Cellular Transport

EQ#1:

Why do materials move in and out of the cell?

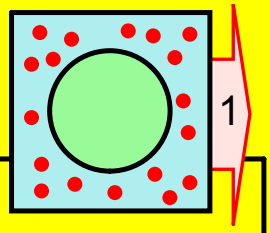
EQ#2:

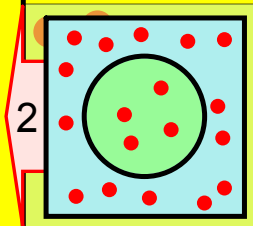
How does cell transport help the cell maintain homeostasis?

Passive Transport

(Pull each tab to learn more)

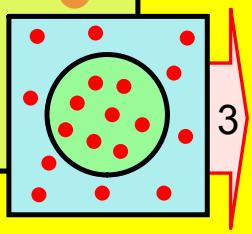
When substances cross the cell membrane without needing energy...They transport themselves!!!





Only small molecules such as H_20, CO_2, and O_2 can get across the membrane using Passive Transport

There are three main kinds of Passive transport:
Diffusion, Facilitated Diffusion, and Osmosis



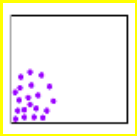
Diffusion

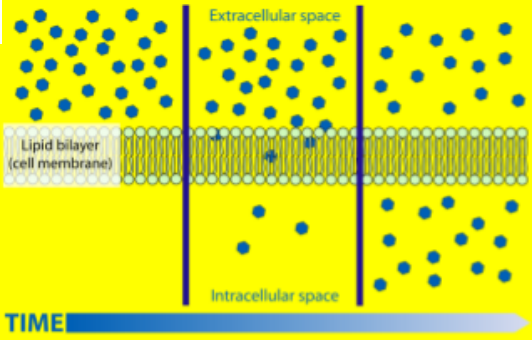
(When ready click on the animation to watch a short video on diffusion)

Random movement of molecules from an area of high concentration to an area of low concentration

Molecules move down the concentration gradient during diffusion

Molecules diffuse into or out of the cell by:
1. Passing through pores in the membrane
2. Being lipid soluble (dissolve into the membrane)



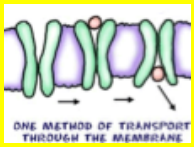


Facilitated Diffusion

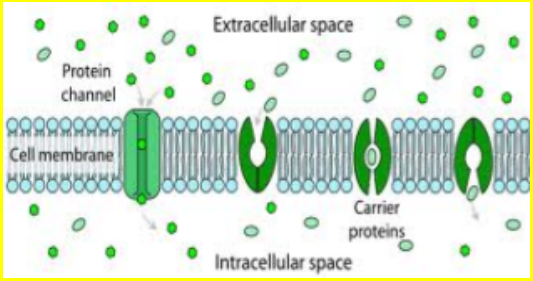
(When ready click on the middle picture to watch a short video on facilitated diffusion)

Some substances can not pass through the cell membrane on their own because of their size, shape, or chemical make-up....

So...protein channels (transport proteins) come along to help push these substances through the membrane

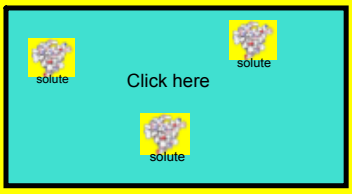


No energy is needed to pass ions/molecules through transport proteins.

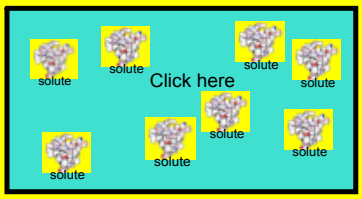


Osmosis

(Requires NO energy!)



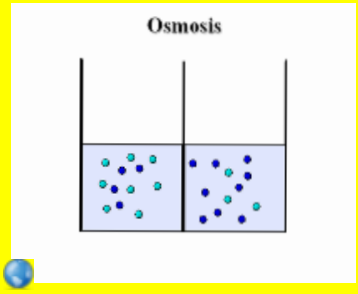
Semipermeable membrane



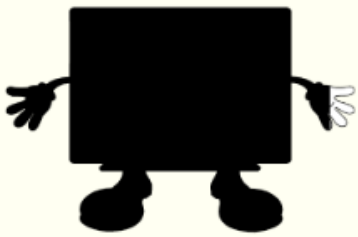
Osmosis is the movement of water across a semipermeable membrane from an area of low solute concentration to an area of high solute concentration

Osmosis is the movement of water across a semipermeable membrane from an area of high water concentration to an area of low water concentration

Water movement →



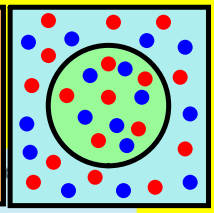
How much knowledge has been
"Transported" into your brain!?



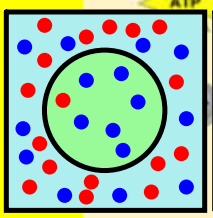
Active Transport

(Pull out arrows to learn more)

Active Transport moves molecules in the opposite direction, from areas of LOW concentration to areas of HIGH concentration



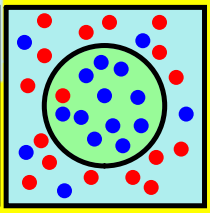
1



2

Active Transport pushes molecules against their concentration gradient

Active Transport moving molecules against the concentration gradient REQUIRES ENERGY!

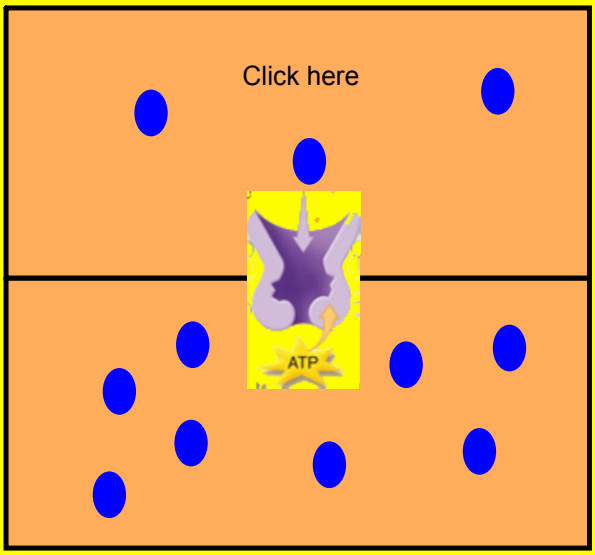


3

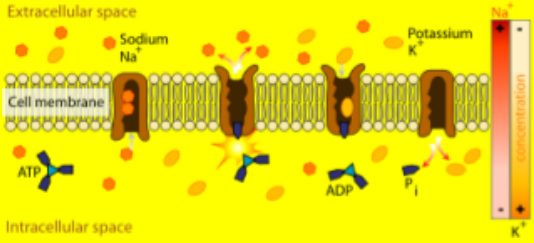
There are 3 types of Active Transport: Membrane Pumps, Endocytosis, Exocytosis

Membrane Pumps

Click on pump to watch a short video



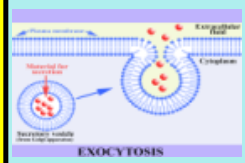
Membrane Pumps are proteins that push molecules across the membrane from an area of low to high concentration with the use of energy



Endocytosis and Exocytosis

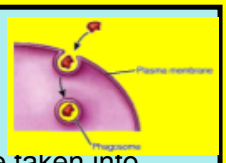
Vesicle from outside cell fuse to membrane, membrane opens and the molecules are released into the cell

2 types of Endocytosis-



Vesicle from inside the cell fuse to membrane, membrane opens and the molecules are released out of the cell

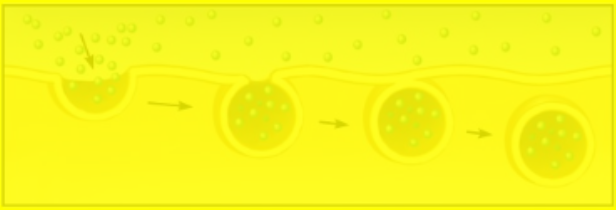
**Opposite of Endocytosis!

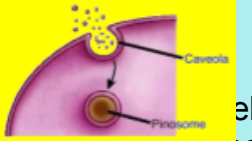


"Cell Eating"

When solid particles are taken into the cell

1





ell Drinking"

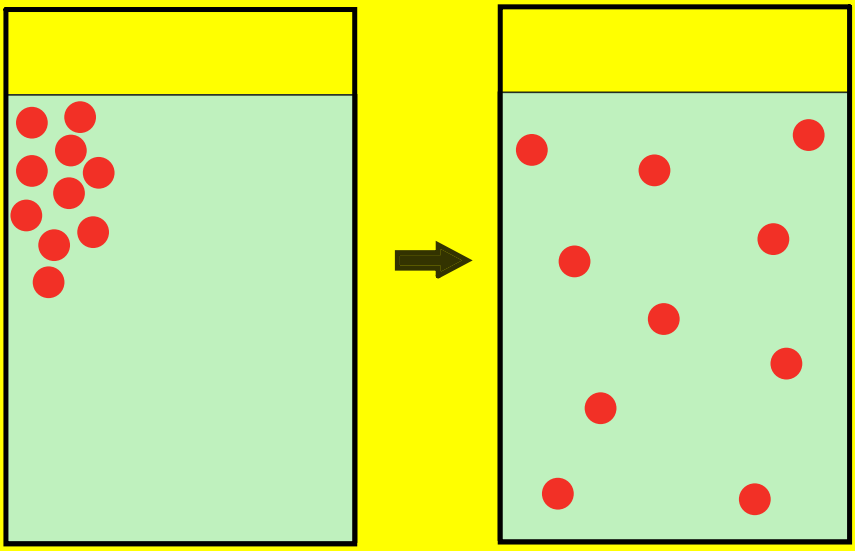
When liquid particles are taken into the cell

2

How well can you get molecules into OR out of your cell??

Cell Transport Activity!!

Click on the image below to get to the game



Test your knowledge on Cell Transport