

## Chapter 2 Notes: Atoms, Molecules, and Ions

Sections 1, 3 and 4 we'll do later!

### 2.2 Fundamental Chemical Laws

A. Law of Conservation of Mass:

B. Law of Definite Proportions:

C. Law of Multiple Proportions: If 2 elements (A and B) form more than one compound, the masses of B that can combine with a given mass of A are in the ratio of small whole numbers. Ex:

### 2.5 Modern View of Atomic Structure

A.

	symbol	relative charge	relative mass (amu)	location
proton				
neutron				
electron				

\*1 amu =  $1.66054 \times 10^{-24}$  g

B. Size of an atom:  $10^{-8}$  cm

Diameter of nucleus:  $10^{-13}$  cm

Density of nucleus  $\sim 10^{14}$  g/cm<sup>3</sup>

C. Definitions

1. **atom:**

2. **atomic number (Z):**

3. **mass number (A):**

4. **isotope:**

### 2.6 Molecules and Ions

A. Definitions:

1. chemical bond:

2. covalent bond:

3. molecule:

4. chemical formulas, structural formulas, space-filling models, ball-and-stick models

5. ionic bond:

ionic compounds are also called \_\_\_\_\_

6. cation:

7. anion:

## 2.7 Intro to the Periodic Table

A. Periods:

B. Groups/Families:

1. IUPAC (International Union of Pure and Applied Chemistry) Way

2. North American Way

3. Know your family names and common ionic charges!

Group 1 (1A)

Group 2 (2A)

Group 17 (7A)

Group 18 (8A)

C. Regions and characteristics of metals, non-metals, and metalloids(semi-metals)

## 2.8 Naming Simple Compounds

### Naming Covalents

A. Diatomic Elements

B. Naming

$\text{N}_2\text{O}_3$

$\text{SiBr}_4$

$\text{CO}_2$

$\text{P}_4\text{O}_{10}$

Prefixes: 1      2      3      4      5      6      7      8      9      10

## Naming Ions and Ionic Compounds:

A. Cations:

Ex.

B. Anions:

Ex:

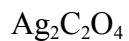
C. Naming

1. constant charge cations:

2. variable charge cations

3. polyatomic cations ( $\text{NH}_4^+$  \_\_\_\_\_ and  $\text{H}_3\text{O}^+$  \_\_\_\_\_)

Ex:



## Naming Acids

A. Binary

B. Oxy

## Naming Simple Organic Compounds

A. hydrocarbon:

B. alkanes:

C. #of carbons: 1 (\_\_\_\_\_), 2(\_\_\_\_\_), 3(\_\_\_\_\_), 4 (\_\_\_\_\_)