

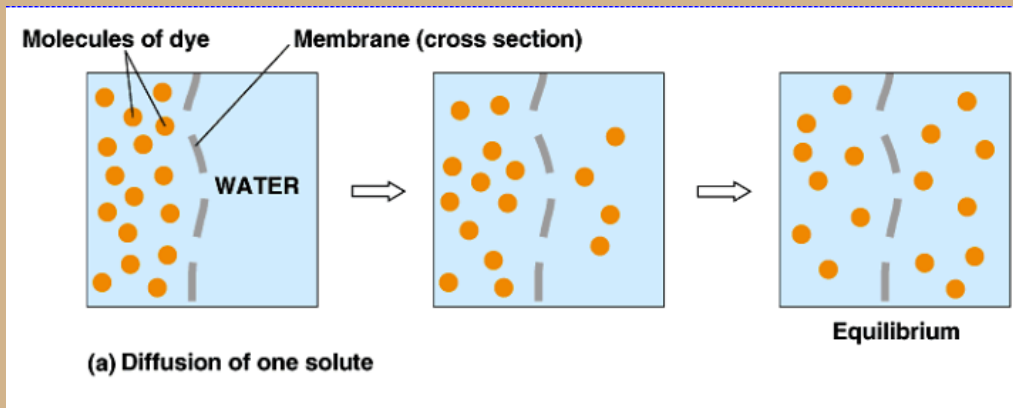
Cell Transport Objectives

310.5	I can develop and use a model to illustrate the hierarchical organization of interacting life systems that provide specific functions. NGSS.HS.LS1-2
310.5.1	I can list and explain the characteristics of life.
310.5.2	I can compare cells by type (pro/eukaryote, animal/plant).
310.5.3	I can explain the structure and function of plasma membranes.
310.5.4	I can define and model active and passive transport.
310.5.5	I can define homeostasis and give an example
310.5.5	I can explain and link the terms and concepts relating to the principles of cellular structure and function.
310.5.6	I can provide evidence towards the growth in my understanding of principles of cellular structure and function.

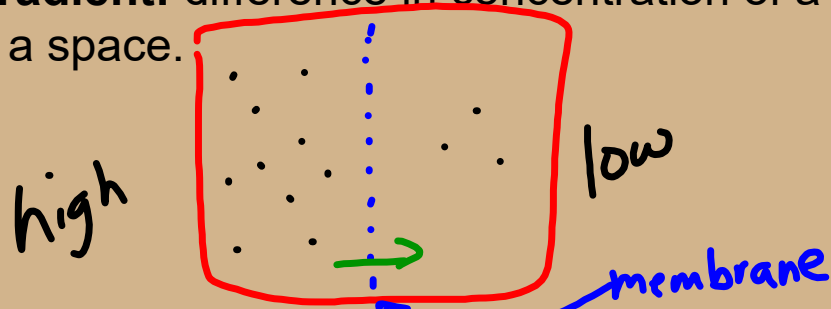
Cell Membrane Transport

1. Passive Transport - *no* energy is used
2. Active Transport - energy *is* used

The cell membrane allows molecules in and out in order to maintain homeostasis.
(balance)

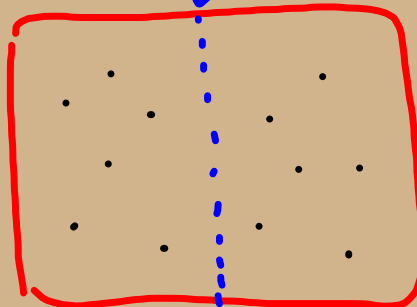


Concentration gradient: difference in concentration of a substance across a space.



Equilibrium: equal concentration of the substance throughout that space.

equal
on both
sides



Examples of Passive Transport:

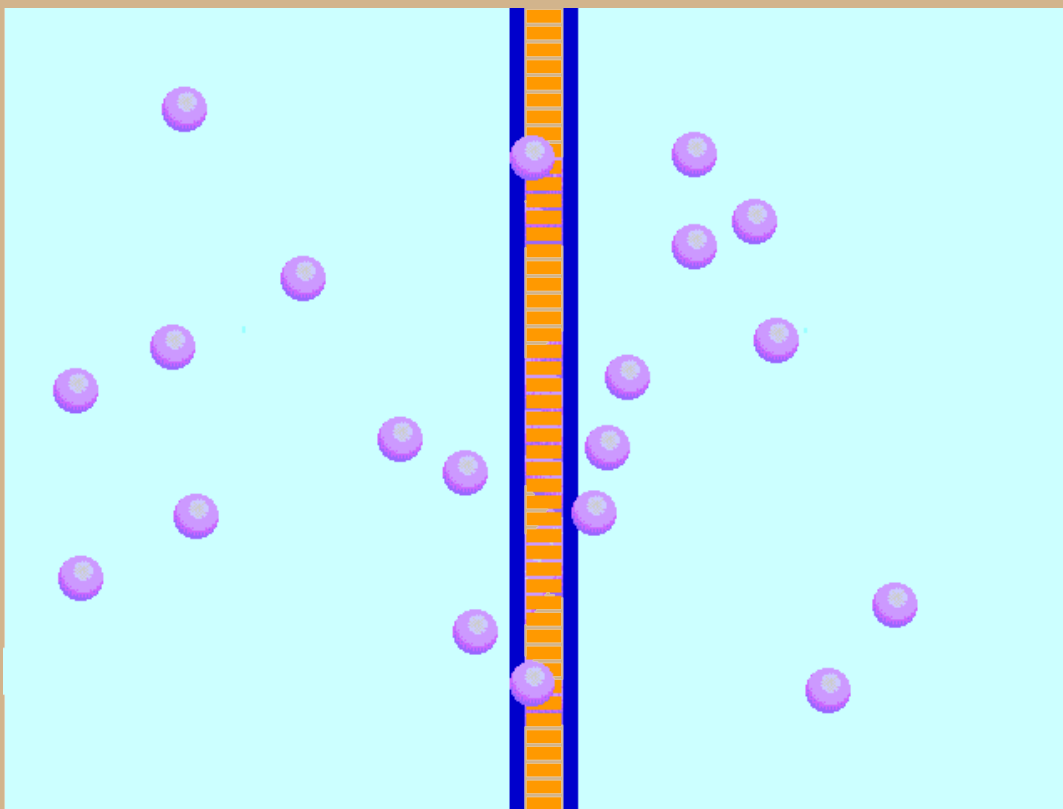
NO ENERGY

perfume

1. Diffusion:

Movement of substance from area of:
high concentration to area of **low** concentration.

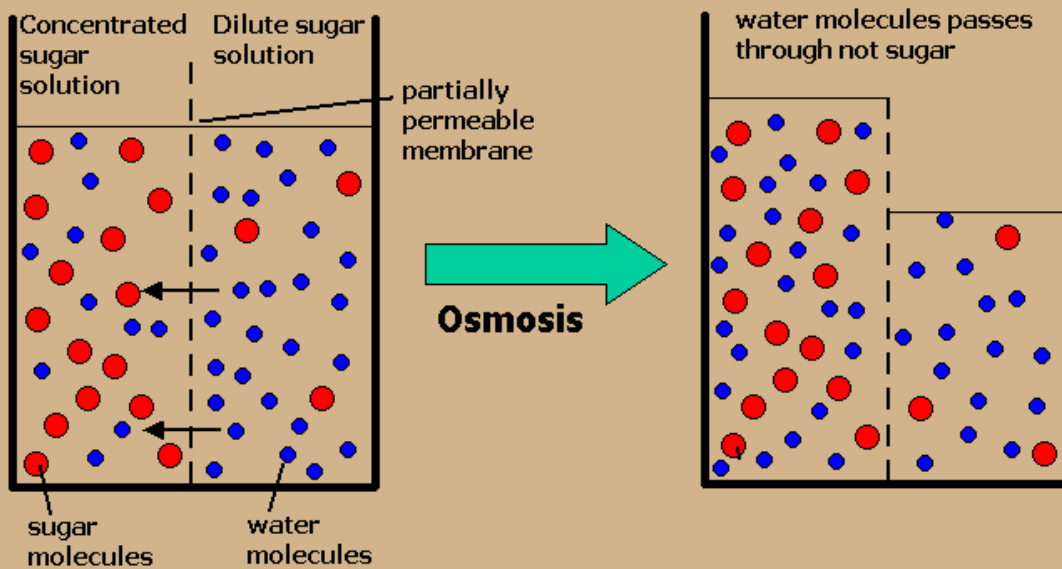
-can be across a membrane



Example of Passive Transport

NO ENERGY

2. Osmosis: diffusion of water across a membrane



*Sore Th

"Aided"

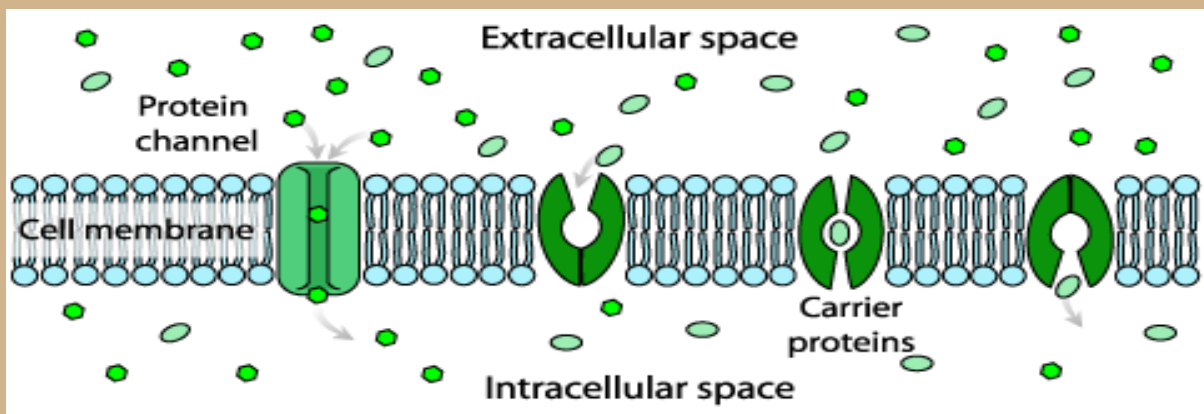
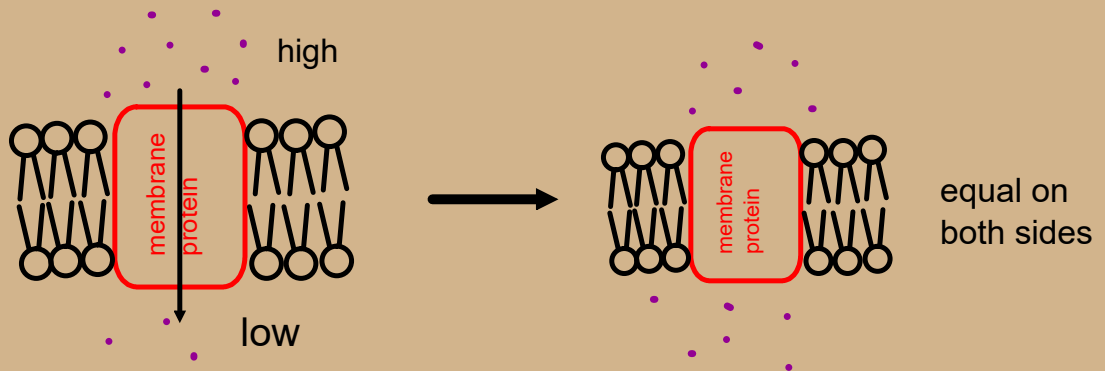
Example of Passive Transport

NO ENERGY

3. Facilitated Diffusion

<http://highered.mcgraw-hill.com>

- *passive* transport--NO energy (happens down a concentration gradient)
- uses transport proteins
- used by particles that are **too big** or **too polar** to diffuse through membrane.



What is the difference between simple and facilitated diffusion?

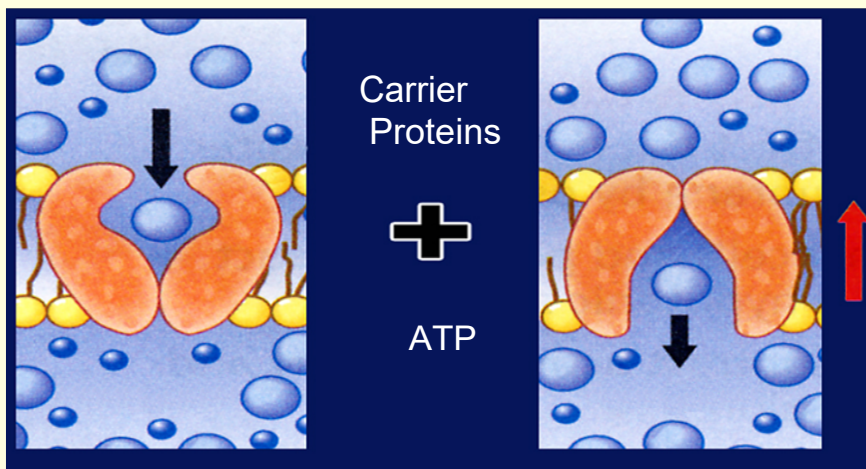
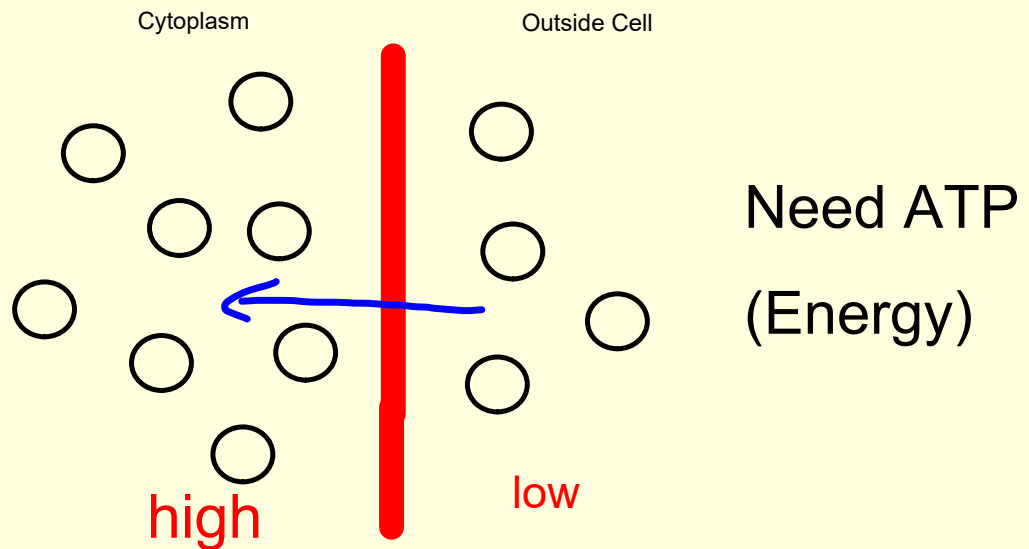
	simple diffusion	facilitated diffusion
goes through:	lipid bilayer	transport protein
particles:	small and nonpolar	large and polar

Active Transport

Requires **ENERGY!**

Transport of certain substances across the membrane against the concentration gradient.

This means from low concentration to high concentration.

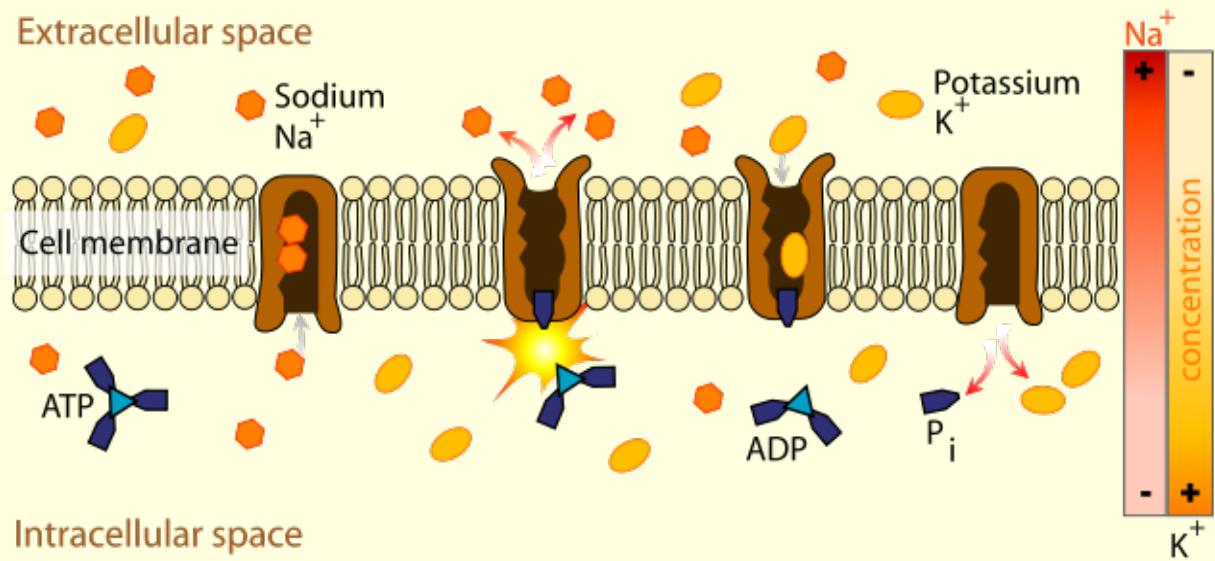


Example of Active Transport

Sodium Potassium Pump:

transports **sodium** out of cell and **potassium** into cell

* Uses ATP (energy)



Review

Define and draw an example of:
concentration gradient
equilibrium

Define osmosis

2 functions of cell
membrane?

2 types of transport?

Example(s) of each?

Which type of transport uses energy?
does not use energy?

Which type goes "up" or "against" the gradient?
"down" or "with" the gradient?

Which types of transport require a membrane protein?

Draw a lipid bilayer and label it.