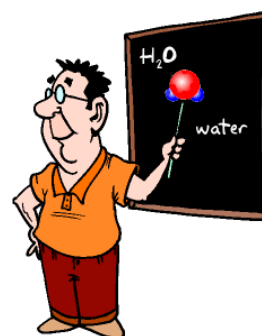


Name: \_\_\_\_\_ Date: \_\_\_\_\_  
IPC

Class Notes

# Naming Compounds

Most compounds are either ionic or covalent and consist of two parts (binary). The general rule is to put the more metallic element first and the less metallic element second. The more metallic element uses its full name and less metallic element is named with its **root** and the suffix “-ide”.



## Common Nonmetallic Roots

H = _____	B = _____	C = _____	N = _____
O = _____	F = _____	P = _____	S = _____
Cl = _____	Br = _____	I = _____	

## Numeric Prefixes

_____ one	_____ two	_____ three	_____ four
_____ five	_____ six	_____ seven	_____ eight
_____ nine	_____ ten		

**Note:** The “a” or “o” on the end of the prefix is deleted with an element beginning with a vowel.

## Metal Ions

### COMMON METAL IONS (new system)

_____ copper(I)	_____ mercury(I)	_____ manganese(II)
_____ copper(II)	_____ mercury(II)	_____ cobalt(II)
_____ nickel(II)	_____ chromium(III)	_____ lead(II)
_____ tin(II)	_____ iron(II)	_____ lead(IV)
_____ tin(IV)	_____ iron(III)	_____ aluminum

**COMMON NONMETAL IONS**

\_\_\_\_\_ sulfide                  \_\_\_\_\_ bromide                  \_\_\_\_\_ fluoride                  \_\_\_\_\_ hydride  
 \_\_\_\_\_ chloride                  \_\_\_\_\_ iodide                  \_\_\_\_\_ oxide                  \_\_\_\_\_ phosphide

**BINARY IONIC COMPOUNDS**

Binary ionic compounds consist of a **metal cation** and a **nonmetal anion**. The cation is named first and the anion follows with the suffix “**-ide**” added.

**EXAMPLE:**

**KBr** potassium + brom + **ide**                  **CaCl<sub>2</sub>** calcium + chlor + **ide**

Many of the transition metals and the metals of Groups IIIA, IV, and VA have more than one oxidation metal. These metals can form more than one compound with the same nonmetal. To distinguish among all the possibilities, the oxidation number of the metal is indicated by a Roman numeral in parentheses following its name.

**EXAMPLE:**

**Cu<sub>2</sub>O** (2 Cu<sup>+</sup> + O<sup>2-</sup>) copper (I) oxide                  **CuO** (Cu<sup>2+</sup> + O<sup>2-</sup>) copper (II) oxide

**POLYATOMIC IONS**

Some compounds contain polyatomic ions that behave like monatomic ions. These compounds are named as though they were binary ionic compounds. So, **you** must be able to determine the charge of the polyatomic ion.

**EXAMPLE:**

**NH<sub>4</sub>I** (NH<sub>4</sub><sup>+</sup> + I<sup>-</sup>) ammonium iodide

**NaOH** (Na<sup>+</sup> + OH<sup>-</sup>) sodium hydroxide

**COMMON POLYATOMIC IONS**

\_\_\_\_\_ hydroxide ion                  \_\_\_\_\_ carbonate ion                  \_\_\_\_\_ chlorate ion  
 \_\_\_\_\_ phosphate ion                  \_\_\_\_\_ nitrate ion                  \_\_\_\_\_ acetate ion  
 \_\_\_\_\_ ammonium ion                  \_\_\_\_\_ sulfate ion                  \_\_\_\_\_ iodate ion

## BINARY MOLECULAR COMPOUNDS

Most **binary molecular** compounds are composed of **two nonmetals**. Although many nonmetals have multiple oxidation numbers, their oxidation numbers are not indicated by Roman numerals or suffixes. Instead, elemental parts in a binary molecular compound are indicated by **numeric prefixes**.

### EXAMPLE:

$\text{SO}_2$  sulfur dioxide

$\text{N}_2\text{O}_4$  dinitrogen tetroxide

## PRACTICE

- \_\_\_\_\_  $\text{SF}_6$
- \_\_\_\_\_  $\text{BaCrO}_4$
- \_\_\_\_\_  $\text{SF}_2$
- \_\_\_\_\_  $\text{SiO}_2$
- \_\_\_\_\_  $\text{NH}_4\text{C}_2\text{H}_3\text{O}_2$
- \_\_\_\_\_  $\text{Cl}_2\text{O}_7$
- \_\_\_\_\_  $\text{N}_2\text{O}_5$
- \_\_\_\_\_  $\text{KH}_2\text{PO}_4$
- \_\_\_\_\_  $\text{NaHCO}_3$
- \_\_\_\_\_  $\text{NaH}$
- \_\_\_\_\_  $\text{TiCl}_4$
- \_\_\_\_\_  $\text{Ca}_3(\text{PO}_4)_2$
- \_\_\_\_\_  $\text{NI}_3$
- \_\_\_\_\_  $\text{KMnO}_4$
- \_\_\_\_\_  $\text{CuI}_2$
- \_\_\_\_\_  $\text{NaCl}$

***"Don't go around saying the world owes you a living; the world owes you nothing; it was here first." -- Mark Twain***