Warm Up

What is the correct name for:

$B(OH)_3$

$ZnCl_2$

AuF_3

SnF_2

Objectives

TSWBAT:

Interpret the names and formulae for ionic and covalent compounds.

Naming and Writing Formulas for Molecular Compounds

- We learned earlier that binary compounds (those with 2 elements) may be ionic or covalent depending on what types of elements are in the compound.
- Two nonmetals form covalent bonds and therefore molecular compounds.

Molecular compounds are not as straightforward as ionic compounds because they can often combine in more than one ratio.

For example, CO and CO_2

Both molecules have C and O but they are completely different chemicals.

We need a way to name molecular compounds that tells the ratio they have combined in.

We use prefixes to denote how many of each element are present in a molecular compound.

So, CO_2 is carbon dioxide
and CO is carbon monoxide

Prefix	Mono	Di-	Tri-	Tetra-	Penta-
Number	1	2	3	4	5

Prefix	Hexa-	Hepta-	Octa-	Nona-	Deca-
Number	6	7	8	9	10

Here are the rules:

1. If there is only one atom of the first element in a compound, we do NOT use mono. That is only for the second element. CO carbon monoxide

NOT ~~mo~~nocarbon monoxide

2. Any molecular compound with no prefixes means there is only one atom of each element in the formula.

e.g. silicon carbide = SiC

Will NOT ask this!

Warm Up (Name these):

SF_6  sulfur hexafluoride

Cl_2O_8  dichlorine octoxide

N_2O  dinitrogen monoxide

Warm Up

What is the atomic symbol of lead-208?

Warm Up

Write the formulas for the following:

beryllium phosphide

dichlorine heptaoxide

Name the following:

N_2O_5

Rb_3N

Warm Up:

What is the formula for dinitrogen tetraoxide?

Textbook practice:

p. 270 #22-25

Warm Up

Name the following compounds:

$SnCO_3$

N_2O_3

K_3PO_4

Ca_3P_2

Naming Acids

An acid is a compound that produces **hydrogen ions (H+)** when dissolved in water.

When naming an acid you can consider the acid to consist of an anion and as many hydrogen ions (H^+) as needed to make the molecule electrically neutral.

General formula: H_nX

where X = monoatomic or polyatomic anion
n = number of hydrogens combined with the anion

Table 9.5

Naming Common Acids

Anion ending	Example	Acid name	Example
-ide	chlor*ide*, Cl^-	*hydro*-(stem)-*ic acid*	*hydro*chlor*ic acid*
-ite	sulf*ite*, SO_3^{2-}	(stem)-*ous acid*	sulfur*ous acid*
-ate	nitr*ate*, NO_3^-	(stem)-*ic acid*	nitr*ic acid*

Three rules for naming acids

1. When the anion ends in "-ide" the name of the acid starts with "hydro." We add "-ic" to the stem name of the anion. Then we add the word "acid."

Example:

HCl

Cl is chloride, so this is "hydrochloric acid."