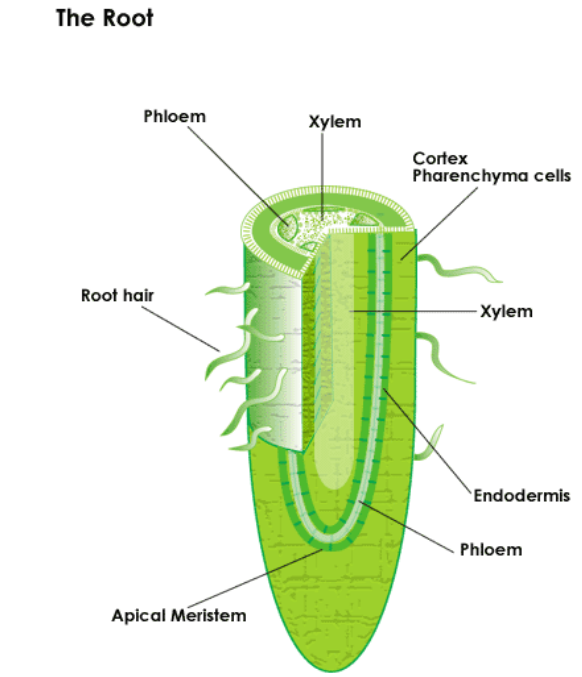
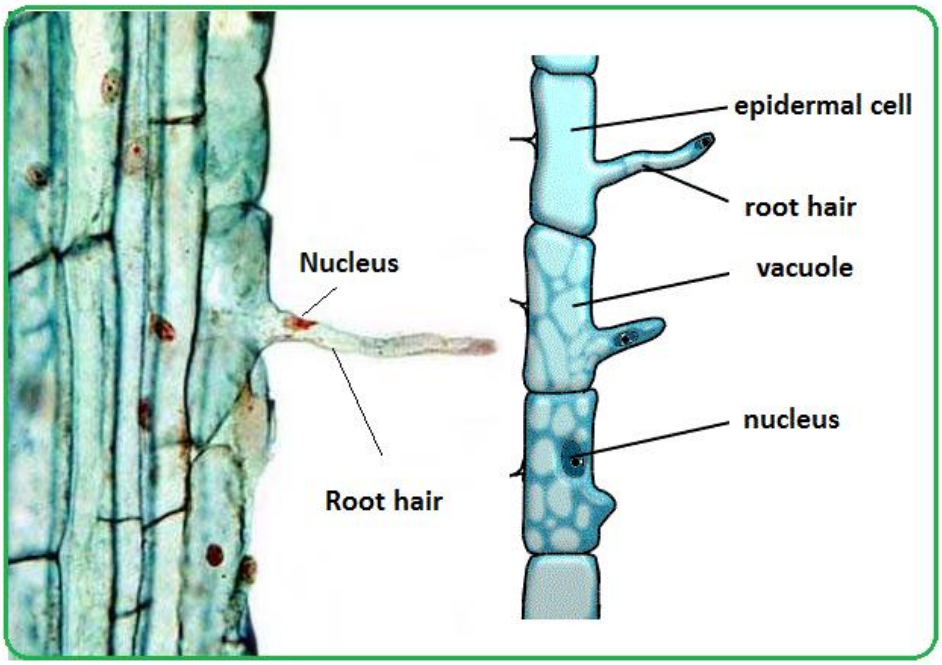
transport of materials in plants

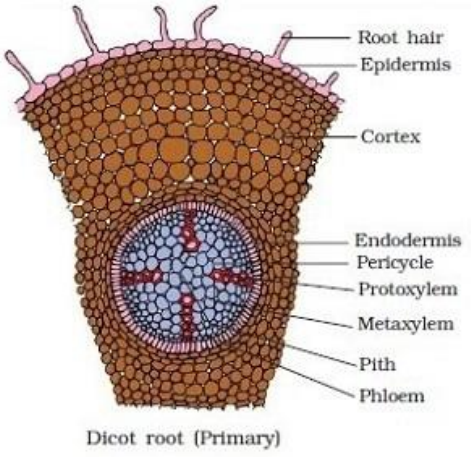
12 August 2021
15:06

Transporting water , minerals and prepared food.

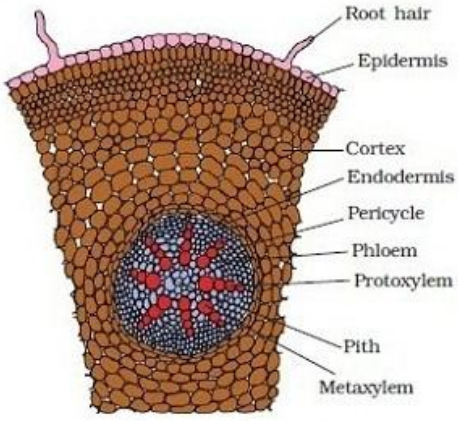
Root structure :







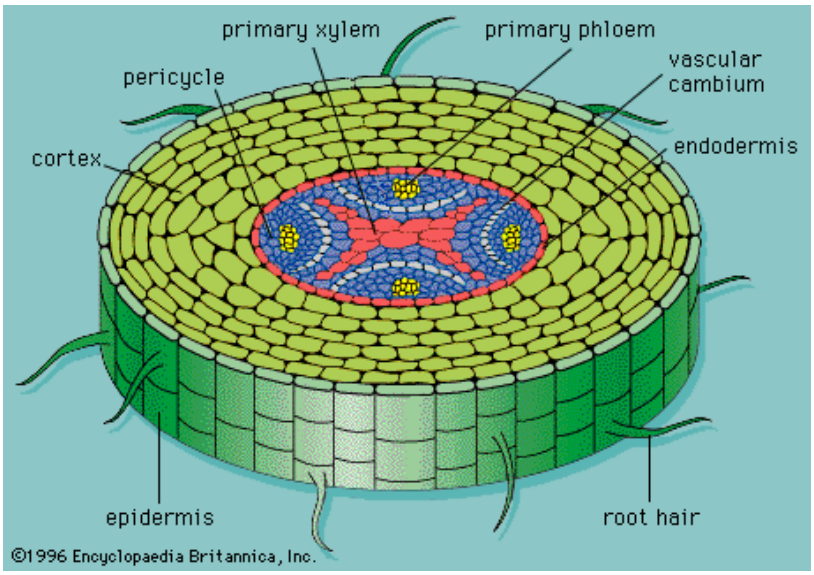
Dicot root (Primary)

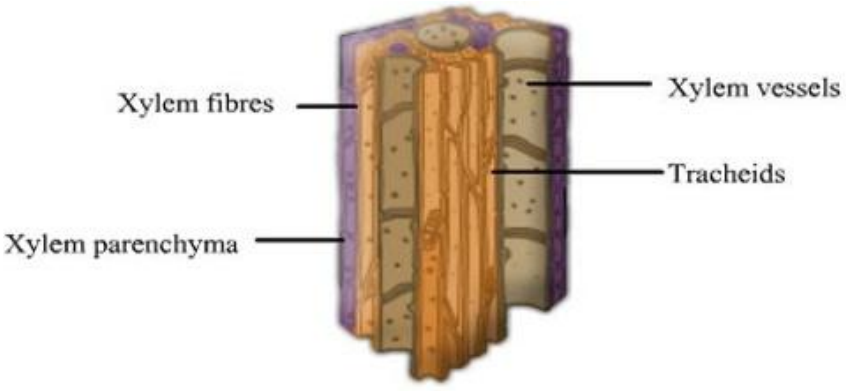


Monocot root

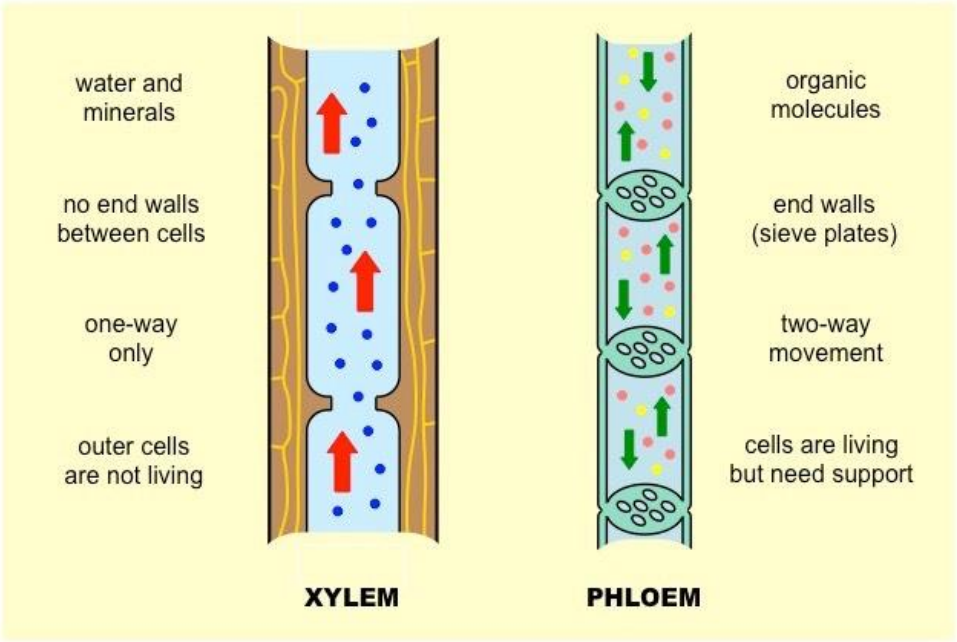
Conducting tissues

a. Xylem

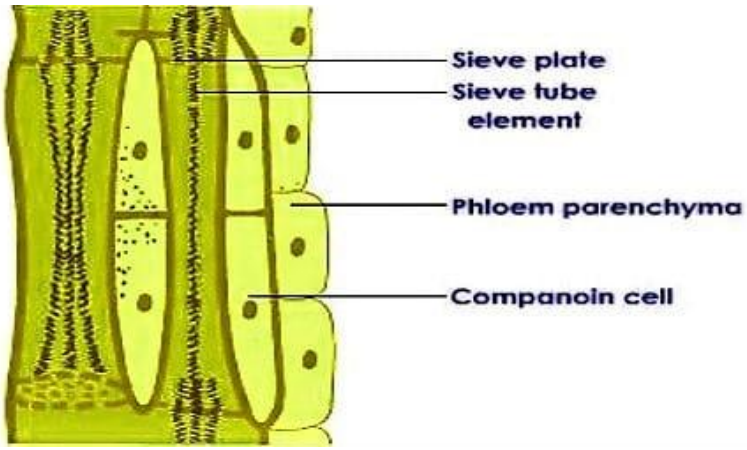




Xylem



b. Phloem



TRANSLOCATION : Process of transfer of food from the location of synthesis to other parts of the plant.

TRANSPORT MECHANISMS

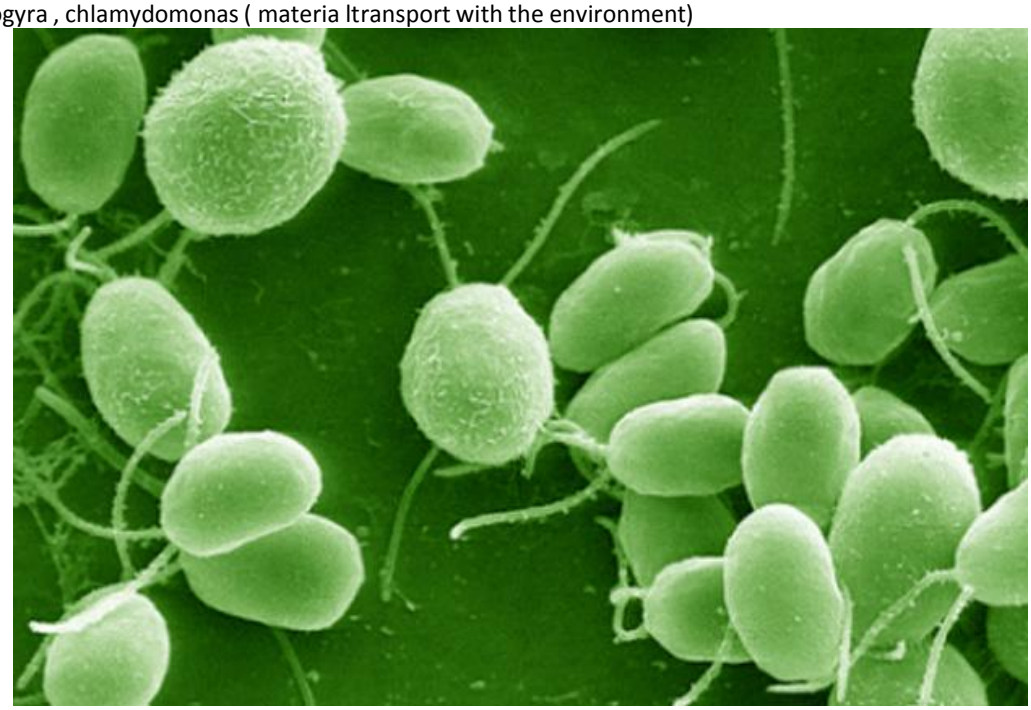
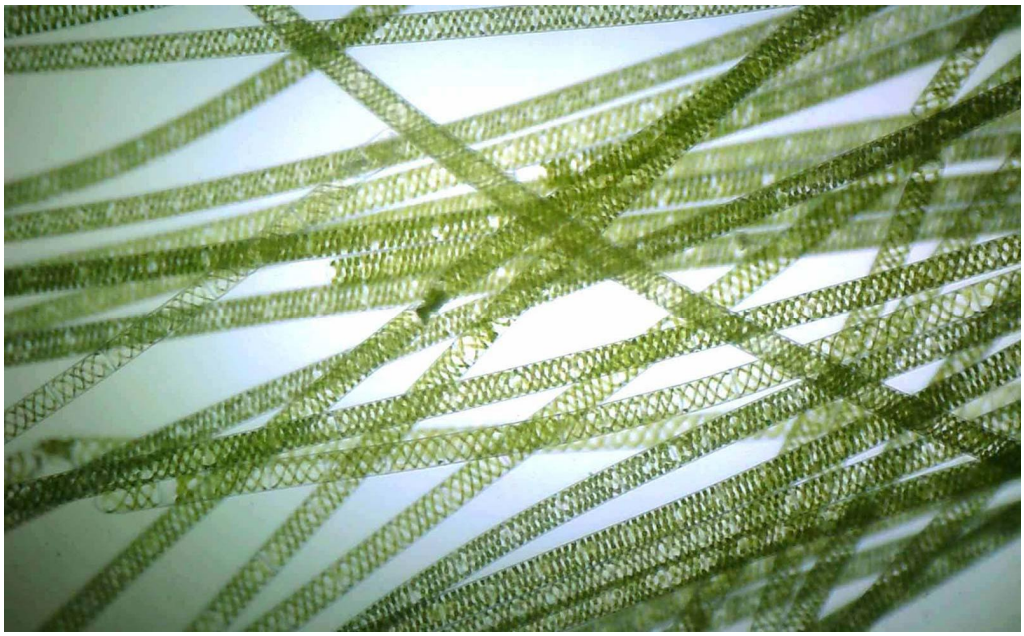
chlamydomonas

1. diffusion

spirogyra

Diffusion is the **movement of a substance from an area of high concentration to an area of lower concentration** . Diffusion occurs in liquids and gases when their particles collide randomly and spread out. Diffusion is an important process for living things - it is how substances move in and out of cells.

high conc. >> lower conc.

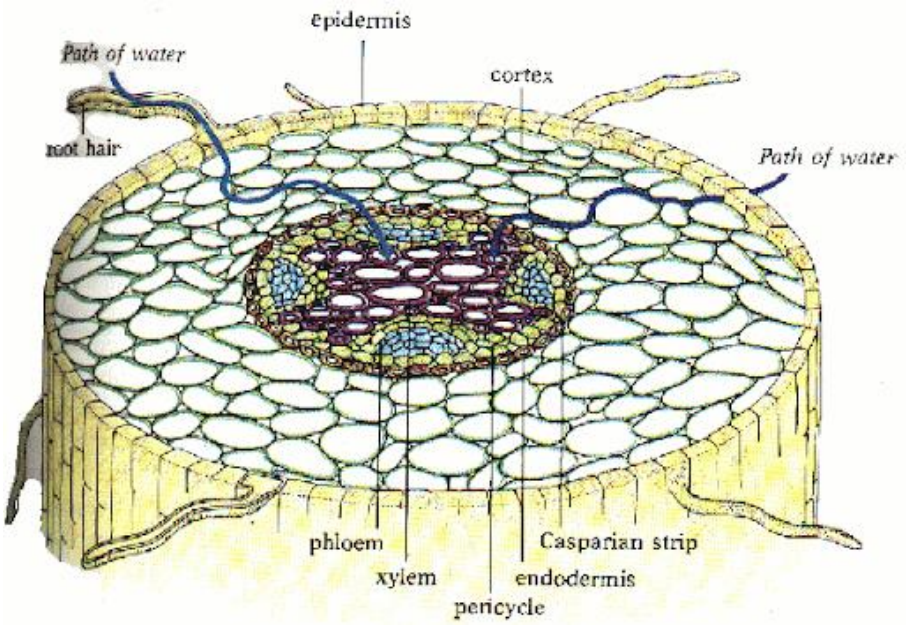
- movement of mineral ions
- oxygen and carbon dioxide exchange
- water evaporation from leaf cells
- spirogyra , chlamydomonas (materia ltransport with the environment)
  - 
- 

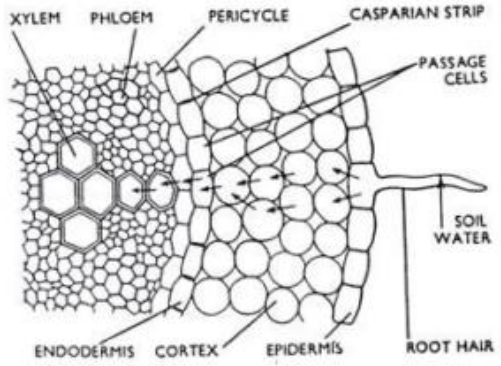
2. osmosis

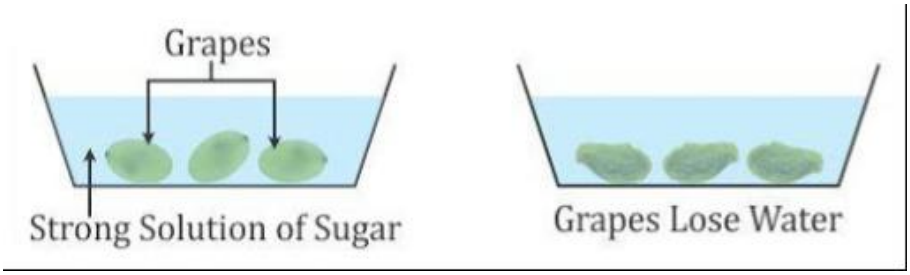
Osmosis only allows solvent molecules to move freely, but **diffusion allows both solvent and solute molecules to move freely**. ... Osmosis happens when molecules move from higher to lower concentrations, but diffusion happens when it is reversed

dil. solution >>>> conc. solution
ITS higher conc. >>> ITS lower conc.

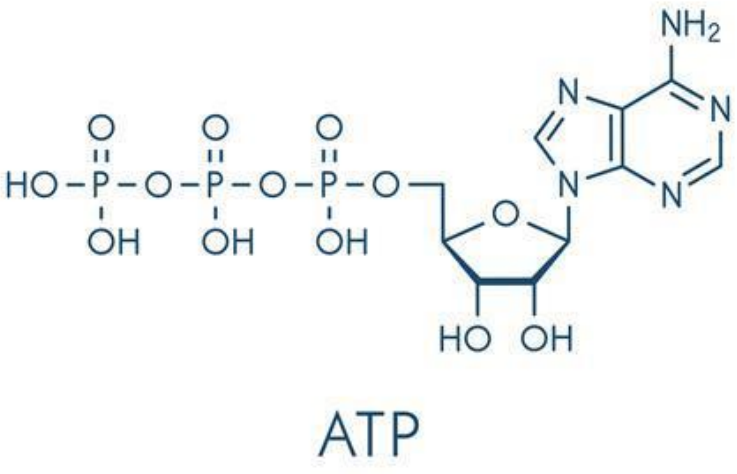
a.







3. **active transport**



ATP

Transpiration

pathways

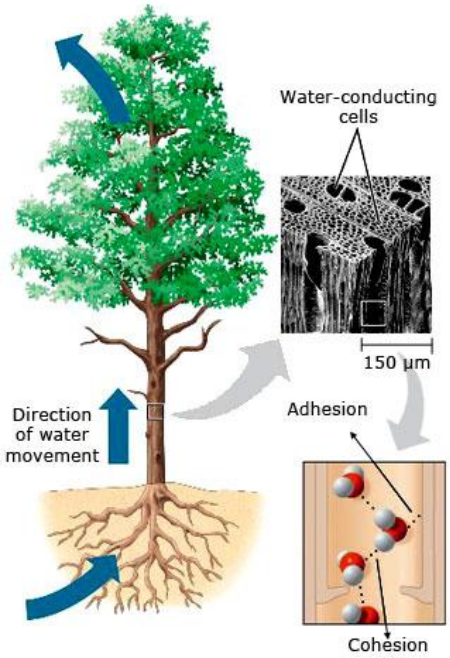
1. stomata (on the epidermis of leaves and young stems)

2. cuticle (waxy layer)

3. lenticels(openings on the bark)

importance

1. cooling
2. ascent of sap (transpirational pull)



3. distribution of minerals
4. water cycle

factors

(same as factors of evaporation)
+
soil water