

5

Plants in the Surrounding



Hi, I'm EeeBee

We'll cover the following key points:

- Parts of a Plant
- Structure of a Seed
- Germination
- Care for Plants

Do you Remember:

Fundamental concept in previous class.

In class 2nd we learnt

- Parts of Plant

Still curious?
Talk to me by
scanning
the QR code.



Learning Outcomes

By the end of this chapter, students will be able to:

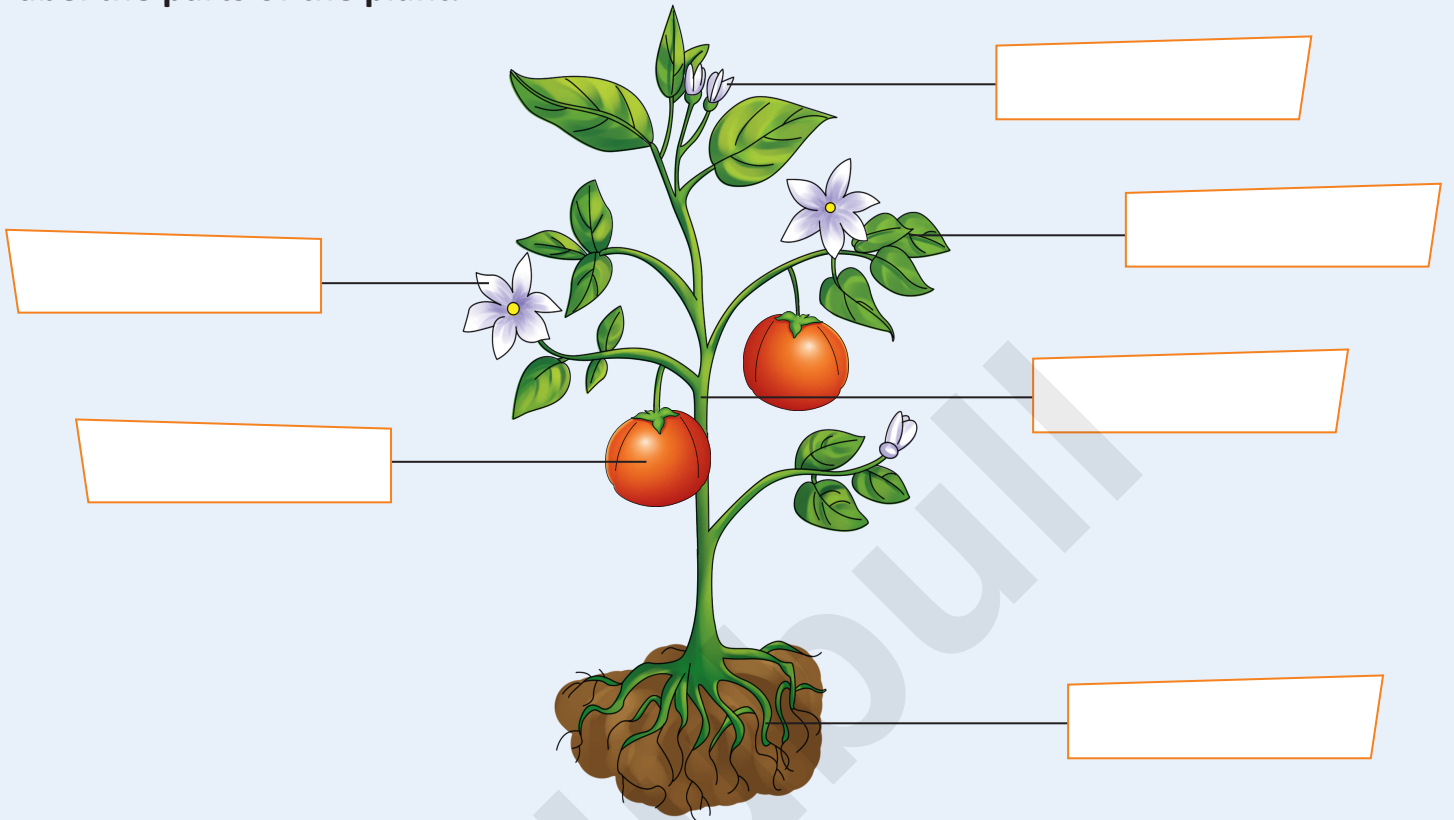
- Understand the importance of plants in the surroundings and their role in maintaining life on Earth.
- Identify and describe the different **parts of a plant**, including roots, stem, leaves, flowers, and fruits, and their specific functions.
- Learn about the **structure of a seed** and its role in the growth of a new plant.
- Explore the process of **germination** and understand the conditions necessary for a seed to sprout and grow.

Guidelines for Teachers

The teacher can start the chapter by introducing the topic of **Plants in the Surrounding**, highlighting the vital role plants play in the environment and daily life. Discussions can focus on identifying the parts of a plant, their functions, and the fascinating process of germination. The teacher can also explain the structure of a seed and emphasize the importance of taking care of plants to promote their growth and environmental benefits for future generations.



Label the parts of the plant.

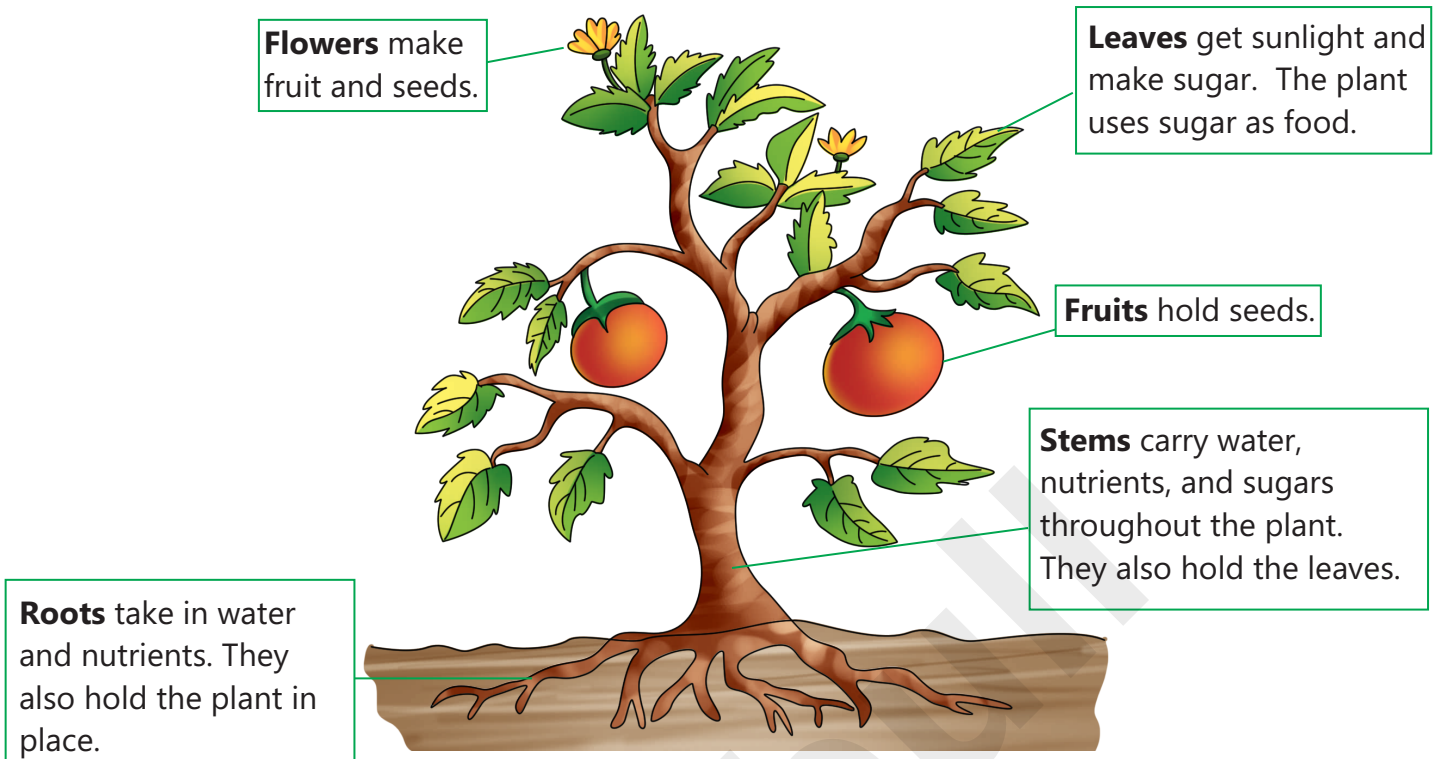


Fun Fact

Rhizobium is a special type of bacteria that helps plants grow better. It lives in small round bumps on the roots of plants like peas, beans, and lentils. Rhizobium takes nitrogen from the air and gives it to plants as food, making the soil rich and healthy. It's like a tiny gardener helping plants grow big and strong!

Plants are one of the most important living things as they can prepare their own food. All other living beings depend on plants for food directly or indirectly.

Parts of a Plant



Parts of a Tomato plant

There are several parts of the plant and each part has its own work to do. All these parts work together to keep the plant alive. There are two main parts of plant- the root and the shoot

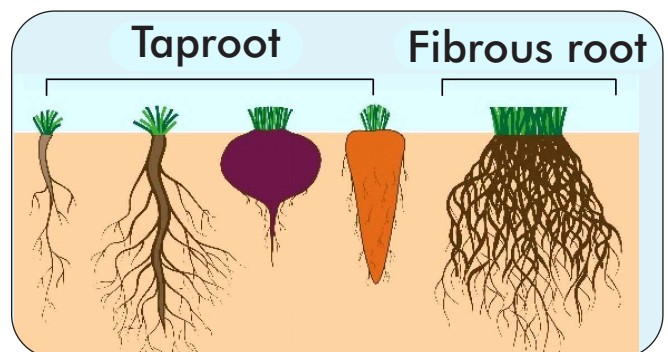
The Root

The part of the plant that grows under the soil is called the root. Different plants have different types of roots.

There are two types of roots-taproot and fibrous root.

1. Tap root is the thick main root below the stem that goes deep into the soil and several thinner side roots grow from the main root. Plants like beans, carrot, hibiscus, beetroot, mustard and mango have tap roots

2. Fibrous roots have a number of tiny roots attached to the end of the stem. It looks like a bunch of roots. Plants like grass, wheat, rice, onion and banana have fibrous roots.



Functions of roots

- ✦ Roots hold the plant firmly to the soil and support the stem above.
- ✦ Roots absorb water and nutrients from the soil that the plant needs to grow and stay healthy.
- ✦ Roots even store food for the plant such as carrot, radish and beetroot to use in the future.

The Shoot

The part of plant that grows above the soil is called the shoot. Stem, branches, leaves, flowers and fruits are all part of shoot.

The Stem

The main part of the shoot is the stem. Branches, leaves, flowers and fruits grow on stem. Some plants have soft stem (banana tree) and some have hard stem (mango tree and banyan tree). Hard stem is called trunk.

Functions of Stems

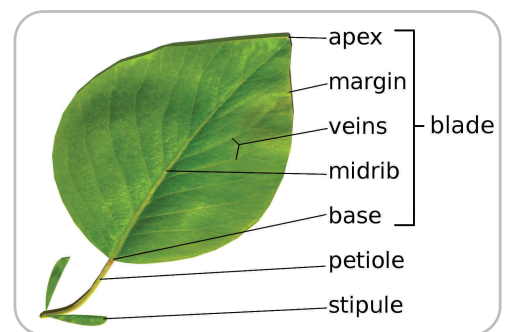
- ✦ Stem makes the plant stand upright.
- ✦ It carries water and nutrients from the roots up to the rest of the plant.
- ✦ It also carries the food made by leaves to all parts of the plant.
- ✦ In sugarcane, the food made by the plant is stored in the stem. Onion, ginger and potato are underground stem which also store food.

The Leaves

The leaves are responsible for making food for the whole plant to eat. They are of different shapes and sizes. Most of them are green in colour due to the presence of a green pigment called **chlorophyll**.

Structure of a leaf

The flat part of a leaf is called lamina or leaf blade. It consists of a main vein that passes through the middle of the leaf called midrib and several small veins that form a network and carry water and minerals to all parts of the leaves. The petiole attaches the leaf to the stem or branch. The lower side of the leaf has many tiny openings called stomata. Air enters the leaf through the stomata. The leaf takes in carbon dioxide through the stomata.



Functions of Leaves

- ✦ Leaves are called the “food factories” of a plant. They use sunlight, water (from the stem) and carbon dioxide (from the air) to make food for the plant by the process called **photosynthesis**. The food made by leaves is sent to all parts of the plant through the stem.
- ✦ While making food, the leaves give out oxygen that is important for human being and animals to breathe.
- ✦ In some plants, food is also stored in leaves such as cabbage and spinach.



Flowers

Flowers are the most colourful and beautiful parts of the plant. They are of different colours, shapes and sizes. They have a very pleasant smell to attract insects. They develop from a small bud and change into fruits later. Flowers are important to a plant as they help it to reproduce to produce more of its kind.

Fruits

A flower turns into a fruit. Fruit is the fleshy eatable part of the plant containing seeds. Different fruits contain different types and number of seeds. An apple contains a few small seeds, while a mango contains a single large seed. Papaya and pomegranate contains many small seeds.

The function of a fruit is to enclose and protect the seeds. Most of the fruits are eaten by us such as orange, mango, apple, banana, strawberry, cherry etc.

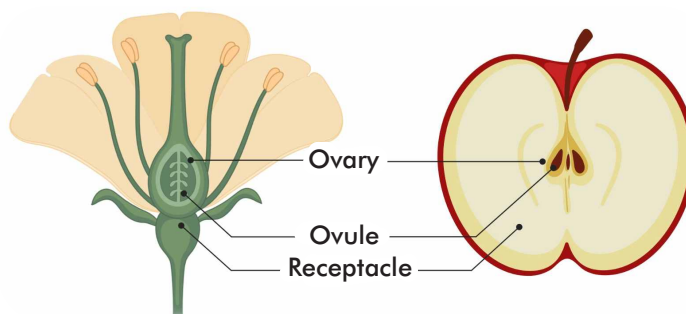


Seeds

Seeds are the part of the plant that gives rise to a new plant. A seed is made up of different parts (cotyledon, seed coat, embryo). They are mostly enclosed within the fruits.

Did you know ?

Strawberry is the only fruit that bears its seeds on the outside. The average strawberry has 200 seeds!



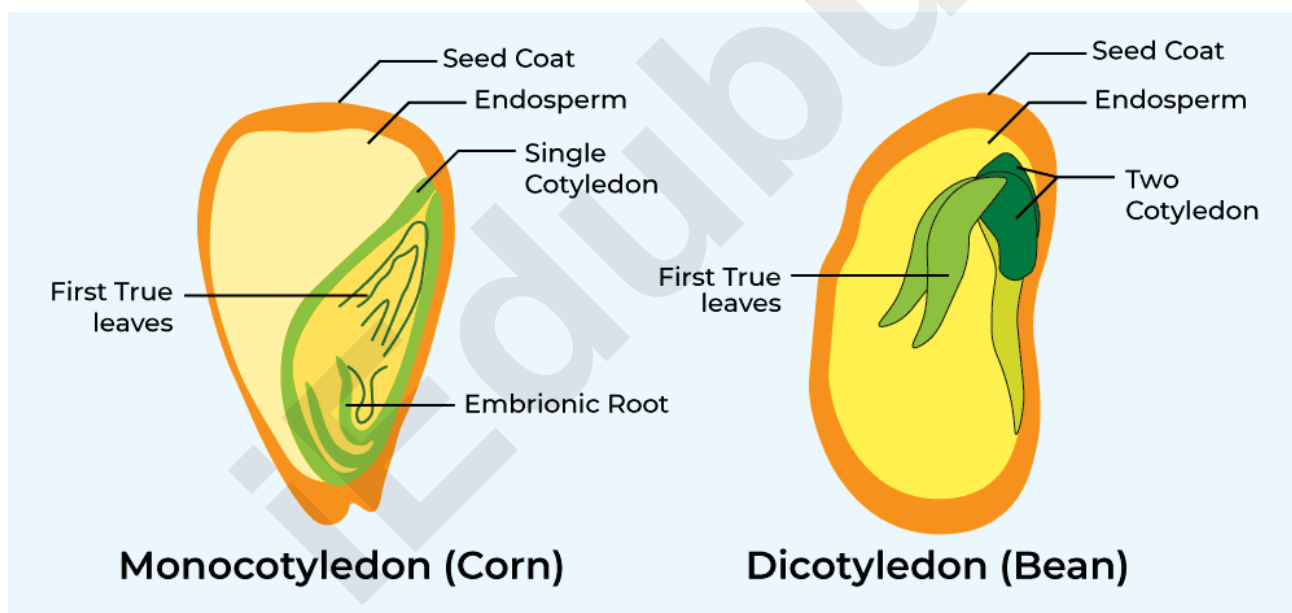
Write 'T' for true and 'F' for false statements.

1. Beans, carrots, hibiscus, beetroot are the examples of taproot.
2. Shoot grows above the soil.
3. Roots carry food made by leaves to all parts of a plant.
4. Flowers change into the fruits.
5. Air enters the leaves through stomata.

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Structure of a Seed

A seed contains seed leaves or cotyledons which have a baby plant inside it called the embryo. The cotyledon stores food for the growing embryo. The outer covering of the seed is called the seed coat which is generally hard and protects the seed from damage.



Plants are classified according to their seeds.

✦ Seeds with two seed leaves or cotyledons are called dicotyledons. Gram, kidney beans, pea, mango are some examples of dicot seeds.

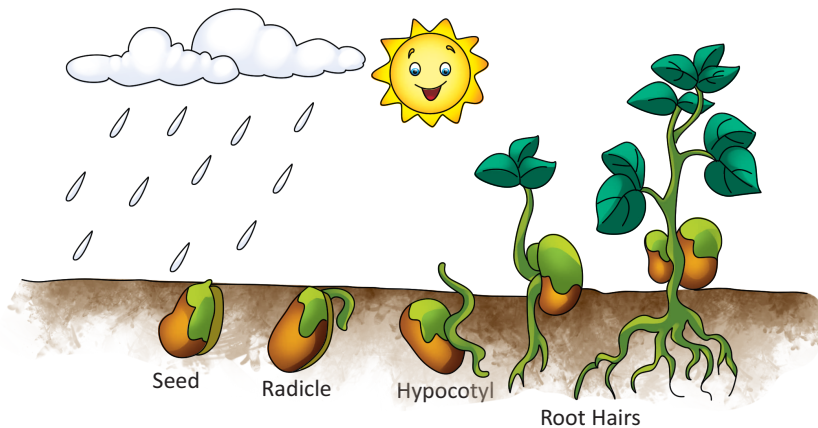
✦ Seeds with one seed leaf are called monocotyledons. Wheat, maize, rice, sugarcane are some examples of monocot seeds.

Did you know ?

Bamboo is the fastest-growing woody plant in the world; it can grow 35 inches in a single day!

Germination

The growth of a seed into a young plant or a seedling is called germination. When the seed gets enough light, air, water, soil and warmth (sunlight), a tiny plant grows out (germinate) of it. Not all seeds germinate into new plants. Some are eaten up by birds and insects; some get destroyed by rain or wind; while some do not get the right conditions for germination.



Did you know ?

- ✦ An average size tree can provide enough wood to make 1,70,100 pencils!
- ✦ Bananas contain a natural chemical which can make people feel happy!
- ✦ The first potatoes were cultivated in Peru about 7,000 years ago!

Care of Plants

We should take care of plants because plants help us in many ways, like:

- ✦ Plants provide us food and clean the air.
- ✦ Plants give us wood, medicines, cotton and many other things.
- ✦ Plants maintain carbon-di-oxide - oxygen balance in air.

Thus, we should protect the plants in order to keep on enjoying all the benefits.

1. Plants need water to grow. So water the plants regularly otherwise it will die.
2. Plants should be placed in such a way that they receive enough sunlight.
3. Plant leaves should be cleaned regularly so that plants breathe easily.



CHECK 'N' MATE

Critical Thinking

Answer the following questions:

1. What is called embryo?
2. What is dicotyledons?
3. What is monocotyledons?
4. Write any two ways to care of plants.



In a Nutshell

- ✦ A plant has two main parts – the root and the shoot.
- ✦ The root takes in water and minerals from the soil and the shoot consists of the stem, leaves, buds, flowers and fruits.
- ✦ The root fixes the plant firmly to the soil.
- ✦ The stem holds the plant upright and straight.
- ✦ The leaves prepare food for the plant.
- ✦ Flowers change into fruits. Fruits contain seeds.
- ✦ The seed has a tiny plant in it that germinates into a new plant when it gets the right amount of air, water, soil, warmth, nutrients and temperature.
- ✦ We should take proper care of plants.



Key Words

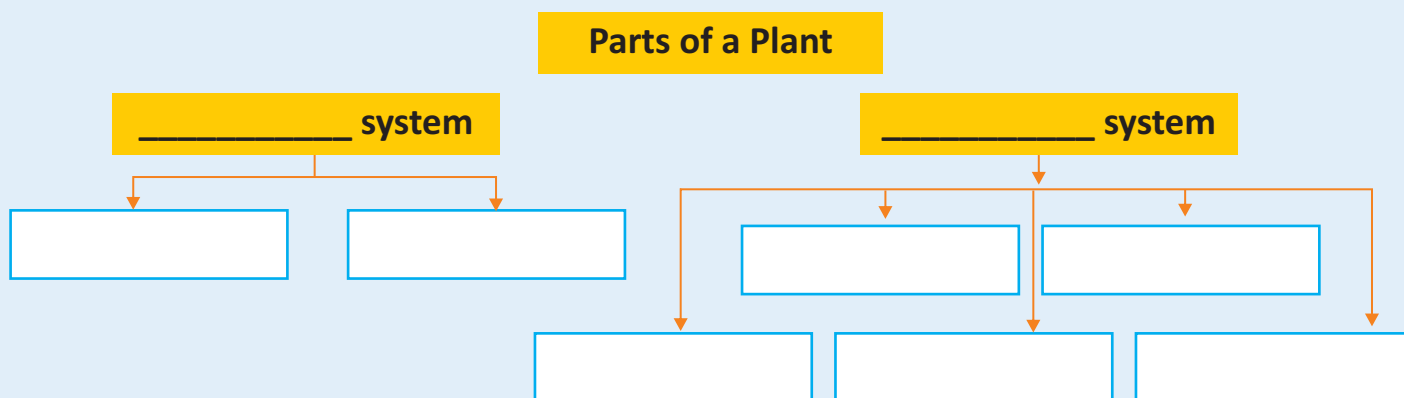
Shoot	:	The part of the plant grows above the soil
Trunk	:	Hard stem
Chlorophyll	:	A green pigment presents in plant
Stomata	:	Many-tiny openings on the lower side of a leaf
Dicotyledon	:	Seeds with two seed leaves
Mono cotyledons	:	Seeds with one seed leaf

Improving Vocabulary

Time to Recall

Remembering and Analysing

Recall and complete the concept map given below:





Gap Analyzer™
Take a Test



EXERCISE

That turn curiosity into confidence—let's begin!



A. Tick (✓) against the true statement and (X) against the false one:

1. The stem helps the plant to stand upright.
2. The stem carries water to the leaves.
3. Generally, roots grow above the ground.
4. Air enters the leaf through the main vein.
5. Plants get water and salts from the soil.

B. Fill in the blanks:

1. _____ root system is seen in a mustard plant.
2. _____ is the flat part of a leaf.
3. Plants give out _____ while making food.
4. _____ is an underground stem that stores food.
5. The food made by leaves is sent to all parts of the plant through the _____.

C. Very Short Answer Questions:

I. Which part of a plant am I?

1. I grow below the soil.
2. I support the leaf.
3. I have beautiful coloured petals.
4. I protect the seeds within me.

II. Name them:

1. A plant having tap roots.
2. A plant having fibrous roots.
3. A part of a plant bearing branches, leaves, flowers and fruits.
4. A plant breathes through their tiny holes.
5. The flat part of a leaf.
6. A gas which comes out during photosynthesis.

C. Short Answer Questions:

1. What are the two main parts of the plant?
2. What is photosynthesis?
3. Why are flowers an important part of the plant?
4. What are seeds? Mention its different parts.
5. What is an embryo?
6. Define germination.

D. Answer the Following Questions:

1. Differentiate between tap root and fibrous root.
2. What are the different functions of root?
3. What are the different functions of the stem?
4. Describe the structure of a leaf with the help of a neat labelled diagram.
5. Differentiate between monocot and dicot seeds.
6. Write the ways in which we can take care of the plants.



Time to Apply

Applying and Creating

Simi accidentally ate some orange seeds .Will these seeds grow into an orange tree inside her stomach? Why or why not?



Time to Discuss

Pondering and Communicating

1. It is beneficial to sleep under a tree during the day, but not at night, Why?
2. If a leaf is covered with a black paper can it make its food? Why or why not?



Time to Observe

Observing, Critical Thinking, Analysing

Go on a “field trip” around the school campus. Have students collect leaves as they walk around the campus. Ask students to sort the leaves by shape when they return to the classroom. Ask students if they can tell which leaves come from a monocot plant and which leaves come from a dicot plant (monocot plants have parallel venation whereas dicot plants have net venation).



Time to Create

Creating and Collaborating

Collect samples of any 10 things we use at home, that are obtained from plants and make an album. You could even get labels for pasting.