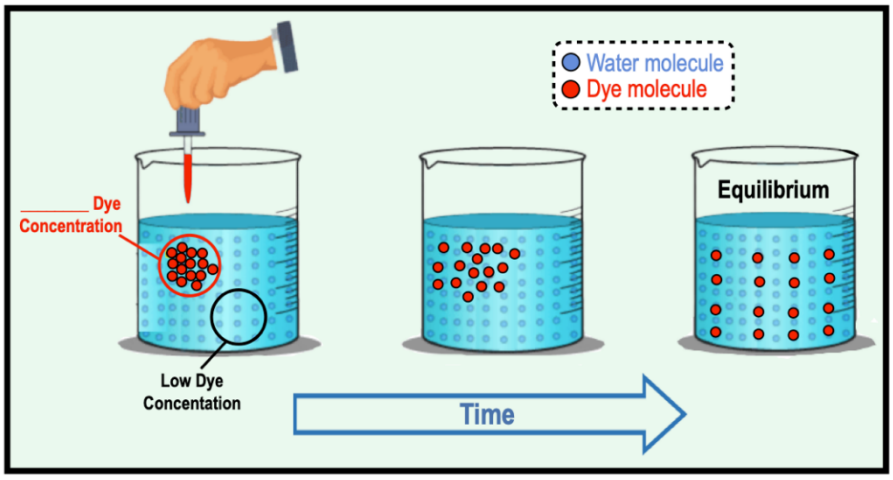
CONCEPT: BIOLOGICAL MEMBRANE TRANSPORT

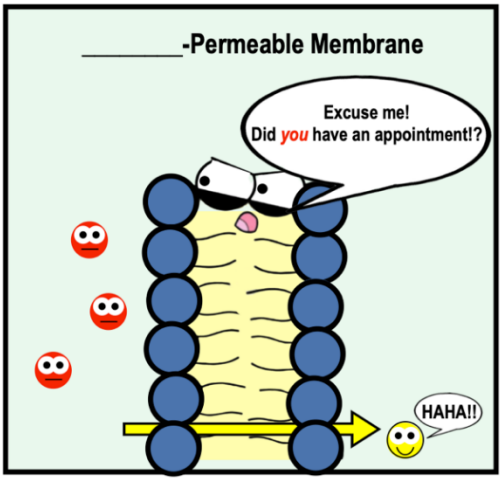
●Recall: Molecules have natural tendency to diffuse _____ *their* concentration gradients (from _____ to _____).

□ Biological membranes are _____ *permeable* & can act as _____ to prevent diffusion.

□ *Selectively Permeable* (or *semi-permeable*): "_____" about what crosses *in/out* of the cell membrane.

EXAMPLE: Diffusion & Selectively Permeable Membranes.

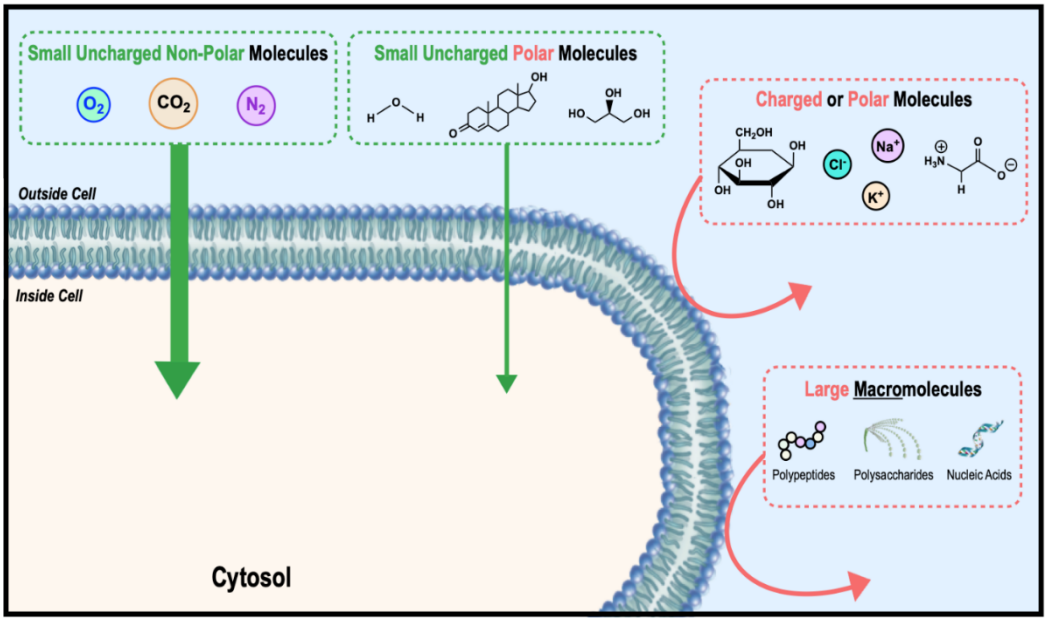


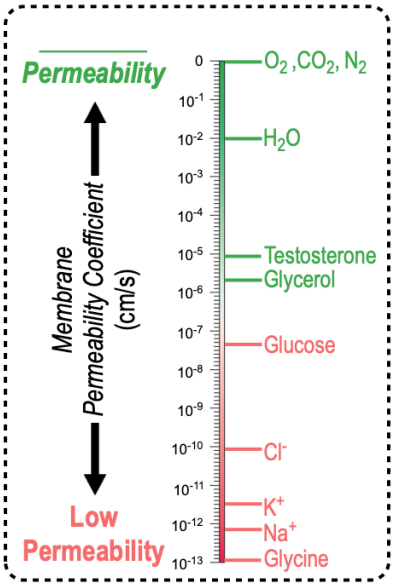


Which Molecules Freely Cross Membranes?

Freely Diffuse *without facilitation:*	**____**	**Uncharged**	**Nonpolar/Hydro_____**
Cannot* Freely Diffuse *without facilitation:	**Large**	**_____ (+/-)**	**Polar/Hydrophilic**

EXAMPLE: Diffusion Across a Membrane.





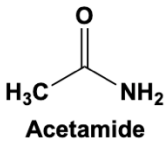
PRACTICE: Which molecule most easily diffuses across a biological membrane's lipid bilayer, without facilitation?

a) H_2O. b) O_2. c) $H_2PO_4^-$. d) Glucose. e) Na^+.

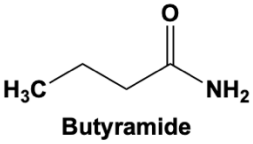
CONCEPT: BIOLOGICAL MEMBRANE TRANSPORT

PRACTICE: Rank the unfacilitated transmembrane diffusion of the following molecules from least → most permeable.

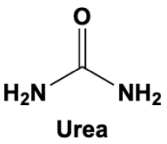
a) Acetamide → Urea → Butyramide.
b) Urea → Acetamide → Butyramide.
c) Butyramide → Acetamide → Urea.
d) Acetamide → Butyramide → Urea.
e) Urea → Butyramide → Acetamide



Acetamide



Butyramide



Urea

Map of Biological Membrane Transport

●Molecular transport across biological membranes can occur in a _____ of ways.

EXAMPLE: Membrane Transport Map.