Learning Objectives
Chapter 9 – Chemical Reactions

- You should be able to recognize and name the following types of reactions from a chemical equation
  - Synthesis reaction
  - Decomposition reaction
  - Single replacement reaction
  - Double replacement reaction
  - Combustion reaction
- In order for a reaction to occur, which 3 conditions should be met?
- What is activation energy?
- What is an exothermic reaction? What is an endothermic reaction? How will you recognize if a reaction is exothermic or endothermic?
- How do the following factors influence the rate of a chemical reaction? (and why do these factors affect the rate in the ways they do?)
  - Whether a reactant is crushed or not?
  - The temperature is increased
  - The reactant concentrations are increased
  - Adding a catalyst
- What is chemical equilibrium? What is true when a system reaches equilibrium? What is not true when it reaches equilibrium?
- What is an equilibrium constant? You should be able to write the equilibrium constant for any balanced chemical equation.
- What do the square brackets stand for in an equilibrium constant?
- How are equilibrium constants affected by temperature?
- What is the equilibrium position? How is the position of the equilibrium related to the equilibrium constant?
- If I give you the value of an equilibrium constant, you should be able to tell me if the reaction lies to the right or to the left.
- What is LeChatelier’s principle?
- You should be able to determine how a system will react to the following stresses
  - Adding a reactant
  - Removing a reactant
  - Adding a product
  - Removing a product
  - Raising the temperature
  - Lowering the temperature
  - Raising the pressure
  - Lowering the pressure
  - Adding a catalyst