8

Plants

Prior Knowledge

In the previous classes, I have learnt that

- A large variety of plants exist around us.
- Plants make their own food by the process of photosynthesis.
- A plant has different parts and each part has a specific and important role to play.
- We are dependent on the plants for all our needs.

Learning Objectives

In this chapter, I will learn about:

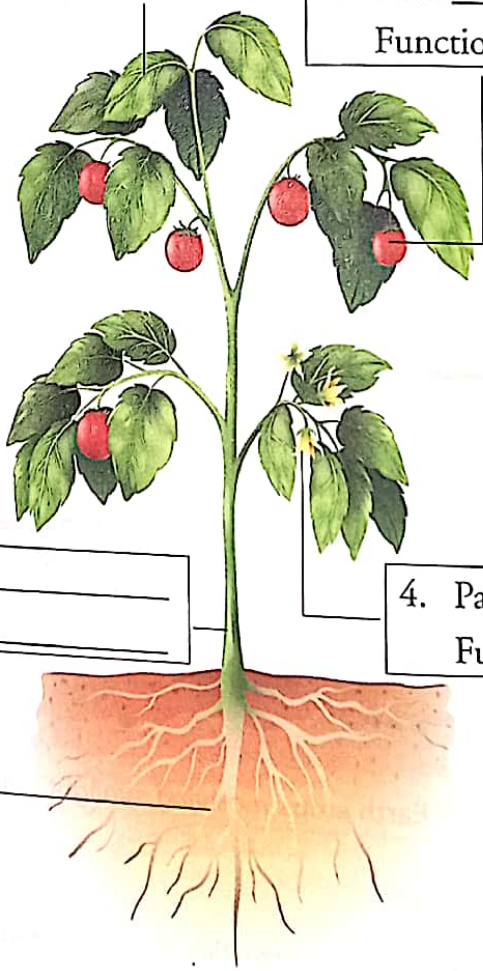
- Different kinds of plants
- Parts of a plant, their functions and modifications
- Pollination

Let's Get Going

Label the parts of the plant in the picture given below. Also, write one function of each part.

1. Part: _____
   Function: _____

2. Part: _____
   Function: _____



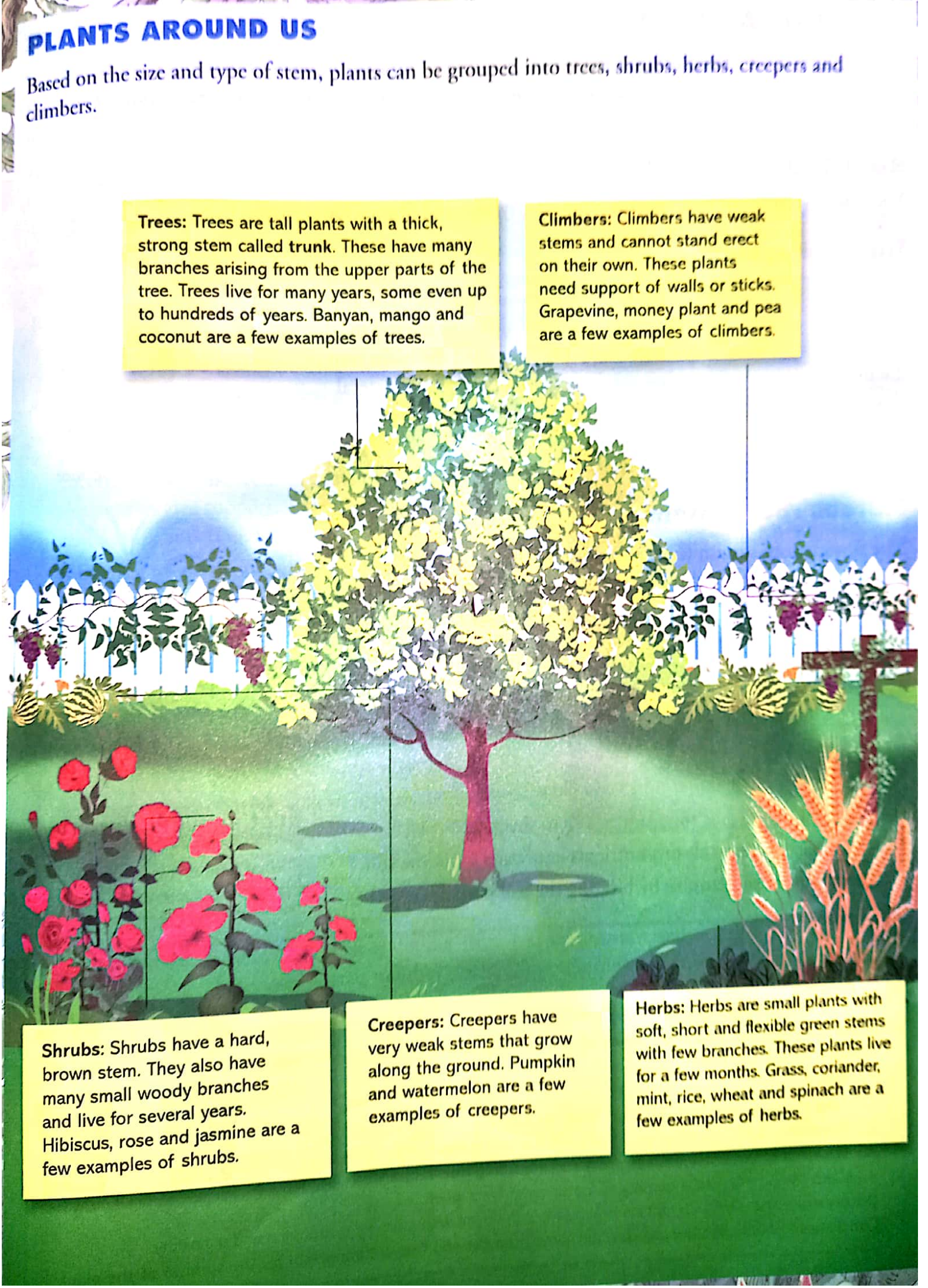
3. Part: _____
   Function: _____

4. Part: _____
   Function: _____

5. Part: _____
   Function: _____

PLANTS AROUND US

Based on the size and type of stem, plants can be grouped into trees, shrubs, herbs, creepers and climbers.



Trees: Trees are tall plants with a thick, strong stem called **trunk**. These have many branches arising from the upper parts of the tree. Trees live for many years, some even up to hundreds of years. Banyan, mango and coconut are a few examples of trees.

Climbers: Climbers have weak stems and cannot stand erect on their own. These plants need support of walls or sticks. Grapevine, money plant and pea are a few examples of climbers.

Shrubs: Shrubs have a hard, brown stem. They also have many small woody branches and live for several years. Hibiscus, rose and jasmine are a few examples of shrubs.

Creepers: Creepers have very weak stems that grow along the ground. Pumpkin and watermelon are a few examples of creepers.

Herbs: Herbs are small plants with soft, short and flexible green stems with few branches. These plants live for a few months. Grass, coriander, mint, rice, wheat and spinach are a few examples of herbs.

PARTS OF A PLANT

A plant body can be broadly classified into two main parts—root system and shoot system. *The parts of the plant found below the ground are called the root system. The parts of the plant found above the ground are called the shoot system.*

Root System

There are two types of root systems—tap root system and fibrous root system.

Tap root system

Tap root (Fig. 8.1) is a single root that comes out from the seed after germination. Tap root grows vertically downwards into the soil to obtain water from deep down the soil. It is also called the **main root** or the **primary root**. It gives out several smaller branches called **lateral roots** or **secondary roots**. Plants such as neem, mango, pea, carrot, radish, turnip and mustard have tap roots.

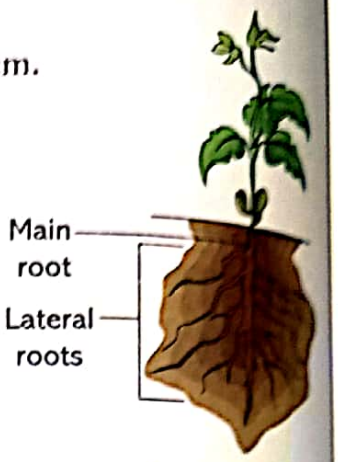


Fig. 8.1 Tap root

Fibrous root system

The fibrous root system (Fig. 8.2) does not have a single main root. It has a cluster of thin fibre-like roots that develop from just below the stem. These roots do not grow very deep into the soil. Plants such as maize, wheat, sugarcane, rice and grass have fibrous roots.

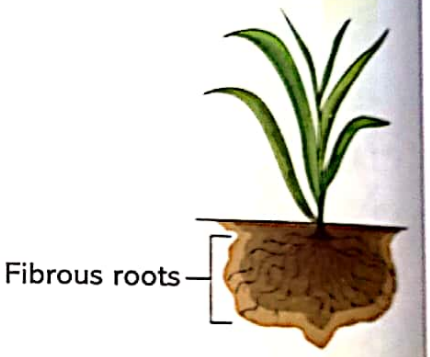


Fig. 8.2 Fibrous root

Functions of roots

Some functions of the roots are given below.

- Roots hold or anchor the plant firmly to the soil.
- Roots help plants to absorb nutrients and water from the soil.
- Roots prevent soil erosion by binding the soil particles together.

Let's Investigate

What type of roots do desert plants have and why?

Let's Try

Aim: To find out the importance of roots

Materials required: Two small plants of the same type, two pots filled with soil, scissors, shovel and water

Procedure:

1. Take two pots with soil and mark them as a and b.
2. Plant one of the plants in pot A without damaging the roots.
3. Cut off the roots of the other plant and plant it in pot b.
4. Keep the pots under sunlight and water them for a week.

Observation: The plant with roots is healthy while the plant without roots is drooping and unhealthy.

Conclusion: Roots absorb water and nutrients from the soil that are important for the survival of the plant.

Modifications of roots

In some plants, roots are modified to perform special functions according to the needs of the plant. Some of the root modifications are given below.

1. **Food storage:** Roots of some plants become fleshy to store food. Carrot, beetroot, radish, turnip and sweet potato are some of the modified roots that we eat as food (Fig. 8.3).

Fig. 8.3 Roots modified for food storage

2. **Extra support** In plants like the banyan tree, a large number of roots are produced from the upper part of the stem or from the branches. These roots grow downwards and penetrate the soil to provide support. These roots are called **prop roots** or **aerial roots** (Fig. 8.4). In plants such as maize, sugarcane and coconut, roots arise from the base of the stem to give support. These are called **stilt roots** (Fig. 8.5).

Fig. 8.4 Prop root

Fig. 8.5 Stilt roots

3. **Breathing roots:** Mangrove plants (Fig. 8.6) grow in wet, salty areas in the coastal regions. Soil in such reasons has very little oxygen. Thus, these plants have special roots called **breathing roots** or **pneumatophores.** These breathing roots grow vertically upwards from the underground roots of the plants. These roots come out of the water like conical spikes. These roots have pores for exchange of gases.

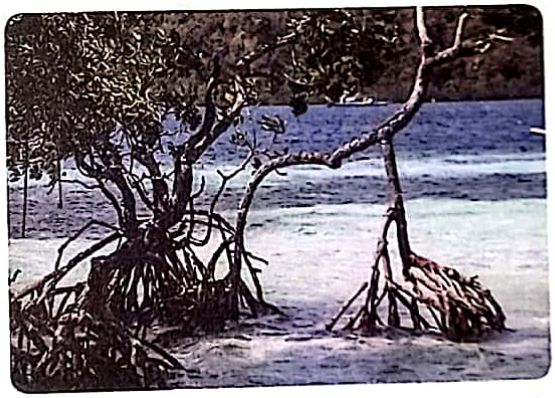


Fig. 8.6 Breathing roots

4. **Climbing roots:** Plants having weak stems such as betel, black pepper and money plant have special roots arising from their stem nodes. These roots help the plant to climb up a support such as a wall, rock and tree (Fig. 8.7).

5. **Parasitic roots:** Some plants such as dodder (Fig. 8.8) that cannot make their own food have parasitic roots. These roots attach to other plants for obtaining nutrients and water from them.

Fig. 8.7 Climbing roots of a money plant

Fig. 8.8 Dodder