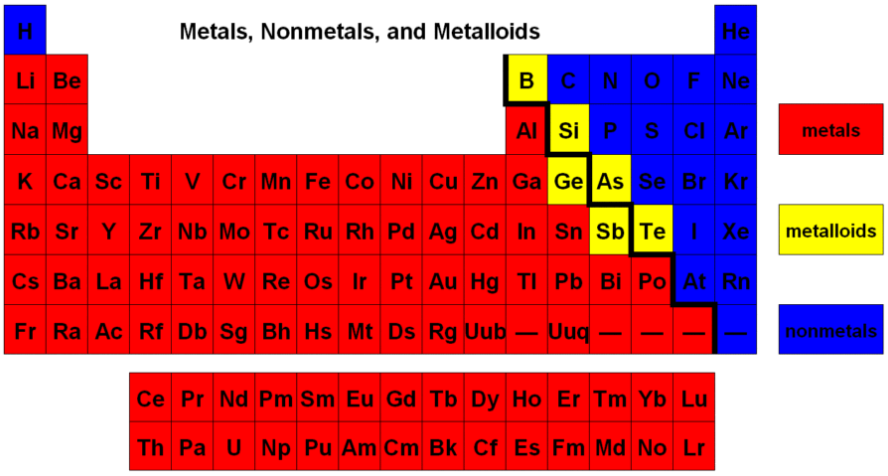
Naming Ionic and Covalent Compounds

1. First thing to remember is the division between metals and nonmetals (see periodic table below). Remember that the black stairstep line is the division. Note that H is a nonmetal.



2. Second is being able to identify polyatomic ions. (see the list on the website)

3. So how do you know if the compound is ionic or covalent:

   a. Ionic: the compound contains a metal and/or a polyatomic ion
   b. Covalent: the compound contains only nonmetals (no polyatomic ions)

4. Use the rules below for what you picked in step 3:
   a. Ionic Naming Rules:
      i. Name the metal as normal
         1. Na would be sodium
            a. Since sodium only has one charge Na^{+1} nothing else is needed.
         2. But, if the metal is Fe, Cu, Sn, Pb, or Hg then you need to use roman numerals in parentheses to indicate the charge on these metals (this could include other transition metals also).
            a. Since iron could be either Fe^{+3} or Fe^{+2} you have to specify which one you are talking about…by using a roman numeral that is equal to the charge. So, Fe^{+3} is called Iron (III).
            b. Example: Fe_2O_3 would be named….Iron (III) Oxide, because the charge on the iron in this compound would have to be +3, since oxygen is -2
      ii. Name the polyatomic ion as normal
         1. Example: $CaSO_4$ is called calcium sulfate
      iii. If there is a nonmetal (NOT a polyatomic ion), then you add the suffix -ide
         1. Example: $MgCl_2$ becomes magnesium chloride

Go To Next Page

b. Covalent Naming Rules:

i. The subscript after the element represents a prefix:

1. Only Exception: the prefix mono- never gets used with the first element

Subscript	Prefix
1	Mono-
2	Di-
3	Tri-
4	Tetra
5	Pent-
6	Hexa-

ii. The last written element always gets the suffix -ide

1. Example 1: CO is carbon monoxide
    a. since there is only one carbon and it is the first written element, you do not use mono-
    b. but, since oxygen is not the first written element, you do use mono-
2. Example 2: N_2S_3 is dinitrogen trisulfide
    a. Note that both of these examples end in -ide