**Reactions in Aqueous Solutions Summary**

* Four driving forces that favor chemical change (chemical reaction) are formation of a solid, formation of water, transfer of elections and formation of a gas.
* A reaction where a solid forms is called a precipitation reaction. General rules on solubility help predict whether a solid, and what solid, will form when two solutions are mixed.
* Three types of equations are used to describe reactions in solutions.
  + Molecular equation – shows the complete formulas of all reactants and products
  + The complete ionic equation – all reactants and products are strong electrolytes and are shown as ions
  + Net ionic equation – includes only those components of the solution that undergo a change. Spectator ions are not included in this equation
* A strong acid is a compound in which virtually every molecule dissociates in water to give an H+ ion and an anion. Similarly, a strong base is a metal hydroxide compound that is soluble in water, giving OH- ions and cations. The products of the reaction of a strong acid and a strong base are water and a salt.
* Reactions of metals and nonmetals involve a transfer of electrons and are called oxidation-reduction reactions. A reaction between a nonmetal and oxygen is also an oxidation-reduction reaction. Combustion reactions involve oxygen and are a subgroup of oxidation-reduction reactions.
* When a given compound is formed from simpler materials, such as elements, the reaction is called a synthesis or combination reaction. The reverse process, which occurs when a compound is broken down into its component elements, is called a decomposition reaction. These reactions are also subgroups of oxidation-reduction reactions.

World of Chemistry, Zumdahl, Zumdahl & DeCoste

Chapter 8 Summary