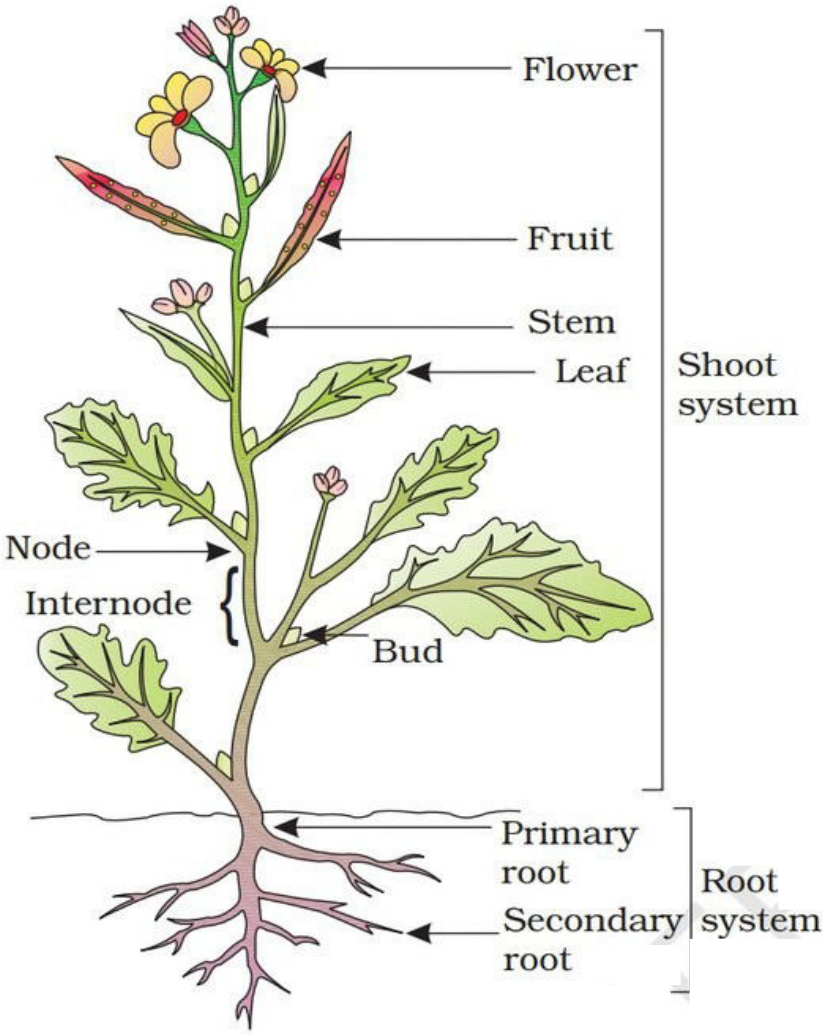
GETTING TO KNOW PLANTS

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.



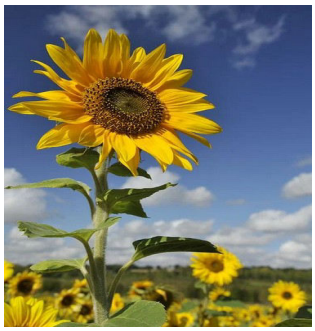
Parts of a Plant

CLASSIFICATION OF PLANTS

➢ On the basis of Flower:

1. Flowering plants: The plants which bears flowers are called flowering plants or *Angiosperms*.

Examples –



Sunflower

Mango

2. Non-Flowering plants: The plants which do not bear flowers are called non flowering plants or *Gymnosperms*.

Examples --

Money Plant

➢ On the basis of Height, stem type and branches:

1. 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)

- Examples – Wheat, tomato, mustard, sunflower etc.

Wheat plant

Tomato plant

2. Shrubs:

- Shrubs are medium sized plants bigger than herbs.
- They have hard and woody stem. Stem are not very thick.
- Shrubs develop branches near the base of the stem.
- Example – Rose, jasmine, croton, bougainvillea etc.

Rose

Jasmine

3. Trees:

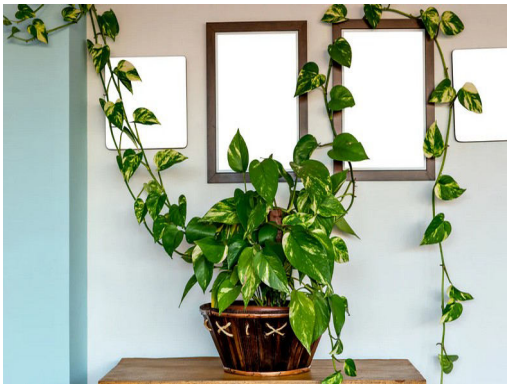
- The plants which are very tall and have hard and thick woody stems are called trees.
- The stem have branches in the upper part, much above the ground.
- The trees have one main stem called Trunk.
- Example – Mango, Palm, Coconut etc.

Mango tree

Coconut tree

4. Climbers

- A plant having thin and weak stems which cannot stand upright in 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.***
- The tendrils wind themselves around any neighbouring object and help the plant to climb up.
- Example – Money plant, pea plant, bitter guard etc.



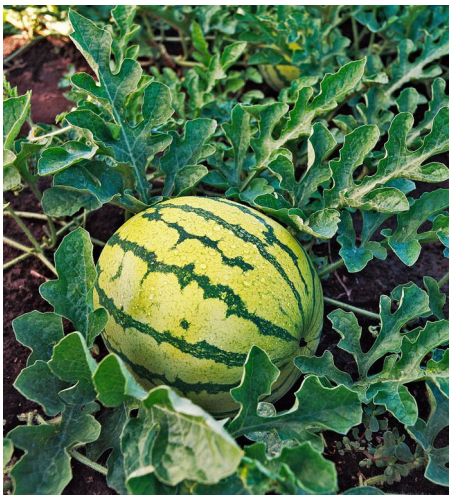
Money plant

Pea plant

5. Creepers

- The plant having thin and weak stems which cannot stand upright but spread on the ground are called creepers.
- Creeper plant has no special organ for climbing.
- Example – Strawberry, pumpkin, watermelon etc.

Strawberry



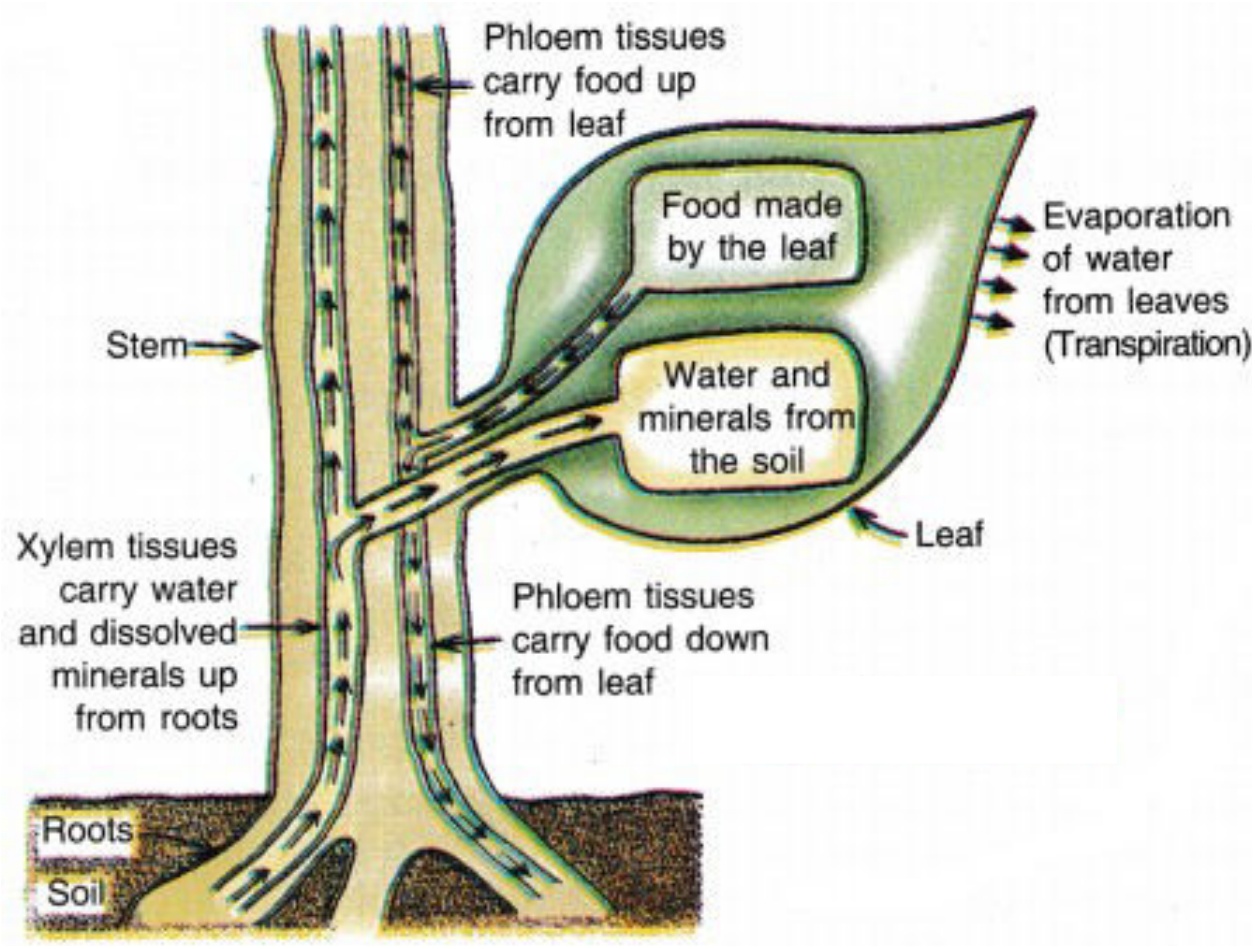
Watermelon

STEM

The part of plant that raises 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 root to the leaves and other part of the plant.



Transport of Food, Water and Minerals in Stem

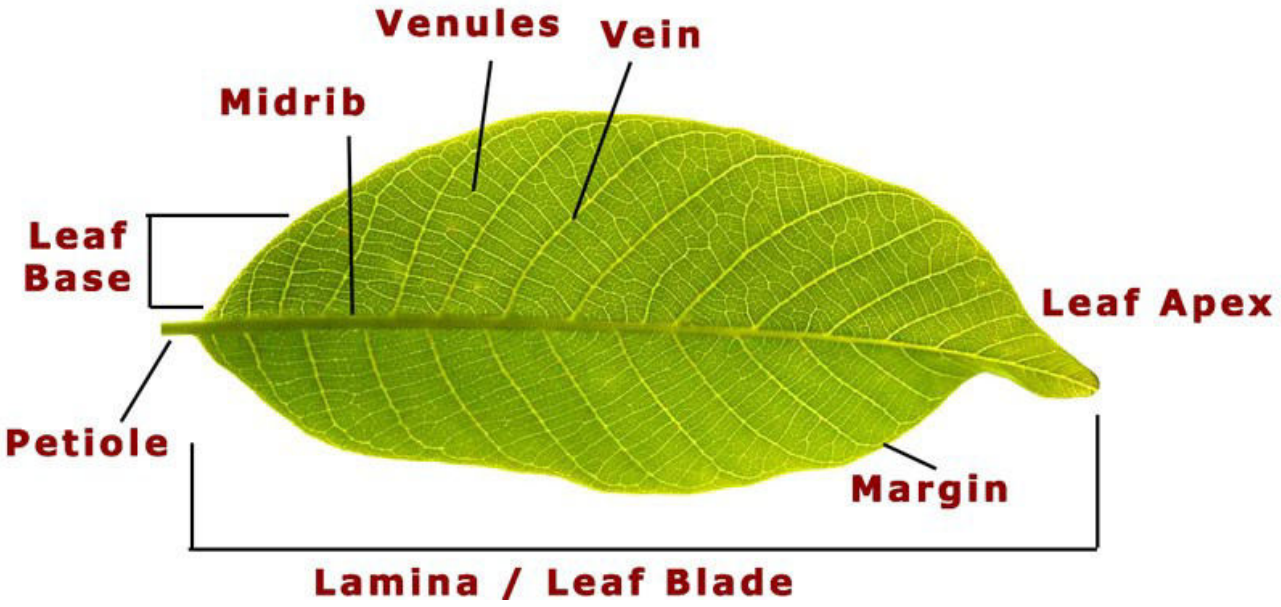
LEAF

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 Plant*.
- The leaves get rid of excess water from the plant through transpiration.
- The leaves carry out the process of respiration in plants.

Parts 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 lines in the middle of the leaf is called midrib or main vein.
- **Petiole:** The part of leaf by which it is attached to the stem is called Petiole.
- **Venation:** The arrangement of veins in the lamina (leaf blade) is known as venation. Venation helps in the transport of the food and water.

- Venation are of two types:

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 the 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:

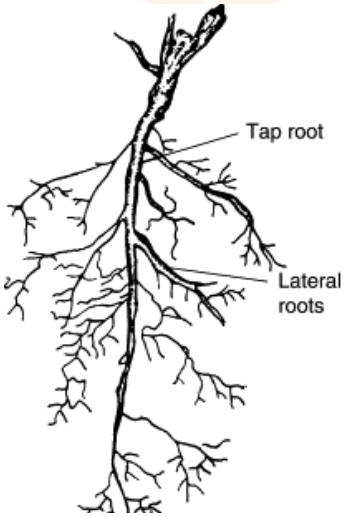
- It anchors the plant in the soil.
- It absorbs water and nutrients from the soil and transfer them to the leaves and other parts of plants.
- It holds the soil particles together, thus preventing soil erosion.

Types of Root:

a) *Tap root:*

Taproots are the main root and the smaller side roots are called lateral root. The tap root is quite thick and its branches (lateral roots) are thin.

Example – Pea plant, neem tree, mango tree, tulsi, carrot etc.



b) *Fibrous root:*

Some plants do not have main roots, they consist of many thin, fibre-like roots of similar size. These are called fibrous root.

Example – Wheat, rice, sugarcane etc.

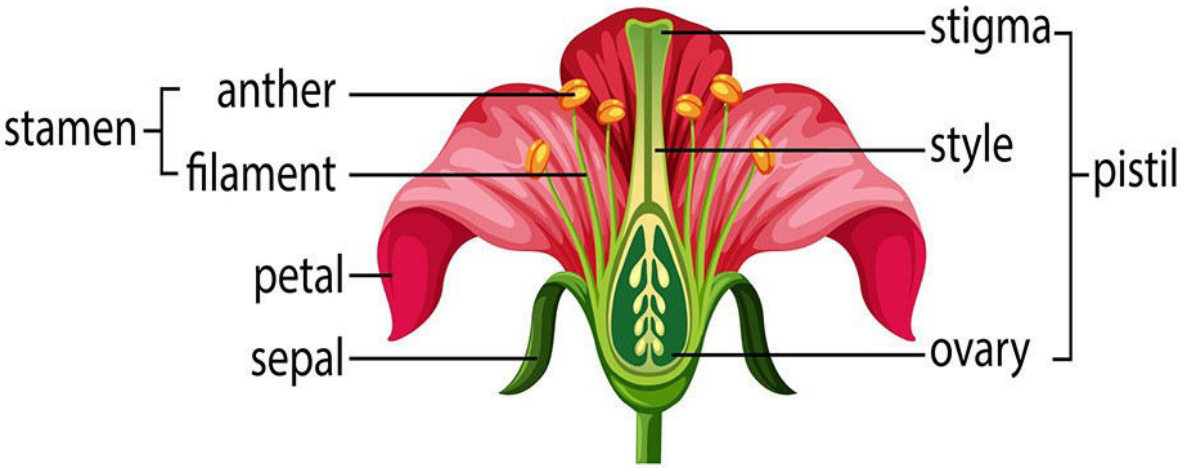
Relation Between Venation and Types of Roots.

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

FLOWER

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

Parts of Flower:



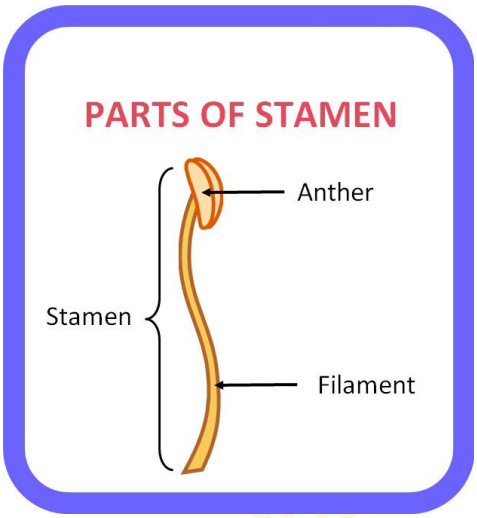
- ***Sepals*** – The small, green, leaf-like structure present at the base of flowers is known as sepals. Sepal protect the flower when it is in the form of bud.

- ***Petals*** – Petals are the most colourful and attractive part of the flower. It attracts insects for pollination. The ring of petals in the flower protects the reproductive organ of flower.

➢ ***Stamens*** – Stamens are the male reproductive part of flowers. Stamen is made up of two parts:

a) *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 the plant.

b) *Filament* – The stalk of stamen is called filament.

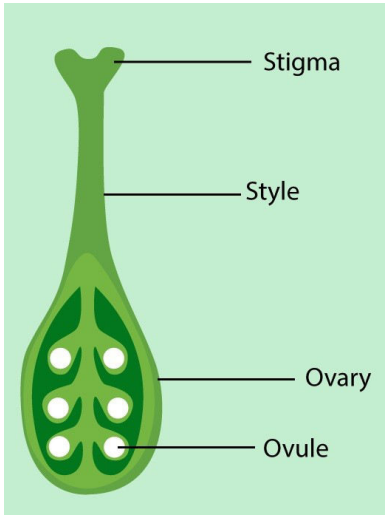


➢ ***Pistil*** – Pistil is the female reproductive part of the flower. The pistil is made up of three parts:

a) *Stigma* – The top part of the pistil is called stigma. It is sticky so that pollen can stick to it.

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

c) *Ovary* – The swollen part at the bottom of the pistil is called ovary. The ovary contains tiny, egg-like structure called ovules. The ovules contain the female sex cells of a plant.



PISTIL (female part) OF FLOWER

Pollination: The transfer of pollen grains from anther to 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 the 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 the flower grows and becomes a fruit. A fruit protects the seeds. The other parts of the flower dry up and fall off.