**Rules for Balancing Chemical Equations**

When you balance a chemical equation you are writing the equation in a form that will help you determine the amount of product that can be made from a given amount of reactant. To get this important information you use the Law of Conservation of Mass (no matter can be created or destroyed); the number and type of an atom on one side of the equation must equal the number of atoms of that type on the other side of the equation.

Some basic guidelines to help with balancing are:

1. Leave any type of atom that are present in their elemental state alone until the end. This is very true if one of the elements is written as a single atom.
2. Start by balancing an element that appears only in one reactant or one product.
3. Once these are balanced then balance the more complicated molecules.
4. Adjust the amount of polyatomic elements (eq.O2, N2)
5. Adjust the amount of any element that appears as a single atom

Keep in mind that you CANNOT change what compounds and elements are reacting. This means that you CANNOT change the subscripts when balancing, you can only change coefficients.

Practice

\_\_\_\_Cl2 + \_\_\_\_NaBr → \_\_\_\_NaCl + \_\_\_\_ Br2

\_\_\_\_CuCl2 + \_\_\_\_H2S → \_\_\_\_CuS + \_\_\_\_HCl

\_\_\_\_HgO + \_\_\_\_Cl2  → \_\_\_\_HgCl + \_\_\_\_O2

\_\_\_\_C2H6 + \_\_\_\_O2 → \_\_\_\_CO2 + \_\_\_\_H2O

\_\_\_\_Co(NO3)3 + \_\_\_\_ (NH4)2S → \_\_\_\_Co2S3 + \_\_\_\_NH4NO3