Vocabulary: Equilibrium and Concentration

Vocabulary

- Chemical equilibrium – a state of balance in which there is no net change in chemical composition over time.
  - In a *reversible reaction*, a chemical equilibrium occurs when the rate of the forward reaction is equal to the rate of the reverse reaction.
- Concentration – a measure of how much of a given substance is present in a given volume.
  - The concentration of a gas often is measured in moles per liter.
  - Brackets also are used to signify concentration. For example, "$[H_2]$ = 0.1 M" indicates that the concentration of hydrogen gas is 0.1 moles per liter.
- Equilibrium – a state of balance in which there is little or no net change over time.
  - Equilibrium occurs when the rates of two opposing processes are equal.
- Equilibrium constant – the ratio of products to reactants in a chemical equilibrium.
  - The symbol for the equilibrium constant is *K*.
  - The equilibrium constant can be expressed in terms of concentration (K_c) or pressure (K_p).
  - A high equilibrium constant indicates products are favored over reactants. A low equilibrium constant indicates reactants are favored over products.
- Reaction quotient – the ratio of products to reactants in a chemical reaction.
  - The symbol for the reaction quotient is *Q*.
  - The reaction quotient can be expressed in terms of concentration (Q_c) or pressure (Q_p).
  - When the reaction has reached equilibrium, the reaction quotient is equal to the equilibrium constant.
- Reversible reaction – a chemical reaction that can proceed in either direction: from reactants to products or from products to reactants.
  - In a closed system, a reversible reaction will result in a chemical equilibrium given enough time.