

The structure of a plant

Structure of a Plant:

A typical plant is divided into two main systems:

- Root System (Underground)
- Shoot System (Above Ground)

i. Root System

The part of the plant that grows below the ground.

Anchors the plant and absorbs water and minerals from the soil.

Types of Roots:

Taproot: A single main root with smaller roots branching out.

Examples: Carrot, radish, mango.

Fibrous Root: A cluster of thin, hair-like roots.

Examples: Grass, wheat, rice.

Functions of Roots:

- **Absorption:** Draws water and minerals from the soil.
- **Anchorage:** Provides stability by holding the plant in the ground.
- **Storage:** Stores food in some plants (e.g., carrot, beetroot).
- **Conduction:** Transports water and nutrients to the shoot.

ii. Shoot System

The part of the plant that grows above the ground.

Includes the stem, leaves, flowers, and fruits.

Functions of the Shoot System:

- **Support:** Holds the plant upright.
- **Transport:** Carries water and nutrients from the roots to the leaves and food from the leaves to the rest of the plant.
- **Photosynthesis:** The leaves make food using sunlight.
- **Reproduction:** The flowers contain reproductive organs.



Parts of the Shoot System:

i. Stem:

The main axis of the plant that supports leaves, flowers, and fruits.

Functions:

- Transport of water and nutrients.
- Provides structural support.
- Stores food in some plants (e.g., sugarcane, potato).
- Conducts photosynthesis in green stems.

ii. Leaves:

Green, flat structures attached to the stem.

Parts of a leaf:

- **Lamina:** The flat, green surface.
- **Petiole:** The stalk that attaches the leaf to the stem.
- **Veins:** Transport water and nutrients.

Function:

- **Photosynthesis:** Makes food for the plant.
- **Transpiration:** Removes excess water.
- **Gaseous exchange:** Through stomata.

iii. Flowers:

The reproductive part of the plant.

Parts of a flower:


Petals: Bright and colorful to attract pollinators.

Sepals: Protect the flower bud.

Stamen: The male reproductive organ, made of:

- **Anther:** Produces pollen grains.
- **Filament:** Holds the anther.

Pistil (Carpel): The female reproductive organ, made of:

- 
- **Stigma:** Receives pollen.
 - **Style:** Connects stigma to ovary.
 - **Ovary:** Contains ovules (eggs).

iv. Fruit:

Develops from the ovary after fertilization.

Contains seeds for reproduction.

Types of fruits:

- **Fleshy fruits:** Mango, apple, tomato.
- **Dry fruits:** Peanuts, wheat, and rice.