Chapter 7

Getting To Know Plants

Introduction To Plants

Plants are immovable living organisms that are present around us. They are essential for sustaining life on earth by providing the oxygen gas that we breathe.

Classification of plants:

♦ **On the basis of the presence of flower:**

1. Flowering plants –The plants which bear flowers are called flowering plants or Angiosperms. For example, Ex: Sunflower, mango, etc.

2. Non-Flowering plants – The plants which do not bear flowers are called non-flowering plants or Gymnosperms. For example, Money plant.

Money Plant

♦ **On the basis of Height, stem type, and branches:**

1. Herbs
2. Shrubs
3. Trees
4. Climbers
5. Creepers

Herbs, Shrubs, And Trees

Herbs:

- Stems are soft, green, and tender.
- Herbs are small plants and may not have many branches.
- They have a short life span (may live for only one or two seasons).
- Example: Tomato, mustard, radish, sunflower, wheat, etc.

Wheat Plant

Shrubs:

- Shrubs are medium-sized plants bigger than herbs.
- They have hard and woody stems. Stems are not very thick.

• Shrubs develop branches near the base of the stem.

• For example, Rose, jasmine, croton, bougainvillea, etc.

Rose Plant

Trees:

• The plants which are very tall and have hard and thick woody stems are called trees.

• The stems have branches in the upper part, much above the ground.

• The trees have one main stem called a trunk.

• For example, Mango, palm, teak, oak, sandalwood, coconut, banyan, eucalyptus, etc.

Mango tree

Climbers:

• A plant having thin and weak stems which cannot stand upright on its own but take support (of a tree or fence) and climb up are called climbers.

• They have a special organ for climbing called tendrils.

• Some climbers have stem tendrils and some have leaf tendrils.

• The tendrils wind themselves around any neighboring object and help the plant to climb up.

• For example, Money plant, pea plant, bitter guard, bottle guard, etc.

Pea Money Plant

Creepers:

• A plant having thin and weak stems which cannot stand upright but spread on the ground is called Creeper.

• Creeper plant has no special organ for climbing.

• For example, Strawberry, pumpkin, and watermelon, etc.

Pumpkin Water-melon

Stem

The part of a plant that rises vertically up from the ground is called the stem.

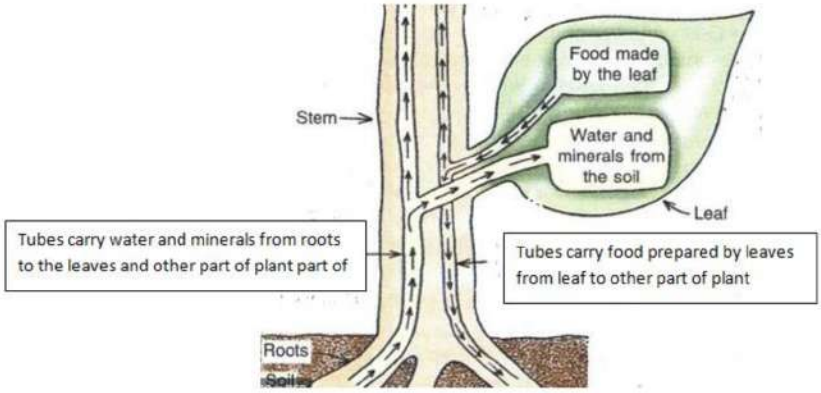
Functions of stem:

• The stem holds the plant upright.

• Stem bears and supports branches, leaves, flowers and fruits.

• The stem carries water and minerals from the roots to the leaves and other parts of the plant.

• The stem carries water and minerals from the roots to the leaves and other part of plant.



Transport of food, water and minerals in stem

Leaf

The leaf is a flat, thin, narrow broad green part of the plant.

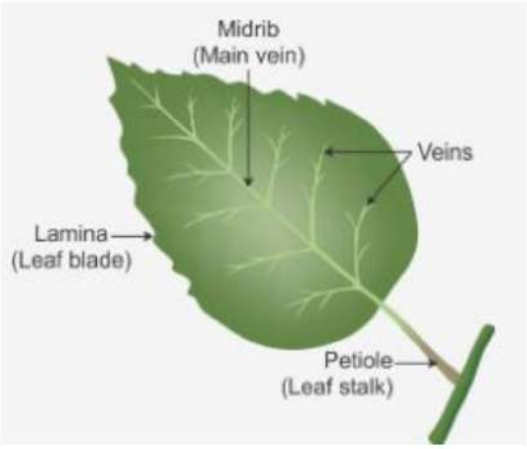
Functions of leaf:

• The leaves make food for the plant by the process of photosynthesis. So, they are called the food factory of the plant.

• The leaves get rid of excess water from the plant through transpiration.

• The leaves carry out the process of respiration in plants.

Part of leaf:



• Lamina: The broad, green part of the leaf is called lamina or leaf blade.

• Veins: The thin lines on the leaf are called veins.

• Midrib: The prominent line in the middle of the leaf is called mid-rib or main vein.

• Venation: The arrangement of veins in the lamina (leaf blade) is known as venation. Venation helps in the transport of food and water.

Reticulate Venation	Parallel Venation
In reticulate venation, the veins in a leaf form a net-like design on both sides of midrib.	In parallel venation, the veins in a leaf run parallel to one another.
Example: Pea plant, neem tree, tusli, marigold, mustard, etc. 	Example: Wheat, rice, maize, mullet, sugarcane, banana, bamboo, etc. 

Photosynthesis: The process by which leaves prepare food for the plant is called photosynthesis. The green leaves of plant combine carbon dioxide and water in the presence of sunlight and prepare food (in the form of glucose) and oxygen.

Transpiration: Water comes out of leaves in the form of vapour by a process called transpiration. Plants release a lot of water into the air through this process.

Root

The root is the part of a plant that grows below the ground (i.e. under the soil).

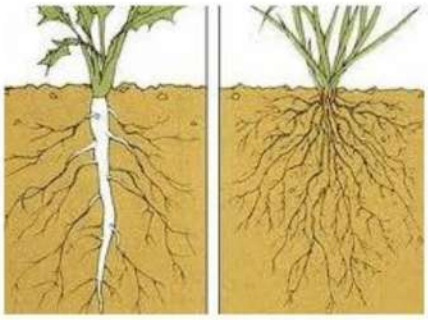
Functions of root:

- It anchors the plant in the soil.
- It absorbs water and nutrients from the soil and transfers them to the leaves and other parts of plants.
- It holds the soil particles together, thus preventing soil erosion.

Types of root:

(a) Taproot: Taproots are the main root and the smaller side roots are called lateral roots. The taproot is quite thick and its branches (lateral roots) are thin. For example, Pea plant, neem tree, mango tree, marigold, tulsi, carrot, radish, etc.

(b) Fibrous root - Some plants do not have main roots, they consist of many thin, fiber-like roots of similar size. These are called fibrous roots. For example, Wheat, rice (paddy), grass, maize, millet, bamboo, sugarcane, etc.



Tap root Fibrous root

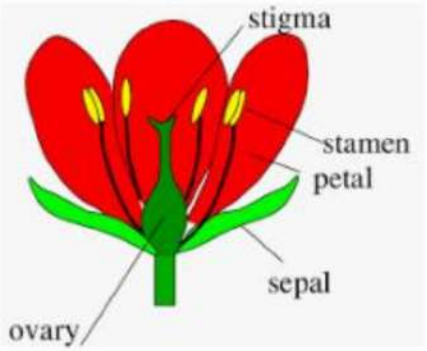
*** Tip: Relationship between venation and types of roots.**

Types of leaf venation	Type of root
Reticulate venation	Tap roots
Parallel venation	Fibrous root

Flower

The flower is that part of a plant that contains the reproductive organs. The main function of flowers is to produce fruits and seeds.

Parts of the flower:



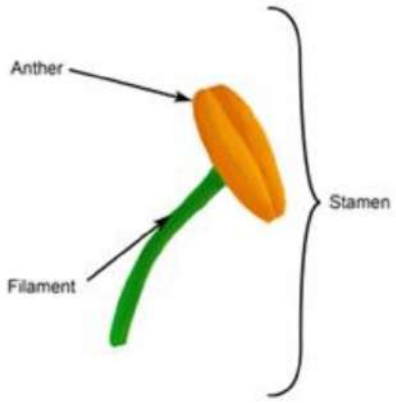
(a) Sepals - The small, green, leaf-like structure present at the base of flowers is known as sepals. Sepals protect the flower when it is in the form of bud.

(b) Petal - Petals are the most colorful and attractive part of a flower. It attracts insects for pollination. The ring of petals in a flower protects the reproductive organs of a flower.

(c) Stamens - Stamens are the male reproductive part of flowers. Stamen is made up of two parts:

• **Filament- The stalk of stamen is called a filament.**

• Anther- The swollen top of stamen is called anther. The anther contains a yellow powder-like substance called pollen or pollen grains. The pollen grains contain the male sex cells of a plant.



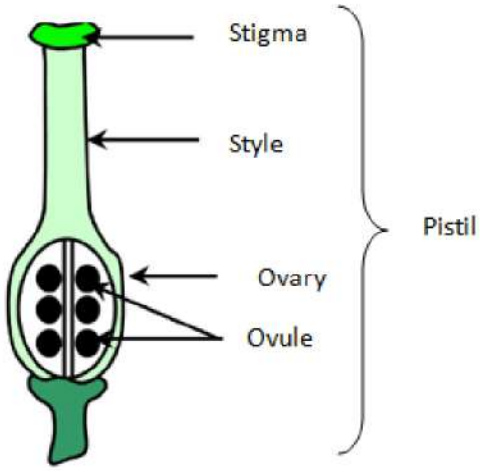
Stamen (male part) of a flower

(d) Pistil – Pistil is the female reproductive part of the flower. The pistil is made up of three parts:

• Stigma- The top part of the pistil is called stigma. It is sticky so that pollens can stick to it.

• Style- The middle part of the pistil is called style. It is a tube-like structure that connects the stigma to ovary.

• Ovary- The swollen part at the bottom of the pistil is called the ovary. The ovary contains tiny, egg-like structures called ovules. The ovules contain the female sex cells of a plant.



Pistil (female part) of a flower

Pollination: The transfer of pollen grains from anther of a stamen to the stigma of a pistil is called pollination.

Fertilization: When the pollen grains falls on the stigma, they move down through the tube called style and reach the ovary. The male sex cells present in pollens join with the female sex cells present in ovules. This is called fertilization. After, fertilization, the ovules grow and become seeds. The ovary of a flower grows and becomes a fruit. A fruit protects the seeds. The other parts of the flower dry up and fall off.