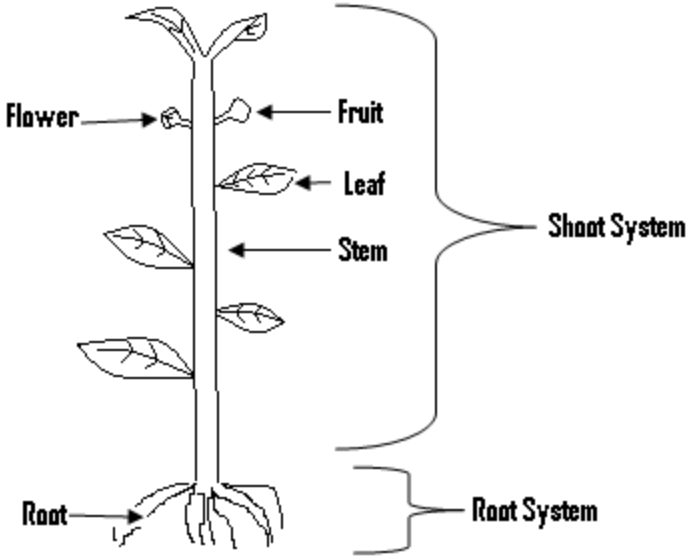
Chapter Fifteen

Flowering Plants, Photosynthesis, Seeds and Transpiration

Flowering plant:



- A plant is made up of two parts and these are:
  (i) The root system.
  (ii) The shoot system.

The roots:

- These are the parts of the plant which grow underground and away from sunlight.

Functions of the root:

- It absorbs water and mineral salts from the soil, for the plant to use.
- It holds or fixes the plant firmly to the ground.
- In certain plants such as the cassava, food is stored in the roots.

Functions of the stem:

- It holds the leaf in such a position in order to get sunlight.
- Some stems can be used for vegetative propagation, i.e. used to reproduce the plant.
- Water and mineral salts from the soil are carried through the stem to the leaf.

Functions of the leaf:

- To carry out photosynthesis, i.e. photosynthesis occurs in the leaf.
- To carry out transpiration, i.e. the excess water within the plant is lost through the leaf.
- Some leaves store food. e.g the onion leaf.

Photosynthesis:

- This is the process in which green plants prepare their food.
- The food prepared by the plant is called carbohydrate or starch.
- Unlike plants, animals cannot prepare their own food and they therefore eat plant or depend on plant for food.

Conditions necessary for photosynthesis

- These conditions are:
  (1) Carbon dioxide (2) Water

  (3) Chlorophyll (4) Sunlight.

(1) Carbon Dioxide (CO_2):

- For photosynthesis to take place, carbon dioxide must be present.
- The leaf of the plant absorbs carbon dioxide from the air through its stomata.
- These stomata are small holes found on the surface of the leaf.

(2) Water:

- The water needed for photosynthesis is absorbed or removed from the soil by the roots.
- It is then conducted or passed through the stem into the leaf, where photosynthesis occurs.

(3)Chlorophyll:

- Chlorophyll is needed for photosynthesis.
- It is a substance which when present in the plant, causes the leaves and other parts of the plant to be green in colour.

- Photosynthesis normally occurs in green leaves, but it can occur in any part of the plant which is green in colour, since these parts also contain chlorophyll.

(4) Sunlight:

- Photosynthesis occurs only in sunlight but not in darkness.
- The energy needed by plants for photosynthesis is sunlight.
- In the absence of sunlight, photosynthesis cannot occur.

How photosynthesis occur:

- The chlorophyll is always present in the leaves.
- The carbon dioxide absorbed from the atmosphere gets into the leaves, through the stomata.
- The water absorbed from the soil passes through the stem into the leaves.
- When the sun appears, energy is absorbed from it and the chlorophyll, carbon dioxide and the water is then changed into carbohydrate or starch, which serves as food for the plant.
- Whenever photosynthesis occurs, oxygen is given off or released into the atmosphere or the air.

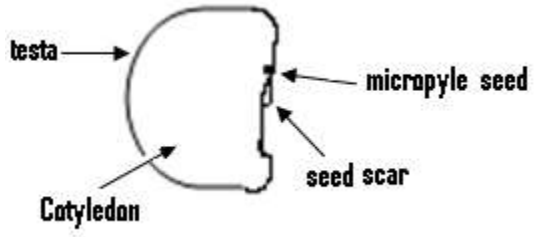
The importance of photosynthesis:

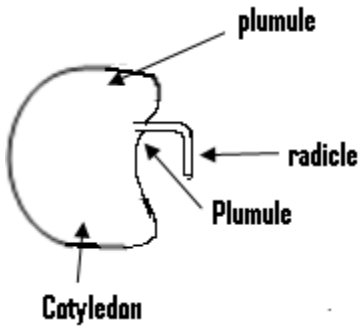
- Photosynthesis is important because through it,
  (i) plants get their food.
  (ii) animals also get their food, since they eat plants as food.
  (iii) the oxygen needed for breathing by man and animals is released into the air.

The seed:

- This can be used to reproduce the plant.

The structure of the seed:





Parts of the seed:

(1) Cotyledon:

- It stores food for the embryo to use, during the early stage of germination.