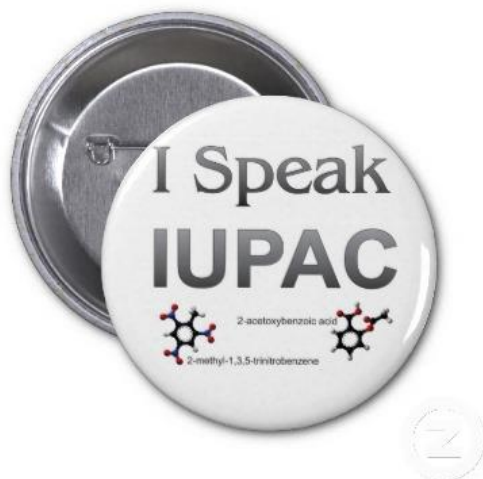


# Chemical Nomenclature



**Name** \_\_\_\_\_

**Test Date** \_\_\_\_\_

Bond Type	Representative Unit	What Bonds?	How do they bond?	Examples
<b>Ionic</b>				
<b>Covalent</b>				
<b>Metallic</b>				

Analyzing a chemical formula:

- 1) Subscripts →
- 2) Element Symbol →




Binary compounds:

Ternary compounds:

## Naming Ionic Compounds

A) *Binary Ionic Rules:*

- 1) Write the name of the \_\_\_\_\_ first.
- 2) Write the name of the \_\_\_\_\_ second. Change the ending to 

**Try It!**

Formula	Name
KCl	Potassium Chloride
NaF	
Li <sub>2</sub> O	
Al <sub>2</sub> O <sub>3</sub>	
Ca <sub>3</sub> N <sub>2</sub>	
CsI	
Ca <sub>3</sub> P <sub>2</sub>	

### B) Binary Ionic with Transition Metals

- 1) Write the name of the \_\_\_\_\_ first. Use Roman Numerals to indicate the charge for the transition metals.

\*\*\*Use Roman numerals for \_\_\_\_\_ and \_\_\_\_\_ but NOT \_\_\_\_\_ and \_\_\_\_\_

- 2) Write the name of the \_\_\_\_\_ second. Change the ending to \_\_\_\_.

### Try It!

Formula	Name
CuO	copper (II) oxide
Cu <sub>2</sub> O	
ZnS	
PbS	
Fe <sub>3</sub> N <sub>2</sub>	
NiCl <sub>2</sub>	

### C) Ternary Ionic Compounds (with a Polyatomic Ion)

\*What is a polyatomic ion?

\*Where can I find the polyatomic ions for review?

\*Should I ever separate a polyatomic ion??

### Rules:

- 1) Name the cation (use Roman Numerals if necessary) first
- 2) Name the anion (usually a polyatomic ion in this case) second  
\*\*\*NEVER \_\_\_\_\_  
of a polyatomic ion!!\*\*\*

### Try It!

Formula	Name
BaSO <sub>4</sub>	
NH <sub>4</sub> OH	
AlPO <sub>4</sub>	
Sr(NO <sub>3</sub> ) <sub>2</sub>	
V <sub>2</sub> (SO <sub>4</sub> ) <sub>5</sub>	
Cu <sub>2</sub> CO <sub>3</sub>	

# Writing Formulas for Ionic Compounds

Rules:

- 1) Write the \_\_\_\_\_ for the positive ion ( )
- 2) Write the \_\_\_\_\_ for the negative ion( ).
- 3) \_\_\_\_\_ the numeric part of the charge to use as subscripts WHY???
- 4) \_\_\_\_\_ or reduce if needed.

Reminder:

**Try It!**

Formula	Name
	aluminum sulfide
	lead (II) oxide
	lead (IV) oxide
	barium selenide
	calcium phosphide
	silver fluoride

*Writing formulas with Polyatomic Ions*

Same rules as above but with this important note: \_\_\_\_\_

\_\_\_\_\_

**Try It!**

Formula	Name
	aluminum sulfate
	sodium nitrate
	tin (IV) phosphate

# Naming Covalent (Molecular) Compounds

Memorize

<b>Mono</b>		<b>Hexa</b>	
<b>Di</b>	<b>2</b>	<b>Hepta</b>	
	<b>3</b>	<b>Octa</b>	<b>8</b>
<b>Tetra</b>	<b>4</b>		<b>9</b>
	<b>5</b>	<b>Deca</b>	

## Important notes about naming covalent compounds

- \*A covalent compound is made up of \_\_\_\_\_
- \*Never use \_\_\_\_\_ at the beginning of a covalent name
- \*Change the ending to \_\_\_\_\_
- \*Be sure to include \_\_\_\_\_ to tell the number of atoms present!

## Try It!

<b>Formula</b>	<b>Name</b>
CO	
CO <sub>2</sub>	
P <sub>2</sub> O <sub>5</sub>	
P <sub>4</sub> O <sub>10</sub>	
N <sub>2</sub> O	

# Writing Formulas for Covalent Molecules

Rules:

- 1) Use the prefixes to show the number of elements
- 2) Don't reduce the subscripts!!!

Try It!

Formula	Name
	nitrogen monoxide
	dinitrogen pentoxide
	sulfur trioxide
	heptasulfur hexafluoride

## Naming Acids

What is an acid? \_\_\_\_\_



What are the two types of acids? 1) \_\_\_\_\_  
2) \_\_\_\_\_

a) *Binary Acid Naming Rules*

- 1) Always name them using the outline: \_\_\_\_\_
- 2) When writing the compound from words make sure the charges cancel out!  
\*\*\*\*Only use HYDRO in the name if there is NO \_\_\_\_\_ present!!!!\*\*\*\*

Try It!!!!

Formula	Name
HCl	
HBr	
H <sub>2</sub> S	
	hydroiodic acid
	hydrofluoric acid

## b) Naming Ternary and Oxoacids

Rules:

- 1) If the polyatomic ion's name ends in \_\_\_\_\_, the acid's name ends in \_\_\_\_\_
- 2) If the polyatomic ion's name ends in \_\_\_\_\_, the acid's name ends in \_\_\_\_\_
- 3) When writing compounds with polyatomic ions be sure to check your charges by criss-crossing!!

### Try It!

Formula	Name
	sulfurous acid
	sulfuric acid
	nitrous acid
HClO	
HClO <sub>2</sub>	
HClO <sub>3</sub>	
HClO <sub>4</sub>	

## Naming Hydrates

\*Hydrate: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\*Anhydrous: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Rules for naming:

- 1.
- 2.
- 3.

### Try It!

Formula	Name
MgSO <sub>4</sub> * H <sub>2</sub> O	
CaCrO <sub>4</sub> *2H <sub>2</sub> O	
Cu(NO <sub>3</sub> ) <sub>2</sub> *3H <sub>2</sub> O	
CuSO <sub>4</sub> *5H <sub>2</sub> O	

*B) Rules for writing hydrate compounds*

- 1)
- 2)
- 3)
- 4)
- 5)

**Try It!**

Formula	Name
	copper (II) chlorate hexahydrate
	iron (II) sulfate heptahydrate
	barium hydroxide octahydrate
	sodium carbonate decahydrate

**Mixed Review!!!**-this is a great way to study for your test!

## Final Race!



- Write the name.
- $\text{Na}_2\text{SO}_4 \cdot 6\text{H}_2\text{O}$
- $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$
- $\text{Ag}(\text{NO}_3)_4 \cdot 2\text{H}_2\text{O}$
- $\text{H}_2\text{S}$  (aq)
- $\text{HNO}_3$  (aq)
- $\text{H}_2\text{SO}_2$  (aq)
- $\text{N}_2\text{S}$
- $\text{BF}_3$
- $\text{SF}_6$
- $\text{I}_4\text{O}_9$
- $\text{HCl}$
- $\text{HF}$
- Write the formulas.
- Sodium Nitrate dihydrate
- Cobalt (II) chloride hexahydrate
- Dinitrogen monoxide
- Diiodine dichloride
- Di hydrogen monoxide
- Hydrosulfuric acid
- Nitrous acid
- Acetic acid
- Sulfuric acid
- Tribromine nonatelluride