South Sudan

Primary Science 3

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 3 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 equiping the pupils with skills to fit in the modern day global society.

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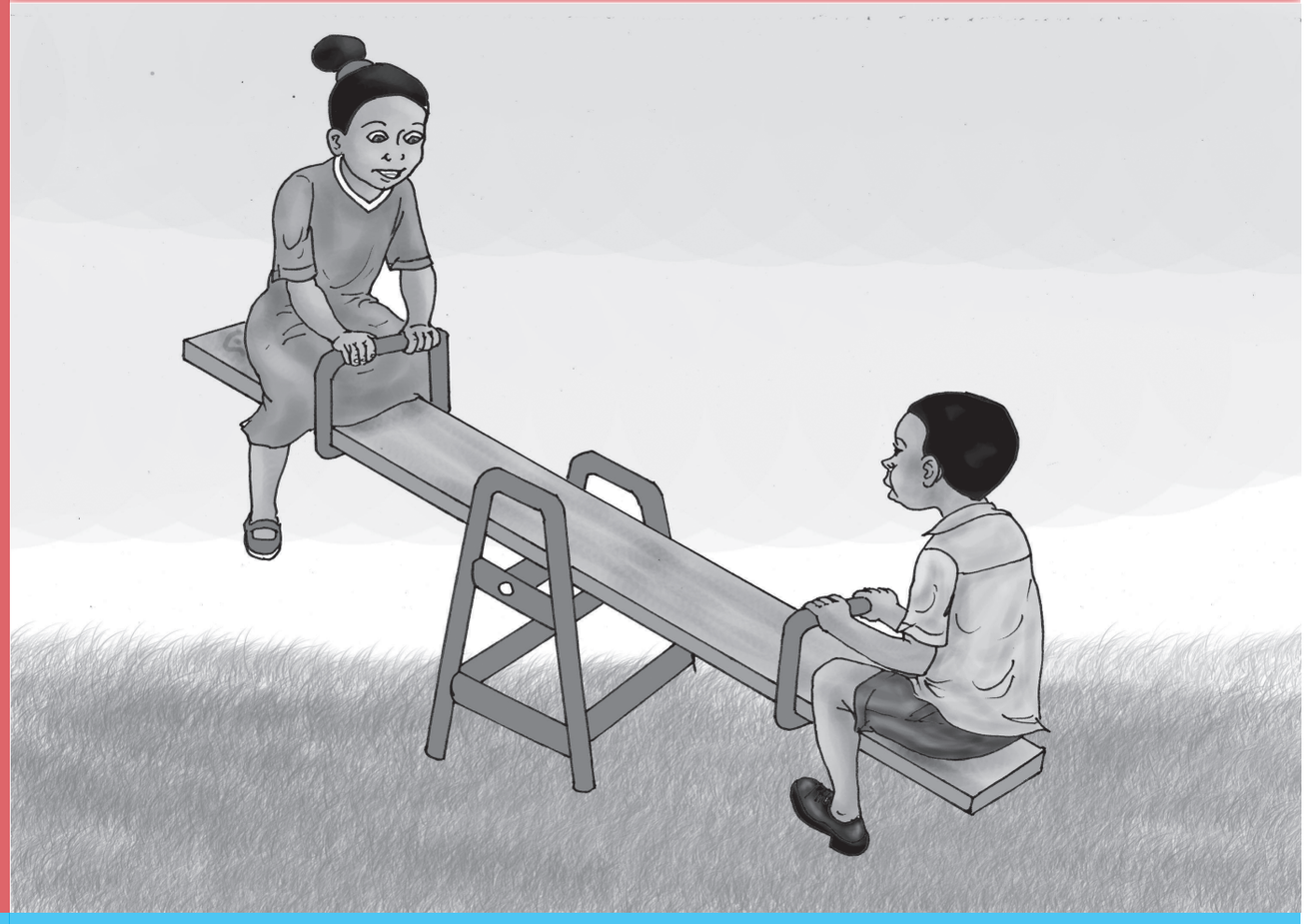
South Sudan

Primary Science 3

Teacher's Guide



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South Sudan

PRIMARY
3

Science

Teacher's Guide Book 3

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FOREWORD

I am delighted to present to you this Teacher's Guide, which is developed by the Ministry of General Education and Instruction based on the new South Sudan National Curriculum. The National Curriculum is a learner-centered curriculum that aims to meet the needs and aspirations of the new nation. In particular, it aims to develop (a) Good citizens; (b) successful lifelong learners; (c) creative, active and productive individuals; and (d) Environmentally responsible members of our society. This textbook, like many others, has been designed to contribute to achievement of these noble aims. It has been revised thoroughly by our Subject Panels, is deemed to be fit for the purpose and has been recommended to me for approval. Therefore, I hereby grant my approval. This Teacher's Guide shall be used to facilitate learning for learners in all schools of the Republic of South Sudan, except international schools, with effect from 4th February, 2019.

I am deeply grateful to the staff of the Ministry of General Education and Instruction, especially Mr Michael Lopuke Lotyam Longolio, the Undersecretary of the Ministry, the staff of the Curriculum Development Centre, under the supervision of Mr Omot Okony Olok, the Director General for Quality Assurance and Standards, the Subject Panelists, the Curriculum Foundation (UK), under the able leadership of Dr Brian Male, for providing professional guidance throughout the process of the development of National Curriculum, school textbooks and Teachers' Guides for the Republic of South Sudan since 2013. I wish to thank UNICEF South Sudan for managing the project funded by the Global Partnership in Education so well and funding the development of the National Curriculum, the new textbooks and Teachers' Guides. I am equally grateful for the support provided by Mr Tony Calderbank, the former Country Director of the British Council, South Sudan; Sir Richard Arden, Senior Education Advisor of DfID, South Sudan. I thank Longhorn and Mountain Top publishers in Kenya for working closely with the Ministry, the Subject Panels, UNICEF and the Curriculum Foundation UK to write the new textbooks. Finally, I thank the former Ministers of Education, Hon. Joseph Ukel Abango and Hon. Dr John Gai Nyuot Yoh, for supporting me, in my role as the Undersecretary, to lead the Technical Committee to develop and complete the consultations on the new National Curriculum Framework by 29 November 2013.

The Ministry of General Education and Instruction, Republic of South Sudan, is most grateful to all these key stakeholders for their overwhelming support to the design and development of this historic South Sudan National Curriculum. This historic reform in South Sudan's education system is intended to benefit the people of South Sudan, especially the children and youth and the future generations. It shall enhance the quality of education in the country to promote peace, justice, liberty and prosperity for all. I urge all Teachers to put this textbook to good use.

May God bless South Sudan. May He help our Teachers to inspire, educate and transform the lives of all the children and youth of South Sudan.

Deng Deng Hoc Yai, (Hon.)
Minister of General Education and Instruction, Republic of South Sudan

Table of content

Part 1 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 in formation to the new curriculum - It gives a brief overview of the general requirements of the new South Sudan competence-based including the guiding principles, the competences the students are expected to acquire, crosscutting issues to be addressed during learning and special needs education.

Basic requirements for an effective Science lesson - It highlights the teacher's and learner's roles for effective teaching/learning of Science, teaching/ 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 outcome**
- **Contribution to learner's competences:**

The section explains how the unit/topic will facilitate the student 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 crosscutting issues that will be addresses through infusion as the learners do the activities and interacts with concepts planed 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/learning process in the entire unit to address the cited crosscutting issues. These issues will be discussed in detail later in this section. Note that a unit/topic may not necessarily address all the crosscutting issues outlined in the curriculum.

An outline of the unit

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 posses them before they start learning the concepts in this unit, and how to help learners in case they do not posses them.

Background Information on the new curriculum

The aim of the South Sudan Competence-based Curriculum is to help learners develop 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 students 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 up with 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 on 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 then 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.

4. Culture and identity

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

- Take pride in 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 behaviours that will help them effectively deal with the events and challenges o f everyday life . Such kills 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. 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,

Familiarising themselves with students' understandings of concepts before sharing their own understandings of those concepts.

- Encouraging students 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 students to construct relationships and create metaphors.
- Using a variety of teaching and assessment methods.
- Adjusting instructions to the level of the learner.
- Nurturing students' 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.
- Assist learners to consolidate their activities by summarising the key points learnt.

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 manage adequately the classroom.
- 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.
- Working 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 about the processes and outcomes of their inquiries.

(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 organization

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
- Organizing 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 a 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, 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 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 grouping can be formed based 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 is easily 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 structured or guided questions that lead learners to the desired outcome. Sometimes learners are given 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 the competency-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 improve 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 them 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/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, 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, for example 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 limited.

UNIT 1

Health Habits
(No. of lessons: 9)

Refer to learner's book page 1 to 25

Learn about	Key inquiry questions
By the end of this unit, • Learners should know that certain foods are necessary for body building and growth, for energy in movement, work and exercise; and certain foods are necessary for the body to work well, and their deficiency may result in diseases, especially in young children. • Learners should learn the characteristics of the foods they consume daily and investigate by reading and discussion with experts. • Learners should learn and investigate about using fair tests the importance of washing dirty clothes with suitable soap and detergents. • Learners should learn in groups the importance of rest and sleep and why each one is necessary for a healthy life.	• Why do we eat food? • Why is it important for us to do exercises? • Why do we sleep and rest? • How do we keep our clothes clean?

Learning outcome

Knowledge and understanding	Skills to be acquired	Attitudes and values
By the end of this unit, learners should be able to: • Understand the importance of food, exercise, washing clothes ,sleep and rest for a healthy life.	By the end of this unit, learners should be able to: • Design tests on detergents for washing clothes • Draw conclusions from evidence.	By the end of this unit, learners should be able to: • Appreciate the importance of clean clothes, food, exercise, washing clothes, sleep and rest for a healthy life. • Co-operate in group work
Contribution to the competencies: Critical thinking: Explaining why it is important to eat, and selecting the right types of food and using appropriate detergents for body and clothes **Links to other subjects:** Life Skills: Health and hygiene		

Assessment opportunity

Opportunities for all three forms of assessment are indicated for each of the activities.

- Observation
- Conversation
- Product

An outline of the learning

This unit is about health habits. Remember learners at this level have learnt about parts of the body and hygiene in lower classes .Take advantage of this and link what they learn here with their past experiences about hygiene to health habits. The

concept in this unit is to enable learners to know the importance of food to their bodies, be able to name different food in their locality, know different types of food and importance of exercise to the body.

Let learners understand that when they continue and further their education in this area, they may become doctors, teachers, nurses and nutritionist. Give an example of a well establish doctor, nurse or nutritionist to motivate learners more.

Using the student textbook

There are both words and pictures in the textbooks, and as your learners are developing their reading skills, it is important to read the text with them. That way you will be modeling reading and will help their development. Learners should be encouraged to read along with you or copy you where phrases are more complex. Phrases in the textbook are relatively short, but where there is more to read, these passages should be broken down into shorter phrases. Encourage learners to ask questions to clarify their understanding and enable more able learners to respond to questions where appropriate.

It is helpful to have some keywords on posters or boards around the learning space if possible so that they get used to seeing them and become familiar with spellings. Learners could develop this collection as they progress throughout the unit.

The student competencies

This unit presents many opportunities for:

1. Co-operation

Encourage learners to work as a team as they discuss health habits. 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 to be given equal opportunities irrespective of their abilities. Ensure every learner enjoys the sense of work regardless of their skin colour or physical fitness.

2. Communication

During group discussion, on various subtopics on health habits encourage learners to discuss in English. This way will build on the command for the language as well as ability to participate in other 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

Introduce the unit by posing general questions to the learners. As they try to look for the answers to these questions,

you will make 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. Present photographs and make learners discuss the activities in those photograph, they give out their findings, and you will be building a thinking habit in them.

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 encouraged to plant more trees. Learners should not uproot the whole plant in case they need part of a plant for the practical. Disposing waste materials like food should be done in the right place.

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.

New words and their meanings

Energy: it is the power to do work.

Exercise: any bodily activity that enhances or maintains physical fitness.

Deficiency: lack or shortage.

Detergent: a cleaning agent that helps to remove dirt and grease.

Nutrient: a component in food that the organism uses to survive and grow.

Soap: a substance used with water for washing and cleaning.

Importance of food to our bodies

Let us talk

Refer to learner's book page 1

As a class

Learners to go through let us talk of learner's book page 1. Let them compare picture A and picture B. Give them time to argue their points. Ensure that learners are able to accept

other's ideas during discussion. Each and every learner to participate during discussion. Summarise by referring to the outlined points of learners book page 2 .Learners to attempt check your progress 1(a) and award them marks based on their performance.

Answer to check your progress 1(a)

Refer to learners book page 2

1. Healthy
2. When awarding marks consider menu that has food containing balanced diet

Food we eat in the locality

Refer to learners book page 3

Activity 1

In groups

Use this activity to assess what learners already know about food in the locality. Work through group sequence so that there is maximum opportunity for learners to share what they know and learn form each other. (Communication).

It would be very helpful if as a teacher you provide charts for some of the foods within the locality. You could also describe some of the foods not in the chart with a simple language that learners can easily understand. Observe learners as they carry out the activity step by step. Encourage them to ask questions for verifications on steps that they don't understand. Let each learner listen each other's opinion. (Co-operation)

Assessment opportunities

Observation

Observe the groups discussing foods in the locality. Is there a variety of examples?

Conversation

Talk to learners while they are naming foods found in the locality. Are the answers they are providing correct?

Product

Check the table they have completed on food eaten locally and food grown locally if it is correct.

Answer to check your progress 1(b)

Refer to learner's book page 4

1. Potatoes, oranges, maize, mango. In their description check whether learners are able to identify the foods as either fruit or energy giving food, body building or vitamin

Body building and energy giving foods

Refer to learner's book page 6

Activity 2

As a class

Review the lesson by reminding the learner of what they learnt in the previous lesson. Using improvised

charts and the food listed down in the first step, lead learners into grouping food as body building. Are they able to classify them correctly? (Critical thinking)

Ask learners to draw and colour food items found in the locality and group them as body building.

Take learners through let us talk of learner's book page 8. Ask them to identify different activities that are going on in A, B, C and D of learner's book. Give them time to mention and role play other activities that are not among A, B, C and D. Explain to the learners why they are able to role play the activities (by eating energy giving foods). Learners to mention some of the energy giving foods that they know of.

Assessment opportunities

Observation

Observe as learners carry out the activity. Are they able to group them correctly?

Conversation

Talk to learners while they are classifying the foods. Are the answers they are providing correct?

Product

Check their drawings if they are body building and growth foods.

Answer to check your progress 1(c)

Refer to learner's book page 7

1. Fish, meat, eggs, chicken

2. Lentules, beans

Answer to check your progress 1(d)

Refer to learner's book page 10

1. Refer to learners book page 9

2. Cleaning school compound, cleaning classroom, playing.

3. Playing, washing utensils, cleaning compound

Importance of exercise to our bodies

Refer to learner's book page 10

Activity 3

As a group

Arrange learners into three groups. Consider which groups may need extra supervision according to their learning or behaviours. Allow learners to play games of their choice as you supervise. (Co-operation)

Guide them in doing other forms of exercises that were not in the list of games chosen by each group. Ask them to explain their feeling after playing games and before playing games. Clarify further by referring to the main points of learner's book.

Assessment opportunities

Observation

Observe groups of children as they play. Are they able to play games of their choice?

Conversation

Talk to learners whilst they are playing. Ask them about how they are feeling after playing?

Product

Are they able to answer questions asked when doing activity. What about the games, are they able to play them well?

Answer to check your progress 1(e)

Refer to learner's book page 12

1. False, true, true, false
2. Skipping, playing football, dancing

Foods that help the body work well

Refer to learner's book page 12

Activity 4

Individually

Provide learners with a chart of foods that help their bodies work well. Ask them to identify the food they are familiar with. (Communication). Give them ample time to draw and label the foods in their exercise books.

Assessment opportunities

Observation

Observe learners as they draw in their exercise books.

Conversation

Talk to learners whilst they are studying the chart. Ask them to identify and name the foods they are familiar with.

Product

Look at any drawings by the learner. Do they reflect what is in the chart?

Deficiency of food

Refer to learner's book page 14

Activity 5

In pairs

Take learners through let us talk of page 14. Allow room for discussion. Ensure that each learner participates in the discussion. Provide learners with a chart of foods that help their bodies work well. Ask probing questions to bring out the aspect of deficiency of food in the unhealthy child. Lead learners in reciting a poem. (Co-operation). Give learners time to attempt the study questions after poem, go through the work they have done and award marks accordingly.

Assessment opportunities

Observation

Observe learners as they recite the poem. Are they able to recite the poem well?

Conversation

This comes when the learner's are reciting the poem.

Product

Check on the study questions attempted by learners. Do they reflect what they learnt in the poem?

Answer to check your progress 1(f)

Refer to learner's book page 16

1. Plants
2. Fruit, fruit, vegetable, vegetable, vegetable, fruit

Importance of washing dirty clothes

Refer to learner's book page 17

Activity 6

Individually

Take the learners through let us talk. Ask them what is wrong in one of the pictures. Each and every learner a chance to contribute in the discussion. (Co-operation)

Request each learner to practise washing his or her clothes at home especially school uniform using the procedure provided in the book.

Assessment opportunities

Observation

Observe school uniform of each learner next morning. Are they clean?

Conversation

Talk to learners whilst discussing let us talk. Ask them why they need clean clothes.

Product

Check their school uniform the next day in the morning. Are they clean?

Answer to check your progress 1(g)

Refer to learner's book page 19

1. Bad
2. Clean water, basin, detergent
3. Dirt

Types of soaps and detergents

Refer to learner's book page 20

Activity 7

As a group

Arrange group of ten learners. Consider which groups may need extra supervision according to their learning or behaviour needs. Take the learners through let us talk. Each and every learner to contribute in the discussion. In their groups, each learner to be given a role to help in doing the activity. (Co-operation)

Ask learners to give reasons for washing clothes and putting on clean clothes. (Communication).

Assessment opportunities

Observation

Observe as they wash the clothes. Are they clean?

Conversation

Talk to learners whilst they do the activity. Ask them why they need clean clothes.

Product

Check the clothes they washed during activity. Are they clean?

Answer to check your progress 1(h)

Refer to learners book page 22

1. Soaps and detergents
2. Powdered soap, bar soap, bathing soap
3. Clean

Importance of rest and sleep

Refer to learner's book page 23

Activity 8

Each and every learner to contribute in the discussion. (Co-operation). Each learner to write activities that makes them tired by filling a table in their exercise books. (Critical thinking). Use outlined points on learners book, lead in discussing importance of rest and sleep.

Assessment opportunities

Observation

Observe as they write activities that makes them tired.

Conversation

Talk to learners whilst they do the activity. Can they multitask?

Product

Look at how learners filled the table. Did they fill them correctly?

Answer to check your progress 1(i)

Refer to learner's book page 25

1. Rest
2. Relax
3. Reading, watching television
4. Active
5. Refer to learner's book page 24

Additional information for the teacher

There are health benefits to drinking more water. It helps keep your temperature normal, lubricates and cushions joints, protects your spinal cord and other sensitive tissues, and gets rid of wastes through urination, sweat, and bowel movements. You can also add flavour to your water to help up your intake. Having good posture can prevent aches and pain and it can also reduce stress on your ligaments. You can try to leave yourself a note to sit up straight, until it becomes an unconscious habit. Walking with your shoulders back and head held high can also make you feel good about yourself.

These are also part of good health habits that should be practiced.

UNIT 2

Plants and animals
(No. of lessons: 9)

Refer to learner's book page 26 to 43

Learn about	Key inquiry questions
By the end of this unit, • Learners should know that plants and animals are found in different environments such as water, forest, bush, farm, gardens. Through discussion and observing their observable characteristics, with a particular emphasis on plants and animals that live in water, they should learn how to identify and compare living things found in water with those found on land with an emphasis on adaptation to where they live. • Learners should learn how to distinguish between fruits and seeds, compare and classify them and how their characteristics mean they can be successful.	• Identify plant and animals in the locality? • Why animals and plants that are found in water different from those that are found on land are? • Know how fruits are different from seeds.

Learning outcome

Knowledge and understanding	Skills to be acquired	Attitudes and values
By the end of this unit, learners should be able to: • Classify animals and group plants according to their habitats • Distinguish between fruits and seeds and state their uses • Investigate living things found in water	By the end of this unit, learners should be able to: • Observe plants and animals in their local environment • Observe and draw seeds and fruits in order to identify and classify them	By the end of this unit, learners should be able to: • Appreciate different environments where plants and animals are found. • Appreciate the importance plants and animals and uses • Appreciate the importance of seeds and fruits

Contribution to the competencies:

Critical thinking: Exploring various environments in which organisms live; exploring various environments; distinguishing between fruits and seeds
Communication and Co-operation: group and individual activities

Links to other subjects:

Environment and Sustainability: clean environment

Assessment opportunities

Opportunities for all three forms of assessment are indicated for each of the activities.

- Observation
- Conversation
- Product

An outline of the learning

This part of the unit helps learners to understand how to classify plants and animals by considering habitat and adaptation. Learners will focus their explorations on identifying plants and animals in their local environment, developing observation and recording skills in order to illustrate what they have learnt. Learners to compare plants and animals asking each other questions in order to provide detailed descriptions. Learners should be encouraged to use scientific vocabulary with increasing accuracy, building on useful scientific terms that they already know.

Using the student textbook

Using book in the classroom begins with suggestions about how teachers and learners can increase the amount of written material in their classrooms. Phrases in the textbook are relatively short, but where there is more read, these passages should be broken down into shorter phrases. Encourage learners to ask questions to clarify their understanding and enable gifted able learners to respond to these questions where appropriate.

It is helpful to have some keywords on posters or boards around the learning space if possible so that they get used to seeing them and become familiar with spellings. Learners could develop this collection as they progress throughout the unit.

The student competencies

This unit presents many opportunities for critical and creative thinking: interpreting pictures and giving reasons and explanations; comparing plants and animals; giving reasons for adaptation and chooses habitats; identifying and classifying through scientific investigation.

Learners are asked to work in pairs and groups, so there are continuous opportunities for co-operation and teamwork. This unit provides good opportunities to create roles in groups so that for example there is a writer, questioner, presenter and group leader.

In their discussions and presentations in groups or as a whole class, there are many opportunities for good

communication. It is important in Primary 3 that the teacher continues to model communication clearly, describing where appropriate features of good communication such as clarity, active listening, correct use of grammar and pace.

The subject matter will also deepen their understanding of South Sudan culture and identifying plants and animals that are native to South Sudan. 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 to be incorporated

1. Environmental sustainability

A well maintained atmosphere equals a fulfilling life. Learners should be sensitized on the need to conserve the environment. They should actively participate in activities such as: National tree planting day, National cleaning day.

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.

Links to other subjects

This unit provides an opportunity to develop data handling skills in mathematics including presenting data in a table. As this is a P3 unit, learners are still developing their English skills so as a focus on accurate use of vocabulary should permeate through this learning also.

There are also opportunities to link about plants, animals and the environment to the arts by exploring songs and rhymes that describe this. This will also help to encourage a positive attitude towards and an appreciation of the environment.

New words and their meanings

Environment: everything that is around us, living or non-living.

Habitat: the natural home or

environment of an animal, plant or organism.

Plant: a living organism of the kind of trees, shrubs, herbs, grasses, ferns and mosses, typically growing in a permanent site, absorbing water and inorganic substances.

Seed: the unit of reproduction of a flowering plant, capable of developing into another such plant.

Fruit: the sweet and fleshly product of a tree or a plant that contains seed and can be eaten as food.

Land: the part of earth surface that is not covered by water.

Unit summary

Refer to learner's book page 26

Activity 1

Use his activity to assess what the learners already know about plants and animals. Work through the paired and group activity in sequence so that there is maximum opportunity for learners to share what they know and learn from each other. (Communication)

It would be helpful if as the teacher, you could share some of your own experiences of plants and animals near you live, beginning to make link between plants that you can eat and plants that you can't as well as how plants and animals are adapted to their environment.

It might be useful to describe some features of plants and their function- roots for nutrition, leaves to collect sunlight, flower to attract insect, stems to transport nutrients and water. This information will be providing a reference point for learning later in the unit.

Features of animals are different to plants- here you will need to tell learners about groups of animals. Reptiles, birds, mammals and fish. Begin to make links to where these animals live

Assessment opportunities

Observation

Observe the pairs discussing plants and animals. Is there a variety of examples?

Conversation

Talk to the learners whilst they are discussing these questions. Can they describe the differences between plants and differences between animals?

Product

There is no product for this lesson unless you ask pupils to write a small collection of simple questions about plants and animals. Are these questions relevant in this topic?

Answer to check your progress 2(a)

Refer to learner's book page 27

1. Refer to learners book page 26 to 27.
2. Award marks based on the findings.

Key vocabulary

Refer to learner's book page 28

Activity 2

Learners need to write as individual the connected version of these sentences. To help them understand each phrase in the right hand column, you could give some silly sentences that use each phrase and ask learners to comment on why they cant be true. For example

A car… grows mainly on soil.

A banana…. is a place where we live.

An eagle… grows mostly in the water or wet soil.

Can learners make up some of their own? It is important to explain each time why these statements can't be true. A car cannot grow on soil because cars do not grow. They are man-made and complete. A banana cannot be a place where we live it is too small and is something we eat.

An eagle does not grow in water. It lives on land

Key vocabulary

Environment: everything that is around non-living, or us, living.

Locality: is a place where we live

Habitat: the natural home or environment of an animal, plant or organism.

Water plant: are plants that grow mainly in water or wet soil.

Land animals: are animals that live mostly on top or under soil.

Seed: the unit of reproduction of a flowering plant, capable of developing into another such plant.

Fruit: the sweet and fleshly product of a tree or a plant that contains seed and can be eaten as food.

Land: the part of earth surface that is not covered by water.

It would be very useful if you could compile a class book in the style of a

dictionary to record the plants that learners can see in the environment. You could ask a more able group of learners to organize the book giving each page a letter of the alphabet and an introductory passage of writing.

To further this unit of work, a collection of seeds would help learners to understand the life cycles of plants. If you have a suitable area to grow your own food, experiment with different seeds to see what you can grow. Ideally you need a location that gets some shade during the day and is protected from stray animals. You will need to organize a system for watering the seeds as well as regular opportunities to observe changes and growth. Ask learners to share information about food that they might enjoy growing at home.

Throughout this lesson unit, continue to promote the need to make detailed observations in order fully appreciate the complexities of the differences between plants and animals.

Assessment opportunities

Observations

Observe the pairs discussing the ways in which people help. Can they think of any?

Conversation

Talk to the learners whilst they are discussing the difference between land and water plants. Do they make reasonable statements using scientific vocabulary? Roots, stems etc.

Product

Check the table they have completed to describe water and land plants if it is correct.

Answer to check your progress 2(b)

Refer to learner's book page 32

1. Have large and broad leaves. Have many leaves and floating flowers
2. Refer to learners book page 32
3. They have fins, gills and they are able to swim
4. Refer to learners book page 30

Characteristics of plants and animals that live on land and water

Refer to learner's book page 36

Activity 3: Taking a walk in our school environment

Help learners describe details of the plants they can remember around the school. Remind them that despite differences between plants, they still

have parts with similar function. Help learners describe plants in terms of leaf, stem, roots, flower, fruit.

Taking a walk around the school

Arrange groups of no more than 4 learners. Consider which groups may need extra supervision according to their learning or behaviour needs. As groups of learners walk around the school, accompany them at various points and prompt observations using the questions listed in the pupil booklet. How many colours can you see? How are shapes similar and different? How tall, wide or thin are they? Do they have flowers or fruit? Are they growing near other plants, buildings or water sources?

Assessment opportunities

Observations

Observe groups of learners as they are exploring the school environment. Are they specific and detailed in their descriptions of plants?

Conversation

Talk to the learners whilst they are exploring the environment. Ask them about what they have found whether they expected to find it.

Product

Look at any drawings and notes compiled by learners. Do they reflect what was found?

Answers to check your progress 2(c)

Refer to learner's book page 38

1. Refer to learners book page37
2. Refer to learners book page 37

Activity 4

As a class

Encourage discussion about the photos, which feature questions about how animals are similar and different. This will allow you to examine features that include fur, scales, prey, predator, nocturnal. (Communication)

Venn diagram

Either draw a large diagram at the front of the class or use rope or stones to mark out two overlapping circles on the ground. In order to place each of the animals shown in the photographs in the right place, again, discuss features of the animals. Animals in the overlapping section are the snake, frog and hippopotamus.

Other habitats

Here is more complete lists of habits. Share these with the learners and see if they can give further examples of animals for whom these are habitats.

Note that different of animals can live in different habitats, so a water snake lives in the river but an adder (snake) lives in grassland.

Swamp

Farmland-mouse

Tropical dry forest-snake

Urban-mouse

River-hippopotamus

Lake-snake, fish, hippopotamus, zebra

Stream-frog

Grassland-snake

Rainforest

Assessment opportunities

Observation

Listen to the conversations about the photos to see if the learners use relevant vocabulary to describe them.

Conversation

Ask learners about habitats that they can think of and pay attention to the vocabulary that describes features of these including plants and proximity to other habitats.

Talking about animals in our environment

Activity 6

While talking about animals learners have seen or are aware of the school environment, connect these habitats where possible. Ask pupils why they think for example, a spider likes the corner of a roof or a dog likes the refuse surface area. This talking will help learners to understand how animals adopt to their habitats.

Taking a walk around the school

Arrange learners into groups of no more than four. Consider which groups may need extra supervision according to their learning or behaviour needs. As groups of learners walk around the school, accompany them at various points and prompt questions such as:

- What do you think lives here?
- What words can you use to describe animals that might live here?
- Why do you think you can't see an animal right now?

Remind the children that some animals will not present themselves to

explore…they will probably hide so that they can stay safe.

Back in class

Help learners summarise what they have found out by grouping animals into groups according to what they have observed. Use vocabulary that has been explored in activities so far.

Assessment opportunities

Observation

Listen to the conversations to see that they have made the proper distinctions.

Conversation

Talk in pairs and groups if possible to check that they understand the distinctions

Product

Look at the drawings to see that they are in the right groups. Also check summarised notes compiled by learners.

Answers to check your progress 2(d)

Refer to learner's book page 40

1. Refer to learners book page 39.
2. Refer to learners book page 40.

Habitats for plants and animals

Activity 7

As a class

Discuss learning from the previous lessons and remind learners about features of different types of habitats using the list of vocabulary such as dark, cold, warm, light, shaded, wet, dry, sunny, away from people, close to people, small, large, near water, near building, near other animals and near food or plants.

Help pupils, in pair, explore the habitat quiz. Make sentences that are deliberately nonsense and ask why this is the case.

As the learners to design their own habitat quiz, remind them to use pictures in the textbook and list of vocabulary as a straight point. (Critical thinking)

Assessment opportunities

Conversation

Talk to learners in pairs. Are they able to create habitat questions that reflect what they have learnt about plants, animals and habitats?

Product

Do the habitat questions make reasonable connections between plants, animals and habitats?

Fruits and seeds

Refer to learner's book page 41

Activity 8

This activity requires every learner to participate. Explain to learners the difference between fruits and seed citing examples where possible. Learners are expected to collect variety of fruits and seeds and fill the table of learners book appropriately.

Assessment opportunities

Observation

Observe as learners do the activity? Are they able to differentiate seeds from fruits?

Conversation

This comes about as you will be explaining to learners difference between fruits and seeds.

Product

Check tables filled by learners. Did they fill them correctly?

Answers to check your progress 2(e)

Refer to learner's book page 43

1. Seeds
2. One
3. Refer to learner's book page 41
4. Beans, maize, groundnuts, cashew nuts.

Additional information for the teacher

Plants and animals interact with each other in the environment. They also interact with the environment itself. The plants and animals depend on each other. Plant benefits animals in the following ways:

- Plants are used as sources of food.
- They can be used for shelter.
- They provide shade for protection from the hot sun.
- Used also to make cloth, dyes and medicines.

UNIT 3

Using our Senses
(No. of lessons: 9)

Refer to learner's book page 44 to 64

Learn about	Key inquiry questions
By the end of this unit, • Learners should know how they use their five senses to explore the environment and how humans and animals communicate using sounds, sight, movement and gestures using any part of the body to convey messages. • Learners should learn about how light travels from an object to form an image and use simple observations to distinguish primary colours: red, yellow and blue, and investigate how contrasting or mixed colours can make objects easier (road signs) or harder (camouflage) to see.	• Identify objects, symbols and gestures, using any of the five sense organs. • Describe objects, if they are not able to see them. • Use sound to identify and recognize the message, locate the direction, and estimate distance. • Communicate using gestures. • Know how two eyes and two ears are used by different animals.

Learn about
• Learners should investigate whether they can see or read if they close one eye (binocular vision) and the use of one or both ears by ringing of bells, beating of drums or any suitable materials, then locate the direction, distance and messages they carry. • They should learn about touch by feeling objects and describing shapes and sizes and classifying them. Children should learn about common foods of various tastes and smells such as salts, sugars, ripe bananas, rotten fish, onions and fruits and sodas of various kinds which they describe.

Learning outcome

Knowledge and understanding	Skills to be acquired	Attitudes and values
By the end of this unit, learners should be able to: • Identify objects, symbols and gestures using the five senses. • Understand concept of image formation. • Identify sounds produced by different objects, changing volume and pitch. • Understand echoes.	By the end of this unit, learners should be able to: • Observe objects, symbols and gestures using different sense organs. • Predict what happens when one eye is blindfolded.	By the end of this unit, learners should be able to: • Appreciate the importance of using gestures in communication. • Appreciate the importance using symbols in conveying various information.

Contribution to the competencies:

Communication and Co-operation: group work

Links to other subjects:

Life Skills: attributes of self

Assessment opportunities

Opportunities for all three forms of assessment are indicated for each of the activities:

- Observation
- Conversation
- Product

An outline of the learning

This unit help learners to identify objects, symbols and gestures using any of the five senses, understand the concept of image formation, reflection and identify the sound produced by different objects and learn how echoes are produced. Learners will compare different sense organs by stating function of each of them. Learners should be encouraged to use scientific vocabulary with increasing accuracy, building on useful scientific terms that they already know.

Using student textbook

The book has pictures to test whether learners are familiar with some of the key issues related to different topics in the unit. There are also new words in the book to help learners develop their reading skills. Learner's book provides struggling readers with necessary support. Sharing of predictable texts help in building sight knowledge and reading fluency. Encourage learners to ask questions to clarify their understanding and enable more able learners to respond with further questions where appropriate. It is helpful to have some key words on flashcards around the learning space if possible so that learners can familiarise themselves with them and their spellings as well. Learners could develop this collection as they progress through the other units in primary 3. There is a unit that has a good word search which will help stimulate the learners' minds while learning new vocabularies. Learners will be expected to work independently, in pairs, in groups and as a class with a good success.

The student competencies

In this unit, learners are asked to work in pairs and in groups to discuss

and agree key points about sense organ. This provides a good continuous opportunities for learners to develop their co-operation and teamwork. This unit also presents many opportunities for learners to develop their communication competences as learners articulate key points about sense organs while in pairs, groups and to the class. Opportunities to think critically about different aspects of sense organs are also presented severally in this unit.

Cross-cutting issues

1. 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 idea 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.

Links to other subjects

This unit provides an opportunity develop date handling skills in mathematics through presenting data in a table. There is also an opportunity to link learning about using our senses to the arts by exploring songs, poems and rhymes that describes this.

New words and their meanings

Senses: natural powers/ ability (touch, taste, smell, sight and hearing) through which we receive information about the world around us.

Sound: vibrations that travel through the air or another medium and can be heard when they reach a person's ear.

Organs: a part of the body that makes it possible to experience the physical characteristics of a situation.

Image: a physical likeness or a representation of a person, animal, thing made visible. A resemblance.

Reflection: the return of light from a surface.

Echo: the return of sound from a surface

The five senses

Refer to learner's book page 44

Activity 1:

Use this activity to know what the learners know about using the senses. To begin or to end the study of senses, bring them together in a simple language art called sensory poem. Your pupils may

choose themes but they must involve all the senses. Allow learners to work through the paired and group activity in sequence so that there is maximum opportunity for learners to share what they know and what they learn from each other. (Communication)

It might be useful to describe the importance of senses, you can do this by guiding learners in doings let us talk' on page 44 of learners book. This information will provide reference point for learning later in this unit.

Assessment opportunities

Observation

Observe learners as they discuss let us talk. Are they able to identify the sense organs?

Conversation

Talk to learners as they discuss let us talk. Are they able to tell the function of each sense organ they identified?

Investigating sense of sight

Refer to learner's book page 45

Activity 2

At this level, learning experiences which encourage students to find out more about themselves. Initially it is important to explicitly identify the five senses and the organ(s) associated with each sense as you narrow down to sense of seeing. Stress more on sense of seeing and the sense organ associated with it, which is the eye. Then, with the intention of moving towards an understanding of 'systems,' it is also important to provide opportunities for students to experience the ways that each sense (seeing) provides information. You will achieve this by allowing learners to do activity 1 of learner's book page 45. (Co-operation)

Learning experiences should allow students to consider everyday difficulties that may be experienced by people whose sensory input is disrupted or unreliable. Throughout the lesson, continue to promote the need to make detailed observations in order to fully appreciate use of senses.

Assessment opportunities

Observation

Observe learners as they do activity 1 of learner's book page 45. Are they able to do it well?

Conversation

Talk to learners as they are doing the activity. Is the aim of the activity achieved?

Product

Check drawings done by the learners. Are they correct?

Investigating sense of hearing

Refer to learners book page 47

Activity 3

Introduce the topic by providing a variety of experiences which can be built upon to explore sense of hearing in detail. Allow learners to carry out activity 3. Makeake sure each learner participates, you can do this by arranging them into groups that mixes both slow learners and gifted learners. (Co-operation)

As learners are doing the activity, ask them questions such as

1. Which sense organ are you using to hear the sounds?
2. What sound can you hear?

Are the instruments producing the same sound? (Critical thinking)

Further, explain to learners that ears gives the sense of hearing. They are able to hear many sounds in our world, such as the sounds of cars and trucks, animals (dogs barking, birds singing, cats meowing), voices, rain, and music because of functional ears.

Assessment opportunities

Observation

Observe learners as they do the activity. Are they doing the right thing?

Conversation

Talk to learners as they do the activity to make sure that they understand what they are doing. Ask relevant questions to enhance their understanding.

Product

Look at the table filled by learners. Is the table filled correctly?

Investigating sense of taste

Activity 4:

Refer to learner's book page 49

This lesson will involve students sampling food from the four taste categories: bitter, sweet, sour, and salty. This will be achieved by giving learners time to carry out activity of learners book. (Co-operation)

The students will be predicting, describing, and identifying specific tastes. Ask them questions such as 'what would the world be like if we couldn't taste and enjoy the food we eat? (Critical thinking)

Teach your students about one of our remarkable senses with a book, printable worksheets and some tasty activities. For example, ask them to imagine of a fun family event that does not somehow involve food? Most happy gatherings include eating, which is why the sense of taste is an important one. Life would be pretty dull if everything tasted the same or if it had no taste at all.

Assessment opportunities

Observation

Observe the class as they do activity.

Are they doing the correct thing?

Conversation

Ask questions during class discussion. Such questions may include: are you able to identify tastes? If yes, name the taste.

Product

Check if the table filled by learner is correct.

Investigating sense of smell

Refer to learner's book page 51

Activity 5

Introduce the lesson by reminding learners what they have been learning about use of sense in the previous lessons. Ask them to name the sense organ used in smelling. (Critical thinking). Remind learners that the nose is not only sense of smell but also tells dangers within the environment. Show pictures/discuss ideas such as: Smelling smoke from a burning building, or a gas leak from a stove or rotten food from good food. Give learners time to recite the poem and answer study questions that follows. Ensure that each learner participates in doing the activity. (Co-operation).

Go through their books and award them marks accordingly.

Assessment opportunities

Observation

Check keenly as learners are reciting the poem. Are they following the right procedure?

Conversation

Ask questions related to the poem that are not in the study questions.

Product

Check the poems composed by learners. Are they following the right trend? Is the vocabulary smell used? What about nose?

Investigating sense of touch or feeling

Refer to learner's book page 52

Activity 6

While talking about other uses of sense, mention sense of touch as one of them. Ask your students what they know about their sense of touch. (Critical thinking). Write correct facts on the whiteboard. Explain facts about the sense of touch. For example: Sense of touch helps us learn about our world by feeling and learning the size, texture, and shape of things. You can feel with the skin all over the body. We can tell the difference between hard and soft, smooth and rough, hot and cold, wet

and dry, and feel pain because of our sense of touch. Write the main points on the board.

Ask learners how they feel in their body when they touch different objects. (Critical thinking). Now give them to carry out activity of learners book. Ensure that each member of class participates.(Co-operation)

Assessment opportunities

Observation

Observe as learners do activity of learners book. Are they following the right procedure?

Conversation

Ask learners questions during class discussion. Are they are to answer correctly?

Product

Look at the table filled by learners. Did they fill it correctly?

Answer to check your progress 3(a)

Refer to learner's book page 53

1.

Sense organ	Sense
Eye	Sight
Ear	Hearing
Nose	Smell
Tongue	Taste

2. Skin

3. Sun paper, hot tea, razor blade, ice, paper, wood

Image formation

Refer to learner's book page 55

Activity 7

Introduce this topic by guiding learners in discussing let us talk of learners book.

Ask learners what they think the lesson will be all about after discussing let us talk. (Critical thinking)

Guide learners as they do activity 6 of learners book. Ask them questions to make them understand better. Use learners book to give more details about the lesson.

Assessment opportunities

Observation

Observe learners as they do activity of learners book.

Conversation

Talk to learners while they discuss activity of learners book.

Product

Look at the notes compiled by the learners about the observations. Are they correct?

Answer to check your progress 3(b)

Refer to learner's book page 57

1. Sun, stars, moon
2. Reflection
3. Echo
4. Reflect, does not reflect, does not reflect, reflect, reflect, reflect, does not reflect.

Echoes

Refer to learner's book page 58

Activity 8

Introduce this topic by guiding learners in discussing let us talk of learners book. Ask learners what they think the lesson will be all about after discussing let us talk. (Critical thinking).

Lead learners in a call and response game using variety of body percussion sound such as clapping, snapping, pathing, stumping. Ask them to pay attention to the sound produced after the normal sounds

Guide learners as they do activity 6 of learners book. Ensure that each learner participates in the activity. (Co-operation).Ask them questions to make them understand better. Give them time to discuss. (Communication). Use learners book to give more details about the lesson.

Assessment opportunities

Observation

Observe learners as they do activity of learners book.

Conversation

Talk to learners while they discuss activity of learner's book.

Product

Are they able to answer study questions in the activity?

Answer to check your progress 3(c)

Refer to learner's book page 60

1. Sound
2. True, false, true

Additional information for the teacher

Additional Senses

In addition to sight, smell, taste, touch, and hearing, humans also have the sense of balance, pressure, temperature, pain, and motion. These various "new" senses all work together and may involve the coordinated use of the sense organs. A complicated network of various body systems manages the sense of balance. Any quick change to any of the five senses can cause the feeling of dizziness or unsteadiness. You might have experienced this while riding in a car or turning quickly.

UNIT 4

Water
(No. of lessons: 9)

Refer to learner's book page 61 to 72

Learn about	Key inquiry questions
By the end of this unit, • Learners should develop their knowledge about water through investigations which draw on their prior knowledge of solubility of substance such as dissolving sugar in tea, the conservation of water, and why we need to use water to clean homes. • Learners should learn about the solubility of substances in water • Learners should design fair tests to compare how substances like sugar or salt dissolve, compare with insoluble substance and talk about what is happening. They should learn about the use of water in the home and how it dissolves some substances and not others.	• Know that dissolving different from disappearing. • Know how do we investigate solubility of substances in water. • Know how to increase the solubility of substances in water. • Know how to conserve water. • Appreciate why some substances dissolve in water but others do not.

Learn about
• Learners should learn that there is a difference between dissolving and disappearing and investigate using fair tests how hot water or stirring makes a difference to dissolving. This helps them to learn about how temperature changes increase the solubility of substances in water. • Children should learn how to investigate ways of conserving water.

Learning outcome

Knowledge and understanding	Skills to be acquired	Attitudes and values
By the end of this unit, learners should be able to: • Investigate water, solubility, and the ways of conserving water	By the end of this unit, learners should be able to: • Investigate how dissolving takes place by designing fair tests • Measure the rate of dissolving • Manipulating skills in measuring accurately • Record changes over time • Observe changes	By the end of this unit, learners should be able to: • Appreciate the importance of solubility of substances in water • Value water

Contribution to the competencies:

Critical thinking: about ways of observation and recording

Links to other subjects:

Social Studies: Climate

Environment and Sustainability: the impact of weather

Assessment opportunities

Opportunities for all three forms of assessment are indicated for each of the activities.

- Observation
- Conversation
- Product

An outline of the unit

This unit helps learners to learn more about water. It dwells on dissolving substances in water, uses of water and ways of conserving water. Learners will be developing observation and recording skills in order to illustrate what they have learnt. Learners will be asking each other questions in order to provide detailed descriptions. Learners should be encouraged to use scientific vocabulary with increasing accuracy, building on useful scientific terms that they already know.

Using student textbook

There are both words and pictures in the textbooks, and as your learners are developing their reading skills, it is important to read the text with them. That way you will 'modeling' reading and will help their development. Learners should be encouraged to read along with you or copy you where phrases are more complex. Phrases in the textbook are relatively short, but where there is more read, these passages should be broken down into shorter phrases. Encourage learners to ask questions to clarify their understanding and enable more able learners to respond to these questions where appropriate.

The student competence

i. Critical thinking

This unit gives the learners variety of activities that they should work out and deduce the outcomes. The learners should think critically to answer some questions and also when deducing outcomes of the activities.

ii. Co-operation

As learners are doing the activities, they should be able to work collaboratively and harmoniously so as to help each other in the learning process. Encourage them to take turns when doing activities.

iii. Communication.

In their discussions and presentation in groups and as a whole class, there are many opportunities for communication.

Cross cutting issues

i. Environment and sustainability

Learners should be given the opportunity to consider how sustainable development is the kind of development that meets the needs of the present without

compromising the ability of future generations to meet their own needs. Learners should consider this within the context of the local environment, reflecting upon the benefits of protecting the environment near to where they are. Simple ways of conserving water like closing taps should be encouraged.

Links to other subjects

Study of water in this unit links to social studies through learning ways for conserving water and reason for conserving water. This unit provides an opportunity to develop data handling skills in mathematics. Learners are also developing their English skills so focus on accurate use of vocabulary.

New words and their meanings

Solubility: ability of a substance to dissolve

Dissolve: to make a solution

Substance: a particular kind of matter such as solid liquid, gas

Solution: a liquid mixture in which a solute (solid) is evenly distributed.

Conserve: to protect from harm or destruction.

Insoluble: substance incapable of being dissolved

Soluble: substance (solid) that is able to dissolve in a solvent

Dissolving solids in water to make solutions

Refer to learners book page 61

Activity 1

Ask pupils what are some substances that can dissolve in water? (Answer: Sugar, salt, coffee, chocolate malt powder. Accept all possible answers.) (Critical thinking)

What are some solvents besides water and what are some solutes that can dissolve in these solvents? (Answer: Nail polish (solute) in acetone (solvent); glue (solute) in acetone (solvent); eggshells (solute) in vinegar (solvent); iodine (solute) in hexane (solvent); paint (solute) in turpentine (solvent). Accept all possible answers.)(Critical thinking)

Explain to the learners that although water can dissolve many substances, it cannot dissolve everything. Different solvents can dissolve different types of solutes. Besides temperature and size of particles, there are other factors that affect the ability of a solute to dissolve in a solvent.

Assessment opportunities

Observation

Observe learners as the do the activity. Are they able to follow the procedure correctly?

Conversation

Ask them random questions as they do the activity. This will make them understand more. Also allow them to ask questions for clarification.

Product

Look at the notes written by learners on what they observed. Do they reflect what was found?

Answer to check your progress (4a)

Refer to learner's book page 62

1. No
2. Salt, sugar

Insoluble substances in water

Refer to learner's book page 63

Activity 2

Introduce this lesson by reviewing what was learnt in the previous lesson. Ask learners to define insoluble substances (Critical thinking). From their definitions, let them list some of the insoluble substances in water. Guide learners in doing activity of learners book. Ensure that each learner despite gender participates in doing the experiment.

Observation

Observe keenly as learners do the activity.

Conversation

Ask them random questions as they do activity.

Product

Look at the notes compiled by learners on what they observed. Do they reflect what was found?

Answer to check your progress (4b)

Refer to learner's book page 64

1.

X	S	V	W	B	D
S	O	L	U	T	E
O	L	U	O	D	Y
L	U	M	G	I	T
U	T	I	F	S	Z
B	I	X	H	O	D
I	O	T	T	L	A
L	N	U	R	V	C
I	M	R	Q	E	E
T	Q	E	M	N	J
Y	R	Z	A	T	D

Dissolving and disappearing

Refer to learners book page 65

Activity 3

Introduce the topic by explaining to learners that there are substances that are used every day that will dissolve in water, while others will not. For example, show a plastic action figure and some powdered drink mix. Ask students to predict what will happen when each is added to a small glass of water."Do you believe the action figure will dissolve in the water? What will happen when the drink mix is added to the water?"(Critical thinking). Discuss with learners reasons that some solids will dissolve in water and others will not. (Communication). Guide learners in doing practical activity of learners book.

Assessment opportunities

Observation

Observe keenly as learners do the activity. Are they able to follow the correct procedure?

Conversation

Ask them random questions as they do activity. Also allow them to ask questions during class discussions so thet they can understand more.

Product

Look at the notes written by learners on what they observed. Do they reflect what was found?

Answer to check your progress (4c)

Refer to learner's book page 66

1. True, false, true, true

Increasing solubility of substance in water

Refer to learner's book page 67

Activity 4

Review the lesson-by reminding learners of what they learnt about solubility in lesson one of this unit. Ask them to mention some of the factors that they duspect to be affecting solubility. (Critical thinking). From their answers let them come up with the list of things that increases solubility in water. Guide them in doing activities of learners book. Ensure that each learner participates during the experiment. (Communication). Ask the following questions as they do the activity.

- What happened to each solid as it was added to the water?
- Which solids did not disappear – that is, you could still see them in the water?
- Which solids disappeared? Did they really disappear or go away completely? If not, why could you not see them?

Use this activity to explain to learners the factors that affect the ability of a solute to dissolve in a solvent:

Type of solvent — Different solvents can dissolve different solutes.

Temperature of the solvent – The higher the temperature of the solvent, the faster the rate at which the solute dissolves and the greater the amount of solute that can be dissolved.

Size of particles — The bigger the surface area, the faster the rate at which the solute will dissolve. Hence a powdered solute would dissolve faster than if the solute were in lumps.

Effect of stirring — Stirring increases the rate at which the solute dissolves in the solvent.

Assessment opportunities

Observation

Observe keenly as learners do the activity. Are they following the correct procedure.

Conversation

Ask them random questions as they do activity. Also allow learners to ask questions too.

Product

Look at the notes compiled by learners on what they observed. Do they reflect what the results?

Uses of water at home

Refer to learners book page 69

Activity 5

Introduce the subject by showing pictures or video clips of uses of water. This can be followed by role-playing water uses. Teacher to lead a general discussion to be sure learners can identify uses of water. Lead learners in discussing let us talk of learners book. Let them mention other uses of water. (Communication)

Assessment opportunities

Conversation

Ask them other uses of water. Are they able to provide the correct answers?

Product

Look at the notes written by learners Do they reflect what was found?

Answer to check your progress (4d)

1. Refer to learners book page 71

Ways of conserving water

Activity 6

This lesson addresses ways of conserving water. It covers the methods for promoting water conservation. Learners engage in a hands-on activity to explore how easy it is to conserve water. Each learner will observe their families' water conservation and pollution prevention efforts, and score their habits.

Assessment opportunities

Observation

Listen to learner's conversation. Are they relevant to the topic 'ways of conserving water'?

Conversation

Ask them random questions. Are they able to answer correctly?

Product

Look at the notes compiled by learners. Do they reflect what was found?

Answer to check your progress 4(d)

Refer to learner's book page 72

1. Refer to learner's book page 70.
2. Not correct, correct, not correct.
3. Refer to learner's book page 71.

Additional information for the teacher

Water on Earth moves continually through the water cycle of evaporation and transpiration (evapotranspiration), condensation, precipitation, and runoff,

usually reaching the sea. Evaporation and transpiration contribute to the precipitation over land. Large amounts of water are also chemically combined or adsorbed in hydrated minerals.

Safe drinking water is essential to humans and other life forms even though it provides no calories or organic nutrients. Access to safe drinking water has improved over the last decades in almost every part of the world.

Water is an excellent solvent for a wide variety of chemical substances; as such it is widely used in industrial processes, and in cooking and washing. Water is also central to many sports and other forms of entertainment, such as swimming, pleasure boating, boat racing, surfing, sport fishing, and diving.

UNIT 5

Weather and wind
(No. of lessons: 9)

Refer to learner's book page 73 to 80

Learn about	Key inquiry questions
By the end of this unit, learners should be able to: • Learners should observe and record how daily changes in weather occur because of changes of temperature, atmospheric air pressure. • Learners should learn, through investigation, how air exerts pressure. This is shown by breathing action to fill balloons, inflating a ball or car tyre. They should learn why there are changes in weather, why these changes occur, why weather sometimes changes abruptly, and how these changes come about. • Learners should observe and record changes in weather at regular intervals throughout a day and week, learn how it is influenced by temperature and pressure changes, and be introduced to weather charts as seen on TV.	• Explain why are there changes in weather? • Know that there is a change in weather. • Record changes in weather.

Learning outcome

Knowledge and understanding	Skills to be acquired	Attitudes and values
By the end of this unit, learners should be able to: • Understand changes in the weather and record the changes • Understand the concept of air pressure, pressure differences and wind • Investigate air pressure as a force	By the end of this unit, learners should be able to: • Design fair tests to measure the speed of wind and air pressure • Observe and measure the changes in weather • Record changes over time.	By the end of this unit, learners should be able to: • Appreciate the importance of changes in weather • Appreciate the importance of air pressure in their daily lives

Contribution to the competencies:

Critical thinking: about ways of observation and recording

Co-operation and Communication: carrying out investigations

Co-operation: recording

Links to other subjects:

Social Studies: Climate

Environment and Sustainability: the impact of weather

Links to other subjects:

Assessment opportunities

Opportunities for all three forms of assessment are indicated for each of the activities:

- Observation
- Conversation
- Product

An outline of the learning

This unit will help learners to understand weather. Learners will focus their exploitation on weather changes, air pressure and also recording weather changes. Learners will use weather date collected and analyze them. Learners will also compare weather for different days of the week. Learners should be encouraged to use scientific vocabulary with increasing accuracy, building on useful scientific terms that they already know.

Using student textbook

There are both words and pictures in the textbooks, and as your learners are developing their reading skills, it is important to read the text with them. That way you will 'modeling' reading and will help their development. Learners should be encouraged to read along with you or copy you where phrases are more complex. Phrases in the textbook are relatively short, but where there is more read, these passages should be broken down into shorter phrases. Encourage learners to ask questions to clarify their understanding and enable gifted learners to respond to these questions where appropriate.

It is helpful to have some keywords on posters or boards around the learning space if possible so that they get used to seeing them and become familiar with spellings. Learners could develop this collection as they progress thought the unit.

The student competences

Learners are asked to work in pairs and groups, so there are continuous opportunities for co-operation and teamwork. This unit provides good opportunities to create roles in groups so that for example there is a writer, questioner, presenter and group leader.

In their discussions and presentations in groups or as a whole class, there are many opportunities for good communication. It is important in Primary 3 that the teacher continues to model communication clearly, describing where appropriate features of good communication such as clarity, active listening, correct use grammar and pace.

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.

Cross-cutting issues

1. 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 idea 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.

2. Environment and sustainability

Learners should know that sometimes human activities like deforestation affect the weather. They should learn that cutting down trees is a danger to the environment.

Links to other subjects

This unit provides an opportunity to develop data handling skills in mathematics including presenting data in a table. There is also a possibility to link learning about weather to social studies which majority explains more about climate change.

Weather changes

Activity 1

Introduce the lesson through warm up activity, you may have been able to build a vocabulary list on the board which is good because it shows that some students are familiar with these words and will make the introduction easier. If you are unable to elicit any weather related vocabulary, you will have to spend more time on your introduction and practice sections. Once you have completed the warm up, introduce your weather related vocabulary using weather flashcards. Some basic words you may want to include are sunny, cloudy, raining, snowing, hot and cold. Drill these new words using choral repetition first and then call on learners to say them individually. (Communication)

After students have had some practice pronouncing these words, give them time to recite them poem. Ask them questions after reciting the poem to test their understanding.

Assessment opportunity

Observation

Observe learners as they recite the poem. Are they reciting well? What about pronunciation of new words?

Conservation

Talk to learners as they recite the poem. Are they understanding the poem?

Product

Are they able to answer study question after reciting the poem?

Answer to check your progress (5a)

Refer to learner's book page 76

1. Day
2. Sunny, windy, calm, cloudy, rainy
3. Cold day: jacket, hat, thick gloves, warm pant. Hot day: shorts, vests, light shirts
4. Windy
5. Umbrella

Air pressure

Refer to learner's book page 77

Activity 2

As a whole class, discuss learning from the previous lesson. Relate this to air pressure. Help learners in pair, carry out activity 2 of learners book. Give them time to answer study questions in the activity. (Critical thinking).

Assessment opportunity

Observation

Observe learners as they do the activity. Are they able to carry out the activity successfully?

Conservation

Talk to learners as they do activity of learners book.

Product

Are they able to answer study question correctly?

Answer to check your progress (5b)

Refer to learner's book page 78

1. Air
2. As the balloon rises, the pressure of the atmosphere fall causes the balloon to expand. Once it exceeds that volume balloon bursts.

Recording weather changes

Refer to learner's book page 79

Activity 2

Learners will engage in different facets of weather. Lessons give learners the chance to explore the differences between hot or cold, clear or cloudy, rainy or sunny, and calm or windy. learners will learn to observe and record changes in the sky during the day and at night. At the end of the unit, learners will have the opportunity to synthesize their learning.

Assessment opportunity

Observation

Observe learners as they do the activity.

Conservation

Talk to learners as they do activity of learners book.

Product

Are they able to answer study question?

Answer to check your progress (5c)

Refer to learner's book page 80

1. Award marks accordingly

Additional information for the teacher

Weather forecasting is the application of science and technology to predict the conditions of the atmosphere for a given location and time. Human beings have attempted to predict the weather informally for millennia. Weather forecasts are made by collecting quantitative data about the current state of the atmosphere at a given place and using meteorology to project how the atmosphere will change.

There are a variety of end uses to weather forecasts. Weather warnings are important forecasts because they are used to protect life and property. Forecasts based on temperature and precipitation are important to agriculture, and therefore to traders within commodity markets. Temperature forecasts are used by utility companies to estimate demand over coming days. On an everyday basis, people use weather forecasts to determine what to wear on a given day.

UNIT 6

Simple machines
(No. of lessons: 9)

Refer to learner's book page 81 to 87

Learn about	Key inquiry questions
By the end of this unit, • Learners should know how to construct simple levers which provides a good opportunity to develop their skills in designing fair tests and investigations that introduce ideas about the fulcrum and balance. They should learn about levers in their daily lives such as a see-saw, wheel barrow, and design and carry out fair tests with masses and force meters to learn that machines make work easier and more efficient by overcoming other forces such as gravity.	• Construct simple levers. • Know why we use machines instead of using our hands. • Know how machines are used.

Learning outcome

Knowledge and understanding	Skills to be acquired	Attitudes and values
By the end of this unit, learners should be able to: • Construct and use simple levers to make work easier	By the end of this unit, learners should be able to: • Design a fair test • Measure force required to lift a mass • Careful observations • Recording observations • Construct simple levers • Use simple levers to make work easier	By the end of this unit, learners should be able to: • Appreciate simple levers in making work easier • Co-operation in group work

Contribution to the competencies:

Critical and Creative thinking: moving things

Co-operation and Communication: group work

Links to other subjects:

Creative Arts: Construction of objects

Links to other subjects:

Assessment opportunities

Opportunities for all three forms of assessment are indicated for each of the activities.

- Observation
- Conversation
- Product

An outline of the learning

This unit introduces learners to simple machine. Learners will focus and explore more on types of simple machines and function of simple machines. They will be challenged to identify simple machines they come in contact with everyday. They shall also learn how to construct simple levers, reasons for using them and how we use them to make-work easier.

Learners will compare different simple machines and also ask each other questions in order to provide detailed description. Learners should be encouraged to use scientific vocabulary with increasing accuracy, building on useful scientific terms that they already know.

Using student textbook

There are both words and pictures in the textbooks, and as your learners are developing their reading skills, it is important to read the text with them. That way you will 'modeling' reading and will help their development. Learners should be encouraged to read along with you or copy you where phrases are more complex. Phrases in the textbook are relatively short, but where there is more read, these passages should be broken down into shorter phrases. Encourage learners to ask questions to clarify their understanding and enable more able learners to respond to these questions where appropriate.

The student competencies

This unit gives many opportunities for critical and creative thinking. This comes majorly through interpretation of pictures, giving reasons for interpretation and explanation. Also through being able to group and classify simple machines based on their uses.

Learners are asked to work in pairs, groups and as a class, so there are continuous opportunities for co-operation and teamwork. This provides good opportunity to create roles in groups so that for example, there is a writer, questioner, presenter and group leader.

In their discussions and presentations in groups or as a whole class, there are many opportunities for communication.

Cross cutting issues

i) Peace education

Throughout the unit, learners should be encouraged and made aware of the need to accommodate everyone's ideas and options. 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 learning process. This way, peace and values of education will be promoted.

ii) Environment and sustainability

Learners should be encouraged to make simple levers, in that they make work easier. Learners should know the right place to dispose off simple tools that are no longer in use, this way they will reduce environment pollution.

New words and their meanings

Lever: a simple machine consisting of firm rod turning about a fixed point called a fulcrum/pivot

Machine: a tool used to make work easier.

Balance: even distribution of weight enabling someone or something to remain steady

Wheelbarrow: a tool used to be pushed around with load in it.

Fulcrum: the support or point of rest on which a lever turns in a moving body

Links to other subjects

This unit provides an opportunity to develop data handling skills in mathematics including presenting data in a table. There is also a possibility to link learning about simple machines to the arts by exploring drawings that describes them.

Introduction to simple machines

Refer to learner's book page 81

Activity 1

Begin lesson by making a list on the board of what students already know about simple machines. Give unit test as a pre-test. Put out a display of simple machines (wedge, nails, scissors, screws, wheels, pulley). Ask students what they think these objects have in common. (Critical thinking). Answer: They make-work easier. All of them are simple machines.

Discuss what a simple machine is as you list the six simple machines on the board. Discuss what the purpose of simple machines is (to make a work easier). Discuss the work that each simple machine makes easier. Create a list of what students want to know about simple machines. (Communication).

Assessment opportunities

Observation

Observe learners in pairs discussing simple machines. Are there a variety of examples?

Conversation

Talk to learners as you guide them in discussing let us talk of learners book. Are they able to give different types of simple machines?

Product

Check examples that the learners are giving. Are they correct?

Constructing simple levers

Refer to learner's book page 83

Activity 2

As an introduction, use a ruler as a lever to catapult a marshmallow into the classroom. Ask the class to identify all of the movements involved in the action: (i) where was the push? (ii) where was the pull? (iii) what was the effect? (iv) how can a lever make things move more easily? (Critical thinking)

Guide learners in doing activity 1 and activity 2 of learners book. Ensure that each learner despite gender participates in doing the practical. (Co-operation).

Ask thenm to share their conclusions after conducting that experiment with the rest of the class. Lead in discussing conclusion views from various groups in the class.

Assessment opportunities

Observation

Observe learners as they are doing activities. Are they following the right procedure as indicated in learners book..

Conversation

Talk to learners as you guide them in doing activities of learner's book. Are they able to do the activities?

Product

By the end of the lesson, are learners appreciating importance of simple machines.

Application of simple machines

Refer to learner's book page 85

Activity 3

Introduce this lesson by reviewing what you taught in the previous two lessons. Redefine simple machine for the learners. Ask them to name some simple machine they know of and they make work easier.

Guide learners in doing activity 3 of learners book. Ensure that each learner despite gender participates in doing the practical. (Co-operation). Use learners book for further explanation.

Assessment opportunities

Observation

Observe learners as they are doing activity 3. Are they following the right procedure as indicated in learner's book.

Conversation

Talk to learners as you guide them in doing activities of learners book. Are they able to do the activities?

Product

By the end of the lesson, are learners appreciating importance of simple machines. Are they able to mention some of the simple machines made from wheel?

Answer to check your progress 6(a)

Refer to learners book page 87

1. one
2. two
3. four
4. to play

Additional information for the teacher

The six types of simple machines

Wheel & Axle - Makes work easier by moving objects across distances. The wheel (or round end) turns with the axle (or cylindrical post) causing movement. On a wagon, for example, a container rests on top of the axle.

Inclined Plane - A flat surface (or plane) that is slanted, or inclined, so it can help move objects across distances. A common inclined plane is a ramp.

Wedge - Instead of using the smooth side of the inclined plane to make work easier, you can also use the pointed edges to do other kinds of work. When you use the edge to push things apart, this movable inclined plane is called a wedge. An ax blade is one example of a wedge.

Lever - Any tool that pries something loose is a lever. Levers can also lift objects. A lever is an arm that "pivots" (or turns) against a fulcrum (the point or support on which a lever pivots). Think of the claw end of a hammer that you use to pry nails loose; it's a lever. A see-saw is also a lever.

Pulley - Instead of an axle, a wheel could also rotate a rope, cord, or belt. This variation of the wheel and axle is the pulley. In a pulley, a cord wraps around a wheel. As the wheel rotates, the cord moves in either direction. Attach a hook to the cord, and now you can use the wheel's rotation to raise and lower objects, making work easier. On a flagpole, for example, a rope is attached to a pulley to raise and lower the flag more easily.

Screw - When you wrap an inclined plane around a cylinder, its sharp edge becomes another simple tool. If you put a metal screw beside a ramp, it may be hard to see similarities, but a screw is actually just another kind of inclined plane. One example of how a screw helps you do work is that it can be easily turned to move itself through a solid space like a block of wood.