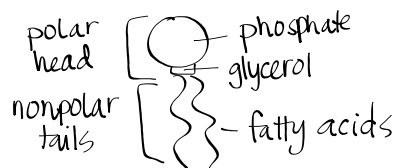Cell Membrane
- boundary of a cell that separates the inside of the cell from its outside.
  - its Selectively permeable controls what goes in + out of the cell.
- Fluid Mosaic Model model describes the movement + arrangement of molecules in the cell membrane
- majority of cell membrane is made up of phospholipids

polar head — phosphate
— glycerol
nonpolar tails — fatty acids

- polar head is hydrophilic ("water loving")
- nonpolar tails are hydrophobic ("water fearing")

A: phospholipid bilayer
B: integral protein (channel): it extends through both layers + transports materials
C: glycoprotein \ cell identification
D: carbohydrates chains
E: glycolipid
F: nonpolar tails
G: polar heads
H: peripheral protein: embedded in 1 layer
I: Cholesterol: helps with fluidity

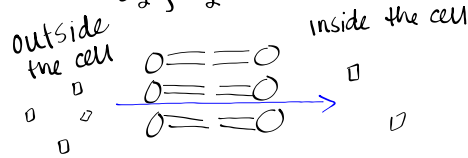Movement through the Cell Membrane

- concentration []: # of molecules in a given volume

Passive Transport: no energy (ATP) is needed. Molecules move from an area of high [] to an area of low []

1. Diffusion : tendency for molecules
   or ions to scatter evenly
   throughout the environment

- molecules travel until they
  reach equilibrium

- ex: CO_2, O_2

outside   inside the cell
the cell   O===O
        □   O===O   □
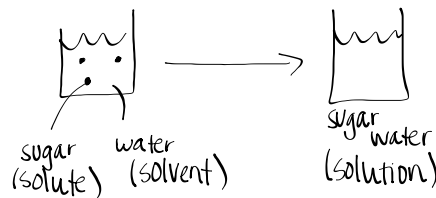   □   □   O===O   □
        □
□ = O_2

2. Osmosis : Diffusion of water

Define solute, solvent, solution
     leave space
Define isotonic solution
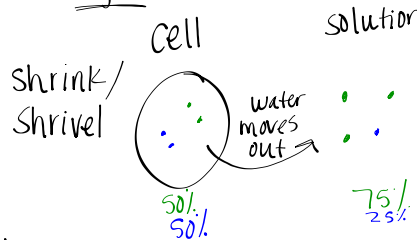   leave space
Define hypertonic solution
     leave space
Define hypotonic solution

sugar   water
(solute) (solvent)

sugar
water
(solution)

Isotonic solution
        equal [ ] of solutes
- sugar   solution
- water   cell

remain   •   •
same   •   •
size   •   • •   •
              50%   50%
              50%   50%

hypertonic solution
        higher [ ] of solutes in solution
              cell   solution

Shrink/   water   •   •
Shrivel   •   moves •
              •   •   out   •   •
              50%   75%
              50%   25%

hypotonic solution
        lower [ ] of solutes in solution
              cell   solution

exand   •   water •   •
can   • •   goes
burst   • • in   •   •
              50%   25%
              50%   75%