



Start *With* Science

Book 3

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1

UNIT 1 : LIVING AND NON-LIVING THINGS

Living and Non-Living Things

You will learn about

Characteristics of living things and non-living things.

Key words:

Living things : Things which need food, grow, reproduce, respond and feel.

Non-living things : Things which do not need food, do not grow, reproduce, respond or feel.

Spiracles : Holes present on the body of insects.

Stomata : Tiny holes present in leaves.

Reproduce : To give birth to young ones of one's own kind.

Grow : Increase in size.

Natural things : Things found in nature.

Man-made things : Things made by man.

Just take a look around yourself and observe the things carefully.
Name five things you see around you.

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Now, look at the picture given below and name any five things you see.



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Things we see around us can be divided into two groups:

1. Living Things
2. Non-living Things

Plants, animals and human beings are all living things.

Bus, car, bat, ball, etc., are non-living things.

The sun, mountains, rivers, etc., are found in nature on their own. They are called natural things.

Things made by man are called man-made things, for example, toys, vehicles, furniture, etc.

All man-made and natural things are non-living things.

Living and non-living things are different from each other in many ways.

Living Things Move

All living things move from one place to another in search of food and shelter.

Have you seen a dog and cow moving from one place to another, fish swimming in water, birds flying in air and human beings walking?



Living things move

All these living things move from one place to another on their own.





Plants are also living things. They do not move from one place to another but they show movement of their parts.

For example, a sunflower always faces the sun.

Can you tell ?

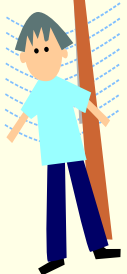
Why does a sunflower face east in the morning and west in the evening?

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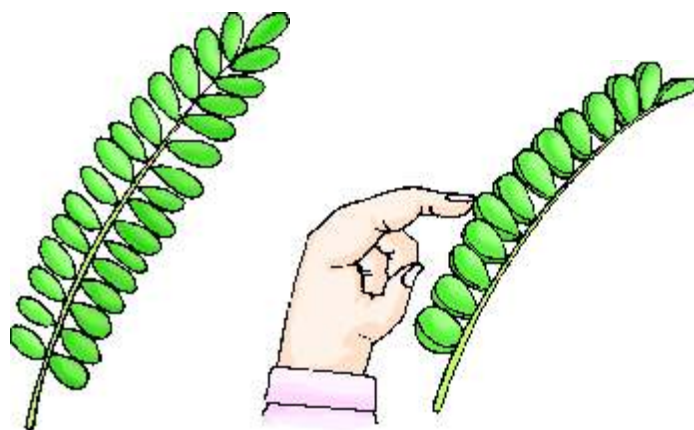
.....



The touch-me-not (mimosa) plant shows movement by closing its leaves when touched.



A sunflower turns towards the sun.



The leaves of the touch-me-not plant close when touched.

❧ Non-living things do not move on their own. A chair moves from its place when we move it.

Think and Answer

A car moves on the road. Why do we say that it is a non-living thing ?

.....

.....

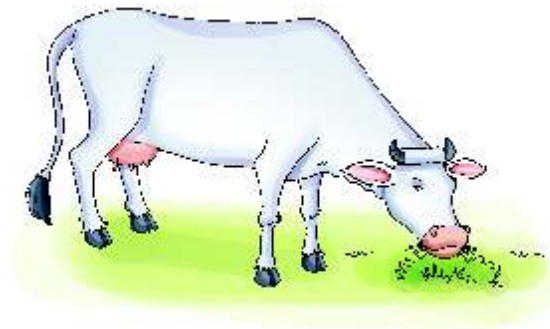




Living Things Need Food

All living things need food to grow. Food gives energy to work.

Animals move from one place to another in search of food. They eat plants and other animals. Green plants make their own food with the help of sunlight, air, water and chlorophyll.



A cow eats grass.



A child eats food.

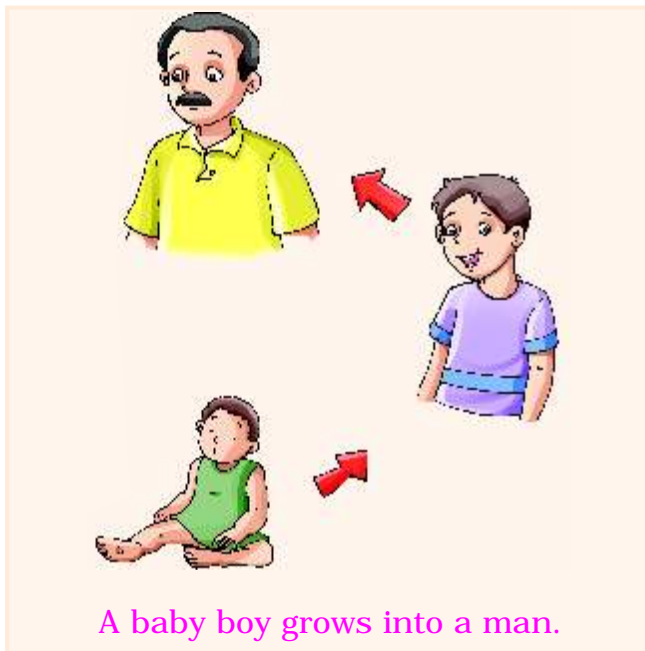


Green plants make their own food.

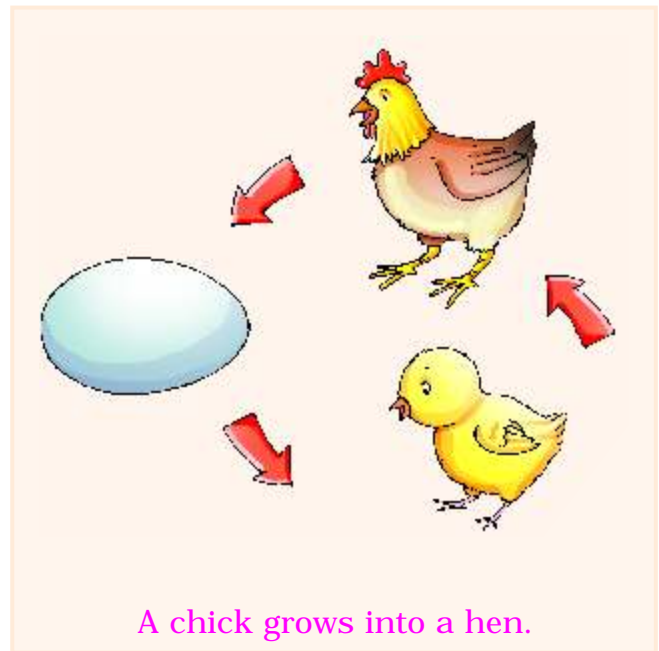
Non-living things do not need food.

Have you ever seen a table eating food ?

All living things grow in size. You know when a baby is born, it is very small but it grows into a child, then a boy or a girl and later a man or woman. In the same way, animals also grow.

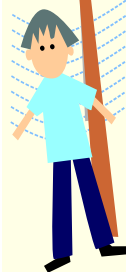


A baby boy grows into a man.



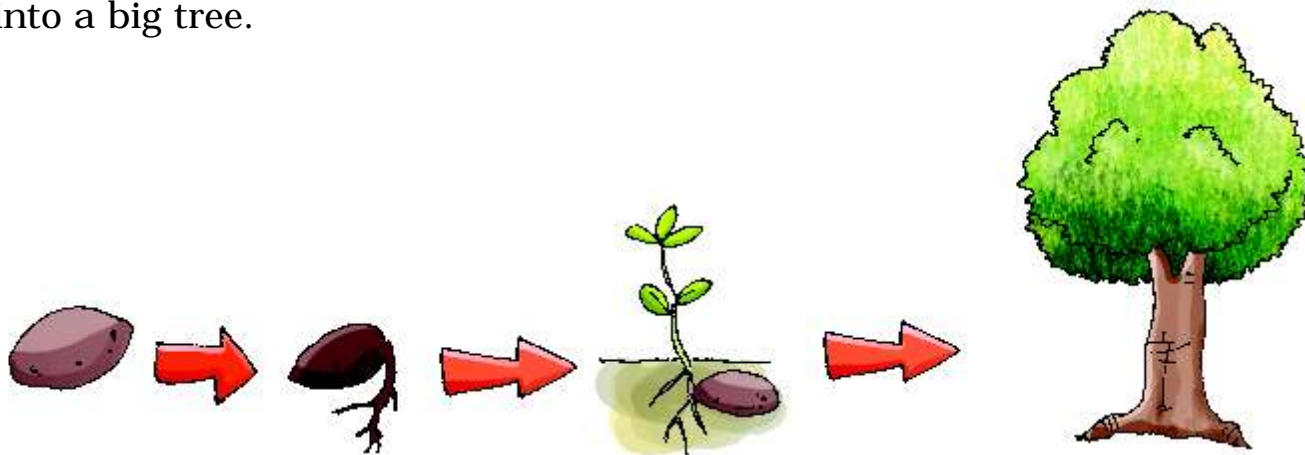
A chick grows into a hen.

A hen lays eggs which develop into chicks and then into hens.





In the same way, a seed of a plant develops into a baby plant which grows into a big tree.



A seed grows into a tree.

What do you think about non-living things? Do they grow?

Have you seen your teddy bear growing in size ?

Living Things Breathe

All living things breathe. They take in oxygen and give out carbon dioxide. Most animals and human beings breathe through the nose.

Fish breathe through gills. Insects like butterflies, mosquito, etc., breathe through small holes present on their skin. These holes are called spiracles. Earthworms breathe through the skin.

Plants breathe through small pores present under their leaves. These pores are called stomata.

Non-living things do not breathe.



Fish breathe through gills.



Butterfly breathes through holes in its body.



Earthworm breathes through its skin.



Plants breathe through stomata.





Do you know?

Frog lives in water as well as on land. In water, it breathes through skin and on land it breathes through lungs.



Living things Feel

All living things can feel the changes around them. Our sense organs help us to feel the changes around us. In winter, we shiver and we sweat when it is very hot. We laugh when we are happy and cry when we are sad. Plants and animals can also feel the changes around them with the help of their body parts.

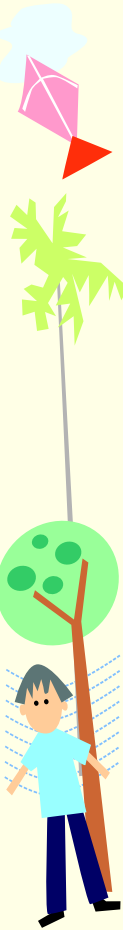
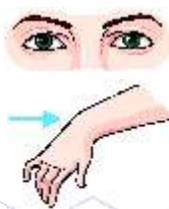


Leaves of touch-me-not plant close when touched. A cat runs on seeing a dog.



Do you know?

Eyes, ears, nose, tongue and skin are our five sense organs. They help us to feel the things around us.

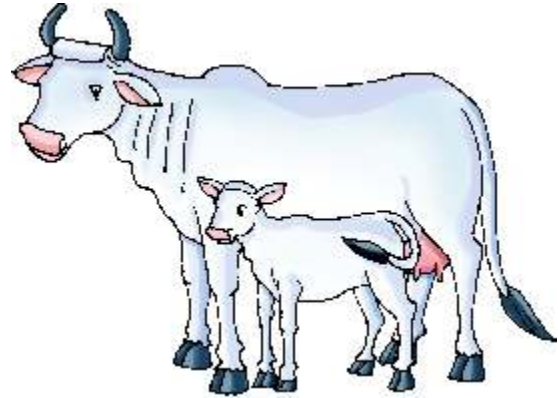


Non-living Things Do Not Feel

- ❁ Have you ever seen a door crying when we tighten a screw in it ?
- ❁ When you bang on a table with a scale, does it cry out?

Living Things Reproduce

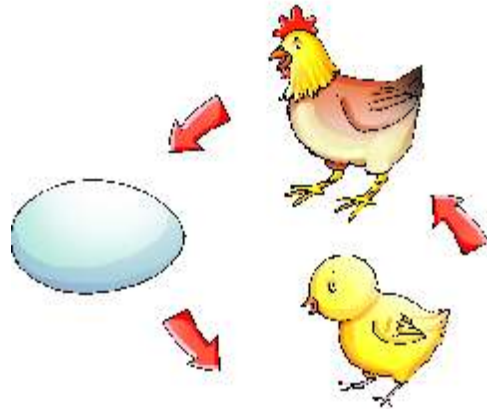
Reproduction is a process through which a living being gives birth to a young one of its own kind. A cow gives birth to a calf.



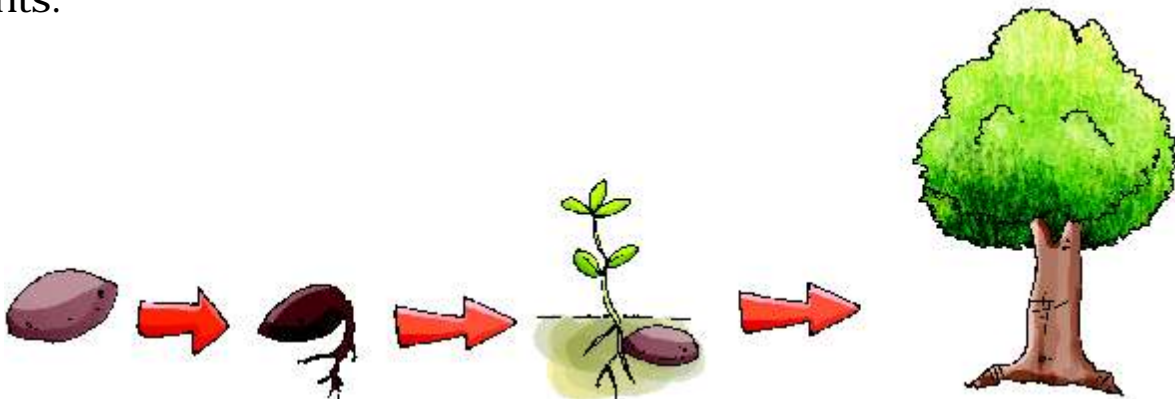
A woman gives birth to a baby.



Birds lay eggs from which young ones come out and slowly grow into adults.



A plant produces seeds which develop into seedlings and then into big plants.





Some plants produce new plants from roots, stems, leaves, etc. Rose plant grows from a stem cutting.



Rose plant



Stem cutting

Non-living things do not reproduce. Have you ever seen a table giving birth to a small table ?

Remember

1. Things can be divided into living things and non-living things.
2. Living things need food. They grow, respire, feel and reproduce.
3. Non-living things do not need food, grow, respire, feel or reproduce.
4. Natural things are found in nature.
5. Man-made things are made by man.

Exercises

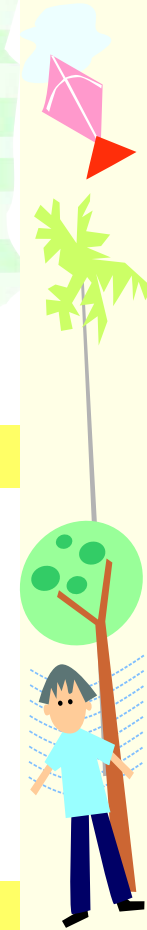
A. Fill in the blanks. Choose the right word from the box .

grow gills food reproduce feel

1. Living things need food to
2. Living things can young ones of their own kind.
3. The green plants can make their own
4. Fish breathe through the
5. Non-living things do not

B. Answer these questions.

1. What are man-made things ?
2. Write six characteristics of living things.
3. Why do animals move from place to place ?
4. What is reproduction ?





C. Name the following.

1. Two living things. ,
2. Two non-living things. ,
3. Two natural things. ,
4. Two man-made things. ,

D. Write N for natural things and M for man-made things.

- | | |
|---------------|----------------------|
| 1. Sun | <input type="text"/> |
| 2. River | <input type="text"/> |
| 3. Television | <input type="text"/> |
| 4. Mountain | <input type="text"/> |
| 5. Bat | <input type="text"/> |

E. Give reasons.

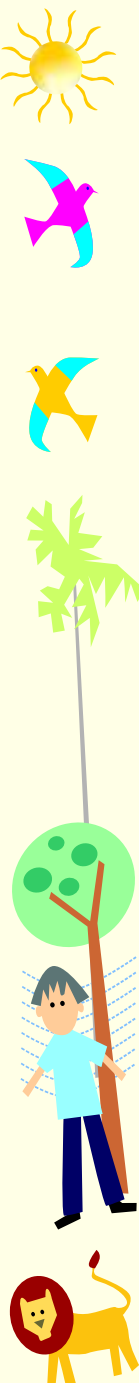
1. Plants do not move in search of food.
.....
.....
2. A table cannot give birth to a small table.
.....
.....

F. Match the columns.

- | A | B |
|-------------------|-----------------|
| 1. Natural | a) Spiracles |
| 2. Man-made thing | b) River |
| 3. Five | c) Energy |
| 4. Food | d) Sense organs |
| 5. Insects | e) Mat |

G. Tick (✓) the right answer and fill in the blanks.

1. The process of giving birth to young one of its own kind by a living thing is called
 a. Respiration b. Reproduction c. Growth
2. Sunflower faces the
 a. Sun b. Soil c. Moon





3. can make their own food.
 - a. Animals
 - b. Birds
 - c. Green plants
4. Living things move in search of
 - a. Food
 - b. Job
 - c. Soil
5. The leaves of plant close when touched.
 - a. Rose
 - b. Lotus
 - c. Touch-me-not

H. Who am I?

1. I breathe through gills.
2. We are tiny holes present on leaves.
3. My leaves fold when you touch me.
4. I live in water as well as on land.

Website for more information

www.slideshare.net/newlearnings/living-and-non-living-things-5188855

Activity

- A. Go outside the classroom and observe things around. Draw and name two living things and two non-living things.
- B. Take a few seeds of *moong* or gram. Sow them in a small pot filled with soil. Water them regularly and observe the growth of seeds into seedlings.

HOTS (Higher Order Thinking Skills)

- A. When a plant grown in a jar is covered with a lid, it dries up. Why ?
 Hint : [Living things need air to breathe.]
- B. Throw a chair. It may break but we don't see it shouting or crying. Why ?
 Hint : [Non-living things do not feel.]

Teacher's Notes The children can be asked to compare the characteristics of living and non-living things from their surroundings. This can be effective in learning the lesson. Ask the children to make a chart on the characteristics and then paste pictures related to them.





2

UNIT 2 : PLANT LIFE

Parts of a Plant

You will learn about

Parts of a plant, functions of various parts and germination.

Key words:

Root : The underground part of a plant.

Photosynthesis : The process of making food by plants.

Germination: The growth of a seed into a seedling.

Upright : Straight.

Stomata : Tiny holes on leaves.



Just as we have eyes, ears, nose, hands and legs, a plant also has many parts.

Parts of a Plant

- ☘ Root
- ☘ Stem
- ☘ Branches
- ☘ Leaves
- ☘ Buds
- ☘ Flower
- ☘ Fruits

Shoot

Leaves

Branch

Stem

Flower

Bud

Fruit

Root

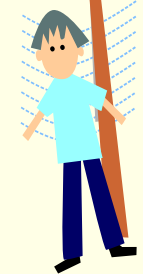
Parts of a plant

The part of a plant which grows above the ground is called the shoot. The part which grows below the ground is called the root. The shoot has stem, branches, leaves, buds, flower and fruits.

Root

Root is the underground part of a plant . It grows below the ground. There are two types of roots :

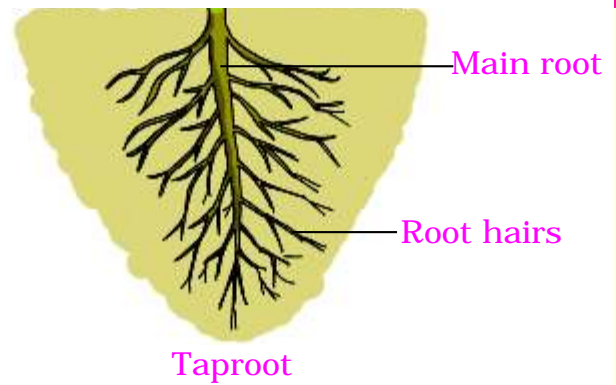
1. Taproot
2. Fibrous root





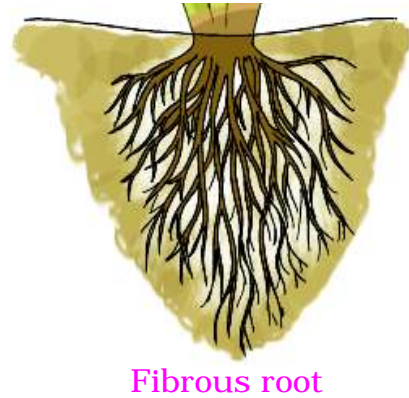
Taproot

Some plants have one main root growing from the end of the stem. From this main root, many roots grow out. The main root is called taproot. Plants like bean, mustard, mango, etc., have taproots.



Fibrous root

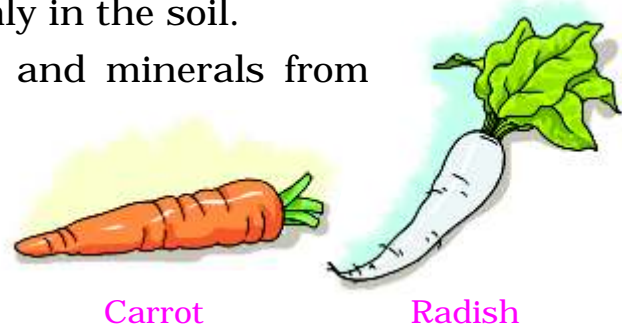
Some plants have thin roots growing out in all directions from the end of the stem. This is called fibrous root. Plants like rice, wheat and onion have fibrous roots.



Functions of root

1. Fixation – Root fixes the plant firmly in the soil.
2. Absorption – Root absorbs water and minerals from the soil.
3. Storage of food – Some plants store food in their roots.

Examples : Radish and carrot.

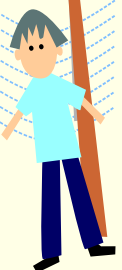
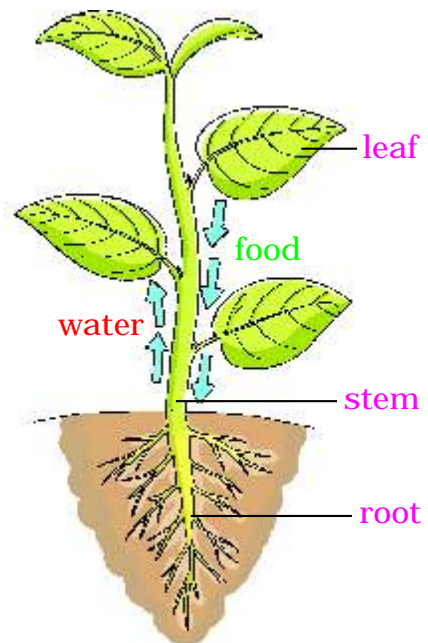


Stem

The part of the plant which grows above the ground is called stem. It bears branches, leaves, flowers and fruits.

Functions of stem

1. The stem keeps the plant upright.
2. It helps in carrying food from leaves to other parts.
3. It also carries water and minerals from the root to other parts of the plant.



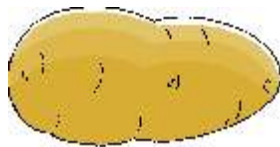


4. Stems of some plants store extra food prepared by the plant.

Examples : Ginger, potato and sugarcane.



Ginger



Potato



Sugarcane

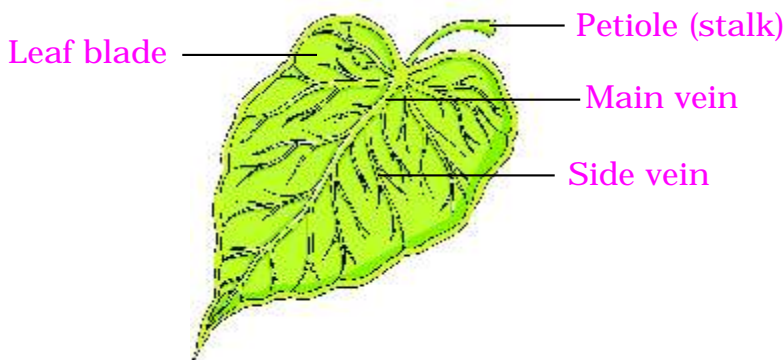
LEAF

Leaves grow on stems. They prepare food for the plant. They are known as the 'kitchen of the plant'.

Leaves are green in colour because they have a pigment called chlorophyll which is green in colour. Chlorophyll gives green colour to leaves.

Parts of a leaf

- ☘ Petiole or stalk
- ☘ Leaf blade
- ☘ Main vein
- ☘ Side vein



Functions of a leaf

In the presence of sunlight, the leaf prepares food for the plant. The green leaf uses carbon dioxide from the air and water from the soil to prepare food for the plant. This process is called photosynthesis.



Plants prepare food only during the daytime. Can you guess why ?

When observed carefully with the help of a magnifying glass, we can see tiny holes present on the lower surface of a leaf. These tiny holes are called stomata. While making food they take in carbon dioxide and give out oxygen. Thus, they clean the air.





Leaves of some plants store food.

Examples : Cabbage, spinach and mint.



Cabbage



Spinach

Flower

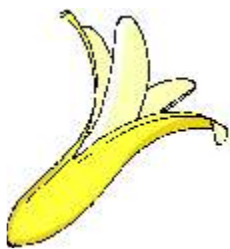
Flowers grow on stems. A flower is the most beautiful part of a plant. It is the reproductive organ of a plant.

Some flowers change into fruits. Flowers are of different shapes and colours.

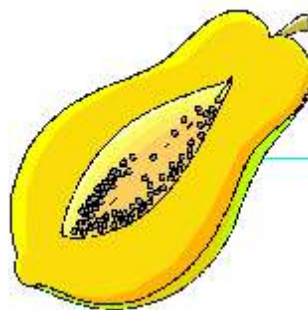


FRUITS

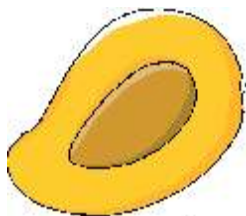
- ☞ Most fruits have seeds inside them. Seeds grow into new plants.
- ☞ Fruits like watermelon, papaya and oranges have many seeds.
- ☞ Fruits like plum and mango have only one seed inside them.
- ☞ Fruits like banana have no seed in them.



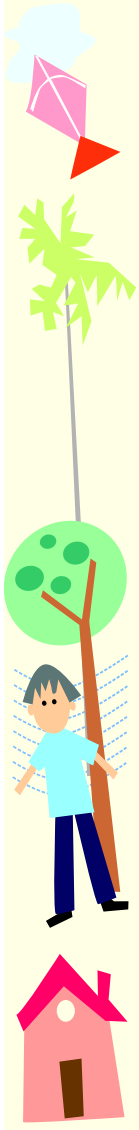
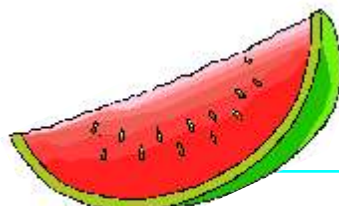
A banana has no seeds.



Papaya and watermelon have many seeds

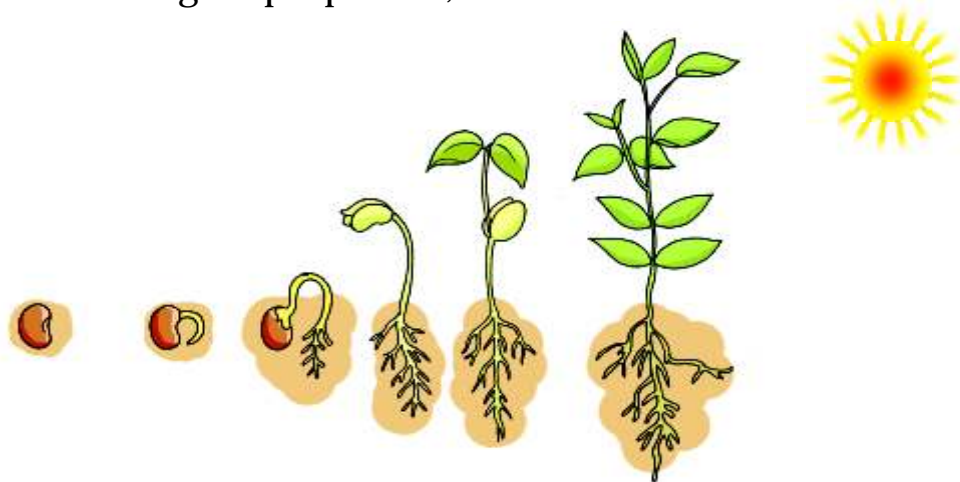


A mango has one seed inside it.





A seed has a baby plant called embryo growing inside it. A seed grows into a new plant when it gets proper air, water and warmth.



The growth of a seed into a seedling is called germination.

Exercises

A. Fill in the blanks. Choose the right word from the box .

leaves fruits food water below seeds root

1. The root grows the ground .
2. The stem helps in carrying and
3. prepare food for the plant .
4. fixes the plant firmly in the soil .
5. Flowers grow into
6. Fruits have inside them.

B. Name the following.

1. Two types of root system. ,
2. Fruits having only one seed inside them. ,
3. Fruits without seeds. ,
4. Fruits with many seeds. ,





C. Recognise me.

1. I am the underground part of a plant.
.....
2. I bear flowers, leaves and fruits.
.....
3. I am known as the 'kitchen of a plant'.
.....
4. I am the most beautiful part of a plant.
.....
5. I carry a baby plant inside me.
.....

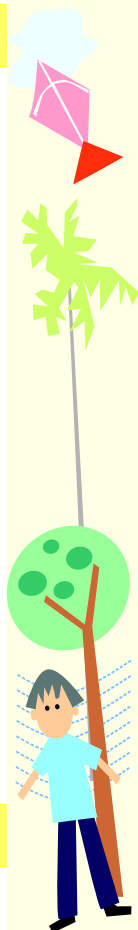
D. Answer these questions.

1. Draw a neat diagram of a plant and name its various parts.

2. Mention two functions of a root
3. What is a stem?
4. What is photosynthesis?
5. Why are leaves known as the 'kitchen of a plant'?
6. Name two stems which are used as food by us.

E. Write true or false.

1. Stem absorbs water from the soil.
2. Chlorophyll is present in the leaves.
3. Stomata help in the exchange of food.
4. A seed has a baby plant inside it.
5. A flower grows into a fruit.





F. Match the columns.

A

1. Chlorophyll
2. Mango
3. Wheat
4. Seed
5. Stomata

B

- a) Fibrous root
- b) Green pigment
- c) Taproot
- d) Exchange of gases
- e) Baby plant

Website for more information

www.botanical-online.com/lasplantasangles.htm

HOTS (Higher Order Thinking Skills)

- A. By looking at the roots, how can you say whether it is the root of an onion plant or a bean plant.

Hint : [Two types of roots are there — fibrous root and taproot.]

- B. Raju has got five vegetables — potato, radish, spinach, peas, tomato in a plate but he is confused. Can you help him find out which parts of a plant are these vegetables?

Hint : [We eat root, stem, leaves, seeds and fruits of different plants.]

Teacher's
Notes

1. Different parts of a plant like root, stem, fruits, flowers, leaves, etc., can be shown to the children by taking them out in the garden.
2. Fibrous root and taproot can be shown in the class.
3. Experiment to show the development of a seed into a new plant can be done in the class and also at home by the children.





TEST PAPER 1

(Based on units 1 and 2)

A. Tick (✓) the right answer and fill in the blanks.

1. Living things need food to
 a. Fight b. Sleep c. Grow
2. breathe through the gills.
 a. Fish b. Horse c. Man
3. Natural things are found in
 a. Factory b. Home c. Nature
4. prepare food for the plant.
 a. Root b. Green leaves c. Stem
5. Cactus is a plant.
 a. Terrestrial b. Aquatic c. Desert

B. Name the following.

1. Two living things. ,
2. Two non-living things. ,
3. Two natural things. ,
4. Two parts of a plant. ,
5. Two types of roots. ,

C. Answer these questions.

1. Give two points of difference between living and non-living things.
2. How can you say plants show movement?
3. What are man-made things?
4. What is photosynthesis?

D. Draw a leaf and label the various parts.

E. Draw two living things and name them.

