The Leaf

- Roots absorb water and minerals from the soil.
- Roots also anchor the plant firmly to the soil.
- Roots are of two types - tap roots and fibrous roots.

Root Modifications

- Prop roots – Example: banyan tree
- Stilt roots – Example: maize and sugarcane
- Roots which helps in respiration – Example: *Rhizophora*

- Stems, roots, leaves, and flowers are the main parts of a plant.
- The stem bears leaves, flowers, and fruits.
- It conducts water from roots to all parts of a plant.

Stem Modifications

- For storage – Example: potato, ginger, turmeric

- For Support – Tendrils in Cucumber, pumpkins, watermelon, etc.

- For protection – Thorns in *Citrus*, *Bougainvillea*

- For vegetative propagation – Tubers and rhizomes in Potato and ginger respectively

Leaf

 A leaf has a petiole and a lamina.

 Leaves prepare their food in the presence of sunlight and chlorophyll by a process

known as photosynthesis.

 The leaves lose water by the process of transpiration.

 The design made by leaf veins is known as leaf venation.

 Leaf venation is of two types - reticulate venation and parallel venation.

Leaf Modifications

 Tendrils- Example: peas

 Spines- Example: cactus

 Fleshy leaves for storage- Example: onion and garlic

A leaf has a petiole and a lamina.

- Leaves prepare their food by using carbon dioxide and water in the presence of sunlight and chlorophyll. This process is known as photosynthesis.
- The leaves lose water by the process of transpiration.
- Transpiration helps in keeping the plant cool and in absorption of water through roots.
- Rate of transpiration depends on sunlight, temperature, wind and humidity.
- **Autotrophic nutrition**
  - Synthesis of food by green plants through the process of photosynthesis.
  - Photosynthesis equation- $6CO_2 + 6H_2O \xrightarrow[\text{Chlorophyll}]{\text{Sunlight}} C_6H_{12}O_6 + 6O_2$
  - Events of photosynthesis
    - In the grana region of chloroplast:
      - Absorption of light energy
      - Splitting of water in hydrogen and oxygen
      - Synthesis of ATP and $NADPH_2$
    - In the stroma region of chloroplast:
      - Reduction of carbon dioxide to carbohydrates

Plants carry out photosynthesis with the help of structures called stomata.

- Minute pore like structures surrounded by two guard cells
- Help in exchange of CO_2 and O_2

Photosynthesis is affected by factors like:

- CO_2 concentration
- light
- temperature