals include cattle, horses, sheep, chickens, dogs, maize, beans and sugarcane. The rest of the creatures on the planet earth are considered wild animals, and this includes mammals, insects, fish, and reptiles. Many varieties of plants and animals can be found in all corners of the globe, deep in the sea, and soaring high in the sky.

Competences to be attained**1. Co-operation**

Encourage learners to work as a team through group discussions. Allow learners to freely interact with one another. Let them associate with one's culture and abilities through resources sharing and exchange of ideas. The principle of co-operation should be listening to understand but not listening to respond. All learners should be given equal opportunities.

2. Communication

During group discussion, encourage learners to share their opinions, suggestions and ideas freely. This way they will build on their language command as well as ability to participate in discussions. Ask them questions and give them a chance to attempt answering in the simplest way possible. This way, they will build on their confidence and soon develop the love and passion for the subject. Allow some room for learners to make mistakes and then correct them in nice way lest they will feel demoralized.

3. Critical and creative thinking

Use probing questions during the lessons to elicit critical thinking in learners. Help them develop a thinking culture as they try to relate the unit with the questions given to them. These questions should however trigger the idea of what they should expect from the unit. Use videos, pictures and photographs to make learners discuss the activities therein. Ask learners to come up with diagrams that illustrate learning aspects this encourages creativity.

4. Culture and identity

Make learners to research on ways in which they can use the knowledge acquired from the unit in improving the living conditions of their communities. The greatness of a nation lays in the ability of its people to integrate skills and knowledge with national development and growth. Learners should know that knowledge and culture are mutually inclusive.

Cross cutting issues

1. Environmental awareness and sustainability

Learners should be aware that earth consists of different plants and animals. They should strive to conserve them for prosperity.

2. Peace and values of education

Throughout the unit, learners are actively involved in discussing issues as a group. Learners should be made aware of the need to accommodate everyone's ideas and opinions. Through the discussions they will at times agree or disagree on issues at hand. They should be made to embrace the views of others and treat them as a learning process. Any form of intolerance should be highly condemned.

Meaning of new words

- **Habitat**- place where plants and animals are found
- **Stripe** – marking in an animal
- **Evergreen** – plant leaves that stays green throughout the season
- **Gills** – breathing apparatus in a fish
- **Hippopotamus** – a big animal that lives in water and on land

2.1 Plants

Activities 1 and 2: Refer to learner's book pages 28 and 29

1. Ask learners to identify various plants found in their locality. Alternatively show them pictures and photographs of different plants. Are they able to name them.
2. Take learners out into the school compound, let them observe plants and identify them.
3. Assist learners to uproot small plants or show them pictures of seedlings.
4. Ask them to name the parts of the tree.
5. Guide learners in saying the functions of the parts of the tree.
6. Give learners drawing papers, let them draw and label the plant parts.
7. As a fun activity, let learners play a game of naming plant parts using flash cards. Prepare cards by writing parts and function of plant parts. Let learners play the game in groups.

Lesson assessment

Product

Check if learners are able to identify plants within their locality.

Answers to check your progress 2a

Refer to learner's book pages 31

	Part of the plant	Description
1	Leaves	They are green. They make food for the plant.
2	Stem	Are picked when they are ready.
3	Fruits	The middle part of the tree.
4	Roots	They are found in the soil.
5	Flowers	They are very beautiful. They can be of different colours

Activities 3 and 4: *Refer to learner's book pages 32 and 33*

1. Guide learners in discussing pictures on plants that grow near and in water. Can they identify them?
2. Ask learners to collect plants that grow in and near water.
3. Ask probing questions such as:
 - a) What do they have in common?
 - b) Do they have all the parts of a tree?
4. Guide learners in filling in the table in the learner's book.
5. Let learners carry out the fun corner activity suggested.

Lesson assessment

Product

Check if learners are able to identify plants growing near or in water.

Answer to check your progress 2b

Refer to learner's book page 34

1.
 - a) Water lily
 - b) Amazon weed
2.
 - a) Papyrus
 - b) Water reed
3.
 - a) They have large leaves
 - b) Their leaves are large

Activity 5: *Refer to learner's book pages 35*

1. Show learners pictures and let them identify plants that grow in hot and dry areas.
2. Assist learners in listing down plants that grow in dry and hot areas they know.

Lesson assesment

Product

Check if learners are able to identify plants growing in hot and dry areas.

Answers to check your progress 2 c

Refer to learner's book page 36

- a) True
- b) True
- c) True

Homework

Colour and cut out black and white pictures of plants and animals and mount them on a manilla paper.

Pick the three best displays and hang in the classroom.

Activity 6: Refer to learner's book pages 36

1. Show learners pictures and let them identify plants that grow in cool and wet areas.
2. Assist learners in listing down plants that grow in cool and wet areas they know.

Lesson assesment

Check if learners are able to identify plants growing in cool and wet areas.

Answers check your progress 2d

Refer to learner's book page 38

They have green leaves, they grow tall.

Activity 7: Refer to learner's book page 38

1. Show learners pictures and let them identify plants that grow along the river.
2. Assist learners in listing down plants that grow in along the river they know.
3. Let learners carry out the fun corner activity suggested.

Lesson assesment

Product

Check if learners are able to identify plants growing along the river.

Answers to check your progress 2e

Refer to learner's book page 39

1. Papyrus and water reeds
2. To get enough water

Homework

In groups of five take photographs of different plants that grow at your home.

Make a booklet with pictures and names of plants that grow in cool and wet areas.

2.2 Animals

Activities 8, 9 and 10: Refer to learner's book pages 40, 41 and 42

1. Ask learners probing questions such as:
 - Which animals do you know?
(Write down the answers on the chalkboard)
 - Where do they live?
 - Why do they live there?
2. From the list of animals on the chalkboard, guide learners in discussing pictures in the learner's book.
3. Take learners to the school garden and dig out soil.
4. Guide learners in naming the animals dug from the soil.

Lesson assesment

Product

Check if learners can name and identify different animals.

Check your progress 2f

Refer to learner's book page 43

1. To keep moist, hide from predators.
2. Hide

Homework

Draw, colour and name animals that live underground.

Activities 11 and 12: Refer to learner's book pages 43 and 45

1. Show learners picture and charts of wild animals, let them try to identify and name them.
2. Organise for a wildlife officer to talk to learners about wild animals. Allow them to engage the resource person.
3. Assist learners in filling the table in their books and naming wild birds.
4. Instruct learners to draw wild birds they like as a fun corner activity.

Lesson assesment

Product

Check if learners can name and identify wild animals.

Answers to check your progress 2g

Refer to learner's book page 47

1. a. True
b. False
c. True
d. False
e. True

Activity 13: *Refer to learner's book page 47*

1. Show learners pictures of different animals, dull and bright coloured animals in their habitats.
2. Let learners tell you the differences observed.
3. Guide learners in filling the table in their books.
4. Ask learners probing questions such as:
 - a) Which animals can be spotted from far? Why is it so?
 - b) Do the animals that are dull coloured have an advantage over the brightly coloured ones?
5. Guide learners in drawing, colouring and naming animals that are dull and brightly coloured.

Lesson assesment

Product

Check if learners can name and identify characteristics of animals and their habitats.

Answers to check your progress 2h

Refer to learner's book page 49

1.
 - a. Zebra
 - b. Albino monkey
2.
 - a) Gazelle
 - b) Antelope
 - c) Hare

Homework

Identify some of the animals kept at home which have dull coloured skin

Draw and name them.

Activity 14: Refer to learner's book page 49

1. Ask learner probing questions such as:
 - a) Which animals are kept at home?
 - b) What do you call their young ones?
 - c) Why are they kept at home?
2. Guide the learners in discussing the importance of each domestic animal.

Lesson assesment

Product

Check if learners can name and identify domestic animals and their importance.

Answers to check your progress 2i

Refer to learner's book page 50

1.
 - a. Security at home
 - b. Carrying things
 - c. and
 - d. Meat, eggs and feathers

Homework

1. Match the following correctly

	Animal	Young one
1	Dog	Calf
2	Cow	Chic
3	Goat	Lamb
4	Sheep	Puppy
5	Flowers	They are found in the soil.

2. Which animals are kept as pet?
 - a) Dog
 - b) Cat
 - c) Rabbits

Activity 15: *Refer to learner's book page 51*

1. Guide learners in watching a video or pictures of animals that live in water.
2. Project different animals on the monitor.
3. Guide learners in sorting out the animals and fill in the table like the one shown below.

Animals that live in water	Animals that do not live in water

4. Let learners draw and name animals that live in water.
5. Pick the best and display for the other learners to see.

Lesson assesment

Product

Check if learners can name and identify animals that live in water.

Answer to check your progress 2j

Refer to learner's book page 51

1. It dies
2. Scales

Refer to Pupils Book pages 53 - 69

Learn about	Key inquiry questions
<p>Learners should identify the five senses and which organ is used for each sense. They should design investigations using their sense organs. For example, they may listen to sounds of different pitches e.g. beating drums, plucking a bow, ringing the school bell, clapping their hands, blowing a whistle etc. and differentiate their pitches. This develops the idea of distinguishing sounds and different volumes and pitch.</p> <p>They may learn how to investigate how echoes are produced, and shadow formation. This helps them to learn that light cannot pass through solid objects and this is how shadows are formed.</p> <p>It is important that children learn about how a combination of their senses enables them to gather information and understand the world round them.</p>	<ul style="list-style-type: none"> • How do you distinguish different substances in the environment? • How do we produce sounds of different pitches? • How do we distinguish sounds of different pitches? • How do we identify echoes? • Why do we have different lengths of shadows at different times of the day?

Learning outcomes		
Knowledge and understanding	Skills	Attitudes
<ul style="list-style-type: none"> Identify objects, symbols and gestures using the five senses. Understand concept of image formation. Identify sounds produced by different objects, changing volume and pitch. 	<ul style="list-style-type: none"> Observe and measure different shadows. Relating shadows to the time of day. Practise how to produce sound using local materials. Predicting what may happen to shadows if there is no sun, or sounds if they are made in different places. 	<ul style="list-style-type: none"> Appreciate their sense organs. Appreciate the importance of shadows. Value materials that produce sound. Appreciate difference in attitudes towards sound as music.
<p>Contribution to the competencies:</p> <p>Critical thinking: in differentiating substances in the environment using sense organs</p> <p>Co-operation and Communication: performing activities using sense organs; culture of appreciating people with disabilities</p>		
<p>Links to other subjects:</p> <p>Social Studies</p> <p>Environment and Sustainability: immediate environment</p>		

Introduction to the unit

The learners are already aware of parts of the body and their functions. Introduce sense organs where learners will be taught to be aware of their surrounding using sense organs.

Sensory organs are very highly developed and specialised organs that are an extension of the central nervous system, with a sole function to take in information and relate it to the brain. The sensory neurons are highly adapted to detect changes of both external and internal changes in the environment and report these changes to the brain. Whether through touch, sound, taste, sight, or smell, the senses are constantly reporting variances, nuances, and dramatic changes within the environment to the brain. This is done through nerve actions, or action potentials.

Competences to be attained

1. Co-operation

Encourage learners to work as a team through group discussions. Allow learners to freely interact with one another. Let them associate with one's culture and abilities through resources sharing and exchange of ideas. The principle of co-operation should be listening to understand but not listening to respond. All learners should be given equal opportunities.

2. Communication

During group discussion, encourage learners to share their opinions, suggestions and ideas freely. This way they will build on their language command as well as ability to participate in discussions. Ask them questions and give them a chance to attempt answering in the simplest way possible. This way, they will build on their confidence and soon develop the love and passion for the subject. Allow some room for learners to make mistakes and then correct them in nice way lest they will feel demoralized.

3. Critical and creative thinking

Use probing questions during the lessons to elicit critical thinking in learners. Help them develop a thinking culture as they try to relate the unit with the questions given to them. These questions should however trigger the idea of what they should expect from the unit. Use videos, pictures and photographs to make learners discuss the activities therein. Ask learners to come up with diagrams that illustrate learning aspects.

4. Culture and identity

Make learners to research on ways in which they can use the knowledge acquired from the unit in improving the living conditions of their communities. The greatness of a nation lays in the ability of its people to integrate skills and knowledge with national development and growth. Learners should know that knowledge and culture are mutually inclusive

Cross cutting issues

1. Environmental awareness and sustainability

Learners should be aware of their environment using their senses.

2. Peace and values of education

Learners should be made to embrace the views of others and treat them as a learning process. Any form of intolerance should be highly condemned.

Meaning of new words

- **Shadow** - a dark area or shape produced by a body coming between rays of light and a surface
- **Echo**- a sound or sounds caused by the reflection of sound waves from a surface back to the listener
- **Texture** - the feel, appearance, or consistency of a surface or a substance
- **Sound**-vibrations that travel through the air or another medium and can be heard when they reach a person's or animal's ear
- **Vibrate**-move continuously and rapidly to and fro
- **Pitch** - the degree of highness or lowness of a tone
- **Volume**- quantity or power of sound; degree of loudness

3.1 Senses

Activity 1: Refer to learner's book page 53

1. Guide learners in identifying body parts using charts and diagrams. This is a review of what they learnt in Grade 1.
2. Ask learners to say the importance of each body part then guide them in identifying sense organs.
3. Direct learners to draw sense organs and label them.

Lesson assessment

Product

Check if learners can identify sense organs and their importance.

Check your Progress 3 a

Refer to learner's book pages 54

1. Smelling, nose
2. Touching, skin or hands
3. Tasting, tongue
4. Ears
5. See, eyes

Activity 2: Refer to learner's book page 54

1. Use probing questions on sense of smell.
2. Pair pupils, one to be blindfolded.
3. Give instruction for the smelling exercise of different types of food.
4. In their groups, one member to be blindfolded and walk around the class
5. Ask probing questions such as:
 - a) Is it easy walking around with the eyes blindfolded?
 - b) Do things that are near you look the same as they are far?
6. Instruct learners to name things they think do not smell as a fun activity corner.

Lesson assessment

Product

Check if learners can use their sense of smell to identify things.

Activity 3 and 4: Refer to learner's book pages 56 and 58

1. Let learners look at different things having a variety of colours.
2. Ask them to identify the colours shown and fill the table provided in their books.
3. Provide learners with charts containing parts of the eye or draw it on the chalkboard.
4. Let learners identify the parts seen using colours. Guide them in naming the parts of the eye.
5. Instruct them to draw the arts of the eye and label.

Lesson assesment

Product

Check if learners can use their sense of sight to identify things.

Answers to check your progress 3b

Refer to learner's book page 57

1. a. Pineapple
b. Banana
c. Mango
(Any other answer that fits)
2. a) Dirty toilet
b) Rotten food
3. Blind
4. Glasses or sectcles
5. Big, small

Homework

At home, go through all the kitchen items. Record the items under the correct colour column.

Colour	Red	Blue	green	black	Orange	yellow	pink
Item							

Answers to check your progress 3c

Refer to learner's book page 58

1. a. True
b. False
c. True
d. True
2. Check for correct statements

Ask oral questions

- How many ears do we have?
- How do you know that something has touched you?

Activities 5 and 6: Refer to learner's book pages 60 and 61

1. Play a radio recording for the learners, alternatively ask one learner to ring the bell.
2. Ask probing questions such as:
 - a) What did you hear?
 - b) Where was the sound coming from?
 - c) Was it too loud?
3. Instruct learners to cover their ears then ask:
 - Did you hear sound when you covered your ears?
4. Guide learners in drawing an ear.
5. Instruct the learners to touch their friends with a stone.
6. Ask them to touch with a bare hand. Ask them:
 - a) Can you note the difference in the feel?
 - b) Which one is rough?
 - c) Which one is smooth?
 - d) From what point of your body did you feel the touch?

Lesson assessment

Product

Check if learners can use their sense of hearing and touch to identify things.

Answers to check your progress 3d

Refer to learner's book page 62

1. a. Armpits
b. Feet
2. a. False
b. False

Activity 7: Refer to learner's book page 62

1. Group the learners into fours.
2. Give them instructions on the tasting exercise.
3. Guide them in filling the table in their books.
4. Guide them in doing a presentation on their findings.

Lesson assesment

Product

Check if learners can use their sense of taste to identify things.

Answers to check your progress 3 e

Refer to learner's book page 63

1. Tasteless
2. Salty
3. Salty

3.2 Sounds of different pitches and volume

Activities 8 and 9: Refer to learner's book pages 64 and 66

1. Lead learners in filling one container with water and leaving the one empty.
2. Ask learners to blow the container with water and listen to the sound produced.
3. Ask them to blow the empty one and listen out for the sound produced.
4. Guide them in comparing the sound produced by blowing the two containers.
5. From the sound produced guide them in defining pitch.
6. Still with the two containers hit the one with water using a stick.
7. Ask learners to listen for the sound produced.
8. Instruct them to hit the empty container.
9. Ask them to listen out for the sound produced.
 - Which container produced the loudest sound?
10. Guide learners in identifying musical instruments and how they are played.
11. Ask all learners to leave the classroom, each learner to go back inside and clap.
 - What kind of sound is produced?

Lesson assesment

Product

Check if learners can differentiate sounds from different sources.

Answers to check your progress 3 f

Refer to learner's book page 65

	Shaker	Shaken
	Drum	Hit
	Guitar	Plucked
	Recorder	Blown
	Piano	Press keys

Answers to check your progress 3g

Refer to learner's book page 66

1. Sound
2. Hit
3. a) Gazelle
b) Antelope
c) Hare

3.3 Shadow formation

Activities 10 and 11: Refer to learner's book pages 67 and 68

1. Organise learners into groups.
2. Provide them with materials required.
3. Let them carry out the activity as outlined in the learner's book.
4. Guide learners in identifying a tree or their own shadows to measure their shadows.
5. Help learners in marking the size of the shadow formed in the morning.
6. Repeat the exercise at noon time.
7. Ask them to measure the size of the shadow in the evening.
8. Ask probing questions.
 - a) When was the shadow longest?
 - b) When was the shadow shortest?
 - c) What side was the shadow formed?
 - d) What happened when the sun disappeared?

Lesson assesment

Product

Check if learners can form and measure shadows.

Answers to check your progress 3h

Refer to learner's book page 69

1. Light
2. Clear
3. Form

Refer to Pupils Book pages 70-86

Learn about	Key inquiry questions
<p>Learners should observe how humans and animals respond to changes in weather. This develops the idea that weather changes affect human and animal activities positively and negatively.</p> <p>For humans and other organisms to survive there must be air and children should learn about how important air is for human survival.</p> <p>The children should learn about moving air through making kites and they cannot see or touch air, but they can feel its presence.</p>	<ul style="list-style-type: none"> • How do humans feel under different weather conditions? • How do we respond to different weather conditions? • How do other animals respond to different (cold, heat, rain, wind) weather conditions? • How do goats behave when it rains? • How do animals and plants respond to changes in temperature? • How do we know whether there is air around us? • How is it that some things can be moved by wind or moving air, but not others? • How is it that birds can fly but not goats? • How do fur and feathers help animals live when it is cold and wet?

Learning outcomes		
Knowledge and understanding	Skills	Attitudes
<ul style="list-style-type: none"> Understand how humans and other animals respond to weather changes. Understand the importance of air in daily life 	<ul style="list-style-type: none"> Collect and record information on weather changes Perform fair tests on uses of air Communicating ideas in different ways 	<ul style="list-style-type: none"> Appreciate the importance of air in their daily lives Empathy with animals that are/are not adapted to live in hot/wet/cold places
<p>Contribution to the competencies:</p> <p>Critical thinking: understanding of how animals and humans respond to changes in weather and importance of air</p> <p>Communication: discussion</p> <p>Co-operation: group work</p>		
<p>Links to other subjects:</p> <p>Social Studies: Climate and weather</p> <p>Environment and sustainability: immediate environment</p>		

Introduction to the unit

Meteorologists use a wide variety of different instruments to measure weather conditions. In this unit, learners will be taught about weather symbols and instruments, weather changes and response to weather changes by different animals.

Competences to be attained

1. Co-operation

Encourage learners to work as a team through group discussions. Allow learners to freely interact with one another. Let them associate with one's culture and abilities through resources sharing and exchange of ideas. The principle of co-operation should be listening to understand but not listening to respond. All learners should be given equal opportunities.

2. Communication

During group discussion, encourage learners to share their opinions, suggestions and ideas freely. This way they will build on their language command as well as ability to participate in discussions. Ask them questions and give them a chance to attempt answering in the simplest way possible. This way, they will build on their confidence and soon develop the love and passion for the subject. Allow some room for learners to make mistakes and then correct them in nice way lest they will feel demoralized.

3. Critical and creative thinking

Use probing questions during the lessons to elicit critical thinking in learners. Help them develop a thinking culture as they try to relate the unit with the questions given to them. These questions should however trigger the idea of what they should expect from the unit. Use videos, pictures and photographs to make learners discuss the activities therein. Ask learners to come up with diagrams that illustrate learning aspects this encourages creativity.

4. Culture and identity

Make learners to research on ways in which they can use the knowledge acquired from the unit in improving the living conditions of their communities. The greatness of a nation lays in the ability of its people to integrate skills and knowledge with national development and growth. Learners should know that knowledge and culture are mutually inclusive

Cross cutting issues

1. Environmental awareness and sustainability

Weather affects the environment. Therefore, learners should endeavor to practise good environmental activities to protect it.

2. Peace and values of education

Throughout the unit, learners are actively involved in discussing issues as a group. Learners should be made aware of the need to accommodate everyone's ideas and opinions. Through the discussions they will at times agree or disagree on issues at hand. They should be made to embrace the views of others and treat them as a learning process. Any form of intolerance should be highly condemned.

Meaning of new words

- **Weather charts** - a map showing the state of the weather over a large area.
- **Weather symbols** – icons that indicate the state of weather.

4.1 Weather symbols

Activities 1, 2 and 3: Refer to learner's book pages 70, 71 and 72

1. Guide learners in defining weather. Ask the learners to say the weather at that particular moment.
2. Assist learners in discussing pictures in learner's book on weather symbols.
3. Ask probing questions such as
 - a) Talk to your on what you can see. What is happening in the picture?
 - b) Which symbol shows there is moving air?
 - c) Which picture shows that it is sunny?
 - d) Which picture shows that it is calm?
 - e) Which picture shows that it is cloudy?
4. Guide learners in naming different weathers conditions.
5. Cut pictures of different weather conditions out and stick them on manila papers.
6. Guide learners in filling the table in their notebooks on weather conditions. Show them how to use weather symbols.
7. Show learners pictures or equipments for measuring weather. Guide them in identifying the instruments and their names.
8. Organise for a visit to a weather station or invite a meterologist to talk to learners about weather.

Lesson assessment

Product

Check if learners can identify weather symbols and instruments.

Answers to check your progress 4 a

Refer to learner's book pages 73

1. a. Friday
b. Wednesday
c. Tuesday
2. In an open field

4.2 Weather changes

Activities 4, 5, 6, 7 and 8: Refer to learner's book pages 74, 75, 76 and 78

1. Ask learners in pairs to talk about what they do during different weather conditions.
2. List them on the chalkboard as learners say different types of activities.
3. Guide learners in discussing pictures on clothes worn during rainy, cold, hot and calm days.
4. Guide them in drawing clothes worn during rainy and cold days in their notebooks.

Lesson assessment

Product

Check if learners can explain different weather conditions and activities that take place.

Answers to check your progress 4b

Refer to learner's book pages 78

1. Weather
2. Light clothes
3. Gumboots
4. Hot

5. a. True
b. False

4.3 How animals and plants respond to different weather conditions

Activities 9, 10, 11 and 12: Refer to learner's book pages 78, 79, 80 and 81

1. Ask probing questions such as:
 - How do animals behave when it starts raining?
 - How do animals behave on a cold day?
 - How do animals behave when its sunny?
2. Guide learners in discussing pictures in learner's book.
3. Take learners for nature walk let them see how plants and animals behave under diffrent conditions.
4. Guide learners in drawing trees behavior during a windy day.

Lesson assessment

Product

Check if learners can describe how plants and animals behave during different weather conditions.

Answers to check your progress 4 c

Refer to learner's book pages 82

1. a. True
b. True
c. True
d. True

4.4 Importance of air

Activities 13, 14, 15 and 16: Refer to learner's book pages 82, 83, 84 and 85

1. Ask learners probing questions about air.
 - Can they see it?
 - How do they know it exists?
 - How can they proof it exists?
2. Use a balloon to show presence of air.
3. Thereafter, guide learners in making a kite by tying two sticks to look like a cross.
4. Help learners in placing and sticking the piece of paper on the frame.
5. Show learners how to draw diagonal lines and also how to cut them out using a pair of scissors.
6. Guide the learners in colouring as desired.
7. Lead them in cutting out two tails and sticking them on the kite.
8. Show learners how to tie a long string on the kite. Take learners out to fly the kite if it is windy.
9. Guide learners in discussing pictures on the learners book about the effects of wind.
10. Show learners a video on effects of wind on peoples lives.
11. Lead learners in sharing experiences on how wind has affected their lives.
12. Ask learners to name animals they know that can fly.
 - What makes birds to fly?

Lesson assesment

Product

Check if learners can describe the effects of wind and the presence of air.

Answers to check your progress 4d

Refer to learner's book page 85

1. Winnow,sail, dry clothes faster
2. Moving trees and objects
3. Windy

Answers to Check your progress 4e

Refer to learner's book page 86

1. Animals that fly –most birds
Animals that do not fly – cow, cat, dog, goat etc
2. Size
3. Two

Refer to Pupils Book pages 87-97

Learn about	Key inquiry questions
<p>Learners should know about the importance of clean water and methods of obtaining clean and safe water. The methods include decantation, filtration, addition of chemicals, boiling and distillation.</p> <p>Children should learn, through investigation, different ways of obtaining clean and safe water e.g. filtration. For example they may be provided with materials like clean pieces of cloth, dirty water and clean empty containers and investigate ways to filter the dirty water. They should know that filtered water or water obtained through decantation is clean but not safe because it will contain harmful mini-beasts and germs unless it is boiled or chemicals like chlorine and other water purification chemicals are added to it.</p>	<ul style="list-style-type: none"> • How do we obtain clean and safe water? • Why do we need clean and safe water? • Why can goats drink from water in ponds but not humans? • How can we design a test to find out if water can be used by humans?

Learning outcomes

Knowledge and understanding	Skills	Attitudes
<ul style="list-style-type: none"> • Explain importance of clean water and methods of making water clean and safe. 	<ul style="list-style-type: none"> • Observing particles settling during decantation. • Filtering water using suitable filtering materials. • Observing the boiling, and addition of water purification chemicals. • Comparing dirty and clean water. 	<ul style="list-style-type: none"> • Appreciate the importance of clean and safe water. • Show curiosity as they perform various activities on water purification.

Contribution to the competencies:

Critical thinking: understanding ways of obtaining clean and safe water

Communication and Co-operation: performing activities on ways of obtaining clean and safe water

Links to other subjects:

Mathematics: Measuring

Life Skills: Health and hygiene

Environment and Sustainability: importance of clean water

Introduction to the unit

Safe water means water that will not harm you if you come in contact with it. The most common use of this term applies to drinking water, but it could also apply to water for swimming or other uses. To be safe, the water must have sufficiently low concentrations of harmful contaminants to avoid sickening people who use it. The list of harmful contaminants includes disease-causing microbes such as bacteria, viruses, and protozoans; cancer-causing chemicals such as many pesticides, organic solvents, petroleum products, chlorinated by-products of the disinfection process, and some metals and metalloids; nitrates and nutrients, endocrine-disrupting compounds, strong acids, strong bases, radionuclides, and any other acutely toxic substance.

Competences to be attained**1. Co-operation**

Encourage learners to work as a team through group discussions. Allow learners to freely interact with one another. Let them associate with one's culture and abilities through resources sharing and exchange of ideas. The principle of co-operation should be listening to understand but not listening to respond. All learners should be given equal opportunities.

2. Communication

During group discussion, encourage learners to share their opinions, suggestions and ideas freely. This way they will build on their language command as well as ability to participate in discussions. Ask them questions and give them a chance to attempt answering in the simplest way possible. This way, they will build on their confidence and

soon develop the love and passion for the subject. Allow some room for learners to make mistakes and then correct them in nice way lest they will feel demoralized..

3. Critical and creative thinking

Use probing questions during the lessons to elicit critical thinking in learners. Help them develop a thinking culture as they try to relate the unit with the questions given to them. These questions should however trigger the idea of what they should expect from the unit. Use videos, pictures and photographs to make learners discuss the activities therein. Ask learners to come up with diagrams that illustrate learning aspects this encourages creativity.

4. Culture and identity

Make learners to research on ways in which they can use the knowledge acquired from the unit in improving the living conditions of their communities. The greatness of a nation lays in the ability of its people to integrate skills and knowledge with national development and growth. Learners should know that knowledge and culture are mutually inclusive.

Cross cutting issues

1. Environmental awareness and sustainability

Learners should be aware of the need to use safe water. By knowing this, they endeavor to keep their environment clean.

2. Peace and values of education

Through making the environment clean hence making water safe for drinking and use prevents conflicts arising from shortage of clean water for use.

3. Life skills

The knowledge of safe water empowers learners to be aware of the need for clean water.

Meaning of new words

- **Safe** – free from contaminants
- **Distill**- purify (a liquid) by heating it so that it vaporizes, then cooling and condensing the vapour and collecting the resulting liquid
- **Decant** - gradually pour (wine, port, or another liquid) from one container into another, typically in order to separate out sediment
- **Chemicals**-a distinct compound or substance, especially one which has been artificially prepared or purified

- **Germs** – small substances that cause diseases
- **Diseases** – forms of sickness
- **Cholera**- an infectious and often fatal bacterial disease of the small intestine typically contracted from infected water supplies and causing severe vomiting and diarrhoea
- **Typhoid** - an infectious bacterial fever with an eruption of red spots on the chest and abdomen and severe intestinal irritation

5.1 Importance of safe drinking water

Activities 1 and 2: Refer to learner's book pages 87 and 88

1. Start the lesson by asking learners questions such as:
 - a) How many times do you take water in a day?
 - b) Where do you get drinking water from?
 - c) Do you take treated water?
2. Guide learners in watching a video on dangers of taking water directly from the source
3. Help learners in discussing pictures on the learner's book.

Lesson assessment

Product

Check if learners can explain importance and sources of clean and safe water.

Answers to check your progress 5a

Refer to learner's book pages 88

1. Germs
2. Clear, germs

5.2 Making water clean and safe

Activities 3, 4, 5, 6 and 7: Refer to learner's book pages 89, 90, 92, 94 and 95

Boiling

1. Lead learners in stating importance of each item used in boiling water.
2. Group learners in fives and take them through the safety rules.
3. Take them to the school kitchen.
4. Allocate each group a fire place/burner.
5. Insist that they should make sure that the items for boiling water should be clean.
6. Guide them in filtering the water before boiling.
7. Ask them to fill the cooking pot with water and cover it with a lid.
8. Ask them to place it on fire and bring it to boil.
9. Help them in removing from fire once it boils.
10. Ask them to store the water covered in containers once it cools off.

Lesson assessment

Product

Check if learners can explain different ways of making water clean and safe for drinking.

Answers to check your progress 5 b

Refer to learner's book pages 90

Check for correct answers on sources of water.

Adding chemicals

1. Guide learners in discussing pictures in the learner's book or bring water purifying chemicals to class.
2. Assist learners in identifying items used in making water safe by adding chemicals.
3. Take learners through safety measures when handling chemicals.
4. Guide learners in adding chlorine in water.
5. Help them in stirring the water to mix with the chemical.
6. Ask probing questions.

- Does the chemical smell?
- How does the water taste?
- What is the colour of the water?

Answers to check your progress 5c

Refer to learners book page 92

1. True
2. Check for correct given answers

Distillation

1. Guide learners in stating the importance of each item used in distillation.
2. Display picture showing the procedure for distillation.
3. Let learners watch video on distillation if available.
4. Allow them to observe the lid on the cooking pot once the water boils.

Answers to check your progress 5d

Refer to learners book page 94

1. It requires complex equipments to collect enough water.

Decantation

1. Demonstrate decanting a mixture of water and cooking oil.
2. Lead learners in decanting water and chalk.
3. Insist that decanted water is not safe for drinking.
4. Help them to boil to make it safe.

Answers to check your progress 5e

Refer to learners book page 95

1. a. False
b. False
c. False

Filtration

1. Assist learners in saying the importance of each item used in filtration.
2. Let learners watch a video on filtration if available or show them pictures or draw on the chalkboard.
3. Demonstrate to learners how filtration is done.
4. Supervise them as they carry out filtration of dirty water.
5. Remind learners that filtered water is not safe for drinking.

Lesson assesment

Product

Check if learners can explain and identify different ways of making water safe.

Answers to check your progress 5f

Refer to learners book page 97

1. Removes dirt from water.

Refer to Pupils Book pages 98-108

Learn about	Key inquiry questions
<p>Learners should know about the structure and composition of the soil in pairs or small groups by investigating samples of soils (clay, sandy, and loam). They should learn about the soil particles and observe them using hand lenses to compare colour, how it feels in between fingers and find the remains of organic matter which floats on water.</p> <p>They should visit and examine the sides of pits or channels and investigate how the particles are arranged in layers, or mixed up. They should investigate settling in long glass tubes and observe, measure, talk about and record by drawing. Through this they should learn about the structure of soil, identify the components, and recognize the process of soil structure formation.</p> <p>Children should talk about the activities that involve uses of soil such as farming and making pottery, and how clay is different from sand. They should learn about the value of the soil as an environment for small living things and roots, and that soil contains water and air</p>	<ul style="list-style-type: none"> • How can we separate the basic types of soil in the locality? • What does a common soil contain? • How are the various particles arranged from top downwards? • How is it that soil in the walls of pits is in layers? • How is the soil important as an environment for living things? • How do different soils influence the plants that grow in them?

Learning outcomes		
Knowledge and understanding	Skills	Attitudes
<ul style="list-style-type: none"> Investigate the structure and composition of soil. 	<ul style="list-style-type: none"> Design fair tests to investigate the composition and structure of soil. Observe the structure of soil. Draw what they see. 	<ul style="list-style-type: none"> Appreciate the importance of soil. Critical thinking
<p>Contribution to the competencies:</p> <p>Critical thinking: Investigating the composition and structure of soil</p> <p>Co-operation: Performing activities on soil composition and structure</p>		
<p>Links to other subjects: Social Studies</p> <p>Environment and Sustainability: Importance of the soil</p>		

Introduction to the unit

Soil is the material found on the surface of the earth that is composed of organic and inorganic materials. Soil varies due to its structure and composition.

Soil can be defined as the organic and inorganic materials on the surface of the earth that provides the medium for plant growth. Soil develops slowly over time and is composed of many different materials. Inorganic materials, or those materials that are not living, include weathered rocks and minerals. Weathering is the mechanical or chemical process by which rocks are broken down into smaller pieces. As rocks are broken down, they mix with organic materials, which are those materials that originate from living organisms. For example, plants and animals die and decompose, releasing nutrients back into the soil.

Competences to be attained

1. Co-operation

Encourage learners to work as a team through group discussions. Allow learners to freely interact with one another. Let them associate with one's culture and abilities through resources sharing and exchange of ideas. The principle of co-operation should

be listening to understand but not listening to respond. All learners should be given equal opportunities.

2. Communication

During group discussion, encourage learners to share their opinions, suggestions and ideas freely. This way they will build on their language command as well as ability to participate in discussions. Ask them questions and give them a chance to attempt answering in the simplest way possible. This way, they will build on their confidence and soon develop the love and passion for the subject. Allow some room for learners to make mistakes and then correct them in nice way lest they will feel demoralized.

3. Critical and creative thinking

Use probing questions during the lessons to elicit critical thinking in learners. Help them develop a thinking culture as they try to relate the unit with the questions given to them. These questions should however trigger the idea of what they should expect from the unit. Use videos, pictures and photographs to make learners discuss the activities therein. Ask learners to come up with diagrams that illustrate learning aspects this encourages creativity.

4. Culture and identity

Make learners to research on ways in which they can use the knowledge acquired from the unit in improving the living conditions of their communities. The greatness of a nation lays in the ability of its people to integrate skills and knowledge with national development and growth. Learners should know that knowledge and culture are mutually inclusive.

Cross cutting issues

1. Environmental awareness and sustainability

Learners should be aware that we get food and our living from the soil. Therefore, through conserving the environment we preserve soil.

2. Peace and values of education

Land (soil) is an emotive issue in many societies. Therefore, through proper use and conservation of soil we can prevent many conflicts.

Meaning of new words

- **Sub soil** - soil lying after top soil
- **Humus** – this is the decaying matter from plants and animals
- **Drain** – ability to remove all water and leave it dry
- **Layers** - a sheet, quantity, or thickness of material, typically one of several, covering a surface or bod.
- **Absorb** – take in or soak up (energy or a liquid or other substance) by chemical or physical action
- **Organic matter**- is matter that has come from a recently living organism. It is capable of decaying, or is the product of decaying; or is composed oorganic compounds
- **Fertile** - of soil or land producing or capable of producing abundant vegetation or crops
- **Nutrients** - a substance that provides nourishment essential for the maintenance of life and for growth.

6.1 Types of soil

Activities 1 and 2: *Refer to learner's book age 98 and 99*

1. Assist learners to collect soil from different places.
2. Let learners observe, touch and smell the soils collected.
3. Allow learners to talk among themselves on the properties of the soils collected.
4. Give learners an assignment to identify types of soil found in their home areas.
5. Guide learners in practising the fun corner activity as suggested.

Lesson assessment

Product

Check if learners can identify different types of soil and their properties.

6.2 Components of soil

Activities 3, 4, 5 and 6: Refer to learner's book pages 100, 101, 103 and 104

Things in soil

1. Assist learners to collect soil and look for things found in the soil.
2. Ask probing questions to help them identify things found in the soil.
3. Write on the chalkboard what they found in the soil.

Organic matters in soil

1. Take learners to the school rubbish pit,
 - What kind of things are found in the rubbish pit?
 - Do the things found in the rubbish pit, decompose or not?
 - What is the importance of organic matter in the soil?
2. Let learners compare soils found in the garden and rubbish pit.

Air and water in soil

1. Provide learner's with materials for carrying out the activity.
2. Let them conduct the activity as suggested in the learner's book with your guidance.
3. What did they find out?

Lesson assessment

Product

Check if learners can identify different things found in the soil and their importance.

Answers to check your progress 6 a

Refer to learner's book pages 105

1. It is sticky when wet
2. Dead
3. Clay
4. Loam

6.3 Soil structure

Activity 7: Refer to learner's book page 105

1. Take learners to a nearby construction site to see dug pits.
2. Display the different soil structure in a picture chart.
2. Guide learners in naming the layers of the soil.
3. Ask learners to draw and name the layers.
4. Play a video if available to show the different layers of soil structure.
5. Ask learners to name the shapes of the soil structures.

Lesson assessment

Product

Check if learners can identify and name the layers of soil structure.

Answers to check your progress 6b

Refer to learner's book pages 106

1. Air
2. Decompose or rot
3. Animals and plants

6.4 Importance of soil

Activity 8: Refer to learner's book page 107

1. Ask learners probing questions on the importance of soil, such as:
 - How many types of soil do you know?
 - What are the uses of clay soil?
 - What do we use sand soil for?
2. Guide learners in discussing pictures on importance of soil to living things on learner's book.
3. Guide them in outlining importance of soil to living things.

Lesson assessment

Product

Check if learners can outline the importance of soil. They should also be able to identify things made from soil.

Answers to check your progress 6c

Refer to learner's book pages 108

1. Check for correct diagrams
2.
 - a. Gardening
 - b. Modelling
 - c. Building

Refer to Pupils Book pages 109-117

Learn about	Key inquiry questions
<p>Learners should know how to overcome the effect of gravity and friction by constructing simple machines such as rollers.</p> <p>Children should learn how to design a fair test to investigate boxes containing different mass and measure the significance of the rollers on different surfaces.</p>	<ul style="list-style-type: none"> • How do we construct simple rollers? • How do we use rollers to make work easier? • How might rollers be important?

Learning outcomes		
Knowledge and understanding	Skills	Attitudes
<ul style="list-style-type: none"> • Construct and use simple rollers (machines) to make work easier. 	<ul style="list-style-type: none"> • Construct simple rollers. • Use rollers for making work easier. 	<ul style="list-style-type: none"> • Appreciate and value the use of rollers for making work easier.
<p>Contribution to the competencies:</p> <p>Critical thinking: understanding how to construct simple rollers</p> <p>Communication and Co-operation: group work and discussion on how to make rollers</p>		
<p>Links to other subjects:</p> <p>Mathematics: Measurement</p>		

Introduction to the unit

There are 6 basic simple machines; the lever, the wheel and axle, the inclined plane, the wedge, the pulley, and the screw. Several of these simple machines are related to each other. But, each has a specific purpose in the world of doing work.

Competences to be attained

1. Co-operation

Encourage learners to work as a team through group discussions. Allow learners to freely interact with one another. All learners should be given equal opportunities.

2. Communication

During group discussions, encourage learners to share their opinions, suggestions and ideas freely. This way they will build on their language command as well as ability to participate in discussions.

3. Critical and creative thinking

Use probing questions during the lessons to elicit critical thinking in learners. Help them develop a thinking culture as they try to relate the unit with the questions given to them.

4. Culture and identity

Let learners research on ways in which they can use the knowledge acquired from the unit in improving the living conditions of their communities. The greatness of a nation lays in the ability of its people to integrate skills and knowledge with national development and growth. Learners should know that knowledge and culture are mutually inclusive.

Cross cutting issues

1. Environmental awareness and sustainability

Learners should be aware that machines can pollute the environment. They should be disposed when not in use.

2. Peace and values of education

Learners should be aware that some simple machines are there to make work easier. They should not be used to cause conflicts.

3. Life skills

The knowledge on the use of simple machines makes work easier.

Meaning of new words

- **Wheels** - a circular object that moves round
- **Machines** - an equipment that uses power to do work
- **Rollers** - machine that revolves over or on an object to smoothen, shape or press something

7.1 and 7.2 Making and using rollers

Activities 1, 2, 3 and 4: Refer to learner's book pages 109, 110, 112 and 113

1. Let learners give examples of simple machines that they know.
2. Show learners pictures as in the learners book, ask them to identify what is easier to do.
3. Guide learners in identifying materials that are used in making rollers and wheels.
4. Guide learners in stating the importance of each slippers, stick, wires.
5. Assist learners in cutting out slippers wheels in different shapes using a blade.
6. Ask them to drill holes at the center of the wheel.
7. Guide them in putting the wheels at the two far ends of the stick.
8. Thereafter, show learners how to make wheels from wires and maize cobs.
9. Let learner play with the toys made.

Lesson assessment

Product

Check if learners understand the importance of things having wheels and rollers.

Answers to check your progress 7a

Refer to learner's book page 115

1.
 - a. Wheelbarrows
 - b. Handcart
 - c. Toy cart

7.3 Things that use wheels

Activities 5 and 6: Refer to learner's book pages 115 and 117

1. Assist learners in mentioning machines that use rollers.
2. Lead learners in stating how wheels are used in the things mentioned.
3. Let learners draw and colour simple machines that use rollers.
4. Give learners an assignment of naming things that use wheel in their home.

Lesson assessment

Product

Check if learners can name things that use wheels and rollers.

Answers to check your progress 7 b

Refer to learner's book page 117

1. Move
2. Difficult
3. Wheels