Cell Boundaries

Section 7-3 (Page 182)

Cell Wall (plant cells)

Cell membrane (plasma membrane)

Cell Wall

The main function of the cell wall is to provide support and protection for the cell.

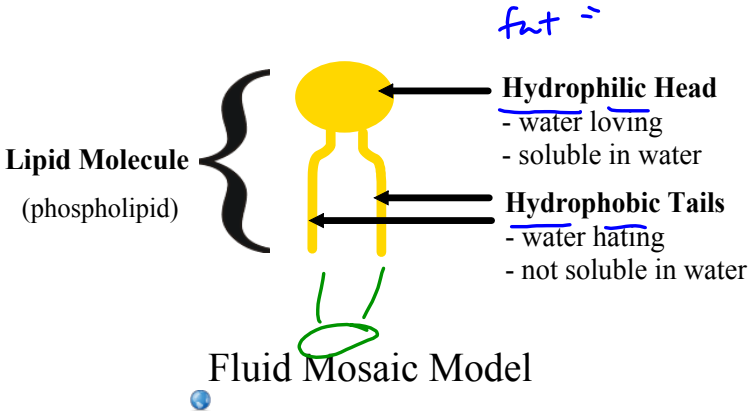
Cell walls lie outside the cell membrane.

Plants cell walls are composed mostly of cellulose, a tough carbohydrate fiber.

Cell Membrane

The cell membrane regulates what enters and leaves the cell **and** also provides protection and support. Scientists describe their understanding of the cell membrane as the "fluid mosaic model".

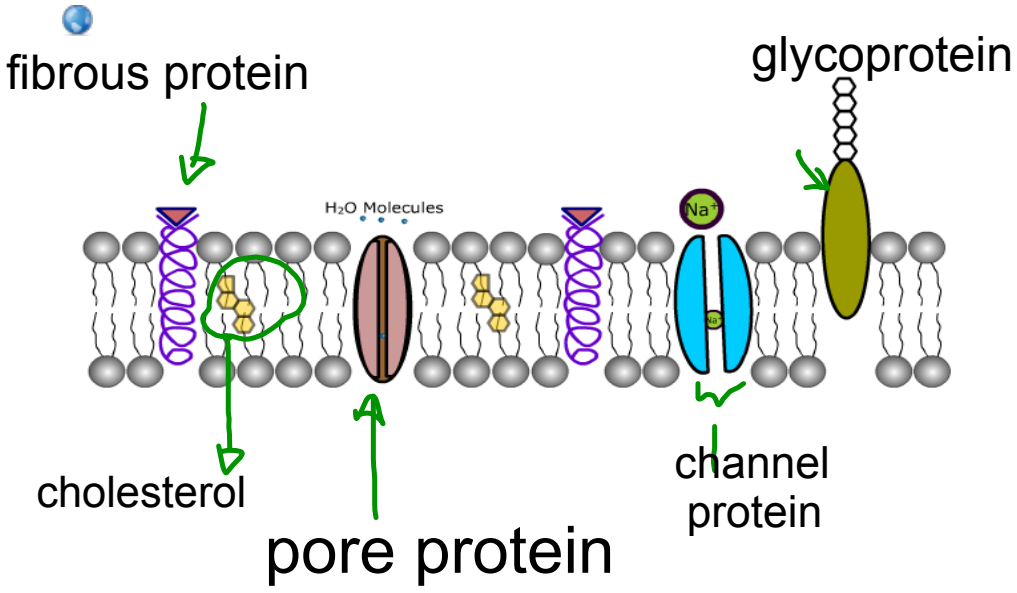
Nearly all cell membranes are made up of a lipid bilayer.



Fluid Mosaic Model

See Figure 7-12 (Page 182)

Construction of the Cell Membrane



Concentration of a Solution

Every living cell exists in a liquid environment that it needs to survive. Cell membranes regulate the movement of dissolved molecules from the liquid on one side of the membrane to the liquid on the other side.

concentration of a solution = mass of solute in a given volume of solution

Salts and sugars are common solutes.

$$\text{concentration} = \frac{\text{mass}}{\text{volume}}$$

$$\frac{12 \text{ g salt}}{3 \text{ L water}} = \square \qquad \frac{12 \text{ g salt}}{6 \text{ L water}} = \square$$

Types of Transport

Passive Transport

movement of materials across a cell membrane without the use of cellular energy

- diffusion
- osmosis
- facilitated diffusion

Active Transport

movement of materials across a cell membrane with the use of cellular energy

- molecular transport
- endocytosis
- exocytosis

- Pinocytosis
- phagocytosis

☆

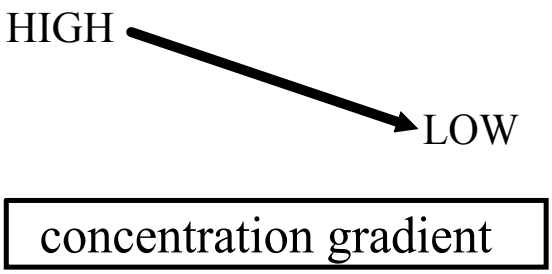
Brownian Motion

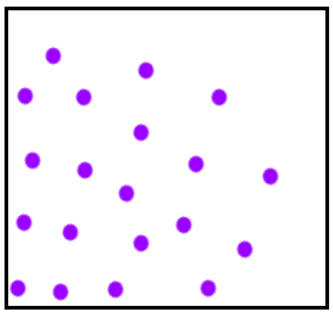
Brownian motion refers to the random movement of molecules.

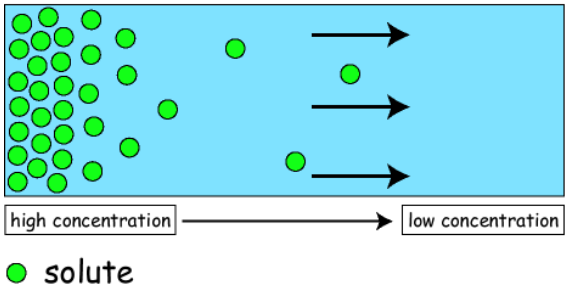
Molecules move in all directions with equal frequency, bouncing off each other as they collide. This causes molecules concentrated in one area to spread outward.

Diffusion

Diffusion can be explained by the movement of molecules from an area of high concentration to an area of low concentration . Diffusion rates increase with increasing *temperature*, *pressure* and *concentration*. When molecules are finally distributed equally, then equilibrium is reached.







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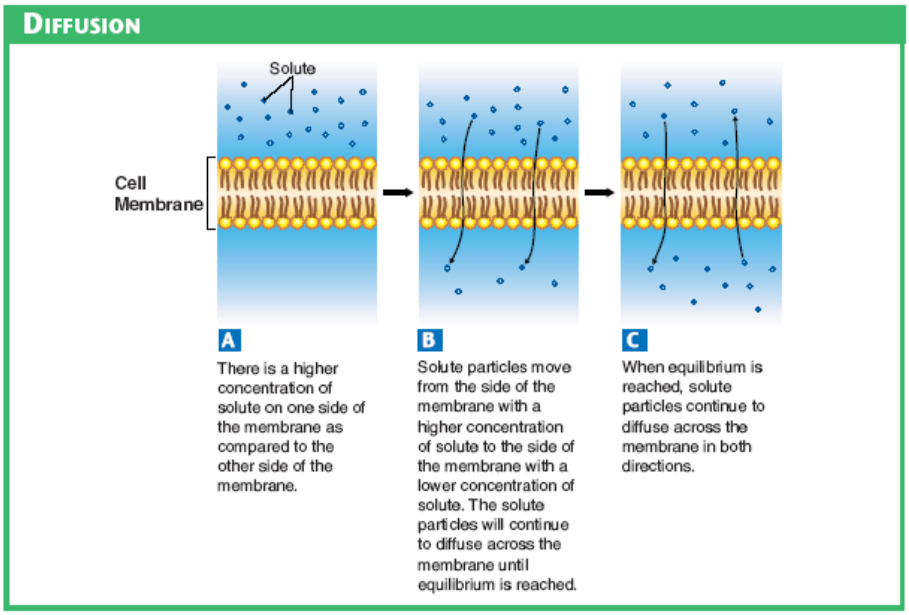

If a substance is able to diffuse across a membrane, the membrane is said to be **permeable** to it. A membrane is **impermeable** to substances that cannot pass across it.

Most biological membranes are <u>selectively permeable</u> meaning that some substances can pass across them and others cannot.

selectively permeable membrane = semipermeable membrane

Attachments

Two_Types_of_Cells__Prokaryotic_and_Eukaryotic.asf

Bacteria.asf