

# Naming / Formula Writing

**Binary Ionic Compounds:** Contain only two elements and have names ending in *'ide'*

A) First element has one valence option

Rule(s):

- Write symbol of 2 elements side by side. Element with positive valence is written first.
- Write valence above the symbols and Criss - Cross, Reduce the ratio to lowest terms.

	Aluminum and Sulphur	Calcium and Oxygen	Barium and Fluorine
Formula			
IUPAC Name (International Union of Pure and Applied Chemistry)			

B) First element has more than one valence option (Stock System)

Rule(s):

- Write symbol of 2 elements side by side.
- Write valence(s) above the symbols and Criss - Cross, Reduce the ratio to lowest terms.
- If the second element has more than one valence option you use the general combining capacity of that family
- Use roman numeral to indicate the valence of the first element when naming **I, II, III, IV, V, VI**

	Copper and Chlorine		Mercury and Oxygen	
Formula				
IUPAC Name				

**C) Polyatomic Compounds – most end in 'ate or ite'**

Rule(s):

- Write symbols of the element / polyatomic ions side by side.
- Make sure to put brackets around your polyatomic ion group
- Follow rules above for multivalent ions.

	Iron and Phosphate		Calcium and hydroxide	
Formula				
IUPAC Name				

Name: \_\_\_\_\_

## IONIC COMPOUNDS: Names and Formulas

1. Write the formulas for the following compounds.

a. magnesium oxide \_\_\_\_\_

b. aluminum nitride \_\_\_\_\_

c. potassium sulfide \_\_\_\_\_

d. calcium bromide \_\_\_\_\_

e. aluminum sulfide \_\_\_\_\_

f. beryllium oxide \_\_\_\_\_

g. strontium phosphide \_\_\_\_\_

h. sodium fluoride \_\_\_\_\_

i. lithium selenide \_\_\_\_\_

j. barium oxide \_\_\_\_\_

k. tin (II) fluoride \_\_\_\_\_

l. lead (IV) nitride \_\_\_\_\_

m. iron (III) chloride \_\_\_\_\_

n. copper (I) oxide \_\_\_\_\_

o. antimony (III) sulfide \_\_\_\_\_

p. mercury (II) oxide \_\_\_\_\_

q. tin (IV) iodide \_\_\_\_\_

r. arsenic (III) phosphide \_\_\_\_\_

s. cobalt (II) sulphide \_\_\_\_\_

t. tin (IV) sulphide \_\_\_\_\_

2. Write the names for the following compounds.

a.  $\text{Li}_2\text{O}$  \_\_\_\_\_

b.  $\text{AlCl}_3$  \_\_\_\_\_

c.  $\text{MgS}$  \_\_\_\_\_

d.  $\text{CaF}_2$  \_\_\_\_\_

e.  $\text{Al}_2\text{O}_3$  \_\_\_\_\_

f.  $\text{BeF}_2$  \_\_\_\_\_

g.  $\text{K}_3\text{P}$  \_\_\_\_\_

h.  $\text{Mg}_3\text{P}_2$  \_\_\_\_\_

i.  $\text{CaO}$  \_\_\_\_\_

j.  $\text{Ag}_2\text{S}$  \_\_\_\_\_

k.  $\text{PbS}$  \_\_\_\_\_

l.  $\text{SnO}_2$  \_\_\_\_\_

m.  $\text{NiO}$  \_\_\_\_\_

n.  $\text{CuI}_2$  \_\_\_\_\_

o.  $\text{PbCl}_4$  \_\_\_\_\_

p.  $\text{FeP}$  \_\_\_\_\_

q.  $\text{AuBr}_3$  \_\_\_\_\_

r.  $\text{Hg}_2\text{S}$  \_\_\_\_\_

s.  $\text{SbF}_3$  \_\_\_\_\_

t.  $\text{MnO}_2$  \_\_\_\_\_

## Binary Molecular Nomenclature

<b>Rules for Binary Molecular Compounds</b>	<b>Prefixes</b>
1. The naming system is for compounds composed of two <u>nonmetallic</u> elements.	1 – mono
2. The first element keeps its name	2 – di
a. The first element gets a prefix if it has a subscript in the formula	3 – tri
3. The second element gets the <i>-ide</i> suffix (ending)	4 – tetra
a. The second element ALWAYS gets a prefix	5 – penta
	6 – hexa

<b>Compound Name</b>	<b>Compound Formula</b>
Carbon dioxide	
Carbon monoxide	
Diphosphorus pentoxide	
Dinitrogen monoxide	
Silicon dioxide	
Carbon tetrabromide	
Sulfur dioxide	
Phosphorus pentabromide	
Iodine trichloride	
Nitrogen triiodide	
Dinitrogen trioxide	

<b>Compound Formula</b>	<b>Compound Name</b>
N <sub>2</sub> O <sub>4</sub>	
SO <sub>3</sub>	
NO	
NO <sub>2</sub>	
As <sub>2</sub> O <sub>5</sub>	
PCl <sub>3</sub>	
CCl <sub>4</sub>	
H <sub>2</sub> O	
SeF <sub>6</sub>	