SCIENCE

Getting To Know Plants

Introduction

Plants are **living things** which **grow in the soil** and **remain fixed at a place** through their roots.

Types of Plants

Herbs: Plants with green and tender stems.

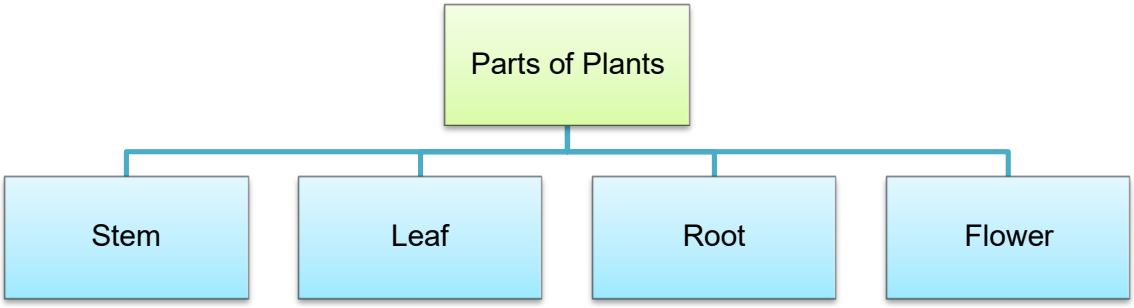
Shrubs: Stems branch out near the base giving them a bushy appearance.

Tree: Tall plants with hard, thick and brown stem.

Creepers: These are plants with weak stems and cannot stand upright .

Climbers: These plants take the support of neighbouring structures and climb up. They climb with the help of special organs called tendrils.

Parts of Plants



Stem

- The stem is a **part of the shoot system**. It bears leaves, buds, fruits and flowers. It may be soft or woody.
- Functions of the stemare:

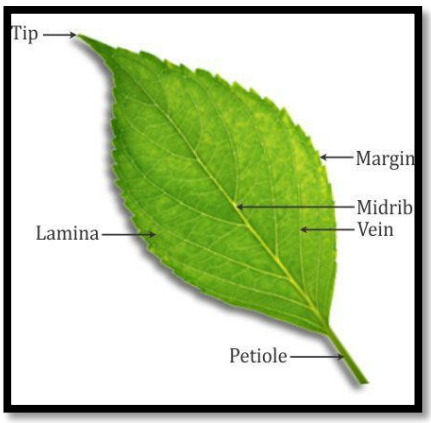
Hold plants upright.

Conduct water and minerals from the roots to the leaves and other parts of plants.

Carry prepared food from the leaves to the other parts.

Leaf

- A leaf is an outgrowth of the stem and is **flat**, **thin**and **usually green** incolour.
- The leaves may be of different shapes- needle shaped, oval, heart shaped, oblong, circular ortapering.
- The different parts of a leaf are mentionedbelow:



Lamina

- Flat, green portion of theleaf.
- Also known as **leafblade**.

Veins

- Form a **supportingframework.**
- Transport raw materials and manufactured food in and out ofthe lamina.

Midrib

- It is the central vein of theleaf.
- Smaller veins grow from themidrib.

- The primary functions ofleaves:

Plants perform photosynthesis. They manufacture food from carbon dioxide and water with the help of chlorophyll and light energy.

Stomata present on leaves help plants in the exchange of gases.

During resporation, plants lose excess amount of water through the stomata which helps in cooling the plant.

- The pattern or arrangement of veins on a leaf is termed as venation. There are two basic types of venation:

Reticulate Venation

The veins originating from the midrib branch give rise to a **net-like pattern** on the leaf.

Examples: Peepal and mango

Parallel Venation

The veins originating from the midrib run **parallel** to one another.

Example: Banana leaf

In some plants, veins run parallel from the tip to the base of the leaf.

Example: Grass

Root

- Roots are **present below the ground** and generally, are not green incolour.
- They do not bear flowers, fruits orleaves.

- The first root of a plant is the **radicle**, which is present within the seed. It gives rise to the **primary root**from where the plant develops its rootsystem.
- Depending on its type, a plant develops either a **taproot system** or a **fibrous rootsystem**.

Tap Root System	Fibrous Root System
• A thick central primary rootcalled **tap root**.	• A cluster of roots originates atthe base of the stem.
• Tap root gives rise to several lateral secondaryroots.	• All rots are equal in thicknessand give a bushyappearance together.

- Roots have the followingfunctions:

Fix the plant to the soil.

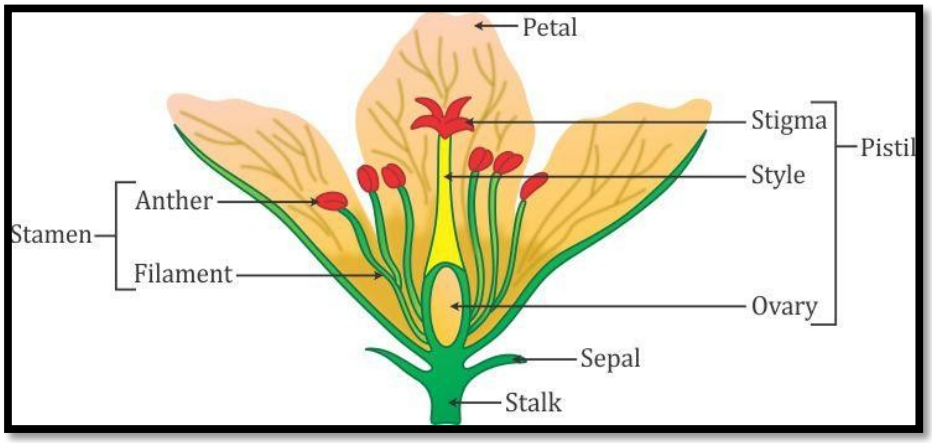
Absorb minerals and water from the soil.

Help to bind the soil together so that it does not get washed away during rain or blown away by the wind.

Some roots such as carrot, radish, sweet potato, turnip and tapioca store excess food. These are actually modified roots which are commonly consumed by us.

Flower

- A flower is a **reproductive structure** found in floweringplants.
- The structure of flowers may not be the same in allplants.
- The number of petals, sepals, stamens and pistil may **vary** from plant toplant.



Structure of a Flower

Petals

•Prominant parts of an openflower.
•Protect the reproductive organs of theplant.

Sepals

•Green, small leaf-likestructures.
•Protect thebud.
•They are either separate or joint to oneanother.

Stamen

•**Male reproductivepart**.
•Consists of an **anther** and a**filament**.
•anthers contain pollen grains which produce malegametes.

Pistil

•Innermost part of theflower.
•**Female reproductiveorgan**.
•Also known as**carpel**.
•Consists of stigma, styleandovary.
•**Stigma** is a sticky disc like stop part of the pistil on whcihthe pollen grainssettle.
•**Style** is the middle part which connects the stigma to theovary.
•**Ovary** is the lowermost swollen part containing one or moreovules.
•Ovules are femalegametes.