Pupil's Book | Part 1

SCIENCE

GRADE 4

Mauritius Institute of Education
under the aegis of
Ministry of Education and Human Resources, Tertiary Education and Scientific Research

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ISBN : 978-99949-44-34-7

FOREWORD

MIE has produced a brand new collection of textbooks based on the National Curriculum Framework for the Nine Year Continuous Basic Education as from 2016. These textbooks have been written by a team of academic staff from MIE, supported by experienced Educators, advised by Inspectors, mentors and Deputy Head Masters.

We have done our best to ensure that the textbooks enable children to undergo a pleasant learning experience. We have taken care to align the textbooks with very clearly defined learning outcomes and objectives set for the respective subjects as outlined in the National Curriculum Framework, Grades 1 to 6. The textbooks provide clear indications of the diverse skills that children should master at each stage.

We are also providing a set of teachers' manuals where we have outlined the appropriate techniques and pedagogical approaches so that children are helped to make optimal use of the textbook and materials provided. Some of the textbooks have been updated and changes effected after receiving feedback from educators.

We are thankful to all those who have provided us with constructive feedback, thereby enabling us to make this curriculum development endeavour come to fruition. We are also thankful to the artists who carried out the illustrations, and to our graphic artists who have tried their best to create the right layout for the books. The authors and the curriculum team, under the guidance of Professor Vassen Naëck, also deserve our thanks.

We hope that you enjoy this material and wish you lots of success.

Dr O. Nath Varma
Director
Mauritius Institute of Education

Preface

Science is a very important subject worldwide. The way it is taught in schools greatly impacts on the quality of learning among pupils. Thus, this book has been designed in such a way that educators are able to teach the content appropriately. Even pupils should be able to follow the activities adequately with some help from their teachers, as well as, their parents.

The content of this book is aligned with the National Curriculum Framework (2015) whereby the science curriculum encourages pupils to acquire scientific knowledge, develop inquiry skills and conceptual understanding and an appreciation of the Science around us. The content, exercises and activities have been specially developed and written so that primary school students can learn them in an enjoyable and exploratory manner.

Activities, illustrations and methodology

The themes and activities in this book are designated according to four units that are Living Things, Air, Plants and Animals. Each unit begins with a simple introduction, with an overview of the fundamental concepts and some related simple scientific terms. The concepts to be learnt are supported with a range of illustrations and photographs so that learners are able to connect with the concepts. Our aim has been to present the concepts using appropriate colourful and meaningful illustrations and in a coherent way. The activities proposed in the units are meant for strengthening the learning process through group participation, discussion and play. It is hoped that learners have their natural curiosity aroused and satisfied while learning the science concepts. The skills emphasized in the activities are those associated with the process of scientific inquiry and discovery based learning. Teachers are expected to motivate and engage pupils into the activities stipulated, into meaningful discussions and group interactions so that learning is reinforced.

Find Out

The 'Find Out' section that is included at the end of each unit intends to help pupils to seek further and deeper for additional information regarding the concepts. It is expected that teachers do appropriate follow up and make sure that learners carry out the additional research work after the lessons. This may be done at school itself and even at home.

Did you know

We have also included a section on 'Did you know', whereby additional information is provided to learners to stretch their imagination further. The dictionary corner is meant for explaining some terms that may appear difficult to some students. Moreover, the 'I Remember' section puts emphasis on certain specific items that have been learnt and those will be used in another section of the book, as a consolidation of learning.

What I have learnt

At the end of each unit/sub-unit there is the 'What I have learnt' section. This essential part summarises the items learnt by the pupils. It also gives an indication to educators of what needs to be assessed, especially when planning assessment tasks beyond what is given in the end-of-unit exercises.

Assessment/End-of-unit exercises

The assessment tasks in the end-of-unit exercises are expected to gauge the learning experiences of the learners and stretch them further in their learning paths. Effort has also been put to assess the learning experiences of pupils in different ways. Pupils are expected to communicate their answers in different ways. These are through:

- Ticking the appropriate statements
- Filling in tables with simple words
- Communicating in writing; at times adequate space is provided for complete sentences

- Matching of related statements and ideas
- Drawing to illustrate their understanding of concepts
- Labelling of diagrams
- Choosing the appropriate answer from several choices given
- Expressing answers orally and in other ways

It is our wish that educators make the best use of the book and further explore and provide other related activities to support meaningful learning in their class. Together let us make the teaching and learning of science meaningful and enjoyable to our learners.

Mr Mohun CYPARSADE
Panel Coordinator
Science

TABLE OF CONTENTS

living Things

At the end of this unit, pupils should be able to

- State characteristics of living things (feeding, growing, moving and reproducing)
- Investigate living things in the environment and communicate findings
- Compare and classify living things
- Infer the difference between plants and animals

In this unit, you will learn about the characteristics of living things.

In grade 3 you identified living things and non-living things in the environment.
In this unit you will learn more about living things and to classify them as plants and animals.

Figure 1 shows some living and some non-living things.

Figure 1 - Living and non-living things

Discuss in groups and classify the items shown in Figure 1 as living and non-living things. Show your answers in Table 1.

Table 1 - Living and non-living things

Living things	Non-living things

Now classify the living things listed in Table 1 into plants and animals/human beings. Show your answers in Table 2.

Table 2 - Plants and Animals/Human beings

Plants	Animals/Human beings

All the items listed in Table 2 are living things.
In grade 3 we learnt that living things feed themselves and they grow. Feeding and growing are **characteristics of living things**.

Now we are going to learn about other **characteristics of living things.**

Activity 1

RECOGNISING THAT LIVING THINGS REPRODUCE

Most living things can produce young ones which are similar to them. For example, a female dog produces young dogs (puppies), a cow produces a calf, and a mango plant produces seeds from which small mango plants grow.

Figure 2 shows some living things and their young ones.

Figure 2 - Living things and their young ones.

Observe Figure 2 that shows human beings, animals and plants with their young ones.

Use the following to complete Table 3:

- by laying eggs
- by producing seeds
- by giving birth

Table 3 - How human beings, animals and plants produce their young ones

A (living thing)	B (how it reproduces)
Mango plant	
Cow	
Hen	
Human beings	

What I have learnt

Human beings, most animals and plants produce young ones that are similar to them. This is called **reproduction**. It can happen in different ways such as by giving birth, by laying eggs or by producing seeds.

Reproduction is another characteristic of living things.

Activity 2

RECOGNISING LIVING THINGS (HUMAN BEINGS AND ANIMALS) MOVE FROM ONE PLACE TO ANOTHER.

Human beings and animals move from one place to another. They can move about by themselves.

Let us find out why they have to move.

Observe Figure 3.

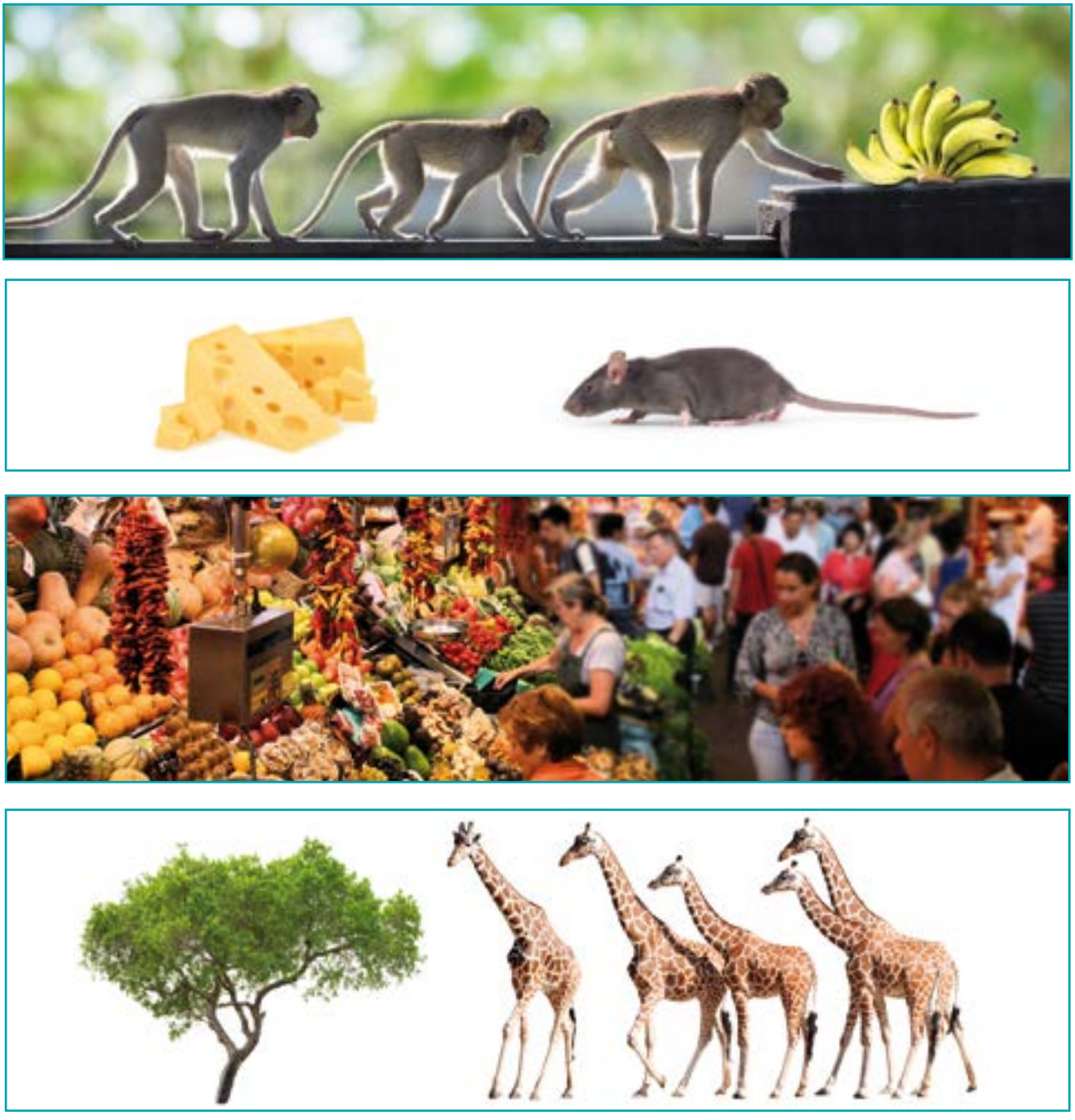


Figure 3 - Living things move from one place to another

Discuss in groups and answer the following questions:

(a) Write down the answers.

1. **Where are the monkeys going?**

   .....

   .....

2. Why is the rat running?

   .....

   .....

3. Why are the people going to the market?

   .....

   .....

4. Where are the giraffes going?

   .....

   .....

(b) **Complete the sentence.**

The human beings and animals shown are all ..... in search of ..... . (food, moving)

Find out

What would happen if human beings and animals were not able to move?

.....

.....

What I have learnt

- The monkeys are moving towards ripe bananas to eat.
- The rat is running towards the cheese.
- The people are walking in the market to buy food.
- The giraffes are going to eat leaves.

So, we can say that human beings and animals **move from one place to another in search of food**.

Group discussion

Find out two **other reasons** why animals move from one place to another.
Write your findings in the space provided.

Animals also move in order to:

(i) .....

(ii) .....

Animals also move from one place to another in order to **escape** from danger.
For example, a rat moves into a hole to escape from a cat.

At night or during bad weather many animals move to a safe place to find shelter.
For example, a bird moves to its nest to find **shelter**.

Activity 3

FINDING OUT WHETHER PLANTS MOVE

Plants do not move from one place to another by themselves. Only certain parts of plants move. The movement is very slow.

Let us find out how parts of plants move towards sunlight.

Materials needed:

- two small potted plants named A and B
- a carton box with a small hole

Figure 4 - Potted plants A and B and a carton box

1. Observe the plants.
   Are they growing straight upwards? .....

2. Draw the plants in the space below.

Plant A	Plant B

3. Water each plant with same amount of water.
4. Keep plant A in sunlight as before.
5. Put plant B in the box. Make sure that only light from the small hole reaches the plant B.
6. Leave the plants for one week.
7. Remove plant B from the box. Observe both plants for any change in their shape.
8. Now draw the two plants in the space provided.

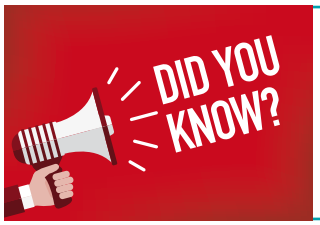
Plant A	Plant B

9. Compare your drawings and record your results in Table 4:

Table 4

Potted plant	Start of experiment	End of experiment
Plant A		
Plant B		

It is found that:
The plant A continues to grow straight.
The plant B grows and bends towards the hole through which light enters the box.
This experiment shows that parts of a plant move towards sunlight.



Other examples of parts of plants moving are:
(i) when roots grow and (ii) when flowers open up.
Both are slow movements.

What I have learnt

Animals can move from one place to another.
Whole plants cannot move from one place to another, but some parts of plants move slowly.
Thus, **movement** is another characteristic of living things.

Activity 4

COMPARING PLANTS AND ANIMALS

Discuss in your groups and state three characteristics that are common to plants and animals.

1. Both plants and animals .....

2. Both plants and animals .....

3. Both plants and animals .....

In this activity you have learnt that plants and animals have some similar characteristics. However, they also have some differences which you will learn later.

Animals can move from one place to another.

Whole plants cannot move from one place to another but only parts of plants can move.

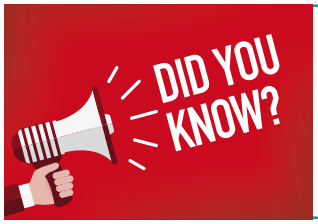
What I have learnt

In this unit we have learnt that plants, animals and humans are all living things.
We have learnt that all living things produce their young ones in different ways. This is called **reproduction**.

Reproduction takes place in different living things by:

- laying eggs
- giving birth
- producing seeds

We have also learnt that living things (humans and animals) move from one place to another. Whole plants cannot move from one place to another by themselves. Only certain parts of plants move. For example, certain parts of plants move towards light. The movement is very slow.



Certain animals do not move from one place to another. For example, corals and sponges found in the sea stay in one place.

End of unit questions

Answer the following questions.

1. Put a tick (√) in the appropriate column to indicate whether the items are living or non-living things.

	Item	Living Thing	Non-living Thing
	1 Table		
	2 Cow		
	3 Stone		
	4 Mirror		
	5 Ant		
	6 Tree		
	7 Whale		
	8 Book		
	9 Car		
	10 Earthworm		

2. Fill in the blanks to complete the sentence.

(i) Reproduction takes place in goats by .....

(ii) Reproduction takes place in litchi trees by .....

(iii) Reproduction takes place in pigeons by .....

(iv) The meaning of reproduction is to produce ..... ones similar to their kind.

(v) Animals need to move from one place to another in order to

.....

3. Reproduction takes place in living things in different ways. Match each item in Column A to the appropriate item in Column B.

Column A	Column B
Tomato Plants	Give birth
Ducks	Produce seeds
Sheep	Lay Eggs
Crocodiles	Produce Seeds
Pumpkin plants	Lay Eggs
Cats	Give birth

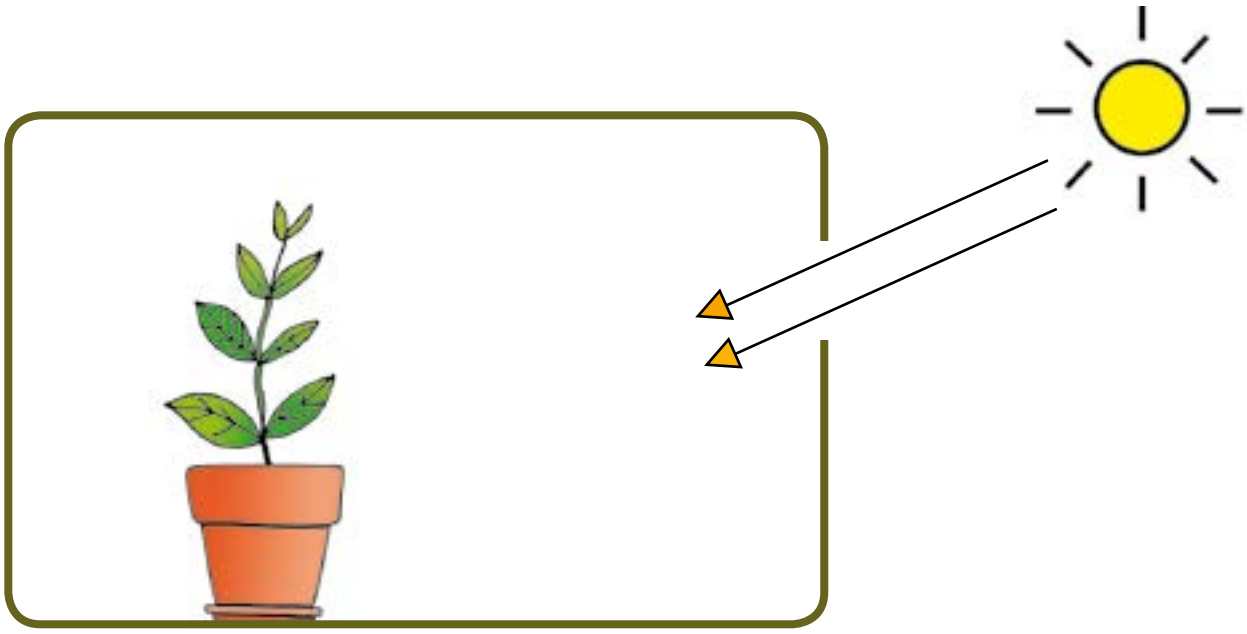
End of unit questions

4. Why do animals move from one place to another?

(i) .....

(ii) .....

5. What happens to a potted plant that is kept in a room where light enters through a very small window?



.....

.....

.....

6. Write one similarity and one difference between plants and animals.

	Plants	Animals
One characteristic similar to both		
One characteristic different for both		

7. List four characteristics of living things

(a) .....

(b) .....

(c) .....

(d) .....

Find out

Find out other characteristics of living things.

Air

At the end of this unit, pupils should be able to

- Recall that air is present everywhere
- State that air is colourless, odourless and tasteless
- Demonstrate an understanding of the importance of air
- Investigate that air is important for living things
- Infer the importance of air for plants and animals
- Infer from experiment that air is important for burning

Activity 1

INVESTIGATING THE PRESENCE OF AIR

In this unit you will learn about the properties of air and its importance.

In grade 3 you learnt that:

1. Air is present all around us.

We cannot see air but we may feel its presence when it moves from one place to another. We can do this by blowing air on our face with a paper fan.

(i) How do we call this moving air?

.....

(ii) Which part of our body helps us to feel the presence of air?

.....

2. Air is present in 'empty' containers.

Is air also present in 'empty' containers?

Let us find out more about air.

Observe Figure 1.

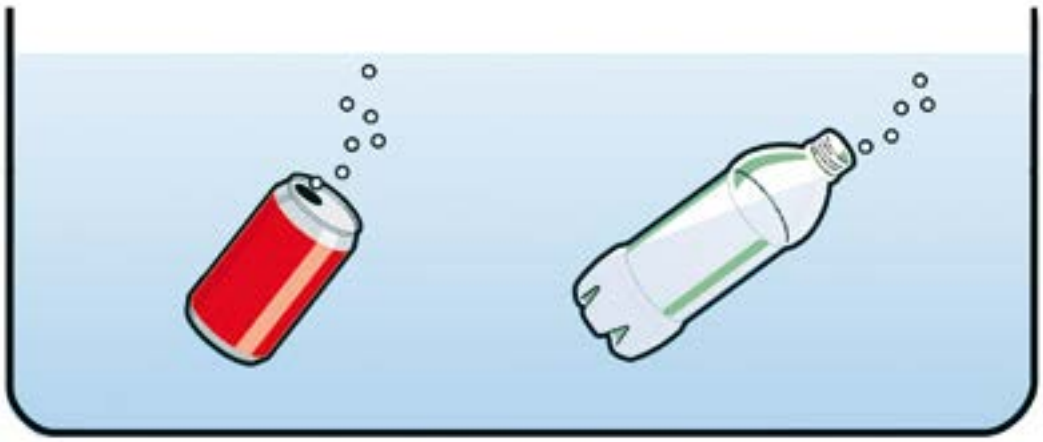


Figure 1 - Presence of air in empty objects

(a) Where are the can and the bottle kept?

.....

(b) What can you see rising from the can and the bottle?

.....

(c) Now label in Figure 1 with: water, bubbles of air, bottle and can.

What can you say from this activity?

(i) .....

(ii) .....

3. Air is present in the soil.

Observe Figure 2.

Figure 2 - Presence of air in the soil

(a) Where is the lump of soil kept?

.....

(b) What can you see rising from the lump of soil?

.....

(c) Now label the Figure 2 with: water, bubbles of air, soil

What can you say from this activity?

.....

4. Air is present in water.

Keep a bottle of water on the window sill, preferably on a sunny day, as shown in Figure 3. Observe the bottle and water after half an hour.

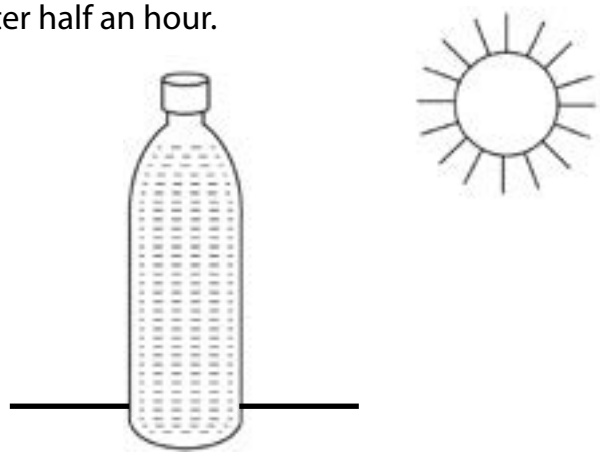


Figure 3 - Presence of air in water

(a) What do you see on the inner surface of the bottle?

.....

(b) Draw and label in Figure 3 the bubbles that you see.

(c) Tap the bottle with a ruler. What happens to the bubbles?

.....

(d) What do the bubbles contain?

.....

(e) Where do the bubbles come from?

.....

(f) What can you say from this activity?

.....

What I have learnt

Air is present everywhere.
It is found in empty containers.
Air is also present in the soil and in water.

Activity 2

INVESTIGATING THE PROPERTIES OF AIR

In activity 1 we read that we cannot see the air around us. Pure air is therefore said to be **colourless.**

(a) What would happen if air had a colour?
Discuss in your groups and write a sentence about it.

.....

.....

We find that if air had a colour, we would not be able to see clearly around us. We would therefore find it difficult to find our way. We would not be able to identify the colour of flowers and of rainbows.

Thus, it is a good thing that air is colourless.

So one of the properties of pure air is that it is **colourless**.

Now let us learn about some other properties of pure air.
Certain things have a pleasant smell. Others have an unpleasant smell.
Observe Figure 4 and answer the questions.

Pleasant smell

Unpleasant smell

Figure 4 - Pleasant and unpleasant smells

(b) What can make the air around us smell pleasant?

.....

.....

(c) What can make the air around us smell unpleasant?

.....

.....

These different smells/odours travel in the air to reach our nose. Pure air itself has no smell or odour.

(d) What would happen if pure air had a smell?
Discuss with your friends and write one sentence on your findings.

.....

.....

If air had a smell or odour, we would not be able to differentiate among the smells of different things.
Fortunately pure air has no smell or odour.
So, another property of pure air is that it is **odourless**.

Now move in the school yard, extend your tongue as in Figure 5 and try to taste air.

Figure 5 - Extending the tongue

(a) Does pure air have any taste?

.....

(b) How do we call something that has no taste?

.....

(c) What would happen if pure air had a taste?

.....

.....

So, another property of pure air is that it is **tasteless**.

What I have learnt

Pure air is

- colourless
- odourless
- tasteless

Activity 3

THE IMPORTANCE OF AIR FOR LIVING THINGS

A. Human beings need air

In grade 3 we learnt that air is important for breathing.

We breathe air all the time.

The air that we breathe is found everywhere around us.

(a) How can you find out if someone is breathing or not? (Recall the activity you carried out in grade 3).

.....

.....

(b) We can hold our breath for a short time only.
What happens if we do not get a continuous supply of air?

.....

.....

So we can say that human beings need **continuous supply of air** to stay alive.

B. Animals need air

Figure 6 shows some animals in their environment.

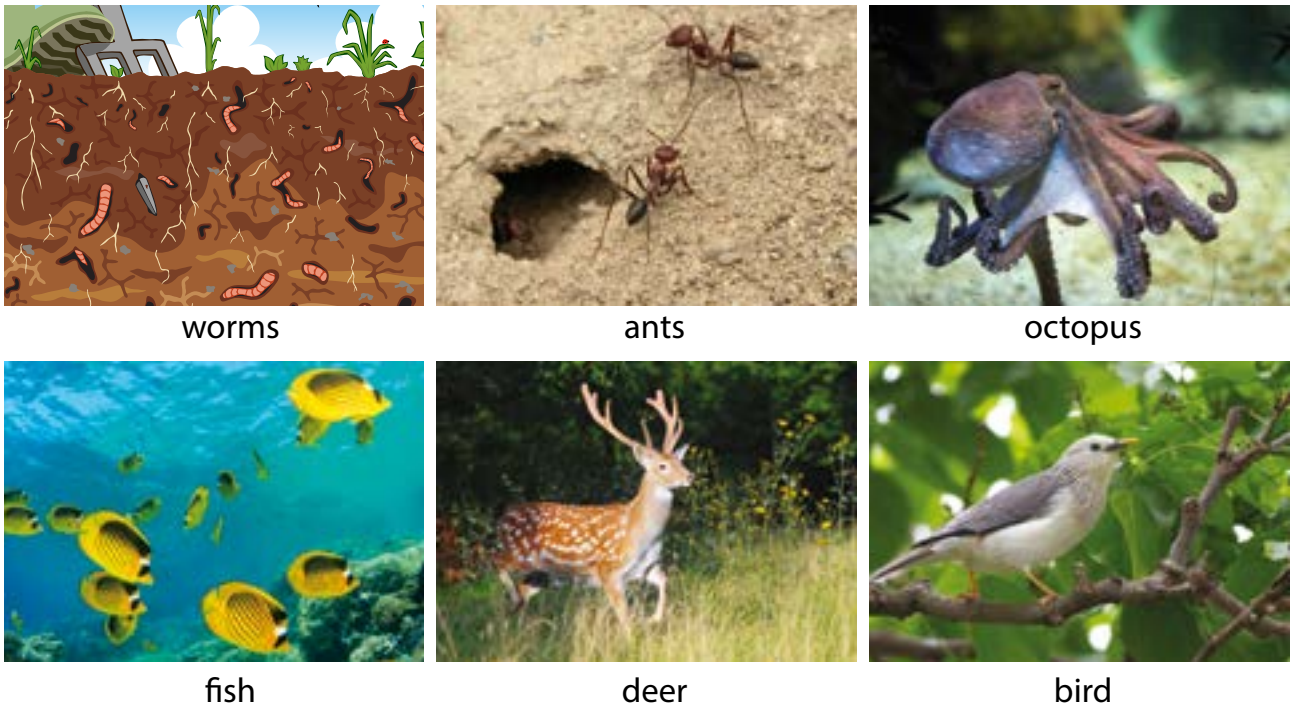


Figure 6 - Animals breathing air in their environment

Observe Figure 6 and fill in Table 1. One example is given.

Table 1 - Animals obtain air from their environment

Name of animal	From where does it obtain air ?
worm	the soil
ant	
octopus	
fish	
deer	
bird	

Let us find out more about the importance of air to animals.

Figure 7 shows a boy holding a closed box.

Observe the figure and answer the questions.

(a) What animal is found inside the box?

.....

(b) What else can you see in the box?

.....

(c) This animal does not get enough air.
What may happen to it?

.....

(d) What must the boy do to keep the animal alive?

.....

(e) What do you conclude?

.....

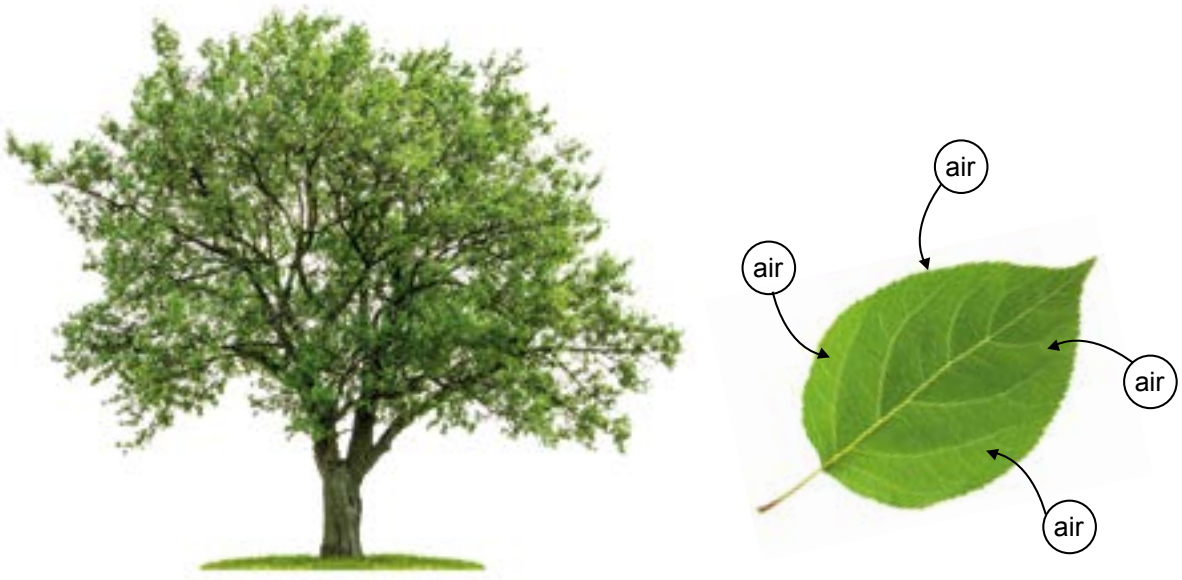
.....

Therefore, we can say that animals as well as human beings need **plenty of air** to stay alive.

C. Plants need air

Imagine what will happen to a plant if it does not get air.
As you have learnt in grade 3, plants are living things. So plants also need air to stay alive, but plants do not have a nose like us. So how do they take in air from the environment? Let us find out.

Observe the Figure 8.



A tree A leaf

Figure 8 - Plants need air

(a) Which part of the tree takes in air?

.....

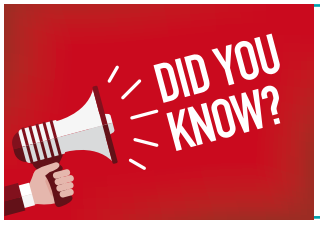
A plant takes in air through very small holes in the leaves.
These holes are invisible to our eyes.

(b) From where does it get the air it needs?

.....

.....

So we can say that plants also need air to stay alive.



Plants living in water use air that is dissolved in water.

What I have learnt

All living things need continuous supply of air to stay alive.

Find out

We cannot breathe normally in water. When we dive, we can hold our breath for a short time only. So, how can a diver stay under water for a long time?

Activity 4

STUDYING THE NEED FOR AIR BY NON-LIVING THINGS

Some things are not alive but still they need air to function. For example, air is needed to burn things. Even engines of vehicles need air to burn their fuel.

Figure 9 - Air is needed by non-living things

When we switch on the stove, the gas burns in the presence of air and we are able to cook our food.

(i) From where does the gas receive its supply of air to burn?

.....

A vehicle moves because its fuel burns in its engine in the presence of air.

(ii) From where does the engine of the vehicle obtain air to burn its fuel?

.....

Therefore, air is necessary for burning.

Let us observe an experiment to see how air is necessary for burning.

You will need: a jar and two candles of the same size.
Your teacher will perform the activity as it is risky.

(i) Teacher places the candles on the table at a place where pupils can see. He lights up the candles. Both burn brightly in the presence of air.

Candle A

Candle B

(ii) Teacher covers one candle with a jar as shown in Figure10.

Candle A in open air

Candle B covered with a jar

Figure 10 - Candles need air to burn

(iii) Observe the flame of each candle. Describe what happens after some time.

Candle A .....

Candle B .....

It is found that Candle A continues to burn brightly whereas Candle B stops burning.

(iv) Discuss in your groups to find out why this happens.
Write down your findings.

.....

.....

(v) What does the experiment show?

.....

.....

Teacher now covers the candle A with the jar.
Just before the flame goes out, teacher removes the jar quickly from A.
(vi) What do you observe? Why does the candle not go off?

.....

.....

What I have learnt

A continuous supply of air is necessary to keep something burning. The gas in a stove burns because it receives a good supply of air.

The same condition is necessary for fuel in an engine to burn and for a candle to burn.

Find out

Why do we keep kitchen windows open while cooking using a gas stove?

End of unit questions

1. Tick the correct answer for each question.

(i) This activity shows that

A air is present in water.

B air is present in an empty bottle.

C air bubbles are entering the bottle.

D air is important for breathing.

(ii) Which one of these animals breathes air present in the soil?

A fish **B** deer **C** worm **D** bird

(iii) Which of the following is not a property of pure air?

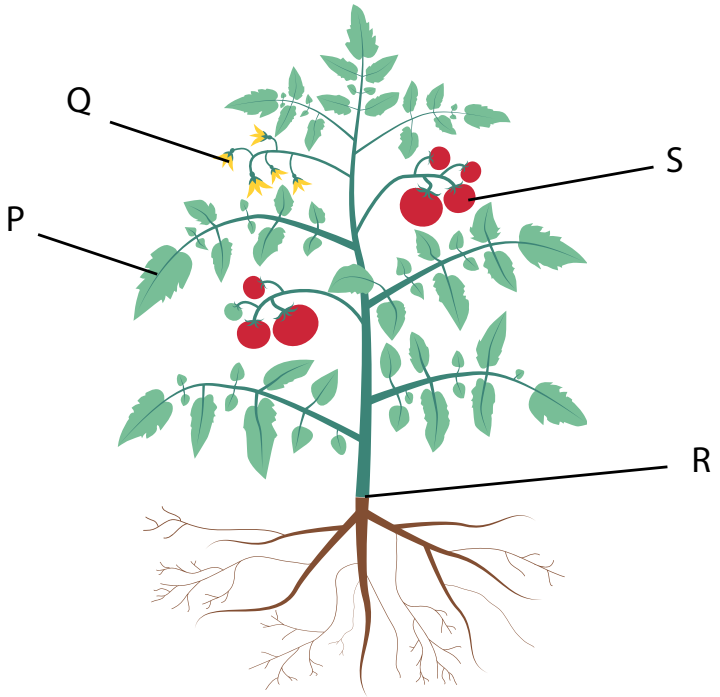
A Noiseless **B** Colourless **C** Tasteless **D** Odourless

(iv) We breathe air

A only when we are working. **B** only when we are sleeping.

C all the time. **D** only when we are tired.

(v) In the diagram, the part of the plant that takes in air is

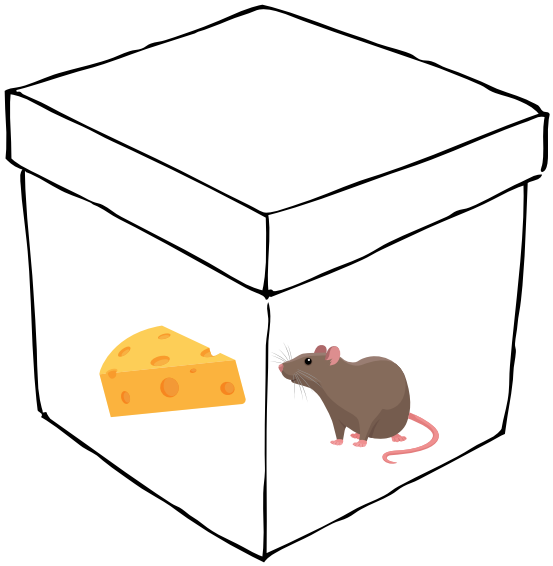


A part P **B** part Q **C** part R **D** part S

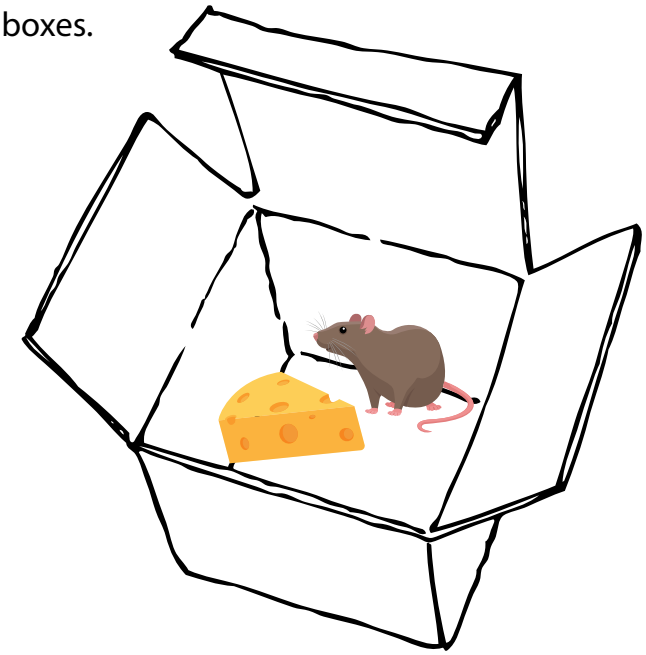
2. Match each item in Part A with its corresponding situation in part B

Part A	**Part B**
Air is present in the soil	
Air is present in water	
Air is present in empty can	

3. The picture shows two rats kept in two boxes.



Box X



Box Y

Observe the picture and answer the questions.

(a) Give one difference between box X and box Y.

.....

.....

(b) In which box will the animal stay alive?

.....

(c) Explain your answer to (b).

.....

.....

4. Observe the candle in the picture.

(a) This candle is burning because it gets a continuous supply of air. Where does the air come from?

.....

.....

(b) What happens to the flame if we cover the candle with a jar?

.....

(c) Explain why this happens.

.....

.....

.....

Plants

At the end of this unit, pupils should be able to

- Deduce that there is a variety of plants in the environment
- List the different parts of a plant (roots, stem, leaves, flowers, fruits, seeds)
- State the functions of flowers, fruits and seeds
- State some uses of plants
- Infer that plants are useful to people and animals
- Differentiate between endemic and exotic plants
- List some endemic plants
- List measures taken to protect endemic plants

Activity 1

OBSERVING PLANTS

In grade 3 you learnt that plants are living things. This means plants have life.

In this unit you will learn about variety of plants, different parts of plants and their functions. You will also learn about uses of plants and the difference between endemic and exotic plants.

Recognising that different types of plants grow in our environment

1. Observe Figure 1 which shows a variety of plants.

Figure 1 - A variety of plants

Group discussion

2. Discuss and find out:

- The names of some of the plants shown
- How tall the plants are
- The size of the leaves
- The shapes and colours of the flowers and fruits

3. Write down your findings in the space provided below.

(i) Name of 6 plants:

1. ..... 2. .....

3. ..... 4. .....

5. ..... 6. .....

(ii) Height of plants

Tall plants: .....

Short plants: .....

(iii) Size of plants

Big plants: .....

Small plants: .....

(iv) Shapes and colours of the flowers:

.....

.....

(v) Shapes and colours of the fruits:

.....

.....

What I have learnt

There are different types of plants in the environment. They are of different sizes and heights. Many plants have flowers and fruits. The flowers and fruits are of different shapes and colours.

Activity 2

OBSERVING PLANTS IN THE ENVIRONMENT

Stand in the school compound, look around you and observe the plants. You may also recall the plants that you see at home and along the road when coming to school. You see many different types of plants.

1. Write down the names of 5 plants you have identified.

a. .....

b. .....

c. .....

d. .....

e. .....

2. Discuss and compare the heights of the plants you have observed.

(a) Classify them in Table 1 into short and tall plants by ticking (√) the appropriate column.

Table 1 - Heights of plants

Name of plants	Tall	Short

(b) What do you conclude? Plants are of different .....

3. Compare the size of the plants observed.

(a) Classify them in Table 2 into big and small by ticking (√) the appropriate column.

Table 2 - Size of plants

Name of plants	Big	Small

(b) What do you conclude? Plants are of different .....

4. Compare the colours of the leaves of plants observed.

(a) What is the colour of most of the leaves? .....

(b) Draw and colour some leaves in the boxes below and write down the names of the respective plants.

Box 1 Box 2 Box 3 Box 4

(c) What do you conclude? Leaves are of different .....

Note: Most leaves that we see around us are green, but some plants have yellow, brown, purple or red leaves.

Find out 

Whether plants having leaves of other colours exist.

5. Compare the shapes of the plants observed.

Are all the plants of the same shape? Let us find out.

(a) Draw these plants in the space below:

A rose plant	A mango tree	A pawpaw tree	A sugar cane plant

(b) Compare the shape of the plants drawn.

What do you conclude?

Plants are of different .....

What I have learnt

Plants are of different heights, sizes and shapes. Leaves of plants are of different colours.

Activity 3

INDENTIFYING THE MAIN PARTS OF A PLANT

In this activity, you will identify the main parts of a plant.

Materials needed:

(i) Uprooted flowering plants such as balsamine, brède martin or beans;
(Make sure that the uprooted plants have these different parts:roots, leaves, stem, flowers, fruits and seeds).

(ii) Sheets of paper for drawing

1. Observe the plants.

2. Identify the different parts.

- The leaves
- The flowers
- The fruits
- The seeds
- The stem
- The roots

3. Observe the leaves of the different plants.

a. What colour are they?

.....

b. Compare their shapes and sizes. Are they similar or different?

.....

4 Observe the flowers in each plant.

What colour are they? .....

Teacher asks some students to smell the flowers. Do they have a scent? .....

Do they have the same colour, shape and size? .....

5. Observe the fruits.

Compare their colours, shapes and sizes. Are they similar?

.....

6. Open the fruits.

Are there seeds inside? .....

Count the number of seeds and note it down, if possible. .....

Compare the shapes, sizes and colours of the seeds. Are they similar?

.....

7. Observe the plants well again.
   Which part of the plant holds the fruits, flowers and leaves?

   .....

8. Which part of the plant is usually found in the soil?

   .....

Group work 

Pupils in each group draw one of the plants observed, in the paper provided.
They label and colour its parts.

Pupils display their posters on the wall of their classroom and then compare them with those drawn by other groups.

What I have learnt 

Plants have different parts. The different parts of a plant are the leaves, the flowers, the fruits, the seeds, the stem and the roots.

Observe the plant in Figure 2

Write down the name of each part in the boxes provided.

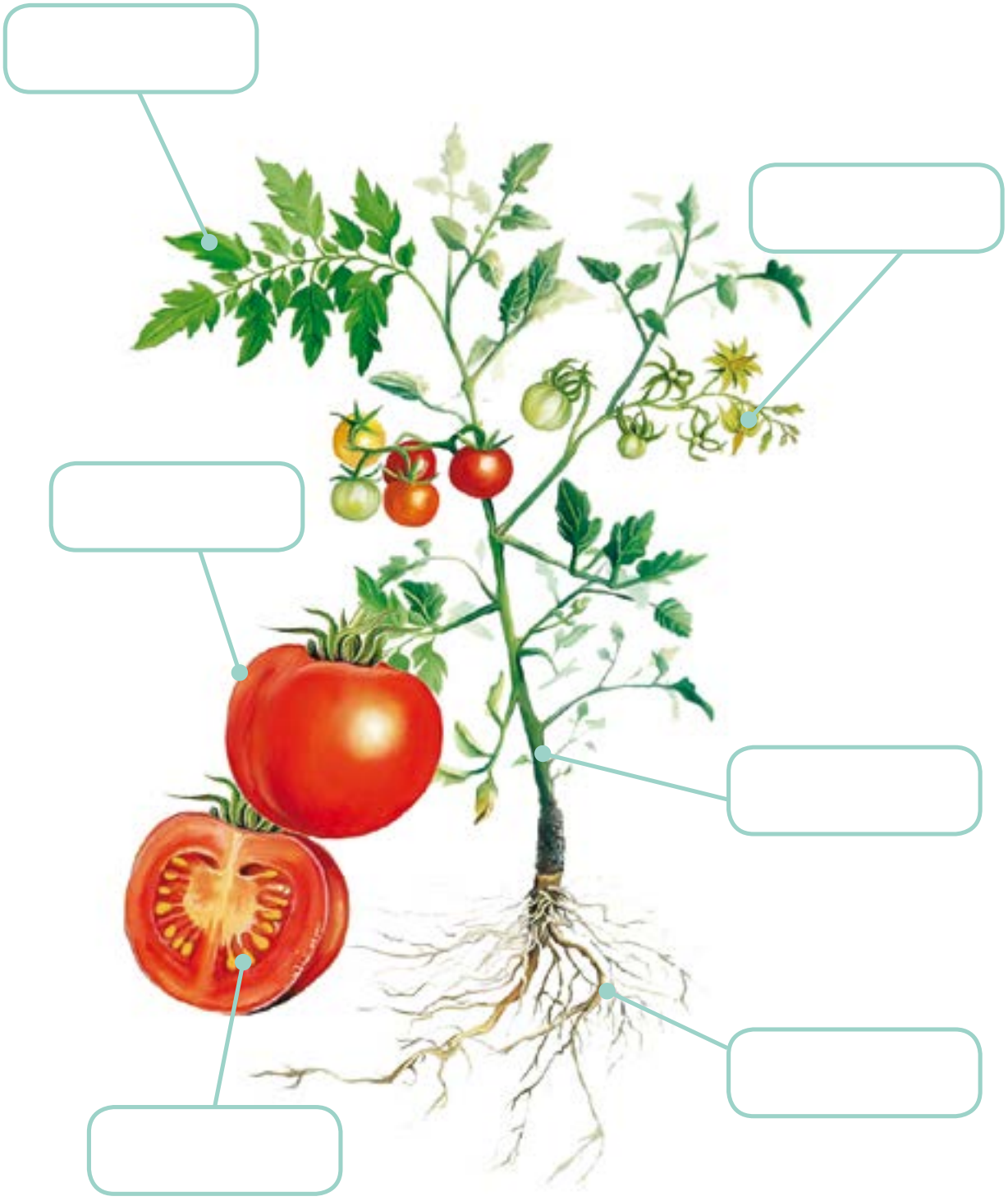


Figure 2 - Different parts of a plant

Activity 4

FUNCTIONS OF THE FLOWER, FRUIT AND SEEDS

Each part of a plant has its own function/s. Let us find out.

1. The Flower

Figure 3 - A bean flower

The main function of a flower is to produce fruits and seeds.
Most flowers have a nice scent or smell.
Flowers are usually brightly coloured. This is mainly to attract insects.
Insects carry pollen from one flower to another.
This is called **pollination**. After pollination, a flower becomes a fruit. The fruit contains the seeds.

2. The Fruit

Figure 4 - Beans (Fruits of the bean's plant)

Pollen: fine grains, usually yellow in colour, found in flowers

The fruit holds the seeds.

3. The Seeds

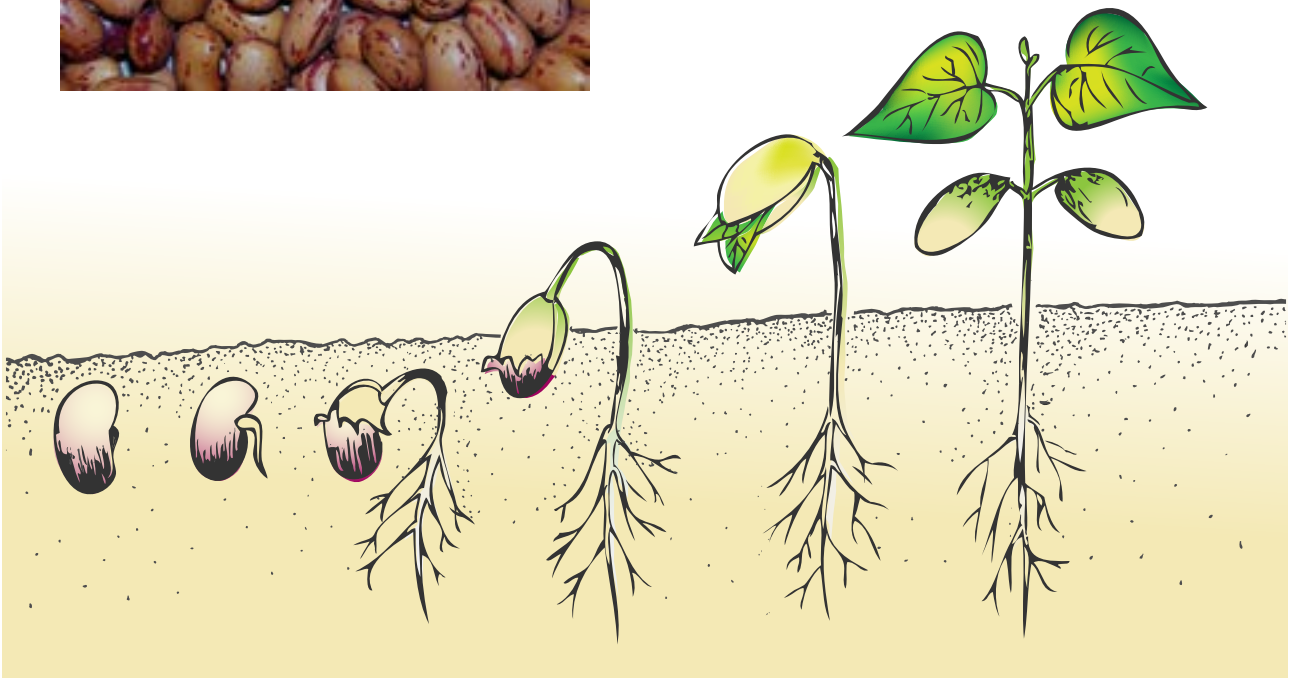


Figure 5 - Seeds and germination of one seed

Seeds germinate into new plants.

Note:

You will learn about the functions of the roots, stem and leaves and more about germination of seeds in Grade 5.

What I have learnt

Different parts of a plant have different functions.
Flower produces fruits and seeds.
Fruit holds the seeds
Seed germinates into new plant

Activity 5

STUDYING HOW PLANTS ARE USEFUL TO PEOPLE, ANIMALS AND THE ENVIRONMENT

A. Observe Figure 6 which shows different uses of plants.


fruits


vegetables


nuts


aloe vera


furniture


wooden floor


flame tree


books


animals in forest


bird on tree


animals eating grass


tree giving shade

Figure 6 - Usefulness of plants

Class discussion

(i) Find out how plants are useful to people.

(ii) Find out how plants are useful to animals.

(iii) Find out how plants can be used to make our environment beautiful.

B. Study Figure 6 again.

i. List 2 ways in which plants are useful to people.

(a) .....

(b) .....

ii. List 2 ways in which plants are useful to animals.

(a) .....

(b) .....

iii. List 2 ways in which plants beautify our environment.

(a) .....

(b) .....

C. Most of the foods that we eat come from plants.

i. Plants provide us with vegetables and fruits.

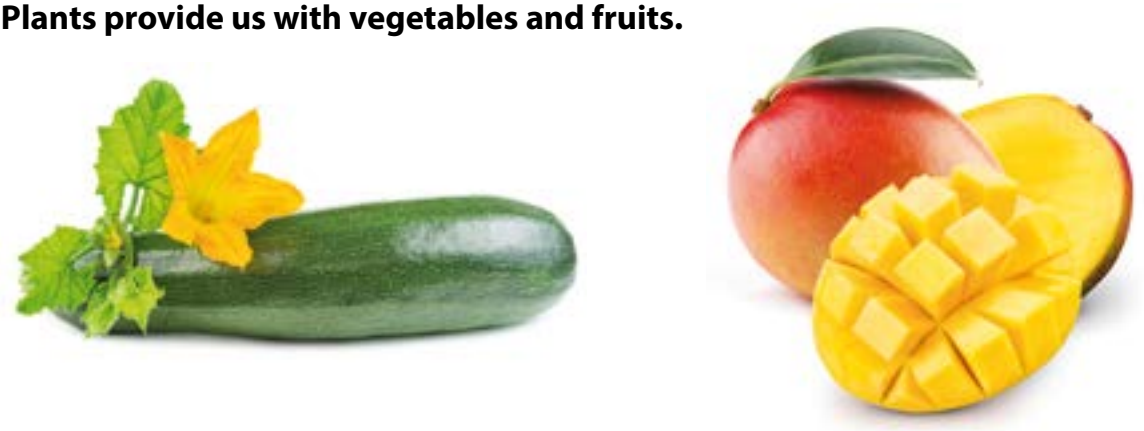


Figure 7 - Vegetable and fruit

Make a list of 5 fruits and 5 vegetables. Write your answers below.

Fruits	**Vegetables**
.....	.....
.....	.....
.....	.....
.....	.....
.....	.....

ii. Fill in Table 3 to show the names of vegetables and their part(s) that we eat. Tick (√) the correct answer. One example has been given.

Table 3 - Plants and their parts used as food

	Part(s) of the plant that is/are eaten					
Name of vegetable	**stem**	**roots**	**flower**	**fruit**	**seeds**	**leaves**
cabbage						√

iii. Plants provide us with cereals.

Cereals are grasses which are grown for their seeds or grains.

Figure 8 - Cereals

Rice Wheat Maize Oat

Figure 9

Examples of cereals are:
Rice, wheat, maize and oat which we use every day. Wheat is ground to make flour.

Study Figure 9 and answer the following questions.

1. Find out the name of the cereal you eat for

   (i) Breakfast .....

   (ii) Lunch .....

   (iii) Dinner .....

2. Which cereal is ground to make

   (i) Ground rice?.....

   (ii) Corn flour? .....

3. Which cereal is used to make popcorn?

   .....

4. Write down the names of 2 other cereals.

   (i) ..... (ii).....

3. Plants add taste to food

Parts of some plants are used to add taste to food. They can be used either fresh or dried.

Figure 10 - Herbs

(a) Identify and write down the names of the herbs shown in Figure 10.

.....

.....

(b) Find out from your parents other plants that are used to add taste to food.

(c) Write down their names below.

1. Dried herbs

(i) .....

(ii) .....

2. Fresh herbs

(i) .....

(ii) .....

4. Plants provide us with spices

Figure 11 - Spices

Spices are also used to give colour and flavour to foods. Some spices like chilli and pepper are hot spices. Different parts of plants are used as spices.

(a) Identify and write down the names of some spices shown in Figure 11.

.....

.....

(b) Find out which parts of plants are used as spices.

.....

.....

5. Plants provide us with pulses

The seeds of some plants are used as pulses. Pulses are good for health.

Figure 12 - Pulses

(a) Name some of the pulses shown in Figure 12.

.....

.....

.....

.....

(b) Draw and name 2 pulses you like to eat.

(c) Find out why pulses are good for health. Write your answer below.

.....

.....

6. Oil obtained from plants

Oil is obtained from the fruits and seeds of some plants.

Figure 13 - Oil from sunflower seeds

The seeds of the sunflower plant are used to make oil.

(a) Find out the names of other seeds/ fruits from which oil is made.

.....

.....

(b) State 3 different ways in which oil is used.

1. .....

2. .....

3. .....

(c) Too much oil in our food is bad for health. Give a reason why.

.....

.....

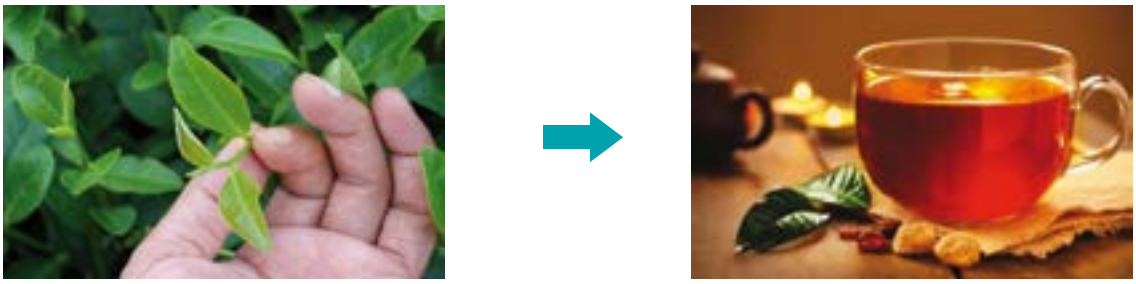
7. Drinks from plants

Some plants are used to make drinks.

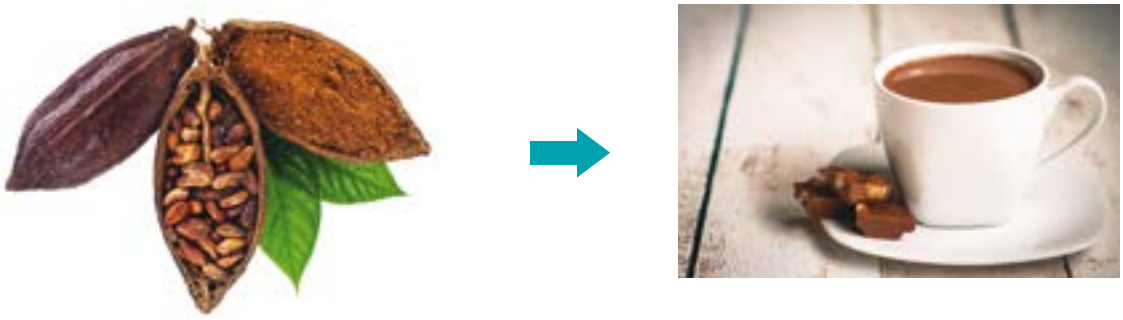
Many of us drink tea, coffee or chocolate.

Do you know from where we obtain these drinks? Let us find out.

Study Figure 14 which shows some plants used to make drinks.



Tea leaves and tea drink



Cocoa seeds and chocolate drink

Coffee seeds and coffee drink

Figure 14 - Plants used to make drinks

Answer the following questions.

1. Which part of the plant is used to make:

(i) Tea? .....

(ii) Coffee? .....

(iii) Chocolate? .....

2. Name three plants that are used to make herbal tea.

(i) .....

(ii) .....

(iii) .....

8. Juice from plants

You probably drink juice every day. Do you know how juice is made?
Vegetables and ripe fruits are crushed or pressed to obtain juice.

Observe Figure 15 and answer the questions that follow.

Figure 15 - Juice made from fruits and vegetables

(i) Name some fruits used to make juice.

.....

.....

(ii) Name some vegetables used to make juice.

.....

.....

(iii) Which parts of the plants are used to make juice?

.....

.....

9. Medicine from plants

Figure 16 - Medicine from plants

'Ayapana', Ginger, Aloe Vera and many other plants are used as medicines.

(i) Name some other plants you know that are used as medicine.

.....

.....

(ii) Find out which medicinal plant is used to treat which disease. You may seek help from your parents.
Write your answer in the table provided.

Table 4

Name of plant	Used to cure which disease(s)
1.	
2.	
3.	

10. Food and shelter for animals

Many animals eat plants or parts of plants.

Observe Figure 17 and answer the following questions.

Figure 17 - Animals eat different parts of plants

Animals eat different parts and at times the whole plant.

(i) Make a list of animals that feed on plants and find out which part of the plant they eat.

(ii) Record your answer in Table 5 below by ticking in the right column.

Table 5

Name of animal	roots	leaves	seeds	fruits	stem

Find out

How do we call an animal that feeds only on plants?

.....

11. Plants provide shelter to animals

(a) Observe Figure 18 which shows some animals.

Figure 18 - Animals in their living place

Discuss and share.

(i) Name the animals shown in Figure 18.

.....

.....

(ii) Where do these animals live?

.....

.....

.....

.....

(b) Observe and make a list of animals/birds/ insects finding shelter on the trees in your school compound. You may also look around outside the school compound.
Name of animals:

.....

.....

.....

.....

Compare your findings with those of your friends.

What I have learnt

Many animals live in forests. They find shelter on trees, in bushes or in the grass.

12. Plants make our environment beautiful and give us shade

Figure 19 - Beautifying the environment and giving shade

Plants beautify our environment and give us shade.

(i) Observe Figure 19. Discuss and share how plants help beautify our environment. Write your answer below.

.....

.....

(ii) Do you enjoy sitting in the shade of trees?

.....

(iii) Draw a garden in the space provided and write two sentences about the garden.

My garden (My Nature corner)

.....

.....

What I have learnt

We obtain different types of foods from plants. These are vegetables, fruits, cereals, herbs, spices, pulses, oils, drinks and juices.

Plants are also used as medicines for us to stay in good health.

Plants provide food and shelter to animals and they beautify our environment.
Human beings and animals enjoy sitting in the shade of trees.

Remember

Plants form a very important part of our environment. We must grow plants and also take care of them.
We should not cut down trees unnecessarily.

Activity 6

ENDEMIC PLANTS

Trees, flowers and other plants beautify our environment. Are we taking care of them? Let us find out.

A very long time ago, before people came to live in Mauritius, the whole island was covered with forest. There were many endemic plants.

What is an endemic plant?

An **endemic plant** is a tree which exists or existed only in one place and nowhere else in the world.

Figure 20 shows some endemic plants of Mauritius

Trochetia Plant

Ebony Tree

Figure 20 - Endemic plants of Mauritius

Group Discussion

The Trochetia, our National Flower, is an endemic plant.

(i) Find out if there is a Trochetia plant in your school yard.

(ii) Find out the names of other endemic plants.

(iii) Find out where they grow.

Exotic plants

When people started coming to Mauritius to live, they brought with them, plants from the different countries from where they came. Thus, they introduced many exotic plants which they started growing for food or to beautify the environment. Some of the exotic plants, such as the mango tree, litchi tree, sugarcane, maize, potato, and tea plants are very useful.

Figure 21 - Useful Exotic plants of Mauritius

Others like 'goyave de chine', 'framboise marron' and 'privet' grew very quickly in our forests and they took a lot of space. They prevented our endemic plants from growing well. They are known as **pest plants**.

Figure 22 - Exotic pest plants affecting the growth of our endemic plants

Group Discussion

(i) Find out the names of other useful exotic plants.

(ii) Find out if there are exotic pest plants in your school yard or at home.

Why our endemic plants have become rare?

Today most of the forests, where our endemic plants grew, have been cleared for various reasons.

Figure 23 shows some reasons why our forests have been cleared.

Figure 23 - Why our forests have been cleared

Study Figure 23 and list few reasons why our forests have been cleared.

.....

.....

.....

The clearing of forests has destroyed many of our natural forests. Many endemic trees have become rare.

You will learn more in upper classes about why our endemic plants have become rare.

Saving our endemic plants

Figure 24 shows some measures taken to save our endemic plants. These are:

- Planting endemic plants along nature walks
- Planting of endemic plants on large scale for selling to people and encouraging them to grow at their places
- Creating endemic gardens
- Planting in nature reserves

Figure 24 - Saving our rare plants

Some of our forests have been declared as **Nature Reserves**.
Find out where our Nature Reserves are found.

1. .....

2. .....

3. .....

4. .....

5. .....

Some measures to save our endemic plants are:

A. No one has the right to cut down trees, especially endemic plants, from Nature Reserves.
B. No one has the right to pluck flowers, seeds or fruits from endemic trees.
C. We must not pollute or light fire in Nature Reserves.
D. We must protect the plants against harmful effects of pests and bad weather.

You will learn more about measures to save our endemic plants in upper classes.

What I have learnt

- Mauritius was covered with forest before people came to live here.
- There were many endemic plants in our forests.
- Our endemic plants are plants that exist/ existed only in Mauritius and nowhere else.
- Forests have been cleared for different reasons.
- Exotic plants have been brought by people from other countries.
- Exotic plants are useful but some of them affect endemic plants.
- Many endemic plants have become rare for various reasons.
- We must help to protect our forests and endemic plants.

Find out

What can we do to protect and save our endemic plants?

End of unit questions

Figure 1

1. Put a circle around the letter A, B, C or D showing the correct answer.

(i) Figure 1 shows a ..... .

A seed **B** flower **C** fruit **D** stem

(ii) ..... are usually found in the soil.

A Flowers **B** Roots **C** Leaves **D** Fruits

(iii) The leaves of a ..... plant are large and flat.

A rose **B** sugarcane **C** banana **D** bean

(iv) The fruit contains the ..... .

A leaves **B** stem **C** flowers **D** seeds

(v) Pollens are found in ..... .

A seeds **B** fruits **C** flowers **D** leaves

2a. Trees are of different heights.
Draw a tall tree and a short tree in the spaces below.

A tall tree

A short tree

2b. Leaves are of different sizes and shapes.

Draw and label two leaves of different sizes and shapes.

A ..... leaf

A ..... leaf

3. Fill each basket with:

a. Two vegetables that we must cook before eating.

One example has been given .

b. Two fruits used as vegetables when not ripe.

c. Two vegetables we can eat both cooked and raw.

End of unit questions

4. Tick(√) the correct column/s in the table below to show which part/s of each plant is /are used as food.

Table 1

Plant	Roots	Stem	Leaf	Fruit	Seed	Flower
Cabbage						
Maize						
Pumpkin						
Celery						
Broccoli						
Ginger						

5. Match items of Part A to those of Part B to make correct sentences.

	Part A	**Part B**
a.	Rice and millet are	soya bean.
b.	Oil is made from	make flour.
c.	Wheat is crushed to	used as cereals.
d.	Lettuce and water cress are used	colour to food.
e.	Spices such as turmeric give	medicinal plant.
f.	Lemon grass (citronelle) is a	as green salad.

6. Study Figure 2 and answer the questions that follow.

Figure 2

a. Write down 2 ways in which the tree is important for birds.

i. .....

ii. .....

b. Mention another way in which trees are important to animals.

.....

.....

c. Mention one way in which plants are used to make our home environment beautiful.

.....

.....

7. Complete each sentence with a correct word from the brackets.

(a) A plant that existed or exists only in a particular place or country is a plant ..... to that place or country. (exotic, endemic)

(b) A plant that people brought to Mauritius from other countries is an ..... plant. (exotic, endemic)

8. Write the name of each plant from the pictures given below in the correct column to indicate endemic or exotic plants.

Figure 3

Table 2 - To show endemic and exotic plants

Endemic plants	Exotic plants

Add names of more plants to complete the table.

9.

(a) Write down the names of **two** useful **exotic plants**.

i. .....

ii. .....

(b) **'Goyaves de Chine'** plants provide fruits to us but they are considered as pest plants. Give a reason, why.

.....

.....

(c) Many endemic plants have become rare.
Give two reasons, why.

i. .....

ii. .....

(d) Give one measure taken by government to protect rare endemic plants.

.....

.....

(e) What can you do to **protect endemic plants** when you visit Nature Reserves?

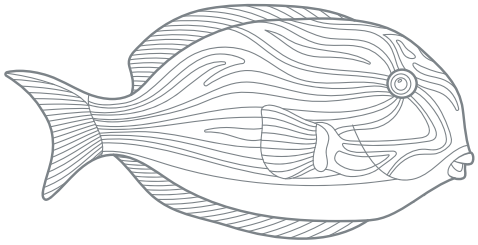
i. .....

ii. .....

Animals

At the end of unit 4, pupils should be able to:

- State the need for animals to move
- State five ways in which animals move
- List some body parts that help animals to move
- Give the meanings of endemic and exotic animals
- List some endemic and exotic animals in Mauritius and Rodrigues
- List some measures to protect endemic and exotic animals
- State why endemic and exotic animals must be protected



In grade 3 you learnt about animals, their habitats and the food that they eat.

In this unit you will learn about the ways in which animals move and which body parts they use to be able to move. You will also learn about endemic and exotic animals.

Activity 1

ANIMALS ARE LIVING THINGS THAT CAN MOVE

In Unit 1 you learnt that animals have certain characteristics. One of these characteristics is that most animals can move from one place to another.
One reason that animals need to move is to search for food.

Observe Figure 1. Discuss with your friends to find out other reasons why animals move from one place to another.

Figure 1

Write your answer in the space provided.

.....

.....

.....

What I have learnt

Animals move from one place to another for different reasons.
They move:

- in search of food
- to escape from dangers such as other animals or forest fires
- to find shelter during bad weather

Activity 2

HOW ANIMALS MOVE

1. **Observe Figure 2.**
2. **Discuss with your friends the different ways in which the animals shown can move.**

Figure 2 - Ways in which animals move

3. Now list some ways in which these animals move.

.....

.....

.....

.....

.....

4. Study Table 1.

(i) Tick the appropriate column(s) to show how different animals move. You may tick more than one column for certain animals. One example has been given.

Table 1

	Name of animals	Swim	Walk	Hop	Fly	Crawl
	Frog	✓		✓		
	Lizard					
	Dog					
	Butterfly					
	Shark					
	Crocodile					
	Crab					
	Dolphin					

(ii) Draw three more animals in the first column and complete the table.

What I have learnt

Different animals move in different ways.

- Crabs crawl and swim
- Snakes creep
- Butterflies fly
- Dogs walk or run
- Frogs hop

Activity 3

FINDING OUT WHICH BODY PARTS ANIMALS USE TO MOVE

Different animals use different body parts to move.

Wings help birds to fly

Fins and ***tail*** help fish to swim

Monkeys use ***hands*** and ***tail*** to climb trees

Kangaroos use ***back legs*** to hop

Figure 3

Study Figure 3 and fill in the blanks with part(s) of the animal's body that help it to move.

Bird ..... (wings, fins, tail feathers)

Fish ..... (fins, wings, tail)

Monkey ..... (fins, wings, legs)

Kangaroo ..... (legs, fins, wings)

What I have learnt

Animals move in different ways.
Some animals can move in more than one way.
Different animals use different body parts to move.

Activity 4

LEARNING ABOUT ENDEMIC ANIMALS

I remember

An **endemic** animal is an animal that lives nowhere else except in a particular place.

Some endemic animals, unique to Mauritius are:

The ***Pink Pigeon***

The ***Mauritius Kestrel***

The ***Echo Parakeet***

The ***Gecko***, a coloured lizard

The ***Boa*** of Round Island

Two endemic birds of Rodrigues are the ***Fauvette de Rodrigues*** and the ***Cardinal Jaune***.

Fauvette de Rodrigues

Cardinal Jaune

Figure 4 - Endemic animals living in Mauritius and Rodrigues

Activity 5

PROTECTING OUR ENDEMIC ANIMALS

Many of our endemic animals have become rare. This is mainly because most of the natural forests in which they live have been cleared.

Government has declared the remaining natural forests as **Nature Reserves** and these are being used to protect our rare animals.
Some nature reserves are: Black River Gorges National Park, Ile aux Aigrettes and Round Island (Ile Ronde).

Ile aux Aigrettes

Ile Ronde

Black River Gorges National Park

Figure 5 - Nature Reserves

Locate these places on a map of Mauritius.

In nature reserves, endemic animals are protected and looked after.
The ***Mauritian Wildlife Foundation*** is an organisation that helps the Government to preserve our wildlife.

Scientists visit the animals in their natural habitat. Sometimes scientists breed rare birds in closed places and then release them in forests when they are grown up.

Activity 6

EXOTIC ANIMALS

An **exotic** animal is an animal which has been brought to Mauritius or Rodrigues from another country.

Observe Figure 6 and name the exotic animals.

Figure 6 - Some exotic animals

Some exotic animals are found in animal parks.

(i) Write the names of these animals.

.....

.....

.....

(ii) Name two animal parks in which these exotic animals are kept.

.....

.....

Activity 7

CARING FOR AND PROTECTING 'EXOTIC' ANIMALS (PETS)

Exotic animals may live in forests, in parks or with us. Some exotic animals that live with us are called **pets**. We must love and care for our pets if not they will die.

(a) Observe Figure 7 and discuss how the different pets are cared for.

Drying dog after bath | Feeding fish | Taking parrot for a stroll

Figure 7 - Caring for pets

(b) Discuss with your friends about the animals they keep as pets.

(i) Which animal do you like to keep as a pet? Why?

.....

.....

(ii) Write 2 sentences about how you care for your pet.

.....

.....

.....

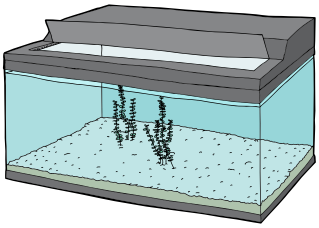
.....

(c) Different pets have different shelters.
Match each animal to its shelter

dog

fish

bird



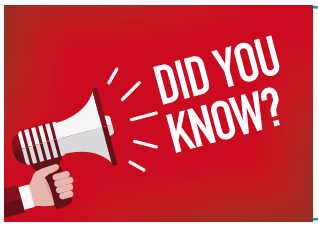
At times pet shows are organised.

Figure 8

At these shows, people enjoy the various activities and also appreciate the importance of these animals.
Prizes are given for the best looking and well-cared animals.

Some tips to keep your pets healthy and happy:

- You must always be kind to your pets and never hurt or hit them.
- You must always give them proper food and clean water.
- You must give them regular baths.
- You must keep them in a safe and clean place.
- You must take them to a vet when they are sick.



At the Mauritius Society for Animal Welfare (MSAW), found in Rose-Hill, veterinary surgeons (vets) carry out activities related to animal welfare, such as looking after sick animals.

Figure 9

Find out

What is the most popular pet kept by Mauritians?

End of unit questions

1. Match Part A with Part B to show how animals move.

A	B
Fish	walk
Dogs	Swim
Kangaroos	fly
Birds	hop
Earthworms	crawl

2. Complete the sentences using the words from the list given.

kangaroo	tail	wings	fins	tail-feathers

(a) The bird uses its ..... and ..... to fly.

(b) The fish has ..... and a ..... to help it move.

(c) A ..... uses its back/hind legs to hop.

3. Name 2 endemic animals in Mauritius and Rodrigues.

a. .....

b. .....

4. Give two reasons why an animal moves from one place to another.

a. .....

.....

b. .....

.....

5. Name three exotic animals found in Mauritius and Rodrigues.

a. .....

b. .....

c. .....

6. Draw and colour your favorite pet.
Write the name of your pet in the box below.

ISBN: 978-99949-44-34-7