

Solutions	
solution	a homogeneous mixture of substances
alloys	a homogeneous mixture of metals with metals, or metals with nonmetals
Solution Concentration	the amount of solute in a specific amount of solvent
Solution Concentration formulas	M of solute / M of solution or V of solute / V of solution
Molarity	mol of solute / L of solution
Dilution formula	$M_1V_1 = M_2V_2$
Molality	mol of solute / Kg of solvent

Mixtures	
mixture	two or more substances are mixed together and keep their properties
types of mixtures	homogeneous (smooth, indistinguishable) and heterogeneous (mixed)
types of heterogeneous mixtures	suspensions and colloids
separation of mixtures	distillation (homogeneous) - filtration (heterogeneous) - crystallization - chromatography - sublimation
Brownian Motion	the random motion of particles suspended in fluids (prevents precipitation)
Tyndall Effect	the scattering of light by a medium containing small suspended particles

Dissolving	
Dissolving	the process in which solute molecules are surrounded by solvent particles
Heat of Dissolving	the change in energy due to solution formation
Factors affecting the rate of dissolving	increase in temp - stirring - increase of solute surface area (powdering)
<i>solubility of a gas in a liquid increases when temp decreases</i>	
Henry's Law	$S_1P_2 = S_2P_1$ (S = solubility, P = pressure)
Colligative Properties of solution (depend on solute to solution ratio)	vapor pressure lowering - osmotic pressure - boiling point elevation - freezing point depression
<b>vapor pressure lowering</b>	the pressure of a vapor decreases with an increase in the no. of moles
<b>boiling point elevation</b>	$\Delta T = k(b) \times m$ ( $\Delta T$ = b.p elevation, $k(b)$ = elevation constant, $m$ = molality)
<i>a liquid boils when its vapor pressure equals atmospheric pressure. <math>K(b)</math> changes with the solvent</i>	
<b>freezing point depression</b>	$\Delta T = k(f) \times m$ ( $\Delta T$ = f.p depression, $k(f)$ = depression constant, $m$ = molality)
<b>osmotic pressure</b>	the additional pressure caused by the movement of water to areas of Conc. Solution
osmosis	the movement of solvent through semipermeable membranes to areas of lower concentration



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