Chapter: Naming
Section One: Chemical Names and Formulas

Calcium Carbonate…limestone
Sodium Chloride…Salt
Dihydrogen monoxide…Water

Hydrocarbons: molecular compounds composed of hydrogen and carbon

- C_8H_{18}
- 8 – C and 18 – H

Formula Unit: the simplest ratio of cations and anions

- $Al_2(SO_4)_3$
- 2 – Al^{+3} and 3 – SO_4^{-2}

Monatomic ions: ions formed from a single atom

- Na^+, Mg^{2+}, F^-, O^{2-}
- *d*-block elements form several cations
    - Copper can be 1+ or 2+
    - Table 7-1

Naming Monatomic ions

- Cation is written as is
    - K^+…Potassium cation
- Anion is written with the ending *–ide*
    - F^-…Fluoride anion
- *Stock system:* naming chemical ions with Roman numerals

Binary compounds: compounds composed of two different elements

- Cation is written first
- Anion is written second with the ending *–ide*
- Aluminum oxide…Al_2O_3

Nomenclature: naming system

Stock System

- Roman numerals are used to identify an ion's charge
- Written immediately after the metal's name
- Fe^{2+}…iron (II)

- Fe^{3+}…iron (III)

Oxyanions: polyatomic ions that contain oxygen

- The most common ion is given the ending *–ate*
- The ion with one less oxygen atom is given the ending *–ite*
- Sometimes two elements form more than two different oxyanions
    - One less oxygen is given the ending *–ite* and the prefix *hypo-*
    - One more oxygen atom is given the ending *–ate* and the prefix *per-*

Naming Binary Molecular compounds:

- Named by the newer system of the Stock System
    - Roman numerals
- Named by the older system of prefixes
    - Mono- means 1
    - Di- means 2
    - Tri- means 3
- The rules for naming molecular compounds by the older system is
    - The less electronegative element is written first
    - One atom is used it is understood, if there are more than one a prefix is used
    - The second element is written with the ending *–ide*
    - A prefix is written with the second element indicating number of atoms present
    - The "o" and "a" are dropped off the prefix is the element begins with a vowel

Acid: distant type of molecular compound

- Binary acids: acids consisting of two element, usually hydrogen and one halogen
- Oxyacids: acids that contain hydrogen, oxygen, and a nonmetal

Salt: an ionic compound composed of a cation and the anion from an acid

Some salts contain hydrogen…they are named either by adding the word *hydrogen* to the name or the prefix *bi-* to the anion name