Unit 5.1: Chemical Bonding Notes – Naming Chemical Compounds

**I. Types of Compounds**

**There are three main types of compounds when working on Naming Compounds.**

**\_\_\_\_\_\_­­­\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_ Compounds** – Contain a Metal and a Non-Metal. They form an Ionic Bond.

**\_\_\_\_\_\_\_\_\_\_\_\_-\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Binary Compounds** – Contain two Non-Metals. They form a Covalent Bond.

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Compounds** – Contain Polyatomic ions. The formula will have three or more elements in it.

I**I. Metal Binary Compounds**

* Name the \_\_\_\_\_\_\_\_ element. (This will always be the metal.)
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the ending on the second element with an “\_\_\_\_\_\_\_\_\_\_” ending. ( This element will be the \_\_\_\_\_\_\_\_\_\_\_-\_\_\_\_\_\_\_\_\_\_\_\_)

NaCl Sodium and Chlorine becomes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

MgS Magnesium and Sulfur becomes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**III. Naming Compounds with a Transitional Metal**

* When some atoms can have more than one possible \_\_\_\_\_\_\_\_\_\_\_\_\_\_, you name the \_\_\_\_\_\_\_\_\_\_\_\_\_\_ on the atom.

|  |  |
| --- | --- |
| Copper +1 and +2 | Iron +2 and +3 |
| Cu +1 is \_\_\_\_\_\_\_\_\_\_\_\_ | Fe +2 is Iron \_\_\_\_ |
| Cu +2 is \_\_\_\_\_\_\_\_CuCl is \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_ | Fe +3 is Iron \_\_\_\_FeCl2 is Iron \_\_\_\_ Chloride |
| CuCl2 is Copper \_\_\_\_ Chloride | FeCl3 is Iron \_\_\_\_ Chloride |

**IV. Non-Metal Binary Compounds**

* Name the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ element
* Replace the ending on the second element with “\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_”
* Use Prefixes for the number of atoms in the formula.

` CO2 Carbon and Oxygen is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Dioxide

N2O Nitrogen and Oxygen \_\_\_\_\_\_\_\_\_\_\_\_\_\_nitrogen \_\_\_\_\_\_\_\_\_\_\_\_\_oxide

**V. Prefixes for Naming Non-Metal Binary Compounds**

|  |
| --- |
| 1 atom = \_\_\_\_\_\_\_\_2 atoms = Di3 atoms = Tri4 atoms = \_\_\_\_\_\_\_\_5 atoms = Pent6 atoms = Hex7 atoms = \_\_\_\_\_\_\_\_8 atoms = Oct9 atoms = Non10 atoms = \_\_\_\_\_\_\_ |

**VI. Ternary Compounds with Polyatomic Ions**

* Name the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ part of the compound. Element or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ion.
* Name the second part of the compound. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or Polyatomic ion.

Example:

* MgSO4 Magnesium \_\_\_\_\_\_\_\_\_\_­­­­­­­­­­­­­\_\_\_\_\_
* NH4OH \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Hydroxide
* K3PO4 Potassium \_\_\_\_\_\_\_\_\_\_\_\_\_