Plants

• Plant is very broad and it includes single celled algae to flower and fruit bearing trees.

• Plants may be terrestrial or aquatic, plants which are present on the land surface is called terrestrial plant.

• Plant which floats, submerged or remain suspended in water is called aquatic plants.

Different Parts of Plants

1. Root:

• It is mostly underground part of the plant that holds the plant in the land. In aquatic plant, it is present below the surface of water.

• Roots help in absorbing minerals, water from the soil and after absorption it is transported to different part of the plant.

2. Stem:

• It supports the upper structure of plants. Stem provide mechanical strength to the plant so that it stand.

• Water and minerals absorbed by the root transported to different part of plant through the stem. In some plants stem also participates in stores food e.g. sugarcane.

3. Leaves:

• Leaves are main sites of photosynthesis.

• They uptake CO2 from atmosphere water and other nutrient from soil and energy from sunlight.

• Color of leaves is green due to presence of pigment chlorophyll, when amount of chlorophyll in leaves decreases color of leaves also changes and it may turn to yellow.

4. Flowers:

• It is reproductive organ of the plant.

• Flower has four distinct part stamens, carpels, petals and sepals.

• Flower's color and smell attract the pollinator like bees and other insects and these pollinator helps in pollination.

• After pollination, seed develops in the part of a flower called ovary. The ovary later develops into the fruit.

5. Fruits:

• It is the seed bearing structure.

• It protects the seed and later help in seed dispersal.

• Fruits of different plants are of specific color and they have their unique taste.

6. Seeds:

• They contain tiny embryo inside.

• Seeds also contain the food which supplies energy and material for growth until the plant grows its first leaves above the ground.

Different Types of Plants:

1. Herbs: It is delicate seed bearing plant which lacks woody stem and it cannot stand erect. Herbs are commonly used for flavoring food, as medicines and perfumes e.g. coriander, tomato, tulsi etc.

2. Shrubs: It is small to medium size woody plant. Its stem is not as strong as tree. In shrubs several main stem arises at or near the ground. e.g. rose, bougainvillea and cotton etc.

3. Trees: They are strong plants may be very tall or medium height. Stems are strong woody and are known as trunks. Branches grows out of tree's trunk e.g. mango tree, banyan tree etc.

4. Climbers: They are the plant that does not have stem and if stem is present it is very weak. These plants grow readily on support or over other plants. e.g. money plant, grapevine, pea etc.

5. Creepers: These plants also have very weak stem and plants creeps along the surface of ground and spread on the ground. e.g. watermelon, pumpkin and bottle gourd etc.

Types of Plants on the Basis of Life Span:

A. Annual Plants: These plants complete its whole life cycle within a year from germination of seeds to production of seeds. e.g. wheat, maize, sunflower etc.

B. Biennial Plants: These plants take two years to complete its biological life cycle. e.g. carrot, radish etc.

C. Perennial Plants: These plants live for many growing seasons. Perennial flowering plant grows and blooms in the spring and summer, die back in autumn and winter. Then again returned with flowering in the next summer from same root. e.g. mango, apple etc.

On the basis of their requirements of water and nature of the soil:

• **Hydrophytes:** Plants that grown in water. e.g. lotus, water lily. These plants have different adaptation like – coating of wax on the surface of leaves.

• **Xerophytes:** These plants normally grow in those areas which have deficient water supply like desert condition. These plants have normally deep root, pointed, waxy and small leaves.

• **Measophytes:** These plants normally grow in an environment which is neither very dry nor very wet. e.g. mango, neem.

• **Halophytes:** These plants usually grow in saline soil mangroves. These plants have special adaptation in roots like they show growth above the surface of land. e.g. Rhizophora.

Significance and Importance:

• Plants provide oxygen to animals which they breathe and they are the primary producer of the food on the Earth.

• Plants provide shelter to birds, insects and many other animals.

• Plants help in maintaining temperature, water cycle on the Earth and it also helps in preventing soil erosion.

• Plants provide all desired nutrient which are essential for growth and development of humans.

• Plants provide following material for human to consume.

Cereals	Rice, wheat, millet, maize, barley, oats etc.
Pluses	Arhar, moong, horsegram, other kind of grams.
Roots	Radish, turnip, carrot, beetroot etc.
Stems	Ginger, garlic, potato, onion etc.
Leave	Cabbage, spinach etc.
Fruits and vegetables	Apple, Banana, orange, mango, brinjal, tomato etc.
Nuts	Almonds, walnut, cashew, peanut etc.
Seeds	Different kind of grams, bean, different kind of cereals etc.

• Plants provide material that have medicinal value. E.g. Tulsi, neem, garlic, aloevera, cinchona, poppy etc.

• Plants like teak, sal, sesam provide wood for various uses.

• Different kind of beverages is obtained from plant and plant products like tea, coffee and alcoholic drink.

Few Special Plants and their Unique Features

• A plant named **Nepenthes** traps and eat frogs, insects and even mice. Plant is also known as pitcher plant.

• The **Khejadi trees** are found mainly in desert area. It does not need much water to grow. Plants have medicinal value, bark is used as medicines, and people cook and eat its fruit and leaves. Wood of this plant is not attacked by insects.

• **Banyan tree's** root hangs down from the branches and provide support like pillars, its underground roots is also well developed and spread in the land surface.

• **Desert oak**, a tree found in Australia. It grows upto height of 12-15 feet above the land and root of these plants go deep inside till they reach water. Trunk of this plant has capacity to store water. Sometime local people also use this stored water to drink by placing thin pipe in trunk.

• **Coroton**, roots of this plant is limited to the surface of land so when plant faces water deficient condition it leaves starts turning yellow. This unique quality of plant tells about the availability of water and that is

the reason that sometimes it is also planted with crops.

- Plant of banana is shrub and its stem is weak. Both flower and fruit of banana is eaten.