South Pasadena • AP Chemistry

Name _____
Period ___ Date ___/___/___

3 • Chemical Formulas

STUDY LIST

I can:

Formulas

- ☐ Look at a **formula** and state how many **elements** and **atoms** are in that compound.
- ☐ Calculate the **molecular mass** or **molar mass** of any compound.
- ☐ State that the mass of a **molecule** is measured in **amu's** and the mass of a **mole** is measured in **grams**.
- ☐ Give examples of **empirical formulas**, **molecular formulas**, and **structural formulas**.
- ☐ **Identify** a formula as **empirical**, **molecular**, or **structural**.

Ionic Compounds

I can:

- ☐ List the names and formulas of **60 ions**.
- ☐ State whether a compound is an **ionic compound** or a **nonmetal compound**.
- ☐ Write the **formula** of an **ionic compound** given the two ions or its name. Know when to use **parentheses**.
- ☐ **Name** an ionic compound given the formula.
- ☐ Determine the **charge** on an ion from information in an ionic formula.

Nonmetal Compounds aka Molecular Compound

- ☐ Write the **formula** of a **binary nonmetal compound** (**molecular compound**) given its name.
- ☐ **Name** a binary nonmetal compound (molecular compound) given its formula.

Percent Composition

- ☐ Calculate the **percent composition (by mass)** for any compound.
- ☐ Calculate the **empirical formula** from **percent composition data**.
- ☐ Determine the **molecular formula** of a compound given its **empirical formula** and **molar mass**.

Hydrates

- ☐ Give **examples** of hydrates and anhydrous compounds.
- ☐ Calculate the **formula of a hydrate** from **dehydration data**.

The Mole

- ☐ State the **significance** of the mole.
- ☐ State the **three mole facts** for any substance (molar volume, molar mass, Avogadro's number)

1 mole = 22.4 Liters @ STP (gases only)
1 mole = 6.02×10^{23} particles
(particles = molecules or atoms)
1 mole = gram molecular mass of chemical

- ☐ Use **dimensional analysis** to convert between moles, mass, volume, and number of particles for a chemical.
- ☐ Use **density** as a **conversion factor** in mole problems.
- ☐ Use gas **density** to calculate **molar mass**.