Cell Transport - Passive + Active

Cells regulate internal physical and chemical conditions, or maintain homeostasis, by controlling the movement of molecules in and out of the cytoplasm.

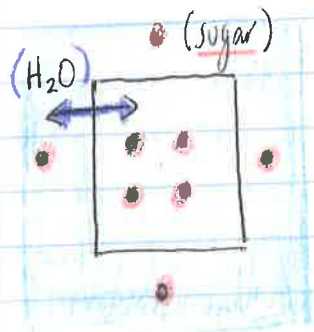
Particles spread out and move from areas of high concentration to low concentration until they are evenly distributed or until equilibrium is reached.

The process by which particles move from high to low concentrations is known as diffusion.

Net Movement of Particles (Water)

Isotonic

Concentrations of solutes are the same inside + outside



water would move equally in + out

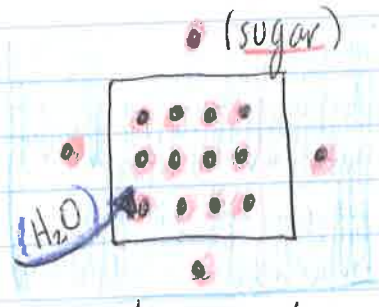
Hypertonic

Solution outside has a higher concentration of solutes than inside.

water moves out

Hypotonic

solution outside cell has a lower concentration of solutes than inside.

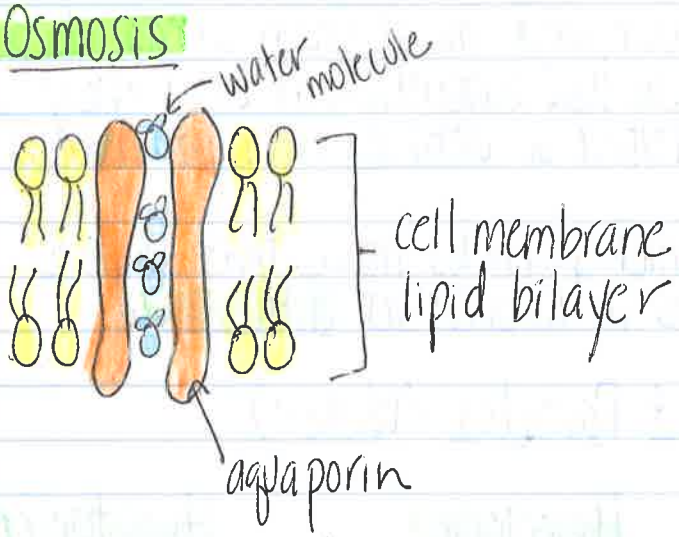


water moves in

Movement of molecules across cell membranes without using cellular energy = passive transport.

Facilitated diffusion is movement of molecules (such as sugars + proteins) through protein channels in the cell membrane. No energy is required!

Osmosis



Water protein channels known as aquaporins allow water to pass through. This type of facilitated diffusion is known as osmosis.