Unit #8: Kinetics and Equilibrium Vocabulary (definitions are on Miss Virga's website)

Kinetics the branch of chemistry that deals with rates of chemical reactions	**Reaction Rate** the speed at which reactants are converted into products in a chemical reaction
Collision Theory in order for a chemical reaction/effective collision to occur, particles must collide w/ proper energy AND orientation	**Potential Energy** stored energy in chemical bonds
Nature of Reactants reactions involving ionic substances tend to have faster rates than reactions involving covalent substances	**Concentration** an increase in concentration of the reactants will increase the rate of a chemical reaction
Surface Area an increase in surface area of reactants will increase the rate of a chemical reaction	**Pressure** an increase in pressure will increase the rate of a chemical Reaction (only if GASES are involved)
Catalyst a substance that is neither a reactant nor a product, but functions to speed up a chem. rxn by lowering activation energy	**Temperature** an increase in temperature will increase the rate of a chemical reaction
Equilibrium when 2 opposing processes are occurring at equal rates	**Solution Equilibrium** when the process of dissolving and precipitating are occurring at equal rates; when a solution has reached saturation
Phase Equilibrium when the processes of freezing & melting (or evaporating & condensing) are occurring at equal rates	**Chemical Equilibrium** when the forward and reverse reactions are occurring at equal rate
Le Chatelier's Principle predicts that when a stress is applied to an equilibrium mixture, the equilibrium will shift to relieve the stress	**Potential Energy Diagrams** used to illustrate the energy lost or gained for a given chemical reaction
Endo vs **Exothermic Reactions** ↓ consume/require energy; energy is a reactant ↳ produce/release energy; energy is a product	**Activated Complex** an intermediate, temporary structure formed in the conversion of reactants to products; highest energy point on PE diag
Activation Energy (E_a) the minimum energy required to convert reactants into products	**Entropy** a measure of the randomness/ chaos/ disorder associated w/ a chemical reaction
Enthalpy the heat energy absorbed or released during a chemical rxn	**Heat of Reaction (ΔH)** $\Delta H = PE_P - PE_R$ PE_P: potential energy of products PE_R: potential energy of reactants