

THE PLANT SYSTEM

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WHAT IS A
PLANT
SYSTEM?

What is a Plant System?

- A plant is a system which is made up of roots, stems, leaves, flowers and fruits.
- Each part of the plant has it's own function.

Roots

The root system includes those parts of the plant below ground, such as the roots, tubers, and rhizomes.

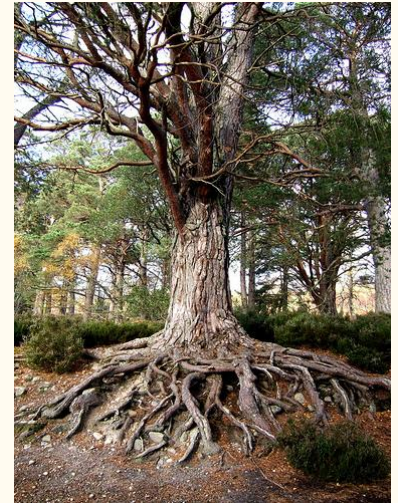
(Plant cells are formed at meristems, and then develop into cell types which are grouped into tissues.)



A root's four major functions are:

- 1) absorption of water and inorganic nutrients,
- 2) anchoring of the plant body to the ground, and supporting it,
- 3) storage of food and nutrients,
- 4) vegetative reproduction and competition with other plants

- The root system of a plant constantly provides the stems and leaves with water and dissolved minerals.
- In order to accomplish this the roots must grow into new regions of the soil.
- The growth and metabolism of the plant root system is supported by the process of photosynthesis occurring in the leaves.



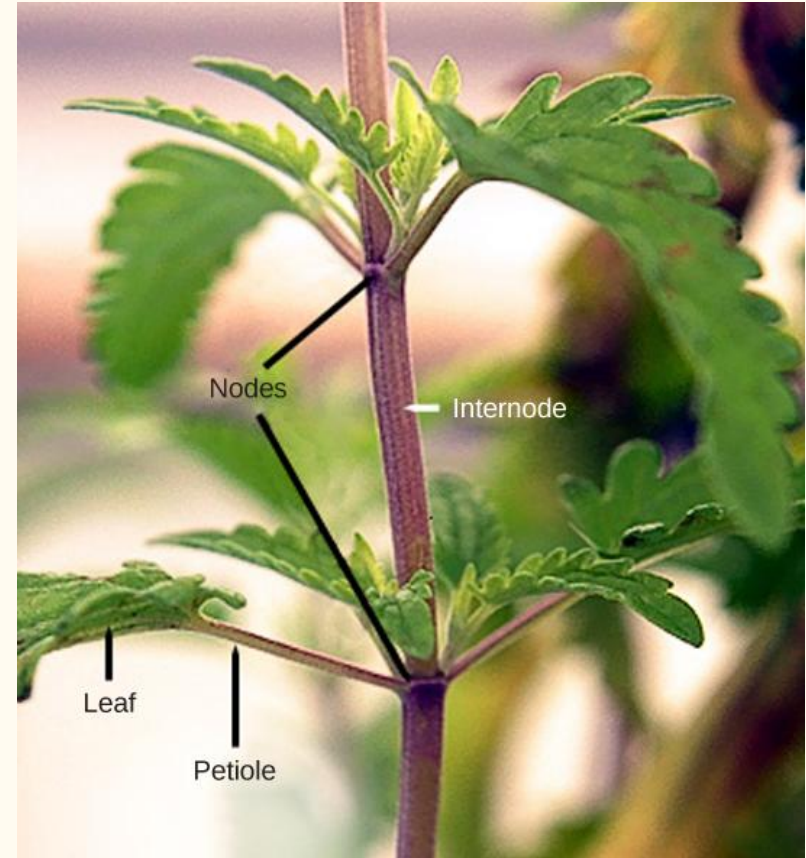
Stems

4 main functions:

- 1) Serves as supports the leaves, flowers and fruits and connects them with the roots. In trees and shrubs, the main stem or trunk provides a strong columnar structure from which branches are attached, raising the leaves upward to be exposed more fully to the sun.
- 2) It conducts water, nutrients and the products of photosynthesis to and from roots and leaves. It accommodates the transport system which is necessary for the vertical and lateral movement of water and sap within the plant body.
- 3) It helps store water, as in cacti, and the products of photosynthesis.
- 4) The plant stem serves as a means of asexual reproduction in many plant species.

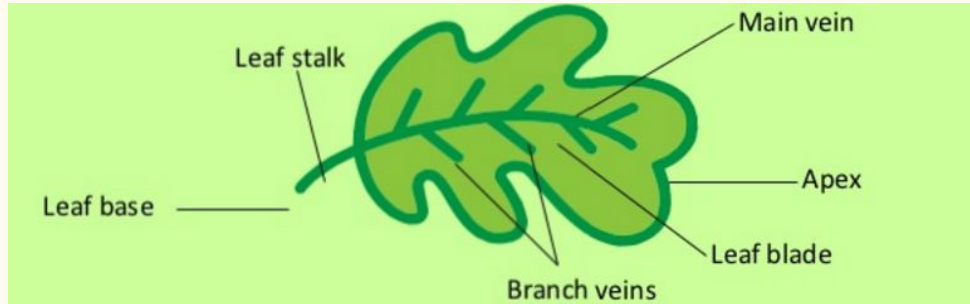
Parts of stems

- Leaves: Attached to the plant stem at areas called nodes.
- Internode: the stem region between two nodes.
- Petiole: the stalk connecting the leaf to the stem.



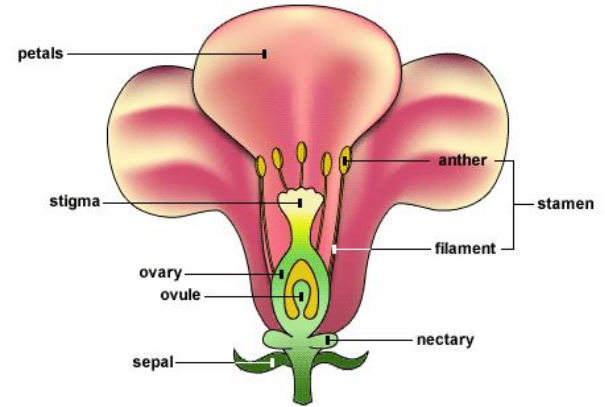
Leaves

- AKA sugar making factory
- Food that is needed by plants is produced by the leaves.
- It is the color of green due to chlorophyll.
- Chlorophyll traps energy from light to produce food.



Flower

- The main purpose of flowers is to produce.
- **Sepals** protect the unopened flower bud
- **Petals** may be brightly coloured to attract insects
- **Stamens** the male parts of the flower consisting of the anther held up on the filament
- **Anthers** produce male sex cells (pollen grains).
- **Stigma** the top of the female part of the flower which collects pollen grains
- **Ovary** produces the female sex cells (ovules)
- **Nectaries** produce sugary nectar which attracts insects



Fruits

As a plant organ and container of seed or seeds, the two primary functions of fruits are protection and seed dispersal.



1. Fruits protect the seeds. The fruit serves as a physical barrier between the seed or seeds and the external environment during seed development.
2. Fruits aid in the dispersal of mature seeds. For example, coconut nuts float in water and are thus transported to distant places.

Photosynthesis

- Plants make their own food in a process called **photosynthesis**.
- Photosynthesis is also important in maintaining the levels of oxygen and carbon dioxide in the atmosphere.

Photosynthesis

These are the things that plants need for photosynthesis:

- carbon dioxide
- water
- light (a source of energy)

These are the things that plants make by photosynthesis:

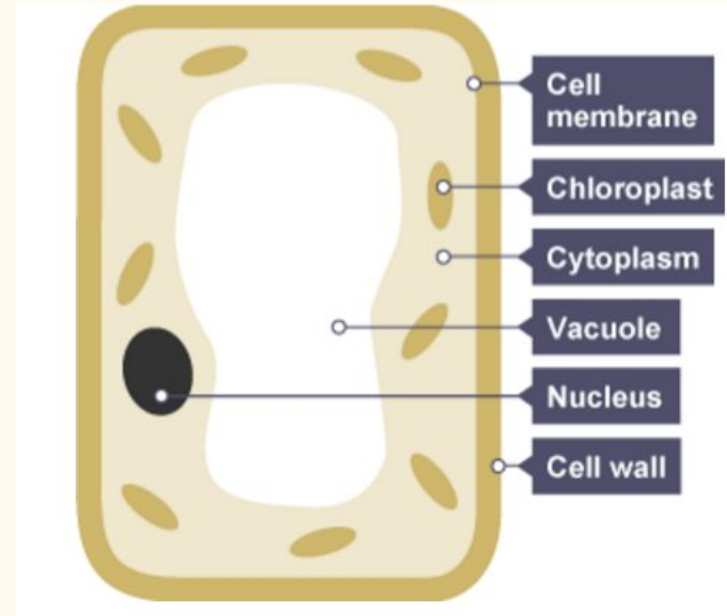
- glucose
- oxygen

Photosynthesis

- Photosynthesis takes place inside plant cells in small objects called chloroplast.
- Chloroplasts contain a green substance called chlorophyll.
- This absorbs the light energy needed to make photosynthesis happen. Plants and algae can only carry out photosynthesis in the light.
- Plants get carbon dioxide from the air through their leaves, and water from the ground through their roots.

Photosynthesis

- Light energy comes from the Sun.
- The oxygen produced is released into the air from the leaves. The glucose produced can be turned into other substances, such as starch and plant oils, which are used as an energy store. This energy can be released by **respiration**.



Thank You

