Nomenclature Rules

Element

Individual Element
Name the element exactly as it is written on the Periodic Table

Diatomics
There are seven elements that never exist by themselves, but always in pairs.

$H_2O_2F_2Br_2I_2N_2Cl_2$

Compound

Binary
Two different elements bonded together.

Ionic
A metal and a non-metal bonded together to form a crystal lattice structure.

Always write the chemical formula in lowest terms

Write the cation (metal) first, using the name from the Periodic Table.

If it is a multivalent cation (highlighted) make sure to include roman numerals to identify how the cation is bonding. Or use the latin name with an "ous" (lower) or "ic" (higher) ending.

Write the anion (non-metal) second, dropping the usual ending and replace it with "ide".

Covalent
Two non-metals bonded together to form a molecule.

DO NOT reduce chemical formula to lowest terms

Attach a prefix that indicates the number of atoms in the chemical formula in from of the name of each element.

The name of the second element ends in "ide".

Polyatomic
A group of atoms that act as a unit. Consist of two or more different non-metals joined by a covalent bond.

Always write the chemical formula in lowest terms

Write the name of the cation (metal) first using the name from the Periodic Table.

If it is a multivalent cation (highlighted) make sure to include roman numerals to identify how the cation is bonding. . Or use the latin name with an "ous" (lower) or "ic" (higher) ending.

Write the name of the polyatomic ion with the "ate"

Review– Naming Chemical Compounds

The following are a good mix of naming and formula writing problems to help you get some practice. I will expect that you know how to name both ionic and covalent compounds in your work.

Name the following chemical compounds:

1) $NaBr$ _____

2) $Ca(C_2H_3O_2)_2$ _____

3) P_2O_5 _____

4) $Ti(SO_4)_2$ _____

5) $FePO_4$ _____

6) K_3N _____

7) SO_2 _____

8) $CuOH$ _____

9) $Zn(NO_2)_2$ _____

10) V_2S_3 _____

Write the formulas for the following chemical compounds:

11) silicon dioxide _____

12) nickel (III) sulfide _____

13) manganese (II) phosphate _____

14) silver acetate _____

15) diboron tetrabromide _____

16) magnesium sulfate heptahydrate _____

17) potassium carbonate _____

18) ammonium oxide _____

19) tin (IV) selenide _____

20) carbon tetrachloride _____

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(Still) More Naming Practice

Write the names of the following chemical compounds:

1) BBr_3 _____

2) $CaSO_4$ _____

3) C_2Br_6 _____

4) $Cr(CO_3)_3$ _____

5) Ag_3P _____

6) IO_2 _____

7) VO_2 _____

8) PbS _____

9) CH_4 _____

10) N_2O_3 _____

Write the formulas of the following chemical compounds:

11) tetraphosphorus triselenide _____

12) potassium acetate _____

13) iron (II) phosphide _____

14) disilicon hexabromide _____

15) titanium (IV) nitrate _____

16) diselenium diiodide _____

17) copper (I) phosphate _____

18) gallium oxide _____

19) tetrasulfur dinitride _____

20) phosphorus _____

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Mixed Ionic/Covalent Compound Naming

For each of the following questions, determine whether the compound is ionic or covalent and name it appropriately.

1) Na_2CO_3 _____

2) P_2O_5 _____

3) NH_3 _____

4) $FeSO_4$ _____

5) SiO_2 _____

6) $GaCl_3$ _____

7) $CoBr_2$ _____

8) B_2H_4 _____

9) CO _____

10) P_4 _____

For each of the following questions, determine whether the compound is ionic or covalent and write the appropriate formula for it.

11) dinitrogen trioxide _____

12) nitrogen _____

13) methane _____

14) lithium acetate _____

15) phosphorus trifluoride _____

16) vanadium (V) oxide _____

17) aluminum hydroxide _____

18) zinc sulfide _____

19) silicon tetrafluoride _____

20) silver phosphate _____