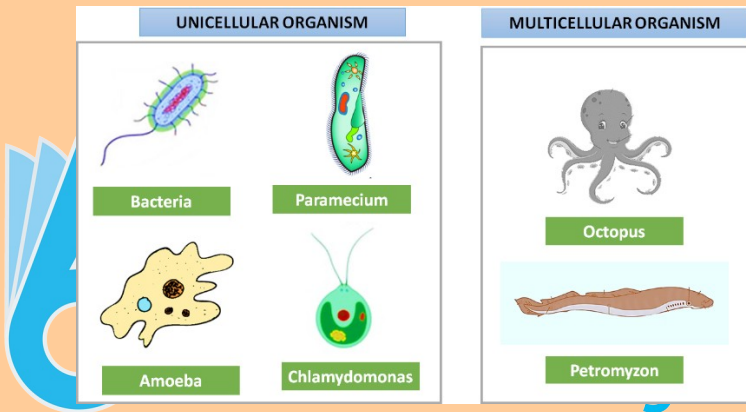


Plant Tissues

The cells constitute to form the tissues.

- Different types of plant tissues
- Functions of tissues

There are unicellular organisms and multicellular organisms.

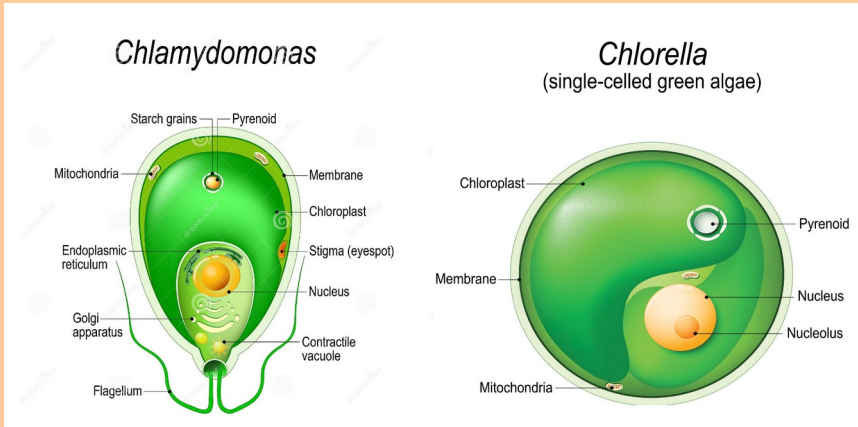


In unicellular organisms, a single cell performs all its functions.

In multicellular organisms, there are numerous cells, perform various functions.

- Plants can also be unicellular.

Ex: Chlamydomonas and Chlorella



Multicellular, for example- mango tree, palm tree etc

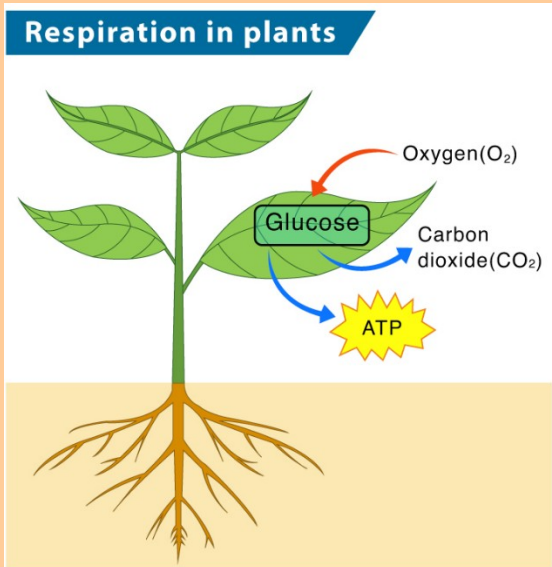


These plants also perform various life process similar to humans like

- Growth



- Respiration



- Excretion etc.



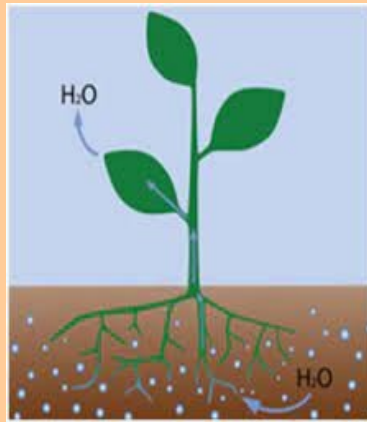
- There is a process that is exclusive to plants and not performed by human cells. This process is called Photosynthesis.

Photosynthesis:

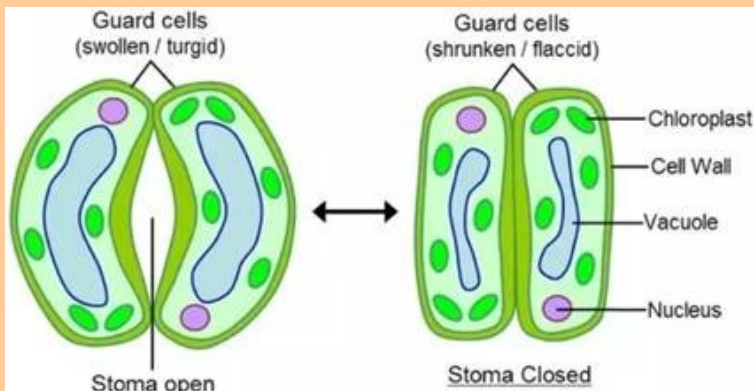
- Process by which plants use sunlight to synthesize nutrients and food from carbon dioxide and water.
- Plants prepare food, not only for themselves, but for all other living organism dependent on them, either directly or indirectly.

Functions of different plant parts:

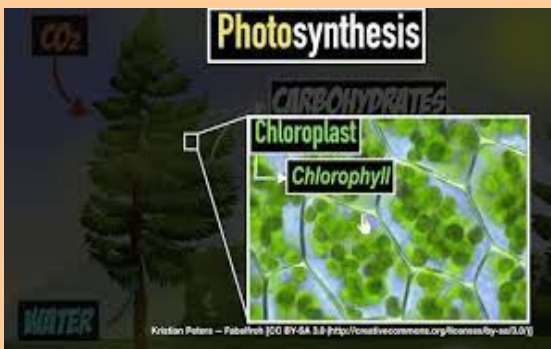
- Absorption of water from soil is done by the root.



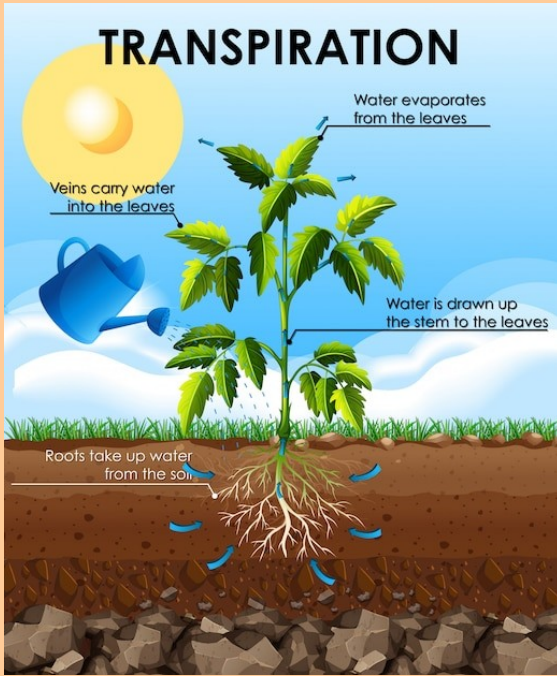
- Exchange of gases is performed by stomata.



Photosynthesis is the function of chlorophyll of green parts of the plants (leaves).



Transpiration is the role of leaves.



Reproduction is done by the flower.



Cells in onion peel:

Procedure:

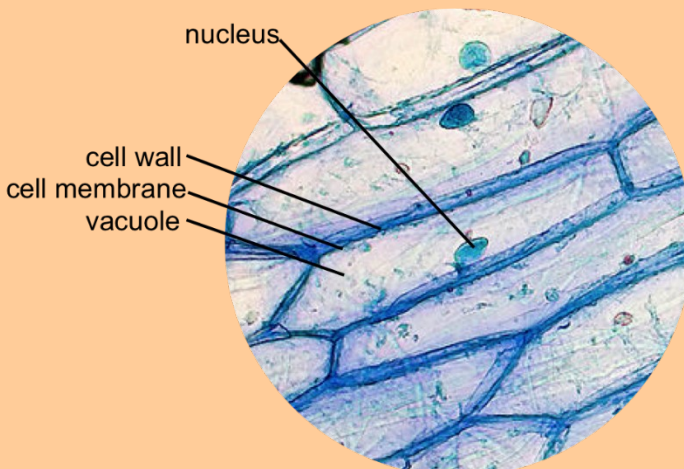
Consider you have onions with you.



- Slice a peel of onion and place it on a glass slide.
- Add a drop of water, followed by glycerin on top of the onion peel.
- Glycerin expels the bubble between the slide and the onion peel. It avoids the drying of the onion peel.
- Glycerin has a tendency to reflect light because of its refractive nature, hence images appear clear on a microscope.

Now, once we have added glycerin,

Cover the specimen with a cover slip and observe under the microscope.



- The peel, which is a tissue is seen as a group of similar kind of

rectangular cells.

- These cells also have a cell wall.
- Identify the nucleus because the nucleus is often positioned towards the periphery of the cell as a small dot.
- Apart from the nucleus, the cytoplasm is also visualized.

Understanding a leaf petal:

Procedure:

- Take a betel leaf or Tradescantia or Rheo leaf.
- Tear it with a single stroke. So that a thin edge can be seen at the torn end.
- Observe the thin edge where the leaf has been torn under the microscope.
- The cells are not similar like the case of onion peel.

Types of cells:

Two types of cells.

- Guard cell
- Epidermal cell

The epidermal cells are irregular in shape with no intercellular space.

- Stomata, which is minute pores that can be found on the epidermis of a leaf.
- It allow for the movement of water and gases in and out of the intercellular spaces.

Onion root tip cells:

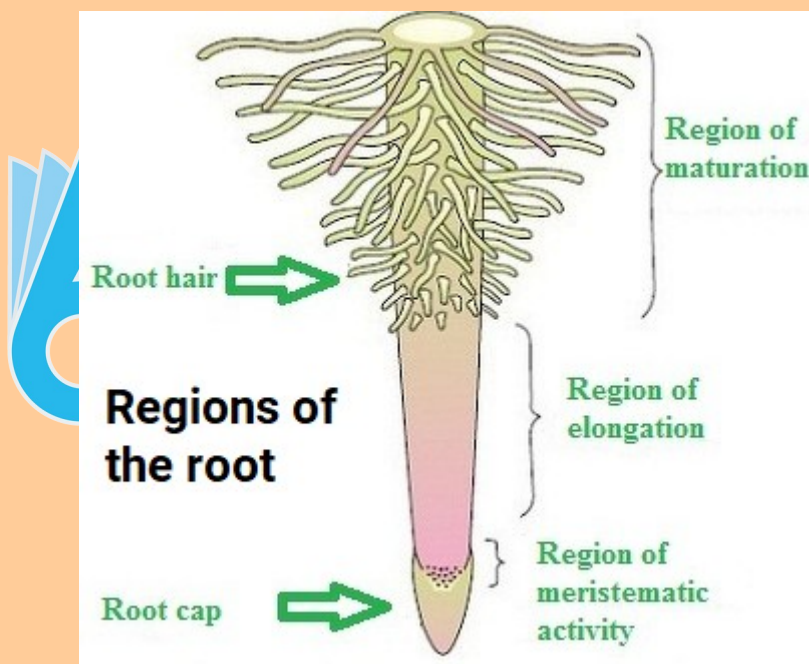
Procedure:

- Take onion root tip from an onion bulb that has been grown in water for 3-4 days.

- Cut a few onion root tip from the onion bulb.
- Place one of root tip on a glass slide.
- Put a drop of water and then a drop of glycerin on top of the root tip.
- Cover it with a cover slip.
- Remove excess water with the help of blotting paper.
- Tap the cover slip gently and press with the blunt end of the needle or brush to spread the material.
- Observe under microscope.

Observation:

- The cells are not similar in this case as well.



There are mainly three regions zones in a root tip.

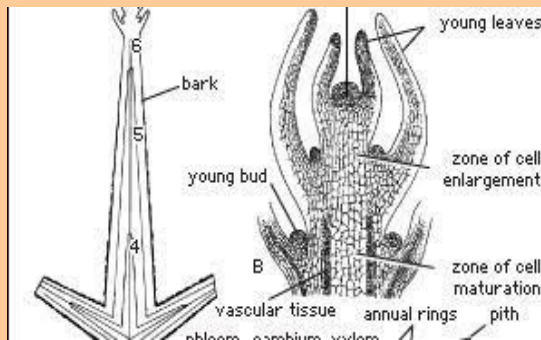
- A zone of cell division or meristematic (Which contains the cells that are actively dividing).
- A zone of elongation where the newly formed cells increase in length.

- A zone of maturation where cells differentiate to form different kinds of cells. It's in this region where root hairs are present in this region.

Apart from the three zones, you can also visualise root cap, which provides protection to the growing root tip.

Shoot tip:

A shoot tip of a plant also has three zones.



- Shoot apical meristematic region
- Region of elongation
- Region of maturation or differentiation

Importance of meristematic region:

Procedure:

- Mark the cut area on the onion with a permanent marker.
- Put the onion bulb on the mouth of the bottle as shown.
- Leave the set up aside for at least four to five days.