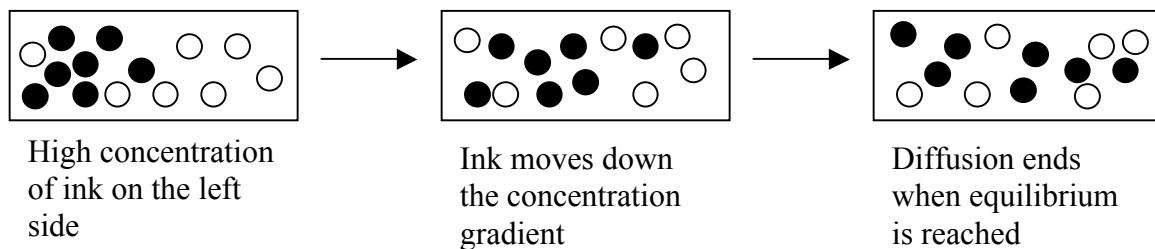


Passive Transport- the cell **does NOT** use energy. Molecules go from high concentration to low concentration.

Diffusion

- Diffusion is the process by which molecules of a substance move from areas of **high** concentration to **low** concentration.
- A high concentration occurs when an area has many more molecules of a substance compared to another area
- A low concentration occurs when an area has less molecules of a substance compared to another area
- A concentration **gradient** occurs when there is a difference in the number of molecules in different areas
- Diffusion occurs down the concentration gradient (from high to low)
- Diffusion ends when all areas are in **equilibrium** (have the same concentration)

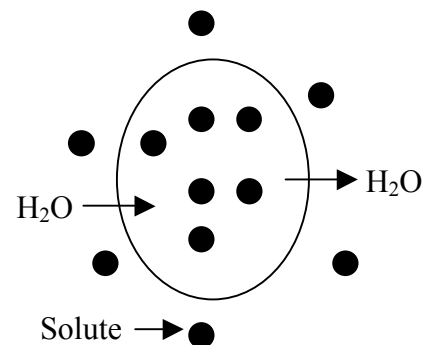


Osmosis

- Osmosis is the movement of water molecules from a **high** concentration to a **low** concentration. This means water is going down a concentration gradient.
- Osmosis occurs when the cell membrane does not allow the solute molecules to **diffuse** into the cell
- Water moves down its concentration gradient to make all areas the same concentration (the same ratio of water to solute molecules)

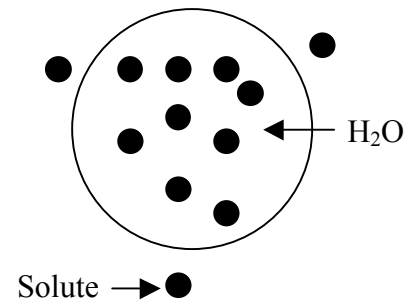
- **Isotonic Solution**

- Occurs when the concentration of water the cell is the **same** as inside the cell
- Water moves into the cell and out of the cell at the same rate
- *iso-* means **equal to**



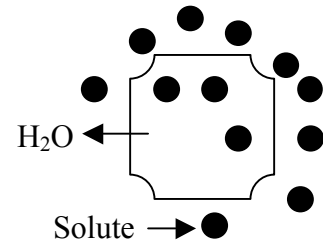
- **Hypotonic Solution**

- Occurs when the concentration of solute particles outside the cell is **less** than inside the cell (higher concentration of water inside the cell than outside)
- Water moves into the cell, causing the cell to swell
- **Cytolysis** (explosion) may occur in animal cells, while plant cells become turgid.
- *hypo-* means **less than**



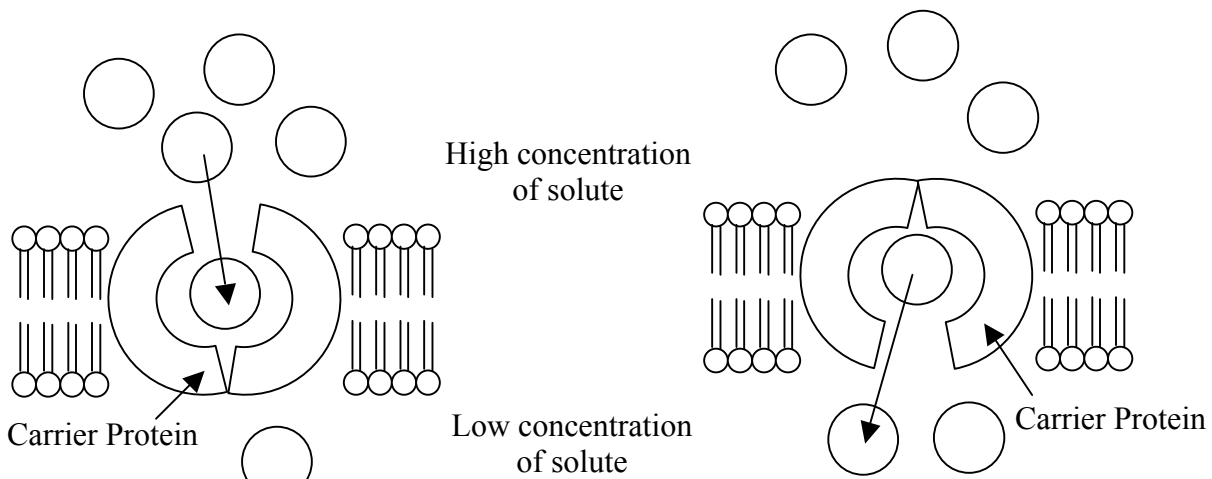
- **Hypertonic Solution**

- Occurs when the concentration of solutes outside the cell is **higher** than inside the cell (lower concentration of water inside the cell than outside)
- Water moves out of the cell, causing **plasmolysis** (cell shrinks and shrivels)
- *hyper-* means **more than**



Facilitated Diffusion

- Diffusion of specific particles through **carrier proteins** found in the membrane. A carrier protein has a binding site - an area that matches the specific shape of the molecule it transports
- Glucose enters most cells through facilitated diffusion



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2) Carrier protein changes direction and the solute leaves