**FPS – Naming Binary Compounds**

Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period\_\_\_\_\_\_\_\_\_\_

|  |
| --- |
| I can… |
| *Construct the name of binary ionic and covalent compounds using nomenclature rules.* |

|  |  |
| --- | --- |
| Bellwork | |
| http://www1.whsd.net/courses/J0078/Periodic__Table/periodic_table.JPG | 1. What is the difference between an ionic bond and a covalent bond?  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  2. Give an example of an ionic bond. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  3. Give an example of a covalent bond. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

|  |
| --- |
| Notes |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1. Chemists have a system for naming all types of compounds. Why would this be important?   \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   1. Some compounds have common names that are used, like H2O is \_\_\_\_\_\_\_\_\_\_\_. 2. We will learn the steps for naming both ionic and covalent compounds. We will name only \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ compounds, meaning they have only ***two*** parts. 3. **These are the steps for naming binary *ionic compounds*:**    * 1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ first, then \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   **CaCl2**  **A. Calcium**  **B. Chlorine**  **C. Chlor + ide**  **Calcium chloride**   * + 1. Write the metal name.     2. Write the **root** of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and add \_\_\_\_\_\_\_\_\_\_\_ to the end.   Examples (write the names of the following):   * + - 1. NaCl \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_       2. CaBr2 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_       3. Na3P \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  1. **These are the steps naming binary *covalent compounds*:**    1. The nonmetal farthest on the \_\_\_\_\_\_\_\_\_\_ of the table is written first.    2. Add \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to indicate numbers of atoms.    3. Never write the prefix “mono-“ for the \_\_\_\_\_\_\_\_\_\_\_ element.  |  |  | | --- | --- | | ***Prefix*** | ***Number*** | |  | 1 | |  | 2 | |  | 3 | |  | 4 | |  | 5 | |  | 6 | |  | 7 | |  | 8 | |  | 9 | |  | 10 |  * 1. Change the ending to \_\_\_\_\_\_\_\_\_\_\_\_\_\_ for the second element.   **NO3**  **A. Nitrogen + oxygen**  **B. Mononitrogen trioxygen**  **C.** *~~Mono~~***Nitrogen trioxygen**  **D. Nitrogen trioxide (notice for oxygen, you drop the “y” and change to “i”!)**       1. Try these covalent compounds on your own:   CCl4 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_N2O = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ SF6 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

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

Physical Science

Naming and Writing Formulas for Ionic Compounds

Naming Rules:

1. Always write the name of the cation and first. It will usually be a metal.
2. Write the name of the anion second. It will usually be a nonmetal.
3. Do not use Greek prefixes to indicate subscripts.
4. The name of the metal will remain the same, however if the anion is a non-metal it will end in –ide, such as chloride for Cl-.

Formula Rules:

1. Always write the formula of the cation and first. It will usually be a metal.
2. Write the formula of the anion second. It will usually be a nonmetal.
3. Ensure that the overall charge of the formula is equal to zero. To do this you will need to fix the ratio of the elements so that the sum of the positive charge is equal to the sum of the negative charges. If this means you require more than one of each anion or cation write a subscript on the write hand side of the anion or cation to represent the desired number.
4. Ensure that the ratio of cations to anions is written to the simplest / lowest whole number ratio. Therefore 2:2 should be written as 1:1, and 3:9 as 1:3.
5. **Roman numerals do not indicate the number of the SUBSCRIPTS; they only indicate the charge of the cation.**

**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_**

**PHysical Science**

**Ionic compounds**

1. Name the following compounds:
   1. Na2S
   2. CaCl2
   3. Al2O3
   4. K2O
   5. Mg3N2
2. Write the formulas for the following compounds: (write the ions *first* with their charges, then use the crossing method)
   1. Sodium Bromide
   2. Magnesium Oxide
   3. Barium Chloride
   4. Cesium Oxide
   5. Calcium Iodide

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

Naming Binary Covalent Compounds

Rules for Naming Covalent Compounds:

1. Identify the compound as covalent. Usually all the elements are nonmetal,
2. Two nonmetal elements can often bind together in more than one way. Greek prefixes are used to describe the number of atoms in each molecule and distinguish one compound from another.
3. The second element always ends in –ide. (chloride, oxide, nitride)
4. *The vowel at the end of the prefix is often dropped if the name of the element begins with a vowel.*
5. If the first element is only supposed to be one element the prefix mono- does not need to be used. However, the prefix mono **must be used** with the second element.
6. The prefix is used to illustrate the subscript in the formula.

1-mono 2-di 3-tri 4-tetra 5-penta 6-hexa 7-hepta 8-octa 9-nona 10-deca

Name the following compounds:

1. a. H2O b. NO2

c. CO2 d. CCl4

e. Cl2O7 f. CS2

g. P2O5 h. N2H4

i. SO3 j. P3O10

k. N2O l. N2O4

Write the formula for the following names

2. a. phosphorus pentachloride b. dichlorine heptoxide

c. trisilicon tetranitride d. tricarbon octahydride

e. boron trichloride f. dihydrgogen dioxide

g. carbon monoxide h. dichlorine monoxide

i. tribromine heptanitride j. tetrasilicon decasulfide

k. silicon dicarbide l. trichlorine diiodide