

MINISTRY OF EDUCATION & HRD

COMMONWEALTH OF DOMINICA

**SCIENCE AND
TECHNOLOGY**

**CURRICULUM GUIDE
GRADE 2**

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INTRODUCTION

We may express with very little opposition that science is the study of nature, which includes the biological and physical world. It is also accepted, that Technology on the other hand is a method of problem solving. This requires all the necessary resources and skills to be used to gather objective evidence. Then, design and develop gadgets geared towards making life easier and more pleasant for human kind.

The present science and technology curriculum for ks1 and 2 is designed to developed skills and habits of mind which are not only directed towards investigating and arriving at plausible conclusion but also finding answers to the problems that affect our daily life. Thus, science education will develop personal strengths which can be directed in a properly conceptualized and implemented science programme. These strengths include the ability to read, understand and write complete mathematical operations, to develop good communication, interpersonal and intra-personal skills, problem solving skills and critical attitude to work.

The Curriculum guide has proposed a number of science activities geared towards helping all pupils develop their personal strengths. The science and technology activities are also expressed in such a way that they should meet pupils' social and psychological needs of recognition, affection, security, belongingness and so on. Pupils will be able to demonstrate an awareness of social realities and natural phenomena, and their natural curiosity should be tapped and made the prime motivating device in inspiring them to learn about science and technology.

Through the science and technology programme, pupils will enjoy science as a fun activity which includes artistic experiences, creating projects, carrying out investigations that they planned, taking part in science games and contests (Science Fairs), recognizing that recreational activities and sports, example basketball have science information for students. Pupils involve in science activities will also recognize science as a means of advising them, on how to live healthy and safety life styles.

The agriculture strand included in the science and technology programme at every key stage of primary education is an indication that the ministry sees such important industry as being very critical in our food security policy. So in order to make sure that our pupils are given the opportunity to apply science and technological knowledge and skills, to identify and solve practical problems related to the sustainable use of agricultural resources, to facilitate production, distribution and marketing in order to meet the needs of society, is worthy that it be included in the science curriculum and not as a separate subject.

The Curriculum guide is organizes in such a way that it can be easily followed by teachers, pupils and parents. In the past it was felt that a process approach was the way forward to an authentic science curriculum guide. However, we at the curriculum unit have noticed that the teachers find it easier teaching from a content based model. The teachers must realise that science needs a lot of preparation if pupils are to gain and learn the maximum from their efforts. No longer should we concentrate our efforts on the above average pupils.

The differentiation of the curriculum in order to address the learning needs of all pupils should be our foremost goal if we are to comply with the ministry's vision of quality education for all. Very importantly, our pupils are not at the same level. This will have serious implication for the exposure of the curriculum to all pupils. Differentiation is one of the approaches that we can use to help all pupils to learn at their own pace and level. Some of the activities are less difficult than others, as a result, we should allow the more academically advanced pupils the opportunity to do these activities and give the easier activities to the slower or weaker pupils, so that they can develop a sense of achievement.

The science and technology curriculum was not designed for a text book but rather for the scientific advancement of all pupils. While we all agree that not all students will develop the necessary skills to be doctors and engineers, however, all our pupils must be given that choice rather than we making that choice for them. All our pupils can be equipped with the minimum science skills which can permit them to take part in a day to day conversation on the various natural phenomena and the way such phenomena impact our environment.

Thus, the programme is organized into four broad strands to include; Life Science, Earth and Space Science, Physical Science, and Agricultural science. It is expected that these strands together with the teachers' intervention and guidance will equip students with the necessary knowledge and skills required for the successful completion of the learning programme. The learning outcomes and success criteria should be seen as a step forward towards a pupil's centred learning programme.

We are calling on our hard working teachers to become facilitators in the management of the curriculum instead of being the distributors of knowledge. Pupils or pupils can play a part in contributing meaningfully to their own learning. When this is done, science becomes exciting, fun, interesting and enjoyable. We need to stimulate our pupils' interests by giving them the opportunity to express themselves with little or no interruption, is the way to go. Here we also have a role, only this time, we are clearing the misconceptions which will rise time and time again.

Science and technology are also linked to all the various subjects within the broader curriculum. Here we may mention that the scientific process is the preferred approach to investigating problems within the other subjects. The tools, devices and other gadgets necessary to deliver the other subjects are made possible through the timely inventions of technology. Science could not be completed without the added contribution of the social sciences, Health and family life education but more so for the direct impact of Mathematics and Language art on the scientific development of the pupils, the former for its measurement and calculation skills and the latter for its broad communication skills which are impacted on all pupils.

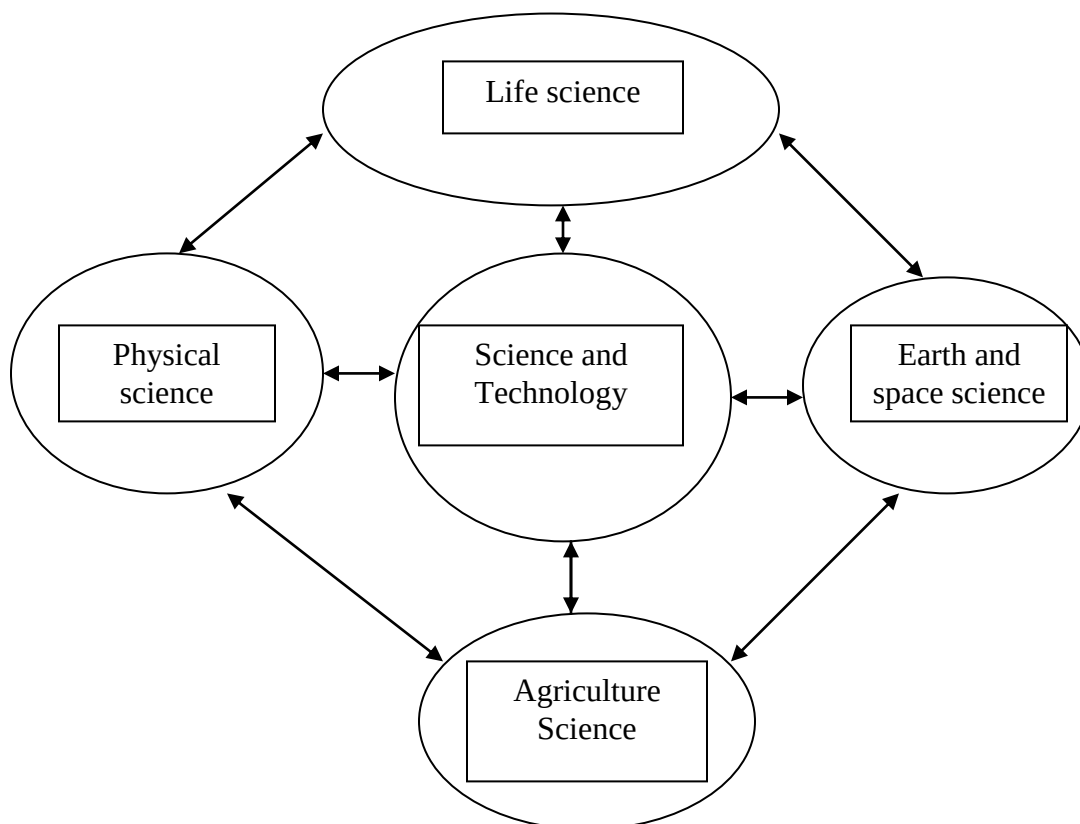
The term summary is broken in its various units, and is placed at the beginning of each term's activities. The term consists of four (4) units and each unit consist of the unit title, the learning outcome and the success criteria. A number of Success criteria have been designed to help pupils achieve the Learning outcomes and likewise a number of activities have been designed to facilitate the fulfilment of the success criteria. Teachers are kindly asked to carefully evaluate these activities and to feel free to develop their own activities to facilitate their pupils' specific

learning needs. Make use of the various learning opportunities that the internet affords us, so that our pupils can be exposed to a wide range of learning opportunities so that their experiences won't be limited.

It is not an easy task to teach science to pupils of grade K, however we can guide them through, questions and answers, matching answers and colouring objects. Help them to observe using their senses and to describe what they discover. As they develop help them to be excited about the world around them so that they can begin asking questions and give responses. Remember that their interest in the subject at an early age will help them develop a love for it later.

In ending, always seek the most recent information to help your pupils develop scientifically. Scientific information is not absolute and may change as we advance because of the advent of new technologies and better approaches. Our environment is a big and well equipped natural laboratory and you are called upon to make use of this God given natural teaching tool.

LINKAGE OF SCIENCE AND TECHNOLOGY TO THE PROGRAMME STRANDS



**SCIENCE AND TECHNOLOGY
SUBJECT SUMMARY
TERM 1
GRADE 2**

UNIT 1:	SENSES	SESSIONS
AT 1:	LO 1	10 – 12
SUCCESS CRITERIA:	(1 – 6)	
UNIT 2:	WEATHER INSTRUMENTS	
AT 2:	LO 1	10 - 12
SUCCESS CRITERIA:	(1 – 5)	
UNIT 3:	THE EFFECTS OF FORCES	
AT 3:	LO 2	8 – 10
SUCCESS CRITERIA:	(1 – 4)	
UNIT 4	PLANTS AND THEIR USES	
AT 4:	LO 2	8 – 10
SUCCESS CRITERIA:	(1 – 4)	

UNIT 1:**SENSES****ATTAINMENT TARGET 1:****Life Science****SESSIONS:**

(10-12)

LEARNING OUTCOME 1:

Describe things in the local environment using different sense organs

SUCCESS CRITERIA 1:

Discuss how humans and animals gather information.

ACTIVITIES:

- Take pupils on a nature walk around the school. Ask them to observe as many things as possible using their senses. They can ask each other questions during the trip. On returning to the classroom ask pupils to share their experiences and record them in their notebooks. Help students to identify sounds and their sources, smell- both pleasant and unpleasant, etc.
- Blindfold a pupil who sits in front of the class. Teacher points to another pupil in his/her seat who then claps. The blindfolded pupil is asked to point in the direction of the source of the sound. If correct the pupil trades places and the game continues. If not correct, teacher points to another student who claps and the blindfolded student guesses again. Carry out activity until most or all the pupils have participated.

SUCCESS CRITERIA 2:

Identify sense organs and discuss what each sense organ is used for.

SMELL**ACTIVITY:**

- Spray perfume in the air and ask pupils to identify and describe the smell. Ask them to state which sense organ was used to detect the smell (the nose)

- Place students in small groups. Half fill 3 small glass jars with some different solutions. Label the jars 1, 2 and 3. Have pupils pass the jar around in their groups, after smelling each container. Have them describe their findings and record the information in their notebooks.

Glass	Description of smell
GLASS 1	
GLASS2	
GLASS 3	

TASTE

- Blind fold pupils and ask them to taste a number of things, (salt, lemon, sugar, ripe banana, ripe mango, cocoa powder, biscuit, cookie, water etc.) Let them sample only things asked to taste. Let them guess the name of each thing before tasting. Let pupils write down their guess, then taste the thing. Let them tell what they have tasted and write down the name. Let them say something about taste (sweet, sour, bitter, salty) and which sense organ was used. (Discussion)

ITEMS	TASTE
salt	
lemon	sour
sugar	
Ripe banana	sweet
Ripe mango	
Water, etc	tasteless

Touch

- Place a number of items in a sock/box. Ask pupils to place their hands in the socks/box and identify and write down the names of at least five objects that they think are in the box or sock without looking into it. Showcase the item for all to see and let pupils check to see how many items they got right.

Seeing

- Place a number of items in various places in the classroom. Give pupils a clue such as colour/ material/ shape and have them search for the items. Ask them which sense organ allowed them to discover the item?

Hearing

- Take pupils out of the classroom and ask them to record all the sounds heard. On returning to the classroom let one pupil imitate the sound heard, and let another identify the sound. Let them say what made the sound and what was used to hear the sound.
Let pupils match the sense to the sense organs.

SENSE	ORGANS
HEARING	TONGUE 
SEEING	NOSE 
TOUCHING/FEELING	EYES 
TASTING	EARS 
SMELLING	SKIN/HANDS 

SUCCESS CRITERIA 3:

Describe how some animals use their sense organs to identify other things.

ACTIVITIES:

- Place pupils in small groups. Give each group the picture of an animal using one of its senses. Let them study the pictures and state which sense organ each animal is using and what it is using it for and let them share their ideas with the class. Let them write important information in their record/note books.
- Place students in small groups and let them research the following animals with respect to how they find their foods, mate, and nest (dogs, bees, snakes, whales, humans etc). Let the pupils discuss their findings in the classroom. (Discussion)

SUCCESS CRITERIA 4:

Identify and classify objects by their smell (odour) texture, sight and sound.

ACTIVITY:

- Place pupils in small groups and give them samples of a variety of objects. Let pupils examine the objects name and classify them. Hold a class discussion on descriptive words. Write pupils generated words on the board. Teacher may need to ask leading questions. Is it rough or smooth? soft or hard? coloured or clear? round or square? heavy or light? Etc.

Items	Description to the touch
cotton	
Surface of a piece paper	
stone	
cloth	
butter	

- Place three bowls of hot, cold and warm water in front of the class where everyone can see. Ask different pupils to place the tip of two different fingers in the hot and cold water. Then ask them to place a third finger in the bowl of warm water. Let pupils discuss the differences they feel.

- Blindfold a pupil. Place some objects in a paper bag or box and have him/her identify the item by simply touching the object in the bag.
- Let pupils observe the classroom, then let them out then make changes to the classroom by shifting around things. Let them return inside and discuss with the whole class if they noticed anything different when they re-entered the classroom. Let them name the sense organ used to make such observations.



- Let pupils observed the cartoon (above drawings) and state 6 differences between the two drawings. Let them state which sense organs helped them to identify the differences.

- Place a transparent glass or jar of water in front of the class where everyone can easily see it. Put a pencil in the water and ask pupils to discuss what they see and which sense and sense organ allowed them to see what is in the glass.
- Pupils remain silent in the classroom or outside for a specified period. During this time they record the various sounds they hear in the environment. They then share the information which they gathered with the whole class.
- Demonstrate and have pupils play the sound identification blind fold game. Pupils work in pairs. One member of the pair is blindfolded, while the other drops objects one at a time. The blindfolded member tries to identify each object from the sound made. Then roles are switched. Points may be awarded for each correct identification.

SUCCESS CRITERIA 5: Identify common sources of sound and smell.

ACTIVITIES:

- Have pupils list some common sources of sound and smell and discuss them in the classroom.

(Sound: vehicle horn, bird chirping, people talking/shouting/singing, radio, television, telephone, hammer knocking, dog barking, etc)

(Smell: egg frying, bakes frying, meat stewing, flowers, garbage, rotting fruits, ripe fruits, decaying meat, stale foods, animal urine, etc)

- Take students out of the classroom to an area where there are lots of flowers and have them identify the smell as sweet, bad, unpleasant, etc. On returning to the classroom, let them discuss other places where it is common to smell things, (Bakery, kitchen, restaurant, toilet, funeral home, gutter, bus, roadside etc.) and the type of smell expected to be experience.

SUCCESS CRITERIA 6:

Construct and use simple musical instruments (drums, guitar, shack-shack/maracas etc.)

ACTIVITIES:

- Pupils can make a clapper by knocking dry coconut shells together.
- Pupils can make a drum by stretching a plastic bag over the mouth of a can and hold it in place by a rubber band.
- A shaker can be made by putting seeds or pebbles into a bottle or closed milk tin.
- A bottle organ can be made by filling various bottles with different volumes of water and blowing across the mouths of the bottles.
- By humming through a comb folded in wax paper a buzzing tone can be created.
- Shoe boxes and rubber bands can be used to make a guitar.
- Group pupils so that they can have a chance to use each or most of the instruments. Have them discuss the differences in sound coming from each instrument, which sounds were louder and which sounds were softer. Display pupils' instruments in the science corner.



ASSESSMENT

UNIT 1:

(Oral)

1. Why do we need our five senses? What can do with our senses?

(Oral)

2. Pupils will describe the various smells of given substances.

3. Group foods according to their tastes.

4. State how some animals use their sense organs to identify other things.

5. Group according to taste, texture, (etc.)

Bitter	Sweet	Sour	salt

Match correctly

Eyes hearing

Nose feeling

Hand seeing

Ears smelling

Performance Assessment

Put pictures of objects in a box. Students sort them by things they can hear, that make nose and things they can't hear (don't make noise).

Have students design their own instruments using their own words. Have students predict what kind of sound their instrument would make.

RESOURCES

Local environment

Cloth for blind folding

Perfume/Cologne

Small Jar/Glass

Salt, lemon, sugar, ripe banana etc

Peanut butter

Socks/shoe box

Pictures of human, snake, dogs, bees, whales, etc

Pictures of bakery, kitchen, restaurant, toilet/rest room, funeral parlour,

Maracas, rattle, coconut shell, drums, comb, wax or A-4 paper, and toy guitar

UNIT 2:

WEATHER INSTRUMENTS

ATTAINMENT TARGET 2:

Earth and Space

SESSIONS:

(10 –12)

LEARNING OUTCOMES:

Construct and use instruments to observe and record weather conditions.

SUCCESS CRITERIA 1:

Construct and use a rain gauge using locally available materials.

ACTIVITY:

- Let pupils bring in a two-litre size, transparent plastic bottle. With teachers assistance cut the bottle into three parts. Stick the middle part of the bottle on a plate. Draw a scale in millimetres on a strip of cardboard. Stick the scale on the middle part of the bottle. Lastly place the top part of the bottle upside down on the part attached to the plate.



- Discuss how one can record rainfall using the rain gauge.
- Place the rain gauge outside to collect and record rainfall for a week and discuss the results.
- Let pupils discuss a suitable location for placing a rain gauge. They should know that a rain gauge is placed in an open spot, away from trees, roofs and other objects.

SUCCESS CRITERIA 2:

Construct a model thermometer

ACTIVITY:

- Let pupils use locally available materials such as cardboard red thread or twine, pencil and a black marker to construct a model thermometer. Show pupils what a real thermometer looks like.

**SUCCESS CRITERIA 3:**

Construct a wind vane and evaluate its use.

ACTIVITY:

- Using the following materials (paper, pencil, scissors, cardboard, compass, plastic soft drink bottle, drinking straw, shallow pan filled with rocks and marker) construct a wind vane for measuring wind direction.

With the scissors, carefully cut an arrow with a tab from the cardboard. Remember that scissors are sharp, so handle them carefully, bend tab carefully so the arrow turns easily when you put it in one end of the straw. Put the other end of the straw in the bottle. Remove enough rock from the pan to make room for the bottle. Pile the rock back around the bottle so it won't be blown over.

A compass always points north. Use your compass to find north, and then mark the four sides of the bottle, E, W, N, and S with the marker.

(See construction of the Wind Vane on page 35 in Finding Out book 3)

SUCCESS CRITERIA 4:

Use the wind vane to record the direction of the wind.

ACTIVITY

- Let pupils record the direction of the wind using the wind vane, which they constructed. Teacher should guide the pupils as to the correct use of the wind vane. Let pupils fill out the following table. The wind direction should be recorded at the same time each day.

DAY	WIND DIRECTION
DAY 1	
DAY 2	
DAY 3	
DAY 4	
DAY 5	

SUCCESS CRITERIA 5:

Gather information from family members on damage done by natural disasters on the environment (e.g. beach front washed away by hurricanes)

ACTIVITY:

- Research to be done by pupils.

Let pupils collect pictures of damage done by natural disasters,(Hurricanes: David/Arlene/Marilyn/Dean, or any other). Hold discussions using information collected from parents and other resource persons.

- Visit areas damaged by storms and discuss what could be done to limit such damages.
- Draw a poster of damage done by a storm and showcase the poster in the classroom.
- Picture of damage done by storms are shown by the pupils who also identifies the type of damage done.

ASSESSMENT UNIT 2:

GROUP WORK

Pupils will use the rain gauge to collect and record rainfall for week, (see table next to activity).

Pupils will use wind vane to record the direction of the wind.

Match correctly

Rain gauge	measures the direction of the wind
Wind vane	used to measure rainfall
Thermometer	To measure temperature

RESOURCES

Rain gauge

Thermometer (alcohol, mercury or medical)

Wind vane

Card board, Empty soda bottle, drinking straw, scotch tape, plasticine

Sand, scissors,, compass

Pictures of hurricane disaster

UNIT 3: THE EFFECTS OF FORCES

ATTAINMENT TARGET 3: Physical Science

SESSIONS: (8 – 10)

LEARNING OUTCOMES 2: Demonstrate the effects of forces on common structures and mechanical devices.

SUCCESS CRITERIA 1 and 2: Identify different structures, (e.g. buildings, bridges, etc), in the environment.

Classify structures using different criteria (e.g. man-made/natural, what it is made of)

ACTIVITY:

- Take pupils out to the school environment to look at different structures. (Buildings, bridges, etc). (Discussion)
- Let pupils classify structures e.g. man-made or natural. What are they made of? (wood, plastic, metal, rubber, stone, clay, crystal, etc).

Man-made	Natural

(Bird nest, bridge, church, beehive, spider web, termite nest, house, shell, cave, boat, etc)

- Let pupils investigate whether a triangular shaped structure is stronger than a rectangular shaped structure.

SUCCESS CRITERIA 3 and 4: Identify and discuss simple mechanical devices and state their uses/importance (e.g. hammer, screw driver, bottle opener and can opener etc.)

Design using locally available material and compare simple structures.

ACTIVITIES:

- Have pupils bring in pictures and if possible simple mechanical devices. Let pupils state their uses and importance.
- Have pupils design mechanical devices using locally available materials and compare simple structures. Display or exhibit the devices in the classroom science corner.

ASSESSMENT STRATEGY

UNIT 3:

(ORAL)

Have pupils list some important mechanical devices and their uses.

Given list of materials let pupils group them as metals, rubber, wood, plastics (fork, spoon, nail cutter, board, plywood, pencil, pen, ice cream cup, drinking glass, paper, chair, desk, table, keys, doors, fan blades, razor blades, etc)

Given a list of structures let pupils group them as man made or natural; bee-hive, spider web, bird nest, termite mound, conch shell, bridge, church, school, house, etc.

Assess pupils mechanical devices or simple structure.

RESOURCES

Picture of various objects, forks, spoons, plates, bowls, and pots, nail cutter, screw driver, etc.

Picture of bridges, churches, bird nest, termite nest, bee hive etc

Samples of plastic, wood, metal, rocks sand etc.

UNIT 4:**PLANTS AND THEIR USES****ATTAINMENT TARGET 4:****Agricultural Science****SESSIONS:**

(8 – 10)

LEARNING OUTCOMES 2:

Classify various types of plants based on a given criteria.

SUCCESS CRITERIA 1 AND 2:**Collect a variety of plants.****Classify the plants according to their use.****ACTIVITY:**

- Let pupils collect 5 different plants from home and school yard. (Discussion)
Classify the plants according to their use.
A plant can be placed in more than one group

Flower	Tea	Juice	Vegetable

SUCCESS CRITERIA 3 AND 4:**Collect a variety of medicinal plants.****State the function or the medicinal use of each plant.****ACTIVITIES:**

- Ask pupils to bring in medicinal plants (parents'/neighbours' assistance) (Discussion)
- Make a collage of the medicinal plants and place it in the science corner in the classroom.
- Discuss what parts (stem, leaves, roots, bark, etc) of the plants are used as medicine, record in notebooks.

ASSESSMENT ACTIVITIES

UNIT 4:

Group plants according to use (oral)

List parts of plants used for different purposes.

Project: Make a picture book of things made from plants.

Have pupils fill in a chart/table with at least three different plants.

Plant	Useful Parts	Use
Cinnamon	bark	Tea, seasoning

Short answer test

RESOURCES

Assorted plants parts

Sample of various plants

Medicinal plants

Pictures of animals and plants

Pictures of fruits

Herbs

Trees

Shrubs

Grasses

Vines

Local school environment

**SCIENCE AND TECHNOLOGY
SUBJECT SUMMARY
TERM 2
GRADE 2**

TERM 2

KEY STAGE 1:

SESSIONS

UNIT 5:

OBSERVING PLANTS AND
ANIMALS IN THE
ENVIRONMENT

AT 1:

LO 3

10 – 12

SUCCESS CRITERIA:

(1 – 5)

UNIT 6:

GROUPING MATERIALS

AT 2:

LO 2

10 – 12

SUCCESS CRITERIA:

(1 – 3)

UNIT 7:

STATES OF MATTER

AT 3:

LO 3

6 - 8

SUCCESS CRITERIA:

(1 – 3)

UNIT 8:

ANIMALS IN AGRICULTURE

AT 3:

LO 3

6 - 8

SUCCESS CRITERIA:

(1 – 3)

UNIT 5

OBSERVING PLANTS AND ANIMALS IN THE ENVIRONMENT

ATTAINMENT TARGET 1:

Life Science

SESSIONS:

(10-12)

LEARNING OUTCOMES 3:

Explain how plants and animals survive in their environment.

SUCCESS CRITERIA 1:

Observe various types of local plants and differentiate between them in terms of their surroundings.

ACTIVITY:

- Take pupils on a nature walk and let them observe various types of plants. Let them observe plants in ponds, riverside, rainforest, gardens/farms etc. and describe the differences or similarities if any.



Cactus grows in dry areas because they have fleshy leaves in which they store food and water.



Vines use other plants for support so that they can get maximum sunlight.



Rose plants develop spines to protect them from large animals.

SUCCESS CRITERIA 2:

Observe various types of plants and describe how they produce young plants (seeds, cuttings, corms, tubers etc.)

ACTIVITY:

- Take pupils for a walk around the school environment to observe the local plants and their means of reproduction (Discussion). Note that most flowers are grown through cuttings or seeds, Banana by suckers, all the huge trees in our rainforest by seeds, most mangoes by seeds except for "Julie" and "Leeka".

- Let pupils talk about the environment in which the plants grow as well as the method of reproduction of the plants. Describe how the environment affects the plants' reproduction.

SUCCESS CRITERIA 3:

Talk about how seeds of plants are spread from one place to another.

ACTIVITIES:

- (Working in small groups). Take pupils to the school's flower garden to look for a balsam or castor oil plant. Pupils choose a ripe balsam fruit, then observe and describe what happens.
- Pupils observe carefully a collection of seeds and fruits. They describe and demonstrate how each of them are spread. Observe and discuss special adaptation(s) /features which aid in their dispersal. (coconut fruit is very fibrous and can be carried away by water)
- Pupils state other examples of seeds and fruits which are dispersed in these similar ways.
- Pupils draw/get pictures of various fruits and seeds. Paste them on their books with the method of dispersal written under each. (If they use real seeds they can place them in ice-pop bags and stick them in their science scrap book/sheet.)

SUCCESS CRITERIA 4:

Discuss the function of various types of animal structures and how they are suited or evolve to their environment.

ACTIVITY:

- Let pupils talk about their hands and feet. The hands contain fingers that allow them to hold on to other things, the feet have toes which allow them to grip and help people to stand without much difficulty. Wings in birds allow them to fly. The web in duck feet allows them to swim. The fins in fish allow them

to swim. The gills in fish allow them to remain under water for long time unlike other animals.

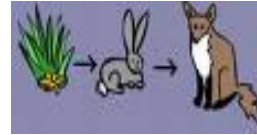


SUCCESS CRITERIA 5:

Discuss and present simple food chains.

ACTIVITIES:

- **Place** pupils in small groups and given them pictures of different animals. Let them discuss the diet of each animal. Then write some of the things each animal eats for food. Based on the kind of food each animal eats, pupils state whether it is a plant eating animal or a meat eating animal.
- Display groups of living things linked through the food they eat. (Discuss.) Pupils then write a food chain to show the food relationship between each group of living things.
- Pupils write their own food chain. Then present and discuss it with class.



- Discuss the animals found in a lake or pond and make an aquatic food chain.

ASSESSMENT STRATEGIES

Assess students for matching plants to the parts use for planting

Example: Cabbage----- seeds and seedlings

Dasheen-----corm

Citrus----- budded plant

Mango----- grafted plant/seeds/seedlings

Banana-----suckers

Assess pupils for matching seed to their means of spreading

Mango-----man/animal

Avocado-----man/animal

Coconut-----man/water

Grass-----animals

Castor oil---- self dispersal/spreading

Assess pupils' drawings of seeds and plants

Test pupils on structures and functions in animals and plants

Test pupils on designing simple food webs

RESOURCES

SEEDS

Vegetable seedlings

Pictures of animal and plant structure

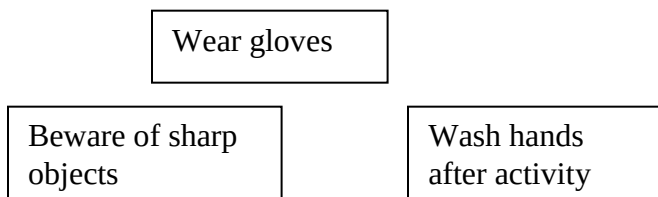
Pictures of simple food web (internet)

School garden/surroundings

Castor oil seeds
Coconut fruit
River/pond/ rainforest or their pictures
Seeds from common plants
Root tubers
Stem tubers
Corms
Bulbs
Grafted plants
Budded plants
Pictures of birds' wings, claws, webbed legs of ducks, canine teeth
Picture of elephant trunk; this is to show how structures are adapted to functions

UNIT 6:	Grouping Materials
ATTAINMENT TARGET 2:	Earth and Space Science
SESSIONS:	(10-12)
LEARNING OUTCOME 2:	Develop useful objects using resources in the environment in a sustainable way
SUCCESS CRITERIA 1:	Use safety measures when collecting materials in the environment.
ACTIVITY:	Let pupils discuss safety measures to be adopted while collecting materials in the environment. They can brainstorm and the teacher writes their ideas on the chalkboard and asks them to note them in their notebook. (Don't push and run, wear gloves, don't step on fruit peelings, look out for pieces of glass bottles, wash hands before returning to the class room and do not throw objects at other pupils)
SUCCESS CRITERIA 2:	Group materials found in the school environment according to recyclable and non-recyclable
ACTIVITY:	- Place pupils in small groups of five. Let them go to the school surroundings and collect as many materials. Ask them to classify the materials as re-useable (recyclable) or non-reusable (non recyclable). Pupils should be given gloves and garbage bags to carry out this activity. (Working in small groups) Each group of pupils is to collect one of the garbage bins around the school. Empty out the content in the garbage bins. Using hand gloves to examine the litter and classify the litter into re-useable and non- reusable.

Other Safety Measures



SUCCESS CRITERIA 3:

Construct a toy using recyclable materials

ACTIVITIES:

- Each pupil is to construct at home, a toy using reusable materials. Pupils take turn to present their toy to the class and describe how the toy was constructed.
- (Working in small groups) Each group constructs one of the toys below using recyclable materials. Then display the finished work in the classroom.

(a) SHAKER/Maracas

Use a clean bottle with a small neck.
Put small hard items e.g. stones, seeds into the bottle.

Push a stick or piece of wood into the neck. Secure the stick/wood with plasticine. Stick pictures on your shaker and shake it.



(b)

RATTLE

Make a hole in the centre of some bottles covers.
Push a piece of wire through the bottle tops
Shake your rattle to produce sound.



(c) **TIN GUITAR**

Use *three* rubber bands with the same lengths but different widths.

Stretch the rubber bands around a tin.

Pluck the rubber bands to make sounds.



(d) **BOBBIN TRACTOR**

Push a rubber band through a cotton reel.

Hold the rubber band at the ends with a short and a long matchstick respectively.

Turn the long matchstick to twist the rubber band.

Put the tractor on the floor.



Wrap a plastic bag around a tin.

Turn the plastic round and round to pull it very tight.

Then tie the plastic with a string.

Tie string around the tin near the top.

Cut the extra plastic away.

Use an eraser end of a pencil as a striker to play the drum.

(e) **STRING TELEPHONE**

Wrap sellotape over the top edges of two tins.
Make a hole in the bottom of each tin.
Push the ends of the string through the holes and make knots.
Speak into one tin. Your partner should put the other tin over his ear. Talk to each other.



(f) **BELL**

Make a hole in a tin can and push a stick a little way inside.
Tie a string firmly through the hole in the bottle top.
Shake the bell so the bottle top hits the tin can.



SUCCESS CRITERIA 4.:

Make a graphical (pictograph/bar graph) representation for the materials found in the environment.

ACTIVITIES:

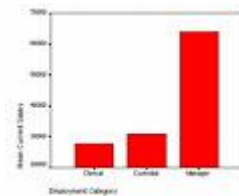
- (Working in small groups)
Pupils predict the types of trash that could be found in the school's environment. Write them in order from the most common to the least common type.

Using a collecting bag and rubber gloves pupils pick up all the trash from the school grounds. Spread old newspaper sheets on the classroom's floor and empty the contents of the bags on the floor. Sort out the items collected and make a list of them. Count the number of each item collected and order the items from the most common to the least common. Record all findings on a data sheet.

Pupils with teacher's assistance tally the class totals of materials found and arrange them from the most common to the least common.

Types of materials	Number of pieces collected.

Construct a bar graph from the total of each type of trash/litter, recorded by the class.



SUCCESS CRITERIA 5:

Organise and participate in a clean up project.

ACTIVITIES:

- (Working in small groups)
Go around the school environment. Identify and name all the litter found in the schoolyard. Make a simple drawing that shows the polluted areas.
- Discuss how area became polluted and how can pupils help to reduce pollution in this area. Discuss Action plan that can help keep the area clean.
- Make posters or fliers to let other pupils know about your "Action Plan". Place poster in strategic areas. Make labels according to the classification of litter found in the schoolyard. Stick the labels on garbage

bins. Place the bins around the school grounds and collect them after a few days.

- Class discussion of the effectiveness of this collection system. Discussion on the advantages and disadvantages of this system.



ASSESSMENT STRATEGIES

Assess students' behaviour when working in group or while on nature walk

Multiple choice tests

Oral presentation

Class discussions

Assess students' instruments for neatness and completeness through a appropriate rubric.

RESOURCES

Toy guitar, drums made of milk tins, plastic and rubber band, rattle maracas, etc

Garbage bags, rubber gloves, plastic bags,

Toy tractor/car

Posters

Flyers

UNIT 7:**STATES OF MATTER****ATTAINMENT TARGET 3:****Physical Science****SESSIONS:**

(6 - 8)

LEARNING OUTCOMES 3:

Demonstrate changes in the state of matter

SUCCESS CRITERIA 1:

Observe and describe how water can be solid, liquid or gas.

ACTIVITIES:

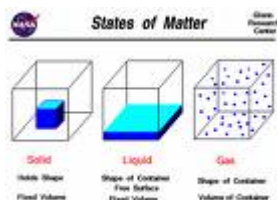
- Water as solid
Fill the ice tray with water. Put the ice tray into the freezing part of the refrigerator until frozen. Observe and describe what happened.
- Have frozen ice pop displayed and let pupils explain how the ice pop got to that state.
- Water as liquid
Hold ice cube in your warm hand. Observe and describe what happens.
- Leave frozen ice pop in a plate on a table for a few minutes. Observe and describe what happened.
- Heat crushed ice in a container over a flame. Observe and describe what happens.
- Water as gas/vapour
Leave for a while an open container with some water outside in the sun, with a mark showing the level of the water. Observe and describe what happened after a few days.
- Discuss what happens to washed clothes when they are spread out in the sun.
- Place some water in a beaker and heat it gently over a flame for three minutes. Observe and describe what happens.

SUCCESS CRITERIA 2:

Describe the properties of solids and liquids using their senses.

ACTIVITIES:

- (Working in small groups)
Pick up the marble or paper clip. Move it around in your fingers. Put it into a bottle, take it out and put it into another one. Observe and describe.
- Look at coloured water in a square container. Pour the water into a round container. Observe and describe.
- Place a tray on the table. Pour some water unto the tray. Lift one corner of the tray slightly. Observe and describe.
- Repeat this activity by putting a wooden block on the tray. Observe and describe.
- Groups present findings to class. Whole class discussion on the properties of matter.

**SUCCESS CRITERIA 3:**

Give examples of solids and liquids

ACTIVITY:

- Let pupils state as many solids and liquids as possible. E.g.; Solids: rocks, Leaves, wood, paper, nail, Ice, etc
Liquids: water, evaporated milk, alcohol, gasoline, diesel, beer, wine, etc

SUCCESS CRITERIA 4:

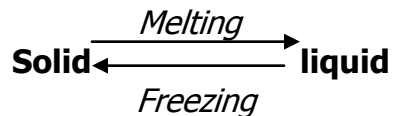
Discuss the conditions that cause changes from solid to liquid and back.

ACTIVITIES:

- (Solid to liquid and vice versa)
Cut a small cube of margarine and put it on the dish.
Put the dish where the sun can shine on it. Watch it
for a few minutes. Describe what happened.
- Place the melted margarine into the freezing part of
the refrigerator. Observe and discuss what happened
- Place crushed ice in a beaker. Put the beaker over a
lighted candle until it melts. Discuss what happened
- Place water into the freezing part of a refrigerator.
Observe and explain what happened.
- Put a lighted match near to the bottom of a candle.
While some of the wax is still liquid, press the can
down into it.

In each of the above activities pupils will observe and discuss the change of state. Teacher assists in correcting misconceptions.

N.B: A change from solid to liquid is called *melting* whereas a change from liquid to solid is called *freezing*.



ASSESSMENT STRATEGIES

Short questions to be answered orally

Assess pupils for participating in class discussions

Small tests

Matching substances to states of matter, Example;

Water-----liquid

Ice-----Solid

Wine-----liquid

Air-----gas

Gold ring-----Solid

Vapour-----gas

Smoke-----Gas

Evaporated milk----liquid

How can a solid change to a liquid? (by melting)

How can a liquid change to a solid? (by Freezing)

How can a liquid change to a Gas? (by boiling)

How can water vapour change to rain? (by condensation)

How can butter change to oil? (by melting or heating)

RESOURCES

ICE, WATER

Balloon filled with air

Empty balloon

Containers of various shapes (square and round)

Alcohol, evaporated milk, and kerosene

Refrigerator

Margarine

Coconut oil

UNIT 8:

ANIMALS IN AGRICULTURE

ATTAINMENT TARGET 4:

Agriculture Science

LEARNING OUTCOME 3:

Animals in Agriculture

SUCCESS CRITERIA 2:

Talk about/visit an animal farm near your home or school

ACTIVITIES:

- Take pupils on field trip to identify farm animals. Pupils observe and describe the farm animals seen.
- Resource person (farmer/extension officer) talks to pupils about farm animals.
- Pupils draw, colour and name their favourite farm animal. Pupils also write a few sentences about the animal drawn.
- In small groups, pupils write a project about a farm animal. Groups' work is exhibited. This should include name of animal, description of animal, products obtained from animals, method of reproduction, the name of the male, female, young, name of living place and one disease or pest that attack animal.
- Tell stories to pupils about farm animals. "*Animal Farm*" is a good example. Also students can tell local stories related to animals such as "compere lapen"



Animal producing milk



Animals for meat



Birds kept for eggs



Birds kept for meat

SUCCESS CRITERIA 1:

Group animals according to their use in agriculture

ACTIVITIES:

- Display pictures depicting farm animals and other animals. Pupils identify the farm animals.
- Working in small groups, pupils discuss the use of the farm animals and group them according to their use in agriculture.
- Pupils identify other farm animals with similar use in agriculture.
- Resource person (farmer) talks to class about importance of farm animals.

- Pictures depicting farm animals in use in agriculture are given to pupils in small groups. Pupils observe, discuss and group animals according to use.



Beast of burden

- Pupils collect pictures of farm animals and paste them in their book. Write down the uses of the animals below their pictures.

SUCCESS CRITERIA 3:

Make a presentation of farm animals to your class.

ACTIVITIES:

- Pupils make a presentation of farm animals to the class including type of breeds, housing, needs, diet etc. followed by Class discussion on presentation
- Working in small groups, pupils research a farm animal and make presentation to class.
- Pupils write a project on their favourite farm animal. Pupils works are displayed in the class.

Assessment Strategies

Match animal flesh to animals

Mutton-----sheep
 Mutton-----goat
 Beef-----cow
 Back and neck-----chicken
 Pig-----pork

Grouping Animals

Meat-----cow, chicken, sheep, goats, pigs
Milk-----cow, goat
Beast of burden----donkey, horse, mule
Wild life-----manicou, agouti, frogs, birds, etc

Assess pupils coloured drawings of selected farm animals

Project activity related to farm animal (model from plasticine or play dough or wet news paper)

Match male animal to female animal

Animal	Male	Female
Cattle	bull	cow
Pig	sow	boar
Fowl	hen	cockerel
Sheep	ram	ewe
Goat	buck	doe
Rabbit	buck	doe

RESOURCES

Pictures of farm animals
Agriculture Extension officer
Farmer
Farm Worker
School farm
Text book, "Animal farm' by Steve Owen
Manila paper
Markers
Crayon
Clay
Play dough
Plasticine
News paper

**SCIENCE AND TECHNOLOGY
SUBJECT SUMMARY
TERM 3
GRADE 2**

UNIT 9	GROWTH AND DEVELOPMENT IN PLANTS AND ANIMALS	SESSIONS
AT 1:	LO 2	8 – 10
SUCCESS CRITERIA:	(1 – 4)	
UNIT 10:	SUN AND EARTH	
AT 2:	LO 3	6 - 8
SUCCESS CRITERIA:	(1 – 3)	
UNIT 11:	WHAT CAN ENERGY DO?	
AT 3:	LO 1	6 – 8
SUCCESS CRITERIA:	(1 – 3)	
UNIT 12:	THINGS WE USE	
AT 4:	LO 1	4 – 6
SUCCESS CRITERIA:	(1 – 2)	

UNIT 9:

GROWTH AND DEVELOPMENT

ATTAINMENT TARGET 1:

Life Science

SESSIONS:

(8 – 10)

LEARNING OUTCOME 2:

Describe and explain the growth and development of some plants and animals

SUCCESS CRITERIA 1:

Classify local plants based on their size (herbs, shrubs, and trees)

ACTIVITIES:

- Nature walk, let pupils observe a variety of plants in their school surroundings and group them according to size and structure e.g. vine, shrubs, trees,



Tree



shrub



Herbs

- Let them draw pictures of some of the plants they observed on returning to the classroom.



- Let pupils discuss the differences in structure, size and colour of the various groups of plants they observed.
- Let pupils prepare a collage of a variety of plants for a given group, example shrubs, trees etc and let them give two importance of each plant in each group, if known.

- Colour me. Let pupils colour trees/shrubs/herbs/grasses in appropriate colours

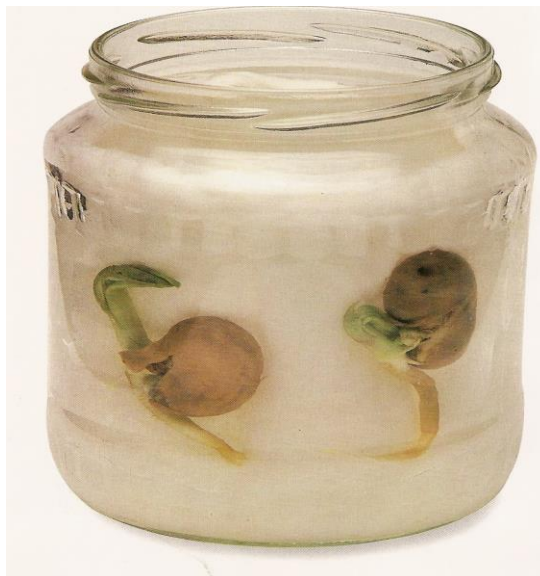


SUCCESS CRITERIA 2:

Follow the development of a plant from a seed to a seedling.

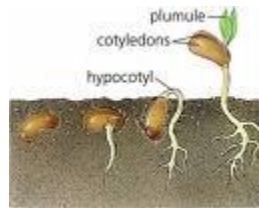
ACTIVITIES:

- Let pupils grow/germinate/sow seeds in a Jar/bottle:
Leave the seeds in water for 2 hours.
Place newspaper/tissue in the jar/bottle.
Moisten/wet paper in the jar/bottle. Place seeds in the jar so that they can be seen.
Watch them grow. Record the appearance of leaves, stems and roots in a table form.
Let pupils grow seeds in soil.



- Pupils will need seeds, water, soil, egg box/seed box, milk carton. Leave the seeds in water for 2 days.

Put seeds in the egg box/milk carton/seed box.
 Push in the seeds and water them daily.
 Watch them grow.
 Let pupils talk about what they observe each day.
 Draw what they observe each day.



SUCCESS CRITERIA 3:

Classify animals on the basis of their size/body cover/food they eat.

ACTIVITIES:

- Let pupils name as many animals as possible according to size. E.G;
 (Cow, pig, horse, parrot, sheep, goat, rat, manioc, agouti, mosquito, frog, sparrow, humming bird, robin, man, woman, boy, girl, donkey, lion, tiger, monkey, squirrel, crab, housefly, cat, dog, mouse, lizard, iguana, "zandolie", snake, shark, turtle, whale, eagle, duck, goose, etc)
- Let them group the animals according to body covering.

Grouping of animals according to **body cover;**
(See table below)

Animals with Hair/fur	Animals with feathers	Animals with bare skin	Animals with neither Hair, Feathers , or skin
Cow, pigs, horse, sheep, goat, rat, manitou, agouti, donkey, lion, tiger, monkey, squirrel, cat, dog, mouse, etc	Parrot, sparrow, humming bird, robin, duck, goose, eagle, etc	Frog, man, woman, boy, girl, lizard, iguana, zandolie, etc	Mosquito, crab, house fly, turtle, shark, whale, etc

Grouping of animals according to habitat (**wild or tame**);

Wild animals	Tame animals
Parrot, rat, manitou, agouti, mosquito, frog, humming bird, sparrow, robin, tiger, monkey, squirrel, crab, house fly, mouse, lizard, iguana, 'zandolie', snake, etc	Cow, pigs, horse, sheep, goat, cat, dog, etc

- Let pupils group the animals according to habitat (tame or wild.)
- Let them group the animals according to those we eat and those that are not eaten.



ANIMAL WE DO NOT
EAT



ANIMAL WE EAT



AGOUTI



MANICOU

- Let them group the animals according to those that eat plants or other animals or both.



ANIMALS THAT EAT PLANTS

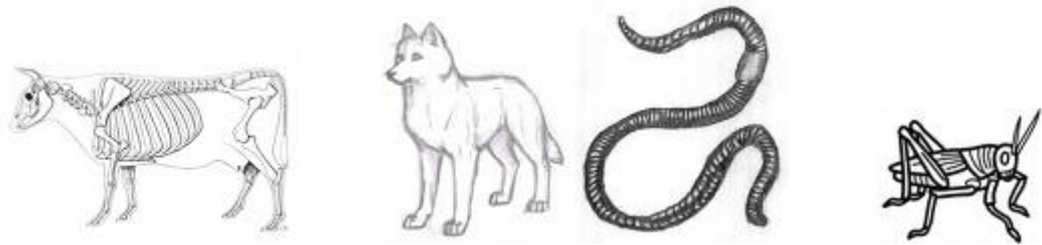


ANIMALS THAT EAT
OTHER ANIMALS

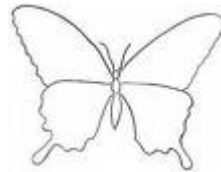
- Let pupils talk about animals with backbone and those without.



- Given a list of animals ask pupils to colour those with backbone.



- Draw a butterfly and state whether it has a backbone or not.



- Visit an animal farm where possible or bring a tamed pet to school. Let pupils observe, discuss and record its behaviour. Let them discuss and record observations about other similar animals.

SUCCESS CRITERIA 4:

Describe the physical changes of some animals from the new born to the adult including humans.

ACTIVITIES:

- Let pupils visit a pond where necessary and identify the different stages of development of particular or specific animals. Let them discuss what they saw/observed and draw the various stages in their book. (e.g; Egg ► tadpole ► frog,

egg → larvae → adult

egg ► baby turtle ► adult turtle,)

- Ask pupils to talk about their pregnant pet and the moment it gave birth. Discuss the development of the young till adult.



- Let pupils talk of their pregnant mother (sister/aunt/family female friends. Describe what happened when the baby was born and trace its development to a toddler where necessary.



1 week old baby



1 month baby



1 year baby



5 years old boy

- Observe a chicken and a hen and discuss and record the differences and similarities.



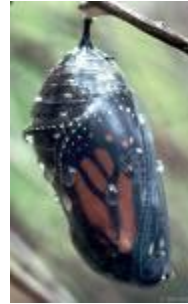
- Bring eggs from a butterfly/other insect in the classroom. Make sure the eggs are attached to leaves. Place the bag with the eggs in a transparent bottle. Observe what happens until a butterfly is formed. Record your observation and draw pictures of the changes observed name each stage using their own words and the real names where possible



EGG



LARVAE



PUPAE



ADULT

- Bring a picture or an adult man, teenager, toddler and baby to the class by the pupils place them in order of age/development. Do the same with a picture of an adult female, teenager, and toddler and baby girl.

(Baby ► Toddler ► teenager ► adolescent ► adult)



BABY



TODDLER



TEENAGER



ADOLESCENT



ADULT

ASSESSMENT STRATEGIES

Group animals according to those with backbone and those without

List stages of development of some animals

Insect-----(eggs, larva, pupa, adult)

Man-----(baby, toddler, teenager, adolescent, adult)

Fish----(eggs, hatchling, Fry, adult fish)

Frog----(eggs, tad pole, adult)

RESOURCES

Pictures of stages of development of human

Picture of stages of development of animals

Picture of stages of development of insects

Chicken eggs,

Chicks

Hen

Pupils picture of different stages of growth.

UNIT 10:

SUN AND EARTH

KEY STAGE I:

Earth and Space

SESSIONS

(6 – 8)

LEARNING OUTCOME 3:

Describe and represent the movement of the earth relative to the sun.

SUCCESS CRITERIA 1:

Explain the movement of the earth relative to the sun.

ACTIVITIES:

- Let pupils draw the picture of the earth at different positions around the sun. Let them identify which parts of the earth will be lighted and which will not.



- Using a football and a tennis ball let pupils make a model of the earth and sun. Let them describe their model and discuss how many days/weeks, months it takes for the earth to go around the sun. Let them discuss the difference between an ordinary year and a leap year. (This activity can also be illustrated using play dough/plasticine)



- Using their own selected material let pupils explore their creativity by creating a model of the sun and the earth. Use models for a class display. (Newspaper

can be soaked in water and moulded into spheres of different sizes to represent the sun and the earth.)

SUCCESS CRITERIA 2:

Explain the occurrence of night and day.

ACTIUVITIES:

- Ask pupils to observe and record the characteristics of night, while at home. Take the pupils out of the classroom and ask them to observe and record the characteristics of daytime. Let pupils compare the differences between night and day.



- Using a flashlight, and a football, allow pupils to explain the occurrence of night and day.
- Using a globe of the earth, let pupils spin it around to see how it rotates on its axis. Discuss what happens when the earth rotates on its axis; record your observation in note books.



- Let pupils discuss the following if the sun is 100 times bigger than the earth why does the sun appears smaller than the earth when viewed from the earth. (They should infer that the sun is very far away, so it appears to be very small or much smaller than the earth)

SUCCESS CRITERIA 3:

Discuss the length of time the earth takes to revolve around the sun.

ACTIVITIES:

- Place pupils in small groups. Allow them to discuss how long the earth takes to travel around the sun. Let them record the important points in their notebooks.
- Using photographs, drawings, and television imagery (video) show the pupils the movement of the earth around the sun. Let pupils record their observations from the materials/equipment used.

ASSESSMENT STRATEGIES

Assess pupils' model of earth and sun

Written test

How long does it take the earth to go around the sun? (24 hours

Name two features linked to night time (stars, moon, darkness, etc)

Name two features linked to day time (sun, bright sky, etc)

Assess pupils for participation in class discussions and ability to work in group.

RESOURCES

Football, tennis ball

Globe

Picture of day time

Picture of night time

Drawings of day and night time

Flash light

UNIT 11:

What can Energy do?

ATTAINMENT TARGET 3:

Physical Science

SESSIONS:

(6 – 8)

LEARNING OUTCOME 1:

Design and make simple devices powered by different forms of energy.

SUCCESS CRITERIA 1:

Identify and describe devices that use moving air and water as energy sources (e.g. wind mills, water mills, sail boats)

ACTIVITIES:

Air

- Ask pupils to draw a windmill and label its parts. State the source of energy used by the windmill. Let them talk about the cleanliness of that energy source compared to fossil fuel.



- Visit a wind farm where necessary and let pupils record their observations in their workbooks.



- Let pupils construct a windmill using locally available materials



Water

- Visit a hydroelectric plant and observe the water turbines used to produce electricity.



- Invite a resource person engineer/ a DOMLEC technician to explain to the students how water energy is converted to electrical energy/hydroelectricity.
- Let pupils make a poster based on either their visit to a hydro plant or on the information received from the engineer/technician.
- Place pupils in groups of threes and let them design and make a sail boat for a class exhibition. Allow them the freedom to be creative with their display. If they did not complete the activity let them complete it at home and return the finished product to the classroom for the exhibition.



SUCCESS CRITERIA 2:

Design and construct a device propelled by air (Kite, balloon, rocket)

ACTIVITIES:

- Blow up a balloon, tie its open end with a long string then let it go but hold one end of the string. Let pupils discuss why the balloon moved upwards. Now let them tie an un-blown balloon at the open end with a long string. Allow them to pull the string. Let the pupils discuss why the balloon did not move upwards. Compare the action of both balloons. Let them conclude that air has energy and it allows the balloon to move.



- Let pupils design and construct a kite using locally available materials. Let them compete to see whose kite fly's the highest. Let pupils talk about their design with their peers. Assess pupils based on aesthetics and height travelled by the kites.



- Using white or coloured A4 paper design and construct a rocket. Let the pupils throw their rockets to see which design travels the furthest. Let pupils describe and discuss the design and the factors influencing the distance travelled by their rockets.



SUCCESS CRITERIA 3:

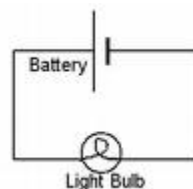
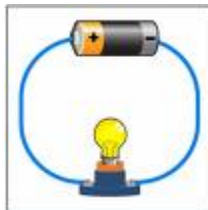
Demonstrate the use of a simple electrical circuit.

ACTIVITIES:

- Let pupils construct a simple electrical circuit using the materials below:

MATERIALS: A board 1' x 1', Four nails. A length of copper wire about 48", A 1.5 large/medium/pen light dry cell, one penlight bulb.

N.B. The bulb should light, to demonstrate that the circuit is complete.



- Let the pupils construct an electrical circuit using materials provided for by the teacher or brought from home. Let them talk of other electrical circuits at home and at school.

SUCCESS CRITERIA 4:

Identify and discuss ways in which technology related to energy use has enhanced the lives of people.

ACTIVITIES:

- Let pupils mention or list the appliances that they have at home that use energy.



- Let them discuss the importance of these appliances in their daily lives. Ask them to discuss with their parents and grandparents what types of devices/appliances/transport did they use before. Let pupils list the changes or improvement experienced



- Let students write a story about life today compared to life before as indicated by their parents and grandparents about the types and use of appliances/transport/other devices.

ASSESSMENT STRATEGIES

Assess students' models of sail boat, wind mill, kite and electric circuit

Written test

RESOURCES

Balloons

Kites

Radios

Electrical circuit

Battery

Wire

Nails

Flash bulbs

Electrician

Pictures of antique refrigerators and other appliances

Goose for ironing (antique iron)

Hydro electric plant

Wind mill

Picture of wind farm/wind mill

UNIT 12: THINGS WE USE IN AGRICULTURE**ATTAINMENT TARGET: Agricultural Science****SESSIONS:** (6 - 8)**LEARNING OUTCOME 1:** Describe various product obtained from plants and animals used in agriculture.**SUCCESS CRITERIA 1:** **List a number of plants and discuss their importance.****ACTIVITY:**

- Place pupils in groups of 4 – 5, and give them a specific group of plants to research medicinal plants, ornamentals, lumber, food, agro-processing. Let a pupil from each group make a presentation using manila paper to the whole class.

e.g. Medicinal Plant Group (See also manual "Cabrit's Plants and Their Uses" by Arlington A. James.

Item	Plants	Uses
1.	Cemencontois	Cold, local tea, worm medicine
2.	Bazelic	Loal tea
3.	Lange Pool	Cold
4.	cozowic	Pain killer
5.	Spear mint	Cold, bowel cleanser
6.	Timanoic	Cold, cough
7.	Sandragon	Antibiotic, bleach
8.	Pepper mint	Tea, cold
9.	Zing Zing	Diabetes
10.	Gwen anbas feie	Pressure/hypertension
11	Young guava leaves	Hypertension, gripes and diarrhea

MATERIAL: Herb book, manila paper, markers and herbarium**RESOURCE:** Parents, herbalist, agriculturist,

SUCCESS CRITERIA 2:

List a number of animals and discuss their importance.

ACTIVITY:

- Place pupils in groups of 4 – 5. Give them an animal to research on its products, and the uses. Let them make a presentation of their choice. The following categories can be given for research; Beast of burden, large animals, animals for meat, milk, ornamentals/jewellery, clothing and accessories. Example:

Item	Products	Animals
1	Meat	Cows, sheep, chicken, pigs, goats
2	Ornaments/Jewellery	Elephant (tusk), turtle (shell)
3	Musical instrument	Goat, sheep, etc
4.	Shoes, straps, hats	Cow, pig

ASSESSMENT STRATEGIES:

Grade students' herbarium,
Multiple-choice test,
Collage and drawings
Research presentations
Class participation

RESOURCES

Samples of meat cuttings
Pictures of meat cuttings
Picture of animals and their young
Samples of milk
Samples of herbs or medicinal plants

KS I

LO: Describe things in the local environment using different sense organs

Assess pupils for

3. Describe how some animals use their sense organs to identify other things	Place pupils in small groups. Give each group a picture of an animal (state name of animal) using one of its senses. Let them study the picture and state which sense organ each animal is using and what it is using it for. Record the groups' ideas and let them share them with the class.	Pictures of animals, record books, pencils, pupils, teacher	participation in discussion and quality of information recorded
4. Identify and classify objects by their smell (odour), texture, sight and sound.	Give pupils working in groups a sample of objects. Pupils examine the objects and name them. Hold a class discussion on descriptive words. Write pupils generated words on the board. Teacher may need to ask leading questions. Is it rough or smooth? Soft or hard? Coloured or clear? Round or square? Heavy or light?	Various objects, wood, leaf, cotton, stone, cloth, pens, pencil, etc. pupils, teachers	Assess students for their participation and correctness of answers to questions.
5. Identify common sources of sound and smell	Have pupils list some common sources of sound and smell and discuss them in the classroom	pupils, board, chalk, note books, pencils	Assess students participation in the discussion
6. Construct and use simple musical instruments (drums, shack-shack, and guitar).	Students can make clapper by hitting coconut shells together. Students can make a drum by stretching a plastic bag over the mouth of a can and holding it in place by a rubber band	Coconut shells, empty milk tin, string, plastic, pupils, teacher, seeds, bottles, comb, wax paper.	Assess pupils for the completion and neatness of their instruments.

SAMPLE LESSON PLAN

Grade 2

Duration: 80 minutes

Unit 1: Senses

LO 1: Describe things in the local environment using different sense organs.

SC 1: Discuss how humans and other animals gather information

Materials and Resources:

Note books, pencils, teacher, and school surroundings

Introduction:

Teacher explains to students the purpose of the field trip and mention safety measures to be adopted while working out of the classroom.

Transition Statement

Tell pupils that they use their senses to gather information and they are out of the classroom to observe as many things as possible using their senses.

Science process skills to be developed

1- Observation 2- Communication

Development

- 1 - Place pupils in groups of 4-5 and lead them to the school surroundings.
- 2 - Ask pupils to observe as many things as possible
- 3 - On returning to the classroom let pupils discuss the things they observed in their various groups.
- 4 - Ask them to share their experiences with the whole class and record them in their notebooks.
- 5 - (They should be able to share that they heard sounds from various sources, e.g. birds, other students, cars, trucks, dogs, wind howling, etc, smelled fruits, flowers, perfume from other students, saw insects, trees, animals, etc. That animals and humans use their ears to hear, their eyes to see, their nose to smell, their hands to touch and their tongue to taste. Please clarify that it is really the skin, which allows us to feel because of its many nerve endings).

Conclusion

Let pupils recall what their sense organs are used for.

Assessment

Assess students for their participation in whole class discussion and for having arrived at the conclusion that humans and animals gather information using their sense organs.

MATERIALS/RESOURCES FOR TERM 1 ACTIVITIES:

1. School environment.
2. Class pupils, desks.
3. Blindfolds
4. Variety of objects.
5. Perfume.
6. 2 – 3 glass jars with labelled solution
7. Blindfolds, Class pupils, piece of apple, banana
8. Salt, seawater, sweets (any type) lime, sugar, vinegar, aloe, salted crackers, salted peanuts, grapefruit juice unsweetened.
9. Pictures of animals using their senses.
10. Variety of objects
11. 3 bowls, hot, cold and warm water.
12. Blindfolds, paper bag or box
13. Classroom
14. Transparent glass or jar, water, pencil
15. Class pupils, chalkboard, chalk
16. Classrooms or school environment
17. Class teacher
18. Pictures of clocks, telephones, bell etc.
19. Blindfolds.
20. Covered cans
21. Halves of coconut shells, seeds.
22. Plastic bags, cans, rubber bands or strings.
23. Small seeds or stones, bottle with cover.
24. 8 bottles (small size), water.
25. Combo, wax paper.
26. Match boxes, rubber bands.
27. Instruments (made by class).
28. Variety of medicinal plants
29. Variety of ornamental plants
30. Variety of tea plants

MATERIALS AND RESOURCES FOR TERM 2 ACTIVITIES:

- School environment
- Pictures of various local plants
- Seeds
- Cuttings
- Flower garden
- Fruits
- Ripe balsam fruit
- Pictures of various seed
- Pictures of various fruits
- Pictures of various local animals
- Pictures of aquatic animals
- Garbage bins
- Materials around school (litter)
- Gloves
- Garbage bags
- Scissors
- Toys
- Bottle covers
- Empty bottles with small neck
- Plasticine/play dough
- Stick/small wood
- Wire
- Rubber bands
- Tin
- Cotton wheel
- Match sticks
- Cello tape
- Empty tins/disposable plastic/Styrofoam cups
- Ice
- Water
- Ice pops
- Table
- Heat
- Solar energy
- Beaker
- Marble
- Paper clips
- Tray
- Margarine
- Refrigerator
- Candle
- Animal farm
- Farmer/Extension Officer
- Crayons/coloured markers
- Picture of various farm animals
- Book entitled, 'Animal Farm'
- Manila paper
- Markers

MATERIALS AND RESOURCES FOR TERM 3

- | | |
|------------------------------|-----------------------|
| ▪ Vines | ▪ Football |
| ▪ shrubs | ▪ tennis ball |
| ▪ trees | ▪ flash light |
| ▪ herbs | ▪ basket ball |
| ▪ seeds | ▪ Globe |
| ▪ seedlings | ▪ note book |
| ▪ jars | ▪ television |
| ▪ bottle | ▪ video cassette |
| ▪ water | ▪ windmill |
| ▪ wet news paper | ▪ water mill |
| ▪ milk carton | ▪ sail boats |
| ▪ egg box | ▪ Engineer/technician |
| ▪ Parts of plants. | ▪ Hydro plant |
| ▪ Parts of animals (picture) | ▪ kite |
| ▪ pond | ▪ balloon |
| ▪ butterflies | ▪ Paper rocket |
| ▪ chicken | ▪ A4 paper |

PAGES WITH PICTURES

Pictures for sounds. (Modern Science Book 1, pages 32 – 36)

Picture of bottle organ (Modern Science Book 1 Page 37).

Page 13 of Primary Science for the Caribbean Book 4.