**Plant:** Types of plant on the basis of height, stem and preach branching pattern.

1. **Herbs** small plants with Soft \& green stems. e.g. grass, spinach
2. **Shrubs** medium sized plants with hard but not very thick stem. e.g. rose, hibiscus
3. **Trees** with hard & woody stems. e.g. Coconut, Banyan.
4. **Creepers** weak stems and grow along the ground e.g. Watermelon, pumpkin etc.
5. **Climbers** plants with weak stems and take support of neighbouring structures such as plants, walls etc to climb. eg:- Money plant, pea et.

**Main system of a plant**

- Root system roots remain generally under the ground consist of roots.
- Shoot system shoot remains above the ground. Consists of stem, bud, branches, leaves, flowers etc.

**Parts of plant**

**1. Roots** underground non-green part of a plant which fixes it to the soil.

**Tap Root:** The main root is thick, cong. and arises from base of the stem and grows vertically downwards in the soil. eg1.mango, hem, etc.

**Fibrous Root:** A number of thin fibre age le like roots arise from the base of stem. Eg. wheat, maize, etc.

**Functions**

- anchor the plant firmly in the soil
- absorb water and mineral from the soil.
- helps to prevent soil erosion by binding Soil particles.

**Modifications**

- **Storage roots**: act as a storage of food and thus are edible. e.g. carrot, Sweet potato, etc.
- **Supporting root**: they give additional support to the plant, they arise from the branches of a tree. e.g. banyan tree, sugarcane, etc.
- **Climbing or clinging Roots** - the roots arise from the nodes, help the plant to stick and climb up the wall, rock or other trees. e.g. betel, black pepper etc.

**2. Stem**

- it bears flowers, leaves and fruits
- it is the link between the roots and the rest of the plant
- it generally grows towards the light

**Functions**

- helps to keep the plant upright
- holds leaves in position
- helps to spread out as they grow
- it conducts water, minerals and food to different plant parts.

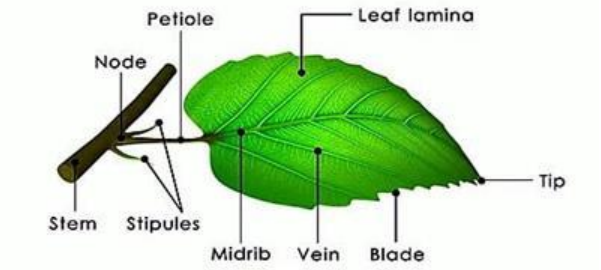
**Modifications**

- **Storage of food:** In some plants stem grows underground and stores food. e.g. ginger, Potato, etc
- **Manufacture of food:** In some plant stem becomes green and helps in synthesing food for plant. e.g. cactus
- **Stem tendrils:** thread-like structures called tendrils coil around a support and help plants in climbing. eg.- grapevine.
- **For multiplication:** new plants grow from stem cuttings, e.g. rose etc

- **For protection:** stems modify into thorns and prickles to protect the plant e.g. Bougainville.
- **For storage of water:** stems store water for plants. e.g. cactus, jade etc

**3. Leaf**

- a green flattened structure of a plant Which arises from stem and branches.




- **Venation:** arrangement of veins in leaves.

| Reticulate Venation | Parallel Venation |
|---|---|
| Veins form a network. e.g. Peepal tree | Veins run parallel. e.g. grass, banana |

**Functions**

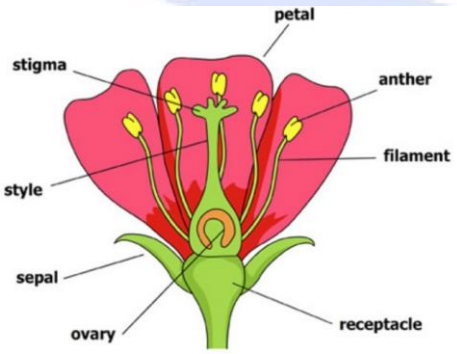
- Synthesise food with the hep of water, e unlight, chlorophyll, carbon dioxide (photosynthesis).
- Leaves carry out transpiration - loss of water in the form of vapours.

**Modifications**

- Support - tendrils coil around a support and help plant to limb. eg. pea, lentil, etc.
- Store food - store extra food *are mostly edible eg!- Spinach, lettuce, et
- Protection - modify themselves in spines to protect plant from animals. egl-cactus.
- Multiplication - helps in growing a new plant. eg: - Bryophylum.

**4. Flower**

- attractive part of a flowering plant.
- develops from the flowering bad.
- and carry out sexual reproduction.




**Functions**

- reproductive organ of a plant.
- leads to formation of seeds, fruits.
- provide nectar to insects.