

Concept 6.3

Membranes regulate the traffic of molecules.

Diffusion - The net movement of the particles of a substance from where they are more concentrated to where they are less concentrated.

Passive Transport:

- **Diffusion** across a membrane where no energy is expended by the cell. Only the random motion of the molecules is required to move them across the membrane.
- **Facilitated diffusion**, transport proteins provide a pathway for certain molecules to pass.

Osmosis:

Osmosis is the passive transport of water across a selectively permeable membrane.

Hypertonic - The solution with a higher concentration of solute.

Hypotonic - The solution with the lower solute concentration.

Isotonic - Solutions in which the concentrations of solute are equal.

Active Transport:

Active transport is when a cell expends energy to move molecules or ions across a membrane.

- a specific transport protein pumps a solute across a membrane, usually in the opposite direction to the way it travels in diffusion. (Chemical energy is supplied by the mitochondria)

Transport of Large Molecules:

The movement of large particles through the plasma membrane.

Exocytosis a vesicle containing proteins fuses with the plasma membrane and spills the contents outside the cell.

Endocytosis takes material into the cell within vesicles that bud inward from the plasma membrane.