Compounds Part 2b Nomenclature of Diatomic Molecules & Binary Covalent Compounds

Diatomic molecule: a compound containing two identical elements

When you read the element names for these seven elements, you want to visualize the diatomic molecular formula. For example, we breathe oxygen as O_2 .

<u>Diatom</u>	ic molecules	lons	
H ₂	hydrogen	H-	hydride
N_2	nitrogen	N ³⁻	nitride
O_2	oxygen	O ² -	oxide
F_2	Auorine	F-	fluoride
Cl_2	chlorine	Cl-	chloride
Br ₂	bromine	Br-	bromide
12	iodine	1-	iodide

Complete the table below.

Formula	Name
Cl-	
	chlorine
N ³⁻	
	nitrogen

Comparing the Nomenclature of Ionic & Covalent Compounds

Ionic compounds have a fixed ratio of ions to create a neutral compound.

For covalent compounds, the non-metals may come together in a variety of ways because they share their electrons instead of gaining and losing them like ionic compounds.

The SMOG certificate for an automobile lists the NOx emissions. NOx represents a group of binary covalent molecules comprised of N and O atoms. NOx = NO, NO₂, N₂O₃, N₂O₄, N₂O₅, . . .

We use Greek Prefixes to specify how many atoms are present for each element.

Memorize the following Greek prefixes

$$mono = tri = penta = hepta = nona = di = tetra = hexa = octa = deca =$$

Naming Binary Covalent Compounds

The general structure for the name of a binary covalent compound has 4 parts.

Binary Covalent Compound Naming Rules

- 1. Name the first element using a prefix to indicate the number of atoms in the formula.
- 2. Name the second element using a prefix to indicate the number of atoms in the formula and use the 'ide' suffix.
- 3. Do NOT use the prefix "mono" on the first element.
- 4. Remove the 'a' at the end of the prefix for oxygen and oxide.

Examples showing how to apply the nomenclature rules.

$$N_2O_5 =$$

Remember to distinguish between Diatomic Molecules, Binary Covalent Compounds., and Ionic Compounds.

Complete the table below.

Formula	Name
O_2	
	oxide
NO_2	
	chromium(III) oxide