

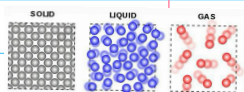
Osmosis & Diffusion

A QUICK REVIEW OF P.M.O.M (PARTICLE MODEL OF MATTER)

#1 - All matter = tiny particles
 - More particles in a volume of SOLID THAN in the SAME volume of GAS

#3 - Particles may be attracted to each other OR BONDED TOGETHER.
 ↳ Some have stronger attractions than others

#2 - The tiny particles are ALWAYS moving/vibrating



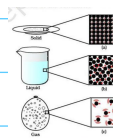
SOLIDS = wiggle in place

LIQUIDS = particles are sliding around/over each other.

GASES = moving as far as the space allows

#4 - Particles have space between them

LESS SPACE MORE SPACE
 SOLIDS LIQUIDS GASES

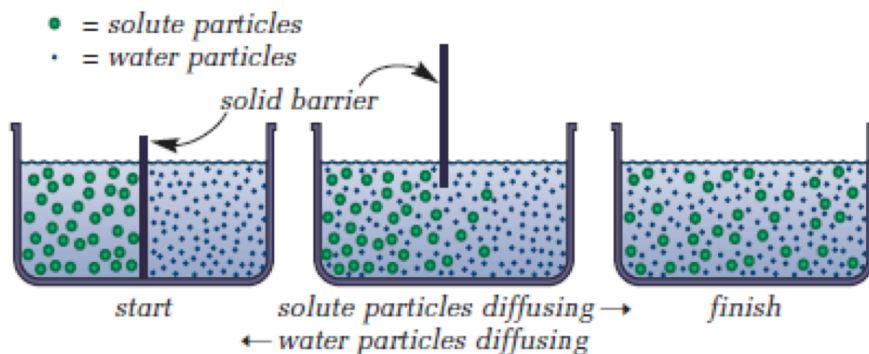


- All particles are in constant motion, colliding & changing directions
- Particles concentrated in an area spread into areas of lower concentration



this "spreading out" is called **DIFFUSION**.

- Diffusion ALWAYS MOVES FROM AN AREA OF HIGH CONCENTRATION → LOW CONCENTRATION



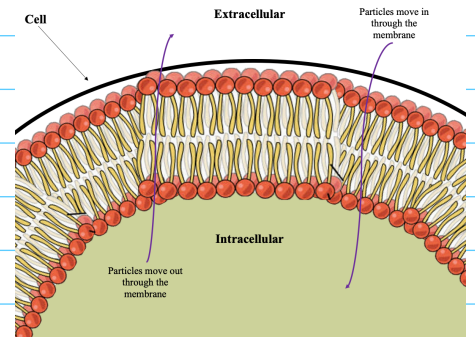
Diffusion in Cells

- SUBSTANCES MOVE IN/OUT of a CELL THROUGH Diffusion.
- CELL MEMBRANE ACTS LIKE A FILTER w/ EXTREMELY SMALL OPENINGS FOR PARTICLES TO PASS THROUGH.

SELECTIVELY PERMEABLE (allows some, not all)

Osmosis in Cells

- H_2O is $\pm 70\%$ of a CELL'S CONTENTS
- it is CRITICAL → NO H_2O , NO CELL.
- OSMOSIS is the diffusion of WATER



OSMOSIS ————— Diffusion

MOVEMENT of WATER

MOVEMENT of PARTICLES

BOTH WORK THE SAME. MOVING FROM AREA of HIGH CONCENTRATION → LOW CONCENTRATION

HOMEOSTASIS → A BIOLOGICAL STATE of EQUILIBRIUM

↳ FOR A CELL... THIS MEANS A BALANCE of DIFFERENT SUBSTANCES THAT MAKE A CELL HEALTHY.

↳ FOR HUMANS... HOMEOSTASIS = STEADY REGULATION of THINGS LIKE TEMPERATURE & FLUIDS.

OSMOSIS in a BLOOD CELL:



← NORMAL
concentr. of H_2O is EQUAL
in/outside of BLOOD CELL

← SHRUNKEN B.L. CELL
in solution of SALT WATER

← SWOLLEN B.L. CELL
in solution of
PURE WATER.