NAME Key DATE _____ PERIOD _____

COVALENT BONDING:

The names of covalent compounds are both similar and different to those of the ionic compounds. Use Table 1 to see if you can figure out how the rules differ.

Table 1 – Covalent Compounds

Compound Name	Compound Molecular Formula
phosphorus hexafluoride	PF_6
tetracarbon decahydride	C_4H_{10}
boron trichloride	BCl_3
dinitrogen monoxide	N_2O
carbon monoxide	CO
dinitrogen tetroxide	N_2O_4

Look at the names of covalent compounds above and answer the following questions.

1. What suffix is used for all of the compounds? "ide"
2. Is the name of the first element in each formula changed as it goes from an individual element to a compound? If so, explain. a prefix is added (except mono)
3. How is the name of the second element in each compound changed as it goes from an individual element to a compound? a prefix is added (always) and it ends with "ide"
4. How many atoms of nitrogen are present in dinitrogen tetroxide? 2
5. How many atoms of fluorine are present in phosphorus hexafluoride? 6
6. Use Table 1 to match the prefixes used with the number of each type of atom in a binary compound.

Table 2 – Covalent Prefixes

Prefix	Number of atoms of element
(no prefix)	One (first element only)
mono	One (second element only)
di	Two
tri	Three
tetra	Four
penta	Five
hexa	Six
Hepta-	Seven
octa	Eight
nona	Nine
deca	Ten

From the information given above, complete the following table:

Compound Name	Compound Molecular Formula
sulfur difluoride	SF_2
phosphorous trichloride	PCl_3
dinitrogen trioxide	N_2O_3
dihydrogen sulfide	H_2S
carbon tetrachloride	CCl_4
silicon dibromide	$SiBr_2$
tetraphosphorous decaoxide	P_4O_{10}
carbon monoxide	CO
phosphorous pentachloride	PCl_5
nitrogen tribromide	NBr_3
Xenon hexafluoride	XeF_6
dinitrogen monoxide	N_2O

Summarizing Your Thoughts

1. In complete sentences, state the rules for naming a covalent compound given the compound's molecular formula.

2. Compare naming rules for ionic and covalent compounds. Include similarities and differences.