Name _____ HONORS CHEMISTRY ___/___/___

Naming & Writing Formulas for Binary Compounds of Two Non-Metals

The system of naming binary compounds of **TWO (2) NON-METALS** does not really have an officially accepted name, but it is often called the Greek system (or method). It involves use of Greek prefixes when naming binary compounds formed between two nonmetals.

Sometimes you will see the Stock system (using roman numerals i.e. lead(IV) bromide) applied to these types of compounds. Here is what the IUPAC (International Union of Pure and Applied Chemistry) currently says about that practice: "The Stock notation can be applied to both cations and anions, but preferably should not be applied to compounds between nonmetals." The chart on the right lists each number and its Greek prefix.

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

Part I: How to name a binary compound of two non-metals.

Write the name for N_2O_5

Description of Action	Action & Explanation
1. Use the chart labeled "Covalent Prefixes" from the back of your periodic table and identify the prefix that corresponds to the subscript following the first symbol. **NEVER USE THE PREFIX MONO- BEFORE THE FIRST ELEMENT NAME!**	**1.** di There are 2 nitrogen so we have to use the prefix "di-".
2. Add the name of the first element to the end of the prefix.	**2.** dinitrogen
3. Write the prefix for the subscript that follows the second element. You must leave a space between the first name and the second name.	**3.** dinitrogen penta There are 5 oxygen so we must use the prefix penta.
4. Attach the root name of the second element to the second prefix.	**4.** dinitrogen pentaox
5. Add "-ide" to the end of the second element's root name.	**5.** dinitrogen pentaoxide

Part II: How to write the formula for a binary compound of two non-metals.

Write the formula for dinitrogen trioxide.

Description of Action	Action & Explanation
1. Look at the first name of the compound. Identify the element name. Write the symbol for this element.	**1.** N In dinitrogen, the elements name is nitrogen. Nitrogen's symbol is N.
2. If the first name of the compound has a prefix, write the number the prefix refers to as the symbol's subscript.	**2.** N_2 We have **di**nitrogen. "Di-" means two, so I wrote a two after N.
3. Look at the second name of the compound and identify the element root name. Write the symbol for the root name.	**3.** N_2O The second name of this compound is trioxide. There is an "ox-" in there! "Ox" refers to oxygen. Oxygen's symbol is O. So, I write that O that you see above.
4. Determine the number that the prefix of the second name refers to and write this number as the second symbol's subscript. (Say that fast 5 times!!!)	**4.** N_2O_3 The second name is trioxide. "Tri-" means 3. So, I wrote a 3 after the O.

At the completion of this worksheet you can complete the following Chapter 5 on-line quizzes:

- covalent compound formula quiz
- covalent compound formula quiz 2
- covalent compound naming quiz
- covalent compound naming quiz 2

Homework:

Part I: Name the following.

1. KrF_2
2. BrF_5
3. SCl_4
4. H_2O
5. NI_3
6. SF_6
7. XeF_4
8. PCl_3
9. CO
10. PCl_5
11. P_2O_5
12. S_2Cl_2
13. ICl_2
14. SO_2
15. P_4O_{10}
16. N_2O
17. OF_2
18. ClO_2
19. SiO_2
20. BF_3
21. N_2S_5
22. CO_2
23. SO_3
24. XeF_6

Part II: Write the formulas for each of the following.

1. chlorine monoxide
2. oxygen difluoride
3. boron triphosphide
4. dinitrogen trioxide
5. nitrogen trifluoride
6. sulfur tetrachloride
7. xenon trioxide
8. carbon dioxide
9. diphosphorous pentoxide
10. phosphorous trichloride
11. sulfur dioxide
12. bromine pentafluoride
13. disulfur dichloride
14. boron trifluoride
15. nitrogen monoxide
16. silicon tetrachloride
17. krypton difluoride
18. fluorine monoxide
19. silicon dioxide
20. boron trichloride
21. dinitrogen pentasulfide