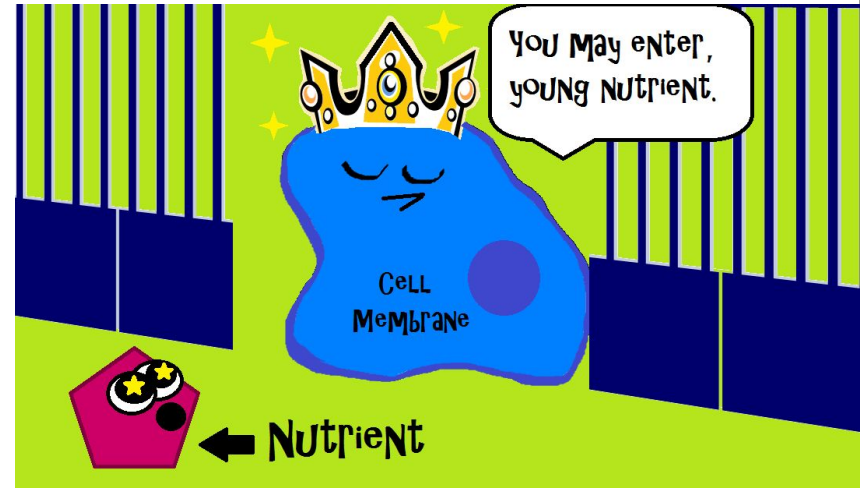


How do different substances get into
or out of a cell?

Cell Membranes - the border police

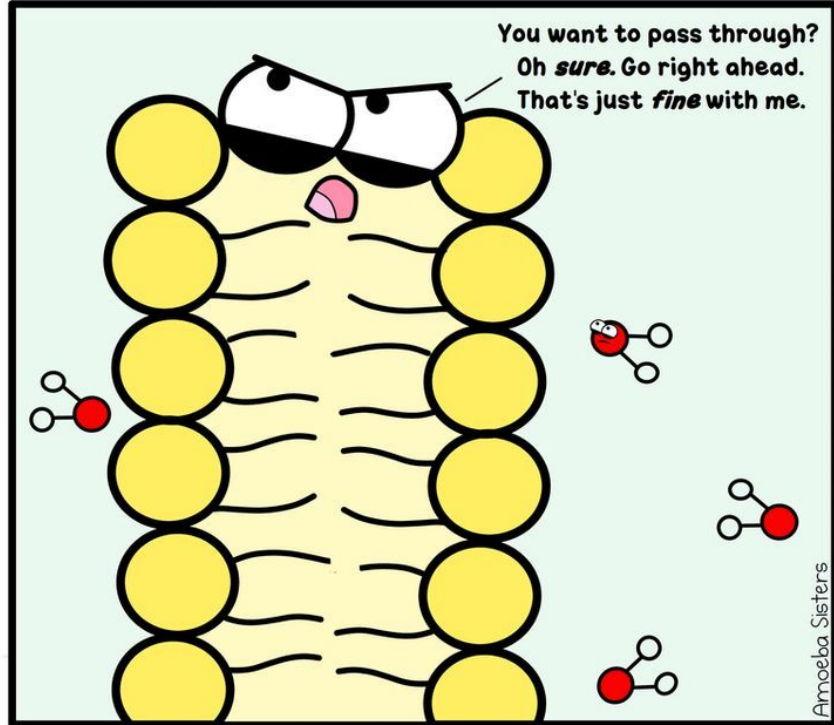
Cell membranes are in charge of maintaining **homeostasis** in the cell by keeping the internal conditions relatively constant.

It does this by **controlling the movement of molecules** from one side of the membrane to the other.



Cell Membrane: a phospho-lipid bilayer

Paramecium Parlor



Semipermeable membranes:
putting the "passive" in passive transport.

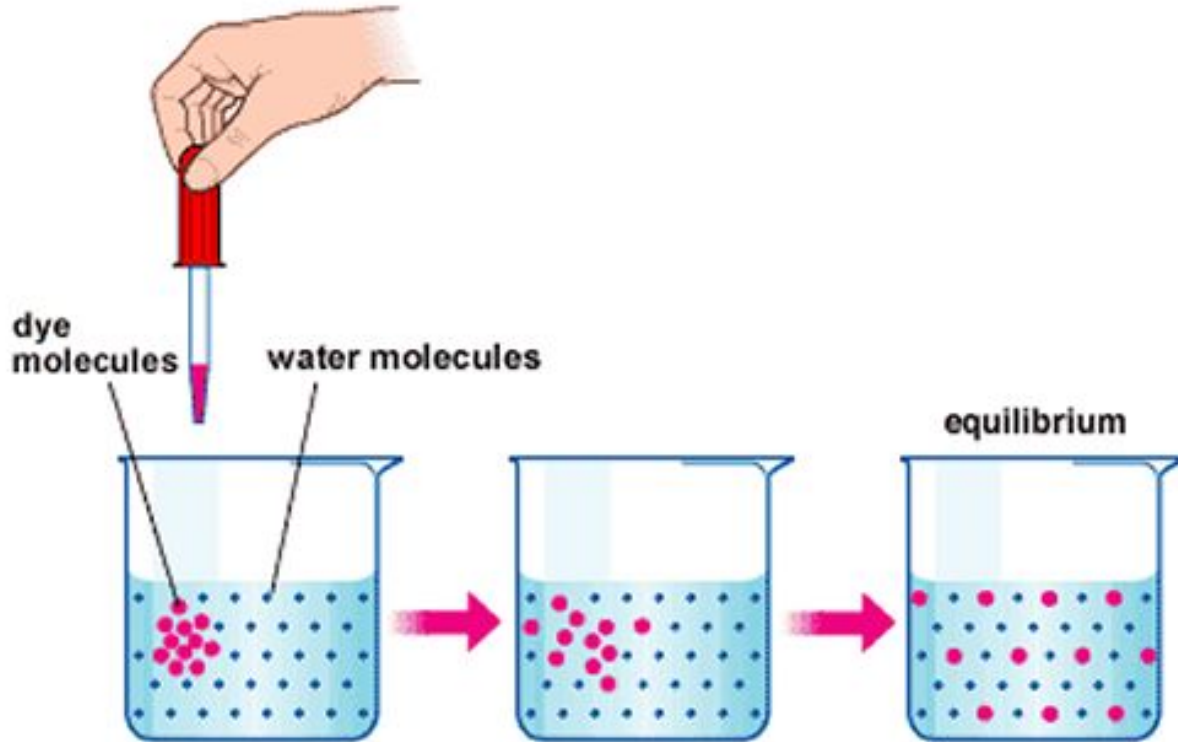
- 2 layers of lipids: water loving on the outside, water-hating in the middle
- Small, non-charged particles can dissolve into the lipids and pass through
- Cell membranes have protein "channels" for other molecules, like water



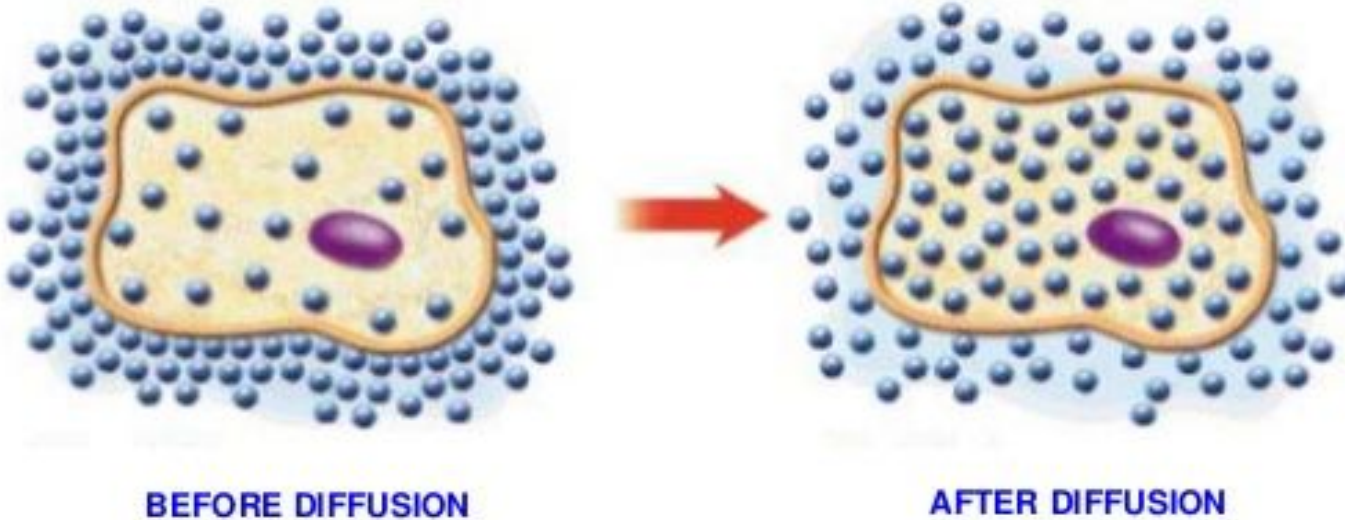
DIFFUSION

particles in regions of high concentration spread out into regions of low concentration, filling the space available to them

Diffusion = particles move from areas of high concentration to areas of lower concentration

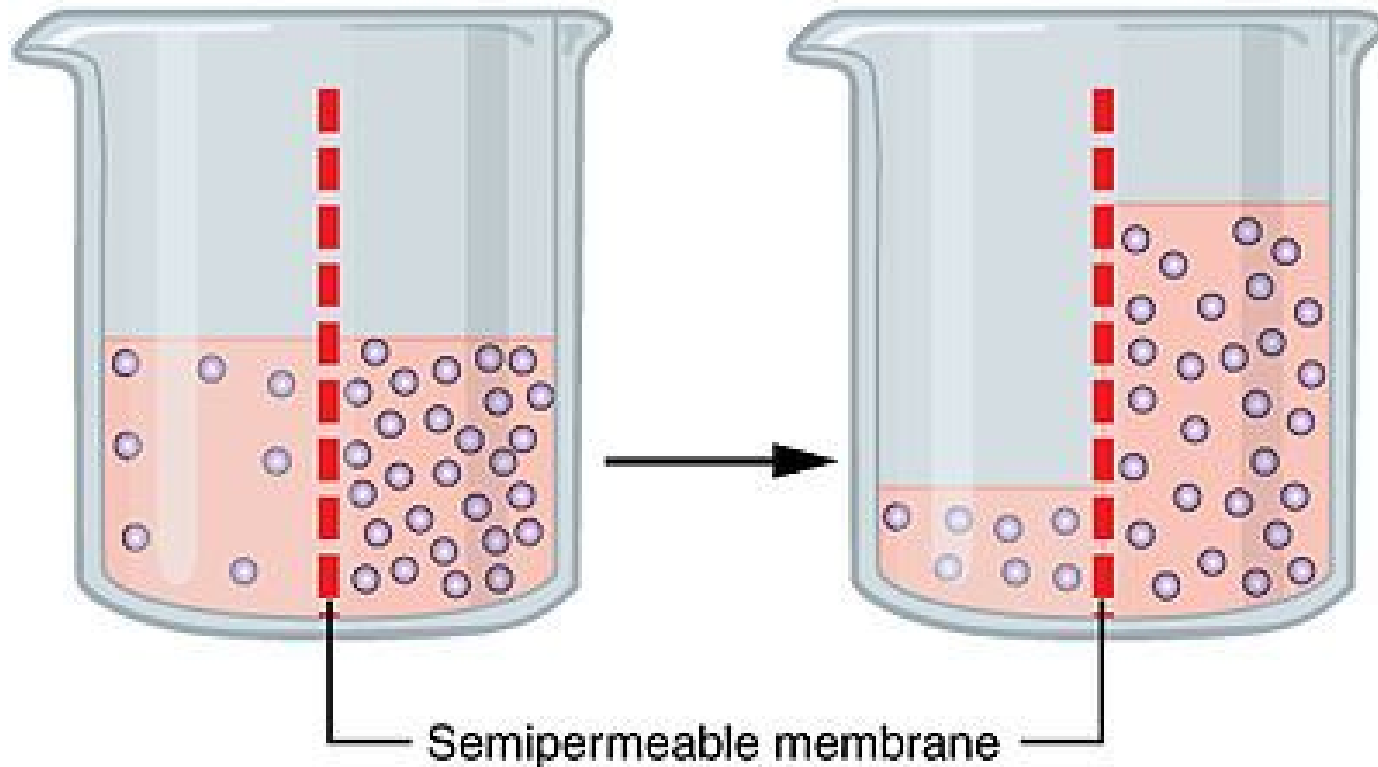


Diffusion Across Cell Membranes



**if something can spread out, it will!*

Osmosis = Diffusion of water (through a selectively permeable membrane)



Prefix:

Iso

Meaning:

same

Example:

isotonic

Hypo

below



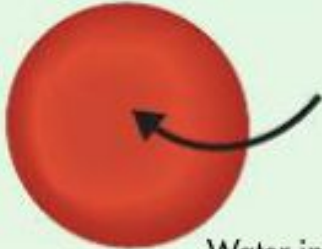
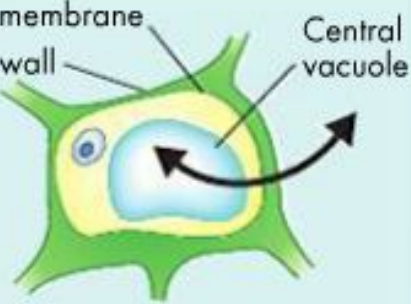


hypotonic

Hyper

above

hypertonic

The Effects of Osmosis on Cells

Solution	Isotonic: The concentration of solutes is the same inside and outside the cell. Water molecules move equally in both directions.	Hypertonic: The solution has a higher solute concentration than the cell. A net movement of water molecules out of the cell causes it to shrink.	Hypotonic: The solution has a lower solute concentration than the cell. A net movement of water molecules into the cell causes it to swell.
Animal Cell	 <p>Water in and out</p>	 <p>Water out</p>	 <p>Water in</p>
Plant Cell	 <p>Water in and out</p>	 <p>Water out</p>	 <p>Water in</p>

Keepers of the Gate: Design Challenge

You are spending Thanksgiving at your Grandmother's house when your throat starts to feel sore. Your grandma tells you to gargle with salt water and it will feel much better. Thinking this is an old wive's tale, you scoff, but when you try it later that night it works! Why?