

MINISTRY OF EDUCATION & HRD

COMMONWEALTH OF DOMINICA

**SCIENCE AND
TECHNOLOGY**

CURRICULUM GUIDE K

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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.

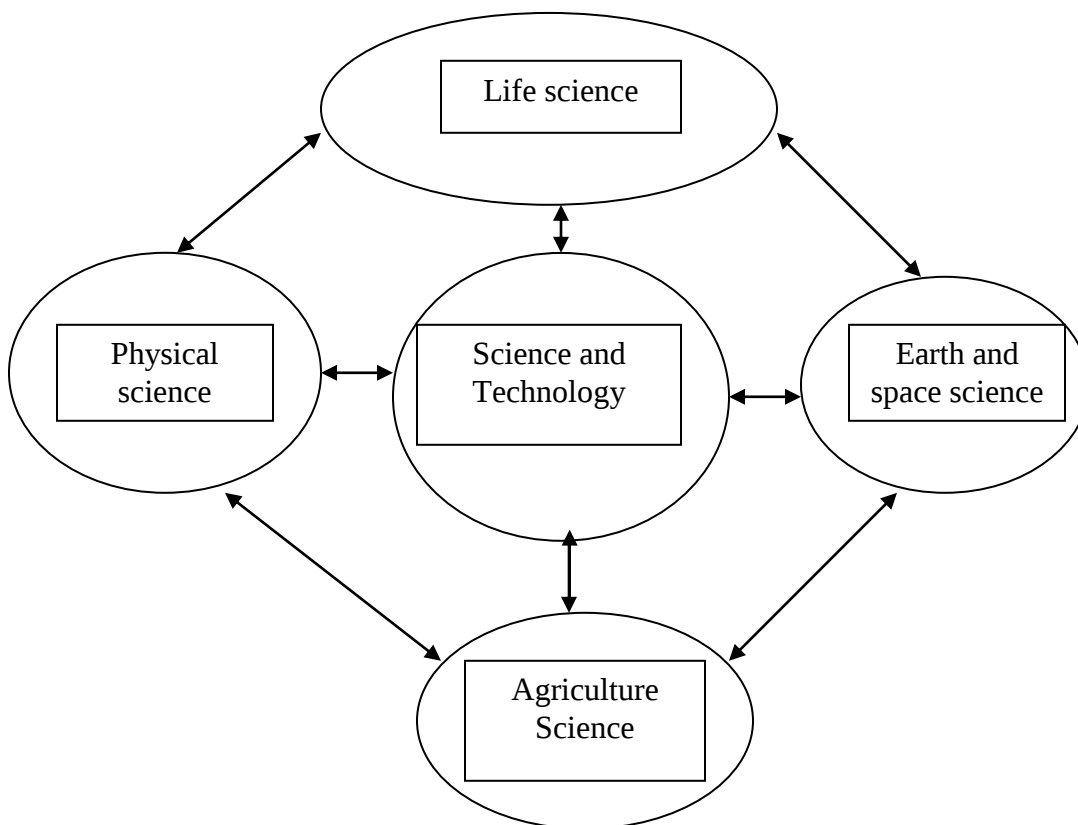
The term summary is broken in its various units, and is placed at the beginning of each term's activities. The term consists of four (4) units and each unit consist of the unit title, the learning outcome and the success criteria. A number of Success criteria have been designed to help students achieve 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 students' 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 pupil 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



GRADE K
SUBJECT SUMMARY

TERM I

KEY STAGE I:

UNIT 1	LIVING THINGS	SESSIONS
AT 1	LO1	8 – 9
SCs	(1 – 7)	
UNIT 2	WHAT IS ENERGY?	
AT 3	LO1	8 – 9
SCs	(1 – 5)	
UNIT 3	WHAT THINGS DO WE DO IN AGRICULTURE?	
AT 4	LO1	10 – 12
SCs	(1 – 6)	

KEY STAGE I

GRADE K

TERM I

UNIT I:

LIVING THINGS

ATTAINMENT TARGET I:

Life Science

SESSIONS:

(8 – 9)

LEARNING OUTCOME I:

Differentiate between Living and Non-Living things.

SUCCESS CRITERIA I:

State at least two characteristics of plants and animals.

ACTIVITY:

- Plants: Nature walk: Let pupils observe a coconut fruit, a young plant growing from the fruit and the adult plant. Pupils make inferences through discussion that plants grow and reproduce.



- Animals: Pupils display pictures of themselves in different stages of development AND list observations with teachers help.



- Pupils observe the activities of an animal in its natural environment and talk about what they saw.



OR



Pupils make inference through discussion that animals eat and move.

Make a poster of plants, animals/humans at different stages of growth, (Using pictures or drawings).

SUCCESS CRITERIA 2 and 3: Identify different things in the environment.

Make presentations displaying living and non-living things.

ACTIVITY:

- Let pupils collect and bring to classroom living and non-living things. Place living things (small animals and plants) in jars/plastic container. Label and display in Science Corner. Encourage pupils to talk about the items displayed. (They can also bring pictures and drawings of the things and organisms chosen)

SUCCESS CRITERIA 4: Describe living things and non-living things in the environment.

ACTIVITY:

- Let pupils describe the living and non-living items in the science corner by talking about them. Let them talk about the items colour, size, shape, height, length, and texture etc.

SUCCESS CRITERIA 5: Colour some living and non-living things

ACTIVITY:

- Give pupils a sheet of paper with various items and have them colour the items, (mark them for neatness and completeness).

SUCCESS CRITERIA 6 and 7: 6. Role-play the action of some living things and

7. Imitate the actions of some living things

ACTIVITY:

- One pupil imitates the action/sound /movement of an animal and another pupil guess which animal it is. This activity should continue until most or all of the pupils participate in the same. Let them collect two pictures of their favourite animals and stick them in their notebook. Let them write the name of the animals next to the picture.

UNIT 2: WHAT IS ENERGY?

ATTAINMENT TARGET 3: Physical Science

SESSIONS (8-9)

LEARNING OUTCOMES 1: Demonstrate an understanding of energy in the context of the changes taking place around us.

SUCCESS CRITERIA 1 and 4: **List forms of energy in the homes**
Identify objects at home that use energy and state the forms of energy used.

ACTIVITIES:

- Pupils with the help of the teacher talk about the use of energy at home: Sound, light, heat and the food we eat, etc. Let them make the connection between the forms of energy to something in the home that use that form of energy. For example the stove uses gas and produce light and heat energy. When we eat we use food in our body to produce heat, growth and sound. Electric current in our homes provides light, heat and sound, etc.
- Let students bring a used battery or dry cells to the classroom. Let them talk about their uses. Help them to draw the link between the battery and the different appliances for which they can be used to produce energy. (e.g. radios, flashlights, clocks and remote controls, etc)



SUCCESS CRITERIA 2: **Demonstrate an understanding of simple safety practices in the home and school.**

ACTIVITY:

- Pupils talk about the things they do at home that can hurt them, these include using sharp objects such as knives and scissors, playing with matches, standing close to a lighted stove and lifting heavy loads). Let them role-play scenario

of a person getting burnt/shocked, cut, or bruised by appliances/tools.

Teacher discusses with pupils how these can be avoided. Pupils with the help of the teacher write safety rules for practice in home and school.

SUCCESS CRITERIA 3:

Discuss solar energy as a form of energy

ACTIVITY

- The teacher should discuss with the students the many things for which the sun provides us with energy. Among these are: drying clothes, heating of water in the homes, light during the day, warmth in summer, energy for plants to grow, etc.



SUCCESS CRITERIA 5:

Identify and discuss food as a source of energy for themselves and other living things.

ACTIVITY:

- Let pupils role play the behaviour of a hungry child and a child who is eating. Teacher helps pupils to understand the importance of eating. Then let pupils talk about the different types of food that they eat. Teacher then draw the link between the food they eat and their energy needs. Ask pupils where does the energy that they use to run, play, and talk come from.



UNIT 3:

WHAT DO WE DO IN AGRICULTURE?

ATTAINMENT TARGET 4:

Agriculture Science

SESSIONS:

(10-12)

LEARNING OUTCOME 1:

Demonstrate practical knowledge and skills related to agriculture and the people involved in agriculture.

SUCCESS CRITERIA 1:

Explain what is agriculture?

ACTIVITY:

- Teacher explains to pupils that agriculture is the practice of looking after crops and animals. Let pupils talk of the crops grown around the school and home. Let them talk of the animals used in agriculture.



SUCCESS CRITERIA 2:

List some activities related to agriculture

ACTIVITY:

- Have pupils talk about the different activities that people do in agriculture. Teacher asks questions in order to encourage pupils' participation. Let pupils describe what their parents do if they are involved in agriculture. (Huckstering, planting, digging, weeding, transplanting, harvesting, cutting, tending animals, feeding, cleaning pens, spraying, etc). Also posters illustrating the various activities can be presented to the pupils who will name the activity.





- Visit a farm where possible and let students discuss what they saw. On returning to the classroom let pupils draw an activity or item observed on the farm. (Farmer cutting/planting, cutlass, rake, garden fork, etc)



- Invite an extension officer to talk to the pupils on things people do in Agriculture.



- Use a photograph or drawing illustrating different activities related to agriculture and let pupils talk about what

they see. Let them identify the activity shown in the drawing or picture.



SUCCESS CRITERIA 3:

Name tools used in agriculture

ACTIVITY:

- Have pupils list the various tools that are used in agriculture, Cutlass, rake, spades and shovels, garden forks, etc. (As a safety measure do not allow students to play with dangerous tools)





- Display a poster with the various agricultural tools and let the pupils name them. Pupils can draw/colour a chosen tool and write the name of the tool next to it, with the teacher's help.

SUCCESS CRITERIA 4:

Name some of the products used in agriculture

ACTIVITY:

- Let pupils talk about some of the products used in agriculture, substances such as fertilizer, compost, weedicides such as gramaxone, and round-up, are common and most pupils would already know them. Let pupils talk about the dangers of these products and why it is better not to use them.



Fertilizer



compost



spray (to kill insects)



Knapsack with weed killer



bottle with weed killer

- Have pupils display pictures, labels, and drawings of products used in agriculture. Let them identify those that are dangerous, ask them to give a reason.

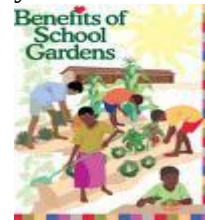
SUCCESS CRITERIA 5 and 6: **5. List people involve in agriculture and**
6. Link people involve in agriculture to the type of
activity they perform.

ACTIVITY:

- Have pupils talk about the people who are involved in agriculture (farmer, gardener, veterinarian, extension officer, huckster, agriculture labourer, etc and help them to understand the role of each one of these people.



- Teacher prepares a chart with pictures or drawings of the title of persons engaged in agriculture in one column and the activity performed in another column, pupils are asked to match the title to the activity.



- Take pupils to the school garden where possible and let them observe the different tasks that are done by the bigger pupils. Take them back to the classroom and let them talk about them.
- Have pupils role-play different activities performed by people involve in agriculture activities. They can pretend to be planting, cleaning a pen, spraying tree crops or infested animals, injecting animals, feeding animals, picking fruits, weeding etc.

SUBJECT SUMMARY

GRADE K

TERM 2

UNIT 4:	LIVING THINGS	SESSIONS
AT 1	LO2	6 – 7
SCs	(1 – 4)	
UNIT 5	WHAT IS WEATHER?	
AT 2	LO1	6 – 7
SCs	(1 – 4)	
UNIT 6	WHAT ARE RESOURCES?	
AT 2	LO2	4 – 5
SCs	(1 – 4)	
UNIT 7	WHAT ARE FORCES?	
AT 3	LO2	3 - 4
SCs	(1 – 2)	
UNIT 8	PLANTS IN AGRICULTURE	
AT: 4	LO2	6 – 7
SCs	(1 – 4)	

GRADE K

TERM 2

UNIT 4: PLANTS AND ANIMALS

ATTAINMENT TARGET 1: Life Science

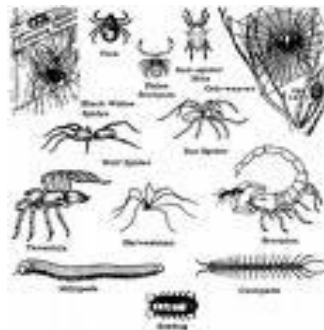
SESSIONS: (6-7)

LEARNING OUTCOME 2: Identify plants and animals as living things

SUCCESS CRITERIA 1: Observe and name two characteristics of plants and animals

ACTIVITY:

- Let pupils observe potted plants and small animals such as butterflies/snails in bottles. Let them talk of the similarities between the plants and animals such as movements, and reproduction and growth. They may have to depend on their experiences with these things to be able to determine that both plant and animals grow and move.



SUCCESS CRITERIA 2: Imitate the movement of some animal

ACTIVITY:

- Have pupils choose an animal and imitate its movements. Teacher then asks another pupil to identify the animal. This activity should continue until most of the pupils have participated.

For example:



Rabbits jump



Snakes crawl



birds fly



Pig borrows in mud

SUCCESS CRITERIA 3:

Identify by sight or by sound a variety of animals

ACTIVITY:

- Place pupils in pairs; let one pupil make a sound and the other states, which is the animal.
- Given a sheet with a number of animals let the students colour and write the name of the animal next to it, teachers' help may be needed to correctly spell animals' name, or teacher may choose to have them say animals name orally.

For example

ANIMALS	NAME
	
	

SUCCESS CRITERIA 4:

Discuss the uses of different living things.

ACTIVITY:

- Let pupils discuss any living thing that they know and their uses. Teacher will write the name of the living things and their uses in two separate columns on the chalkboard.
- Teacher will prepare a table with the names of living things in one column and the pupils will match it to their use in another column.

LIVING THINGS	USES
mango tree	meat for food
cat	for flower
cow	fruits for food
rose plant	for making lumber
forest tree	pet

UNIT 5: WHAT IS WEATHER?

ATTAINMENT TARGET 2: Earth and Space

SESSIONS: (6-7)

LEARNING OUTCOME 1: Discuss changes in the weather.

SUCCESS CRITERIA 1 and 2: **Observe and describe different types of weather.**

Place pictures on weather charts to indicate daily weather changes

ACTIVITY:

- Show video presentation of varying weather conditions (Where possible). Let pupils identify different types of weather (Hot, cloudy, rainy, windy and cold etc...)
- Collect pictures of varying weather conditions display and allow pupils to identify types of weather. Talk about the conditions e.g. bright, cloudless, cloudy, rainy, dark, etc. thunder, lighting, and wind howling.



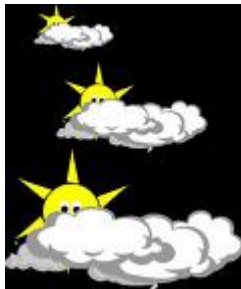
- Talk about present weather conditions at time of lesson. Take pupils outside. Let pupils state how they feel and help them to link it to the weather.

SUCCESS CRITERIA 3: **Talk about how different weather conditions affect their activities.**

ACTIVITY:

- Show video presentation on pictures of children doing different activities in different weather conditions. Help pupils identify the activities. Let pupils state what they do

in different weather conditions. (When it is sunny they play outdoors, when it's rainy they remain in doors, when it's cold they wear sweaters or warm clothing, etc.)



SUCCESS CRITERIA 4:

Describe conditions associated to rainy, sunny and windy (strong winds and hurricanes) weather

ACTIVITY:

- Take pupils out of the classroom and let them describe the weather condition. On returning to the classroom let them draw picture of the sky and how it looked while they were out.
- Place manila paper with different weather condition and let pupils state what kind of weather conditions are shown in the drawing or picture. (SEE PICTURES ABOVE RELATED TO SC 3).
- Let pupils describe conditions related to various weather conditions. For example, when it is hot we sweat a lot, our shirts get wet, there is a lot of dust, it is very dry, fires light very easily, etc. When it is rainy, we can't play out, the soil is wet, and people use umbrellas and raincoats. When it is very windy trees move, leaves fall, we feel the wind against our bodies, etc.

- Have pupils draw a picture of any weather condition of their choice and have them describe what is happening in the picture that they drew.



UNIT 6:

WHAT ARE RESOURCES?

ATTAINMENT TARGET 2:

Earth and Space

SESSIONS:

(4-5)

LEARNING OUTCOMES:

Describe Resources that are used by Humans

SUCCESS CRITERIA 1 and 2:

1. Identify and discuss common resources used in the home.
2. Discuss the use and the importance of resources to humans

ACTIVITY:

- Let pupils list things that are used in the home, such as (For example; stove Fridge, wood, bed, water, food, bath towels, eggs, table, chairs, etc). Let them talk about what these things are used for.



- Have pupils colour a list of things found at home and have them displayed in the science corner. Let pupils state what are the things made of. (For example wood, glass, metal, plastic, clay, sand, cement, etc)





- Let pupils talk about resources such as air and water. Let them discuss the importance of these two resources to humans. Water is used for drinking, washing, bathing, cleaning, etc. Air is used for breathing, filling tyres and balloons and to make rooms cool.

Example: Water



Example air



- Let pupils role play the use of water in the home.

SUCCESS CRITERIA 3:

Use local materials to make objects or toys.

ACTIVITY:

- Allow pupils to make a toy or object using materials found at home or in the school surrounding with the help of parents, brother, sister, teacher etc. Let pupils talk about how it was done and what kind of materials used to construct the toy. Let them display the toy in the science corner.

SUCCESS CRITERIA 4:

Classify objects according to shape, colour etc

ACTIVITY:

- Place pupils in small groups; give them a number of objects, bottle tops of various colours, materials, and shapes. Ask them to group the objects. Let the groups talk about the criteria that they use to group the objects. The teacher can also tell the students what criteria to use based on what is given and assess the students on how well they realized and complete the activity.

UNIT 7:**WHAT ARE FORCES?****ATTAINMENT TARGET 3:****Physical Science****SESSIONS:**

(3-4)

LEARNING OUTCOME 2:

Develop an understanding of forces exerted by their own bodies and other objects.

SUCCESS CRITERIA 1:

Push and pull objects e.g. chair, doors, toys, and boxes then explain what happened.

ACTIVITY:

- Have pupils push and pull objects and other structures such as doors and windows and have another pupil say whether the action was a pull or a push. Help them to conclude that these actions are referred to as forces and forces make things move.

SUCCESS CRITERIA 2:

Squeeze newspapers and other materials and explain what happened.

ACTIVITY:

- Have pupils squeeze newspaper, clay, or play dough and have them explain or describe what happened. Help them to conclude that squeezing is a type of force Compression and it changes the shape of things.
- Let pupils stretch a rubber band and let them explain what happened. (Change in length of rubber band, change in shape of material, has elastic effect, etc)



UNIT 8:

PLANTS IN AGRICULTURE

ATTAINMENT TARGET 4:

Agriculture Science

LEARNING OUTCOME 2:

Understand that Plants are used in Agriculture

SUCCESS CRITERIA 1 and 2:

Name plants used in Agriculture
Colour plants used in agriculture

ACTIVITY:

- Have pupils name as many plants use in agriculture, teacher list them on the chalkboard. Let them talk about the parts of the plant use as food or any other product.
- Let pupils draw and colour a chosen plant and write the name of the plant next to it. Display student work in science corner



- Let pupils talk about their plants and what it is used for. (For example medicine, food, wood, flower, etc).

SUCCESS CRITERIA 3:

Discuss the part of the plant used as food.

ACTIVITY:

- Give pupils a list of plants and let them write/tick the part of the plant, which is used as food.

PLANT	PART USED FOR FOOD
BANANA	FRUIT,
CABBAGE	LEAVES
CARROT	ROOT
COCONUT	FRUIT
MANGO	FRUIT
LETTUCE	LEAVES

SUCCESS CRITERIA 4:

Discuss the part of the plant used as planting material

ACTIVITY:

- Have pupils talk about planting activities and what is being done. Prepare a table with two columns and let them fill out the parts of plants used as planting materials. For example;

PLANTS	PLANTING MATERIALS
BANANA	SUCKER
COCOA	YOUNG PLANT
MANGO	SEEDS/GRAFTED PLANT
ORANGE	BUDDED PLANT
CARROT	SEEDS,

SUBJECT SUMMARY

GRADE K

TERM 3

KEY STAGE I:

UNIT 9	ADAPTATION OF ORGANISMS	SESSIONS
AT 1	LO3	8 - 9
SCs	(1 – 4)	
UNIT 10	WE LIVE IN THE SOLAR SYSTEM!	
AT 2	LO3	3 – 4
SCs	(1 – 3)	
UNIT 11:	WHAT MATERIALS ARE IN THE ENVIRONMENT?	
AT 3	LO3	6 – 7
SCs	(1 – 5)	
UNIT 12:	WHICH ANIMALS ARE THERE IN AGRICULTURE?	
AT 4	LO3	4 - 5
SCs	(1 – 4)	

GRADE K

TERM 3

UNIT 9: ADAPTATION OF ORGANISMS

ATTAINMENT TARGET I: Life Science

SESSIONS: (8-9)

LEARNING OUTCOME 1: Observe and discuss plants and animals in their local environments.

SUCCESS CRITERIA 1: Observe and describe how some local plants and animals adapt to their environment.

ACTIVITY:

- Have pupils observe and talk about plants growing in water and plants growing on land and describe the difference between them. Let them draw pictures of plants growing in water and plants growing in soil.
- Let pupils observe plants growing on other plants and talk about the relationship between them, That is, which plant is supporting the other (the host) and which plant grows on the other plant?



PLANTS GROWING IN WATER HAVE SOFT STEMS



usually have hard stems.

- Let pupils observe the different root systems of various plants and let them talk about the structure of the same, taproots; one main root with side/lateral roots scattered along main root and fibrous roots with all root attached at the same level from the stem of the plant. Let them draw pictures of the root systems in their notebooks and name them appropriately.



- Take pupils to the school surroundings and let them look for small animals. Let them look under leaves, stones, sticks, in holes etc. Let them observe the living area of some animals. On returning to the classroom let them talk of what they saw and where they found them. Let them describe the area where the animals live.





- Draw up a list of plants and animals and let pupils state where these animals and plants are most likely to be found, on land or water. Let them talk of the structures, which allow them to live in those areas. (cuttings of plants and animals can be used instead of using a list with names only.)

SUCCESS CRITERIA 2:

Match plants and animals to their Habitat

ACTIVITY:

- Teachers prepare a table of two columns and have pupils match plants and animals to their habitat. For example

LIVING THINGS	HABITAT
MAN	LAND
FISH	WATER
MANGO TREE	LAND
TADPOLE	POND
COCONUT TREE	LAND
WHALE	SEA

- Talk pupils to the school surroundings for 10 minutes and let them observe the living area of any plant or animal of their choice. On returning to the class, allow them to share their observations with their classmates one by one.

SUCCESS CRITERIA 3:

Colour the living place of some animals or plants

ACTIVITY:

- Select drawings of the living places of plants and animals and let pupils colour them. Include structures to represent houses and let them colour the same. Also let them draw their homes and colour them. Display drawings in science corner. Pupils can also draw plants close to the sea and

plants in forested areas or close to rivers. In all cases pupils should say why the plants were drawn in those areas.

SUCCESS CRITERIA 4:

Visit one of the following habitats (pond, nursery, etc) and talk about animals or plants observed.

ACTIVITY:

- Have pupils visit a river, a ravine, a pond, a swamp, the wooded section of the botanic gardens, or the sea shore and let them observe the different plants and animal life present. Let them talk about what is observed. On returning to the classroom let them discuss the different forms of life observed and make a presentation to the class on what they observed. This can be done by drawing or making a model of the habitat, using materials from the area selected.

UNIT 10: SOLAR SYSTEM

ATTAINMENT TARGET 2: Earth and Space

SESSIONS: (3-4)

LEARNING OUTCOME 3: Demonstrate an understanding that the sun, earth and moon are parts of the solar system.

SUCCESS CRITERIA 1: **Draw and colour pictures of the earth, sun and moon**

ACTIVITY:

- Give pupils pictures of the earth, sun and moon and let them colour them. Let them talk of the characteristics of these three bodies. When do the moon and sun appear in the sky, at daytime or nighttime time? Let them discuss the source of light of each body.
- Let pupils use three balls of different sizes to represent a model of the earth, sun and moon. Let them discuss which of these bodies are bigger and which is smaller. Let them record information in their notebooks.

SUCCESS CRITERIA 2: **Discuss the importance of the earth, moon and sun.**

ACTIVITY:

- Have pupils talk about the importance of the earth, sun and moon. [The Earth provides a place for all living things to live. It provides them with food, and shelter, and many other resources like water, air, and living things. The moon on the other hand provides us with light during the night. The sun gives us solar energy, which is important to maintain life on earth, dry clothes, and warm things and is our main source of light on earth. Help the pupils discuss these things.]



SUCCESS CRITERIA 3:

Talk about the position of the sun relative to earth at sunrise, noon and sun set

ACTIVITY:

- Let pupils discuss the position of the sun at different times of the day. Ask them to question their parents or other siblings on the position of the sun at mornings and evenings.



Sun set: Sun is positioned in the west



Sun rise: sun is positioned in the East



- Take the pupils out of the classroom at midday and let them record the position of the sun in the sky. Let them compare the different positions of the sun. Let them prepare a diagram or drawing illustrating the positions of the sun relative to the earth at different times. (**They should not look at the sun with their naked eye.**)

UNIT 11: **WHAT MATERIALS ARE IN THE ENVIRONMENT?**

ATTAINMENT TARGET 3: **Physical Science**

SESSIONS: (6-7)

LEARNING OUTCOME 3: Identify some materials found in the environment

SUCCESS CRITERIA 1 and 2: **1. Observe and describe objects according to properties (colour, size, shape, texture)**
2. Group objects according to their properties above

ACTIVITY:

- Display a number of objects made from different materials, such as cotton wool, coins, stones, feather, bricks, fishnets, paper, fruits, coral, sticks, plastics, sponge, etc. Let pupils touch, and smell the materials and say whether they are soft, rough, hard, smooth, square, round, oval, dry, wet, etc.
- Have pupils place the materials in various groups according to their choice. Let them talk about the way they group the materials.

SUCCESS CRITERIA 3 and 4: **3. Distinguish between objects and the materials from which they are made.**
4. Identify different materials such as wood, glass, clay, plastic, rubber, metal etc

ACTIVITY:

- Let one pupil name an object and ask another pupil to guess what material the object is made of. For example one pupil may say a spoon and the other says, wood/metal. Another pupil may say toy and other answers plastic. Go round the class until all pupils have participated.
- Have pupils go out of the classroom and look for at least three objects. On returning to the classroom let them talk about the materials the objects are made from. Teachers correct pupils when necessary.

SUCCESS CRITERIA 5:**List objects made from various materials above****ACTIVITY:**

- Teacher shows class various types of materials one at a time and ask pupils to name objects or items that can be made from these materials. The teacher lists students' answers on the chalkboard in the appropriate column.

UNIT 12:

LIVESTOCK/ANIMALS

ATTAINMENT TARGET 4:

Agriculture Science

SESSIONS:

(4-5)

LEARNING OUTCOME 3:

Recognise that animals are important for agricultural development

SUCCESS CRITERIA 1:

List some animals used in agriculture

ACTIVITY:

- Let pupils name some of the animals found on an animal farm. Let them stick pictures of animals in their notebooks and write the animal name next to the picture. Let them talk about the animal and what are obtained from them. For example; chicken - eggs, meat, and feathers for pillows. Cow - milk, cheese, meat, hides for shoes, straps, bags and coats, Rabbits for meat, etc.

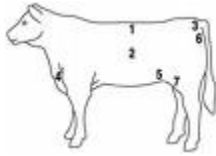


SUCCESS CRITERIA 2:

Colour animals used in agriculture.

ACTIVITY:

- Present pupils with a sheet of paper with the drawings of at least two farm animals and ask them to colour the animals. Ask them to name the animals they coloured



SUCCESS CRITERIA 3:

Name the young of animals used in agriculture.

ACTIVITY:

- Prepare a table with two columns. Write the names of farm animals in one column and let pupils fill in the other column with the animals' young.

FARM ANIMALS	THEIR YOUNG
Sheep	Lamb
Cow	Calf
Goat	Kid
Hen	Chick
Pig	Piglet

- Place a number of pictures of farm animals and pictures of young animals. Let pupils sort the pictures by pasting the farm animal and its corresponding young next to each other. Let them talk of the animals and their young.

ASSESSMENT STRATEGIES

- Pupils should be assessed by the marking of their note books especially where they were given to fill in the columns or match items
- Pupils should be assessed for participation in class discussions
- Neat and creative colouring of images or drawings
- Proper naming of items

- Placing things in appropriate groupings.
- Assess pupils through oral questions and answers corresponding to the task given.

UNIT I: Living things

LO: Differentiate between living and non-living things

SUCCESS CRITERIA	ACTIVITIES	RESOURCES/MATERIALS	ASSESSMENT
1. Identify different things in the environment and	Let pupils collect and bring to class living and non-living things. Place living things (small animals and plants) in jars/plastic containers. Label and display in Science Corner. Encourage pupils to talk about the items displayed.	Pictures or samples of living and non-living things	Assess pupils for correctly placing living things in one corner and non-living things in another corner.
2.State at least two characteristics of living things	Nature walk: let pupils observe a coconut fruit, a young plant growing from the fruit and an adult plant.	Coconut, young plant, adult plant.	Assess pupils through oral questions and answers. Also assess them for being able to conclude that living things moves grow and produce young ones.
3. Describe living things and non-living things in the environment	Let pupils describe the living and non-living things in the science corner, classroom or in the school surroundings. Let them talk about their colour, size shape, height, length and texture.	Nature walk, science corner, pictures/drawings, organisms in bottles/jars	Assess pupils for correctly describing the items and make corrections where necessary.
4. Colour some living and non-living things	Give pupils a sheet of paper with various items and have them colour the items	Sheet of paper with the pictures of living and non-living things, crayons	Mark pupils for completion of activity and also neatness.

5. Role-play the actions of some living things. and 6. Imitate the movements of some living things.	One pupil imitates the action/sound/movement of an animal and another pupil guesses which animal is it. This activity should continue until most or all of the pupils have participated. Let them collect two pictures of their favourite animal and stick them in their notebook. Let them write the name of the animals next to the pictures.	Pictures of animals, students, notebooks, pencils.	Assess pupils on their level of participation and the proper naming of the animals in their notebooks.
7. Make presentation displaying living and non-living things.	Let pupils describe anything such as animals, plants, or non-living items by making a presentation about the item selected to the class.	Manila paper, crayon, A4-sheets, pencils, items (Living and non-living)	Assess pupils for their creativity, and neatness of their presentation. If the presentation is oral create a rubric that includes: description of item, completion relevance of information to item and communication skills.

SAMPLE LESSON PLAN**GRADE K****Duration:** 60 minutes**No. of Students**_____**Unit 1:** Living things?**Date:**_____**L O:** Differentiate between living and non-living things**SC:** State at least two characteristics of living things**Introduction:**

Tell pupils that they are going for a walk in the school surroundings. Outline to them safety measures if any.

(Do not run and fall, do not walk in water puddles, do not push one another, etc)

Transition statement

Tell pupils that the aim of the lesson is to help them to differentiate between living and non-living things

Science process skills to be developed

1- Observation 2- Communication

Development

1-Put pupils in mix ability and mix gender groups of 4-5

2- Lead the groups to the school surroundings for about 15 minutes. Tell pupils that they are to observe everything around them, plants, animals, stones, sticks, etc

3-When the pupils return to the classroom, question the pupils on what they observed and fill out the following table.

EXAMPLE

Plant/Animal/Object	Living/Non-living	Characteristics	Reasons
Mango	Living	Grows/reproduces	Small trees and big trees
birds	Living	Grow/Move	Small and big ones
stone	Non-Living	-	Non-living
Bottle	Non-Living	-	Non-living

Conclusion

Each group to present their findings to the rest of the class

Assessment

Monitor pupils in their groups and assess their contribution to the groups' presentation. Also assess pupils based on the completion of the table.

SCIENCE AND TECHNOLOGY

RESOURCES FOR FACILITATING K'S CURRICULUM

LIFE SCIENCE

1. Coconut, young plant
2. Pictures of baby, young boy/girl (toddler) young boy/girl (10 years), adolescent, adult. Different stages for animals (pictures)
3. Glass, plastic glasses, small living things and non-living things, animals: worms, bees, millipedes, flies, frogs, butterflies, etc, non-living: stones, bottles, sand, beads, etc.
4. Tape recorder, audiocassette, VCR, cassette, whatever items made from both plants and animals. Pictures of items made.
5. Pictures of animals and animal home. Poster.

EARTH AND SPACE

1. VCR cassette with weather conditions. Also show pupils film of children playing in different tropical weather conditions where possible. Teachers can also brows the INTERNET for pictures of weather conditions.
2. Kids Resource Centres, Library at school. Pictures of items used in home e.g. radio, iron, fan, water, food knives, forks etc.
3. Paper, pencils, crayons, basketball, tennis balls.

PHYSICAL SCIENCE

1. Foods: canned, local, boxes, cartons wrappers for display
2. Newspapers, chairs, desks, paper, plastic cups.

An assortment of materials made from wood, paper, clay, metal, plastic, etc. of various sizes and shapes, texture and colour.

AGRICULTURAL SCIENCE

1. Paper, pencils, crayons, pictures of agricultural tools, posters, names of tools, real tools.
2. Potted plants, plastic glasses, seeds, seedlings and soil.
3. Plants used for food, flowers, cabbage, lettuce, sweet potatoes, fruits, etc. Pictures of these: crayons, pictures of animals (farm) and young, VCR. Animals on farm (cassette)
4. Pictures or drawings of various animals
5. Labels of agriculture products, weedicides, pesticides, fertilizers, compost, sprinklers, etc.

SCIENCE AND TECHNOLOGY

LIVING THINGS

1. POSTERS SHOWING STAGES OF GROWTH IN :
 - A. PLANTS
 - B. ANIMALS
 - C. HUMANS
2. POSTER: ANIMALS IN THEIR NATURAL HOMES

EARTH AND SPACE: WEATHER

1. POSTER SHOWING: TYPES OF WEATHER CONDITIONS
2. POSTER SHOWING POSITION OF SUN AT VARIOUS TIMES OF DAY.

PHYSICAL SCIENCE

1. POSTERS SHOWING INDIVIDUALS PULLING DOORS
2. POSTERS SHOWING INDIVIDUALS PUSHING DOORS
3. NEWS PAPERS

AGRICULTURAL SCIENCE

1. POSTER SHOWING: ACTIVITIES IN AGRICULTURE
2. TOOLS IN AGRICULTURE
3. PARTS OF PLANTS USED FOR FOOD

4. YOUNG OF ANIMAL WITH ADULT
5. FARM ANIMALS