PS 24.4 Chemical Reactions and Energy

Obj: identify the source of energy changes in chemical reactions

Compare and contrast exergonic and endergonic reactions

Examine the effects of catalysts and inhibitors on the speed on chemical reactions.

Chemical Reactions

-all involved energy exchange

-release or abosrb energy

-energy takes many forms - heat, light, sound, electricity

-breaking chemical bonds requires energy

-forming chemical bonds releases energy

More Energy Out

-chemical reactions that release energy are called exergonic reactions

-energy required to break bonds is less than the energy released from new bonds

-energy given off is usually light

-e.g. glow sticks

<u>Exothermic reaction</u> - energy given off is usually in the form of heat

-e.g. burning wood, explosion of dynamite

-provide most of the power used in homes and industries

More Energy In

-chemical reaction that requires more energy to break bonds than is released when new ones are formed is called endergonic reactions

-energy absorbed can be light, heat or electricity

-if energy needed is heat, the reaction is endothermic

-e.g. cold pack

<u>Catalyst</u> - speed up a chemical reaction without itself being permanently changed.

-the mass of product that is formed stays the same, but it will form more rapidly

-e.g. digestion

<u>Inhibitors</u> - combine with one of the reactants to prevent certain reactions from happening

-e.g. food preservatives

Pg. 754, 1-5