

- Root : Base of the plant
- Stem : Main body of the plant
- Leaf : Kitchen of the plant
- Fruits, flowers and seeds
- Pollination of plants

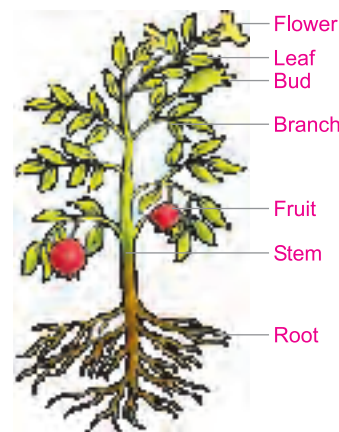


1 Parts and Functions of the Plant

There are many kinds of plants around us. Every plant has a stem, branches, leaves, fruits and flowers. These are called parts of the plant. All these parts are above the ground or soil.

Besides these parts, a plant has one more part. It remains under the ground. It is called **root**. In the figure given alongside, various parts of a plant are shown.

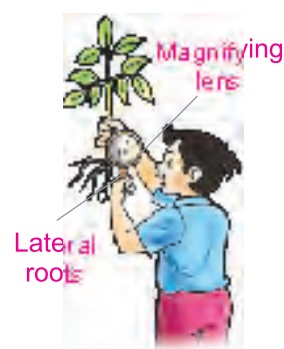
Each part of the plant is important. Each part of the plant performs its own function. Let us study about different parts of the plant.



Parts of the plant

Root : Base of the Plant

Try to pull a plant out of the ground. Can we do it easily? No! Why? Because the roots grip the ground very tightly. From the root, thin hair-like structures spread into the soil and grip it. That's why, when the plant is pulled out of the soil, mud sticks to the roots. The root anchors the plant to the ground.



Roots absorb water and mineral salts from the soil. Pull out a plant and wash its roots with water. Observe these roots under a magnifying lens. At the edges of roots are hair-like structures. These are root hair. These root hair absorb minerals and water from the soil. Let us conduct an experiment.

Do You Know ?

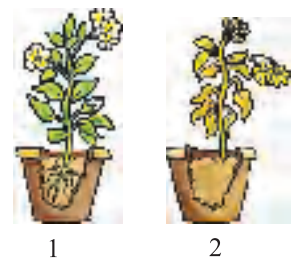
* The roots of carrot, radish, beetroot, etc. have food stored in them. These are called edible roots. We eat these roots as foods.



Experiment

Take two pots and fill them with soil. Also, take two plants of the same kind. Fix one plant with roots into a pot. Cut off the roots of the other plant and put it in another pot. Now, water both the plants.

Check both the plants on the next day. What do you observe ? You see that the plant with the root is standing upright but the one without roots has died. It happened so because in the absence of roots, it could not absorb the mineral salts or the water from the soil.



Stem : Main Body of the Plant

The stem is the main part of the plant. It stays out of the soil. The branches, leaves, fruits and flowers are born out of it only. It keeps the plant stand straight. It transports the water and the minerals absorbed by the roots to other parts of the plant. Let us conduct an experiment.



Remember

* The stems of creepers are very weak. They cannot make a plant stand upright.



Experiment

Take a balsam plant. Pull it out of the ground carefully along with the roots. Wash its roots thoroughly with water.

Take a glass beaker and fill water in it. Put 2-3 drops of red ink into it. You will see that the water in beaker is turned red. Now put this plant in the jar in such a way that only its roots are submerged in the water. After some time, you will notice that the leaves and branches of the plant

have become red. This proves that the absorbed water reaches the leaves and branches through stem only. Now, Let us find out how did this happen.



1



2



Take the plant at of the jar. Cut its stem with a knife. Observe the cut portion with a magnifying lens. You will find red spots on the cut portion. These are the cut parts of those tubes which transport the water to other parts. These tubes are called 'xylem'.

This proves that the tubes present in the stem transport water and minerals to other parts of the plant.

Leaf : Kitchen of the Plant

The leaf is the most important part of the plant. The shapes and sizes of all the leaves are different. Most of the leaves are green in colour but some leaves may be of yellow, brown and red colours also.

A leaf looks very thin. It is made up of innumerable thin and small cells, stacked over each other. Some of these cells are green in colour due to the presence of a pigment called **chlorophyll**. This is that part which makes the food for the plant.



Construction of a leaf

Experiment

Take a peepal leaf. Look at it in the sunlight. You will see a network of thin lines. These lines are the veins of the leaf. The water and minerals got from the stem is transported through these veins to all the parts of the leaf.



Just as we prepare our food in the kitchen, the green leaves prepare food for the plant in the presence of sunlight. The food is prepared by carbon dioxide, water and minerals with the help of chlorophyll. This process is called **photosynthesis**.

In the process of photosynthesis, the plants release oxygen. This oxygen mixes with the air and purifies the atmosphere. It is very much required by the living beings to stay alive.

The extra food prepared by the leaves is stored in different parts of the plant, as roots, stem, leaves, fruits, etc.

The extra water absorbed by the roots is released by the leaves as water vapour. Come, let's understand this by an experiment.



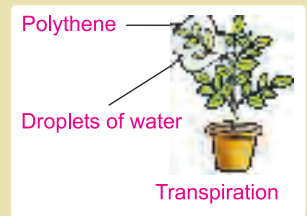
Photosynthesis

Experiment

Take a green potted plant. Cover one branch of the plant along with leaves in a polythene bag and tie it by a thread carefully.

Now, keep the plant in the sun for some time. After nearly 2 hours, you will see some water droplets in the polythene bag. Where do these droplets come from ?

These drops are the extra water released by the leaves as water vapour.



At the lower surface of the leaves are many small holes. These are called **stomata**. The water vapour comes out of the leaves through these stomata only. This process is called **transpiration**.

Leaves breathe in oxygen and breathe out carbon dioxide through these stomata only.



Remember

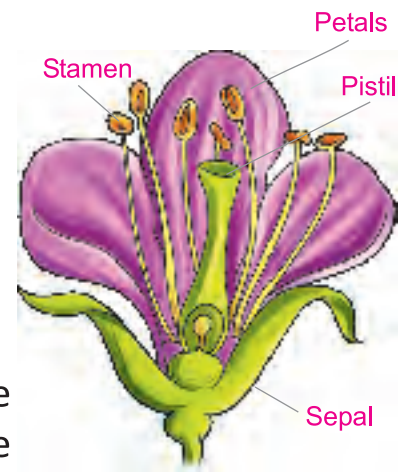
* Never sleep under a tree at night.

Fruits, Flowers and Seeds

The flower is the most attractive part of the plant. It attracts butterflies, bees and bumblebees towards itself. The flower has four parts – sepals, petals, stamen and pistil.

The green, leaf – like parts in the outermost circle of a flower are called **sepals**. They protect all the parts of the flower in the bud stage.

Above the sepals are colourful **petals**. In the centre of the petals are **stamen** and **pistil**. The stamen produces the **pollen grains**.



Parts of the flower

Flowers develop into fruits. Fruits have seeds inside them. A new plant is born from the seed. In the seed is stored food to feed the baby plant.

Dispersal of Seeds

Dispersal means to spread. In the rainy season, you must have seen small plants growing at different places. Where do these plants come from? Fruits contain seeds. When a fruit becomes ripe, its seeds fall to the ground. This leads to growing of new plants.

Dispersal of seeds is done through many mediums, such as :

1. Dispersal by wind : The seeds of some plants are very light and have wings or hair. These are carried by wind from one place to another. Cotton and oak seeds are two such examples.



The seeds of drumstick, fir and maple plants have wings. These too are also spread around by air.

2. Dispersal by water : Some seeds are dispersed by water. Seeds such as coconut are carried far away by the water.

3. Dispersal by animals : Some seeds are dispersed by animals, such as gokhru, thorn-apple, poppy, etc. Its seeds are pointed and have hooks by which they stick to the fur of animals or the clothes of humans. This way they are carried far away.

Some fruits are eaten by animals, but the seeds are not digested. These undigested seeds come out with animal excreta. Sometimes, the seeds are carried away in the beaks of birds. These seeds fall out and grow up as plants.

Sometimes, on a tree or in the cracks of walls, another plant grows. The seeds of such plants reach up to this height through birds only.

4. Self dispersal : Sometimes, on ripening, a fruit bursts open and the seeds are scattered all around. Beans, lady's finger, peas, grams, etc. are its examples.



Coconut floating in water



Hooked and pointed seeds



Bursting



Looking Back.....

- ❖ Every plant has parts like root, stem, branches, leaves, flowers and fruits.
- ❖ Every part does its own work.
- ❖ Roots absorb water and minerals from the soil.
- ❖ The stem anchors the plant and keeps it standing upright.
- ❖ The stem transports the water and minerals absorbed by the roots to the different parts of the plant.
- ❖ In the sunlight, leaves take carbon dioxide from air, and water and minerals from the soil to prepare food in the presence of chlorophyll.
- ❖ Leaves release the excess water through the stomata. This is called transpiration.
- ❖ A flower has four parts – sepals, petals, stamen and pistil.
- ❖ The fruits are made from flowers. A new plant is born from the seed which is inside the fruit.
- ❖ Seeds are dispersed through different mediums.



Exercise

A. Tick (✓) on the correct option : (MCQs)

- What do the roots absorb from the soil ?
 (a) Oxygen (b) Water and minerals (c) Both
- To make food, what do the leaves need ?
 (a) Carbon dioxide (b) Sunlight and water (c) All of these
- Which are the parts of a flower ?
 (a) Sepals and petals (b) Stamen and pistil (c) All of these
- We should not sleep under trees at night because :
 (a) ghosts live on trees (b) trees perform transpiration
 (c) trees release carbon dioxide

B. Answer the following questions :

- What are root hair ? What are their functions ?
- How do the leaves prepare the food for the plant ?
- What is transpiration ? Prove the process by an experiment.
- What are the different parts of a flower ? Describe through illustrated examples.
- What are the different mediums for dispersal of seeds ?

C. Fill in the blanks by selecting the correct words :

- _____ anchors the plant in the soil.
- The green pigment present in the cell of a _____ is called chlorophyll.
- Leaves breathe through _____.
- Some seeds are dispersed by _____.

Roots/Stem
leaf/flower
veins/holes
animals/men

D. Match the following :

- | | |
|-----------------------------------|-----------------------------|
| A | B |
| 1. Root hair present on the roots | do not have the same shape. |
| 2. Stem anchors | burst open. |
| 3. All the leaves | the plant. |
| 4. On ripening, some fruits | absorb water and minerals |




Creative Task

Do the following :

- Collect hooked, hairy and winged seeds found in your surroundings and label them.
- How does the coloured water reach the various parts of the plants ? Find through an experiment.

Investigation :

-  For more information about plant and its parts, log on to :
<http://en.wikipedia.org/wiki/photosynthesis>