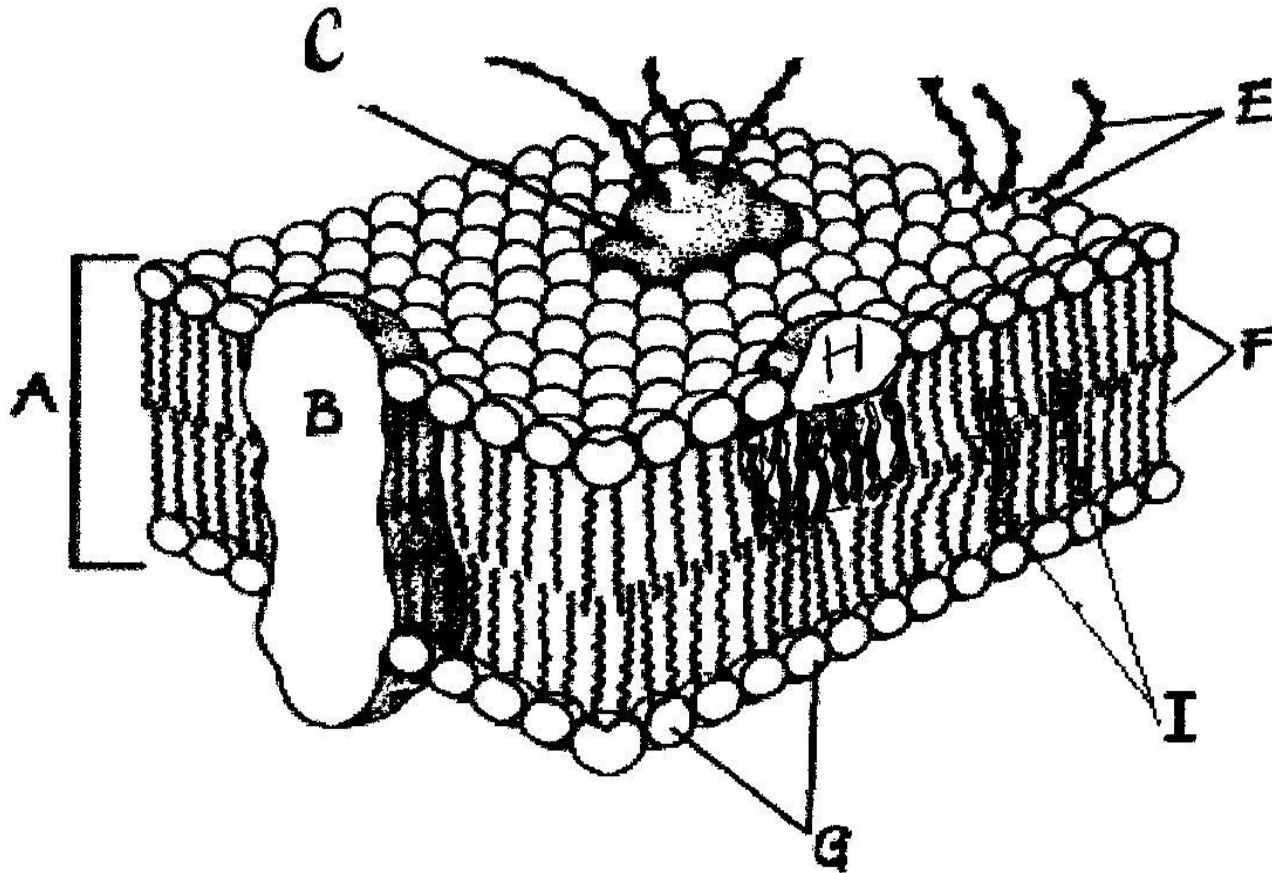


Cell Transport Worksheet

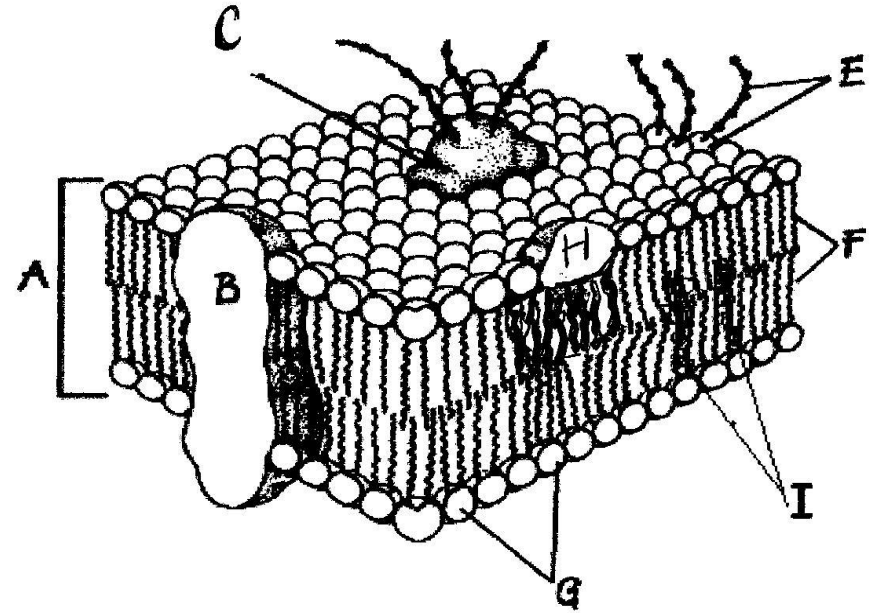
Helpful Answers

1. Label the following cell membrane:



2. Match the cell membrane structure...

- Proteins like glycoprotein, which are used for cell recognition and act as receptors.
- Proteins like glycolipids are attached to phospholipids along with the sugar chains.
- Lipids with short chain of carbohydrates are attached on the extracellular side of the membrane.
- Phospholipid Bilayer - which are made up of phosphates and lipids. They create a partially permeable membrane, which allows only certain substances to diffuse through the membrane.
- Cholesterol – it maintains the fluidity of cell surface membrane.
- Cell membrane receptor proteins- It helps in communication of a cell with their external environment with the help of hormones, neurotransmitters and other signaling molecules.
- Transport proteins - It helps in transporting molecules across cell membranes through facilitated diffusion. For example: globular proteins.
- Glycoprotein - It helps in cell to cell communications and molecule transport across the membrane.



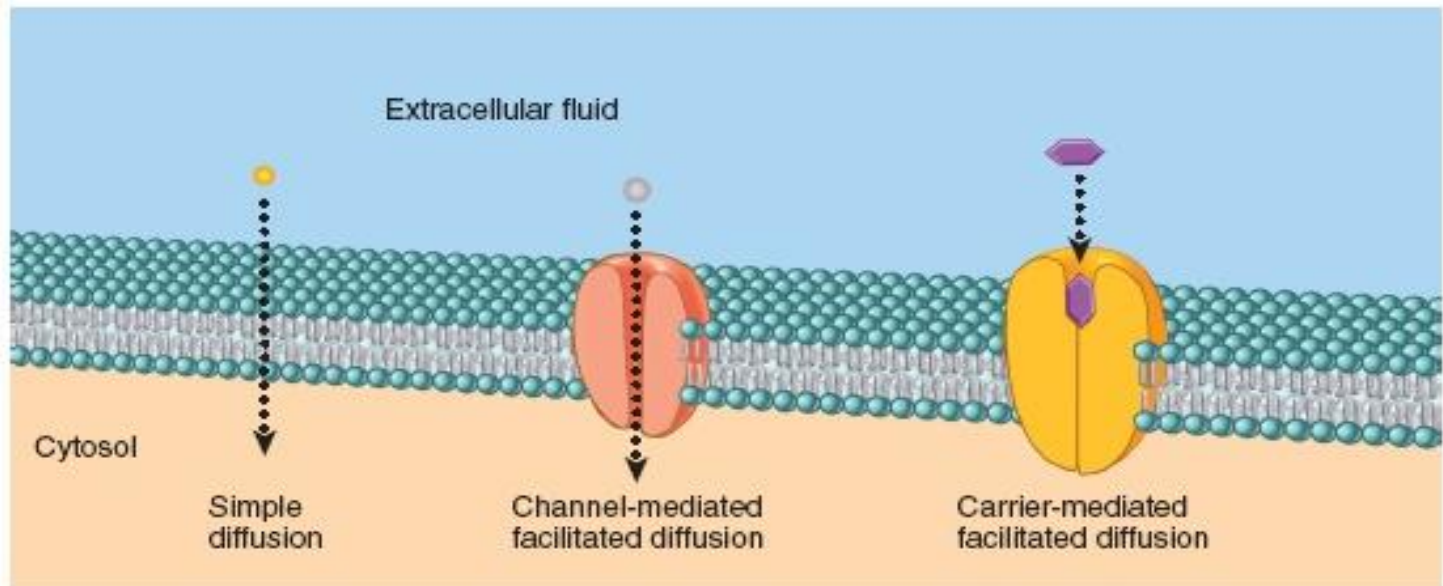
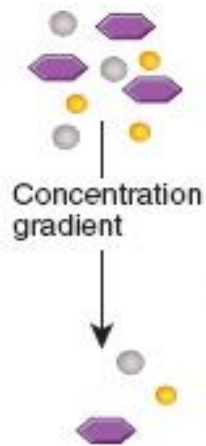
3. What do terms hydrophobic and hydrophilic mean to cell membrane?

- -hydrophobic- water fearing (lipid tails) (nonpolar)
- -hydrophilic- water loving (phosphate heads) (polar)

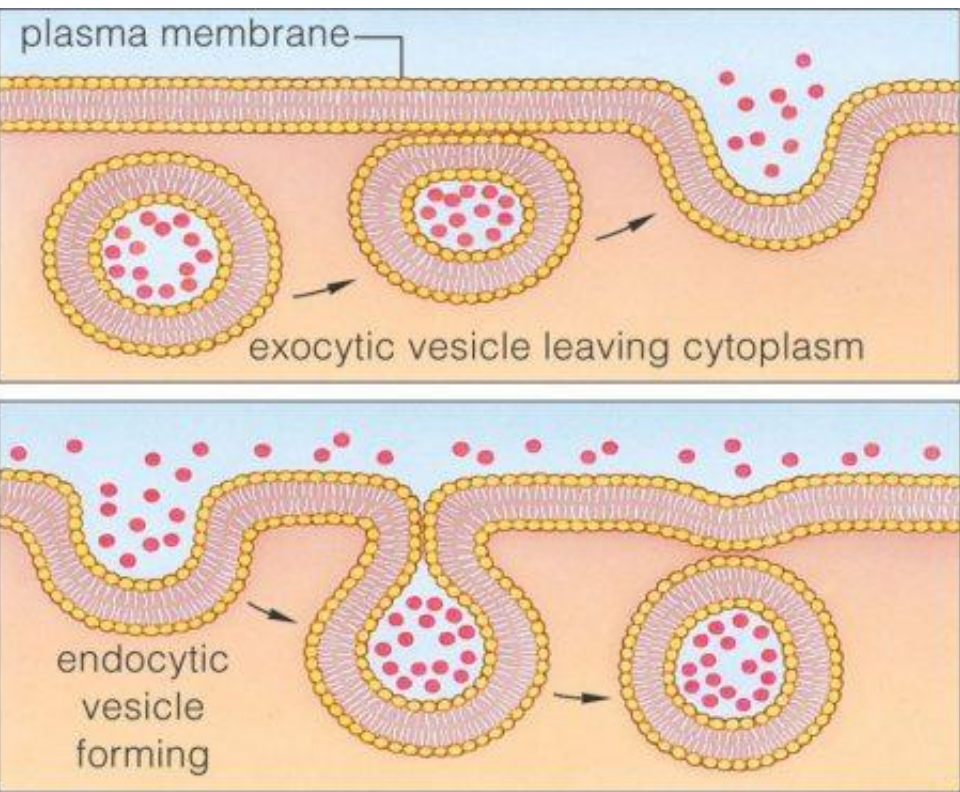
The inside of the cell and the outside of the cell can be next to water. The inner part of the cell membrane repels water.

4. Simple Diffusion and Facilitated Diffusion

- FD and Simple both don't require energy. They both take substances from high to low concentration (oxygen and carbon dioxide as well as glucose)
- FD- uses a protein to help large or charged particles across the cell membrane (glucose or Hydrogen Ions- H^+)
- Simple- just has small and uncharged particles going straight through the lipid bilayer (oxygen and carbon dioxide)



5. Endocytosis and Exocytosis (part 1)



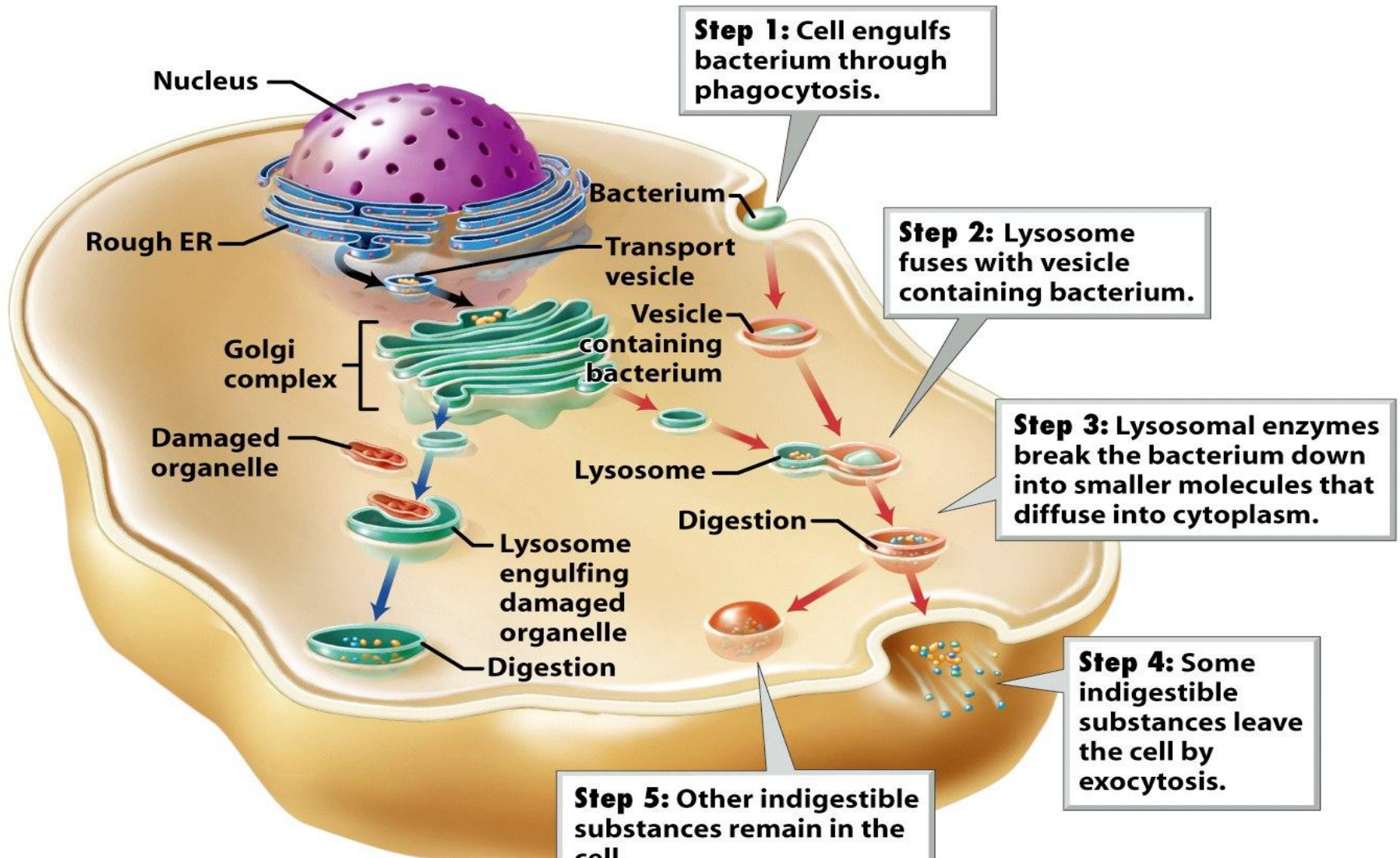
- Both use vesicles.
- In Endocytosis, the cell forms a pouch around fluid or large particles and creates a vesicle as it brings it inside the cell. (bottom picture)
- In exocytosis, a vesicle on the inside of the cell, fuses with the cell membrane and lets the contents out of the cell. (top picture)

5. Endocytosis and Exocytosis (part 2)

- Endocytosis:
 - Phagocytosis- cell eating (engulfing a bacterial cell)
 - Pinocytosis- cell drinking (bringing in a lot of fluid)

5. Endocytosis and Exocytosis (part 3)

- Endocytosis and lysosomes:



6. How are Golgi and Exocytosis related?

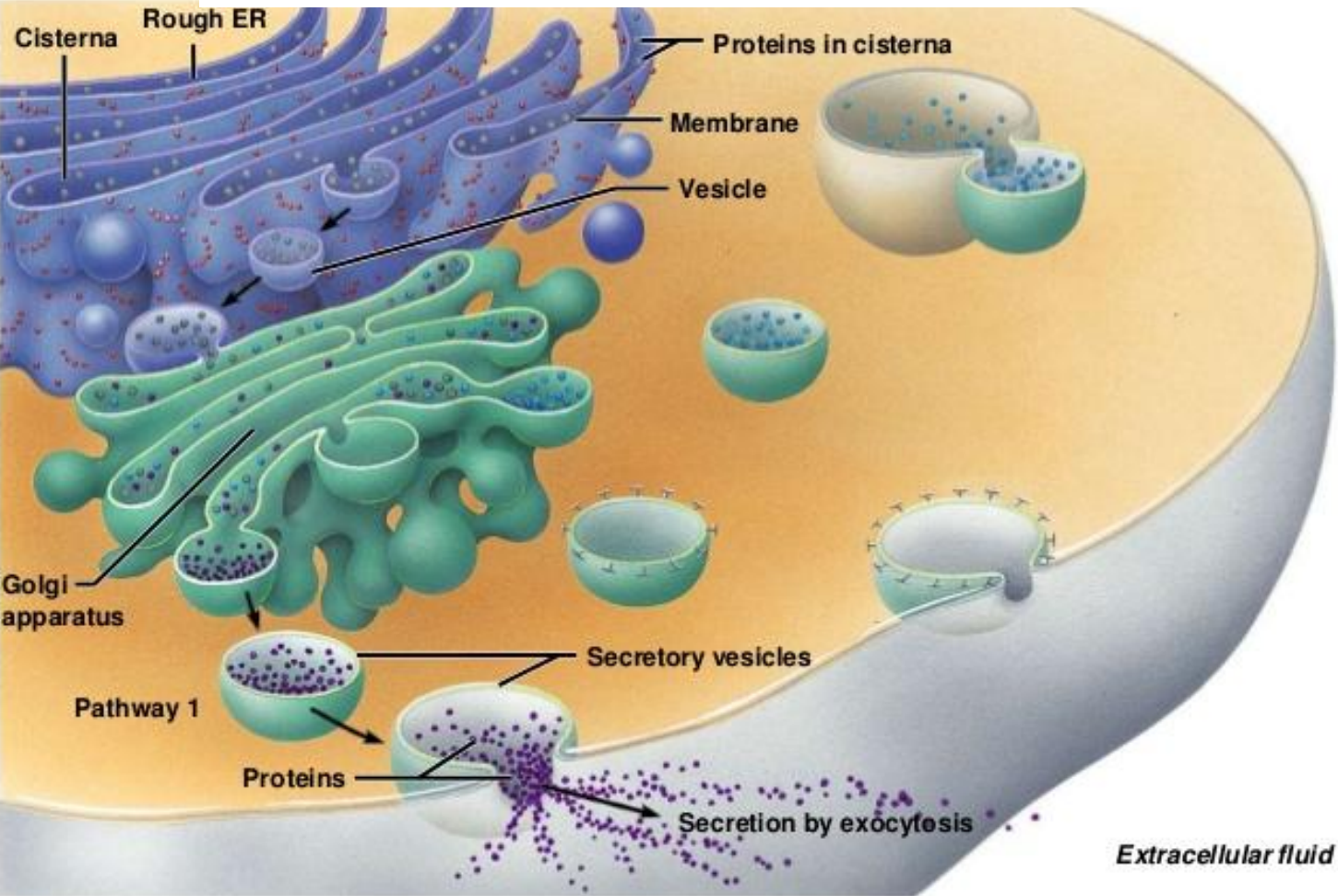


Figure 3.21

7. Define osmosis:

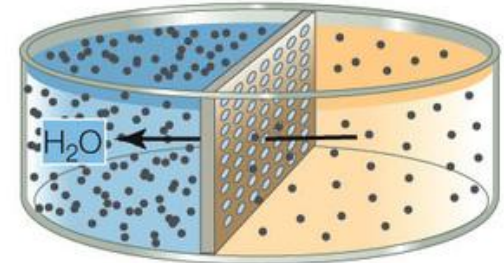
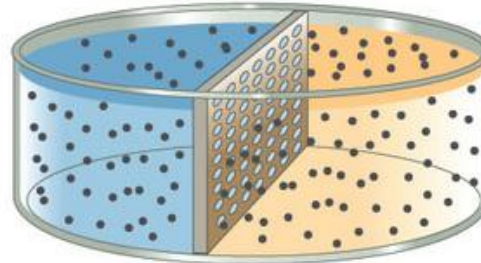
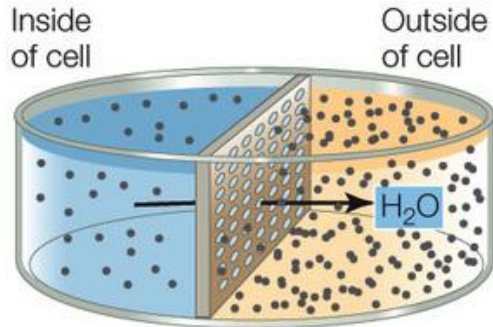
- Diffusion of water across the membrane from _____ to _____ concentration.
- 8. _____

9. The 3 terms:

(A) **Hypertonic** on the outside
(concentrated solutes outside)

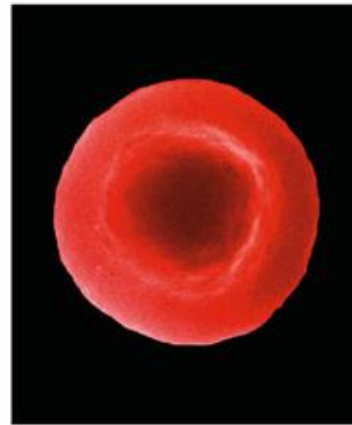
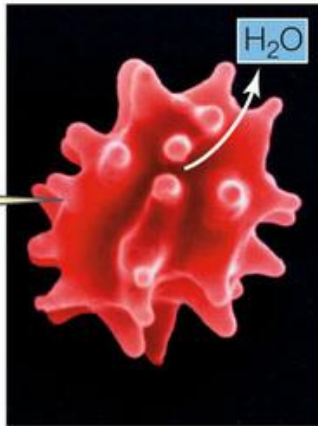
(B) **Isotonic**
(equivalent solute concentration)

(C) **Hypotonic** on the outside
(dilute solutes outside)

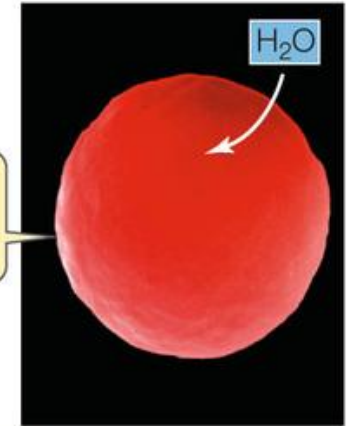


Animal cell
(red blood cells)

Cells lose water and shrivel.

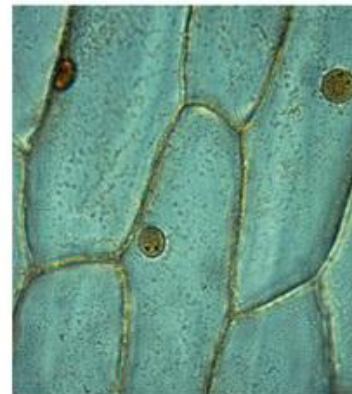
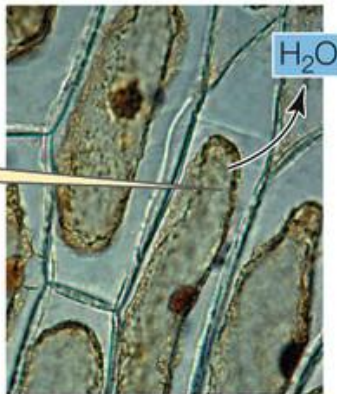


Cells take up water, swell, and burst.



Plant cell
(leaf epithelial cells)

Cell body shrinks and pulls away from the cell wall (wilting).



Cell stiffens but generally retains its shape because cell wall is present.

