Predicting products:

1. What type of reaction is it?
    a. Direct combination – there are 2 elements or 2 compounds (in which the 2nd element in both compounds is oxygen)
        i. 2 elements
            1. write the 2 elements next to each other
            2. Look up the charge of the 2 elements
            3. calculate the least common multiple of the 2 charges
            4. Write the formula
        ii. 2 compounds, 2nd element in both compounds is oxygen
            1. There are 3 elements one is a metal one is a non-metal and the other is oxygen. Write the symbol and charge of the metal.
            2. What is left is the non-metal and oxygen. You should be able to write a Poly atomic ion from what is left. A poly-atomic ion is one of the 7 I told you that you had to know or one like it (you had to know Sulfate SO_4^{-2}, but it could be sulfite SO_3^{-2}). Write the formula and charge for the polyatomic ion.
            3. calculate the least common multiple of the 2 charges
            4. Write the formula
    b. Decomposition – there is only one reactant and probably heat, or electricity.
        i. Look on the cheat sheet and decide what type of compound it is, i.e. nitrate, carbonate etc.
        ii. Follow the protocol for what the products are. You may have to write formulas for things like METAL OXIDE to do that
            1. calculate the least common multiple of the 2 charges
            2. Write the formula
    c. Single Replacement – there is an element by itself and a compound.
        i. Look on the cheat sheet under the "ACTIVITY SERIES TABLE"
        ii. Find the element that is by itself (call it A)
        iii. Find the element of the same type from the compound. (Call it B)
        iv. If A is higher on the table than B then a reaction takes place:
            1. Write the formula and charge of the Element A.
            2. Write the formula and charge of the negative ion.
            3. calculate the least common multiple of the 2 charges
            4. Write the formula
        v. If A is Lower then B then write NO REACTION
    d. Double replacement – There are 2 compounds and the second part of both compounds is not oxygen.
        i. Make sure both reactants dissolve in water
            1. Decide what type of compound it is, i.e. nitrate, sulfate etc.
            2. look on the solubility chart to see if it is soluble or insoluble. Watch out for exceptions

3. If both reactants are soluble then you can proceed to step 4. Otherwise write NO REACTION
4. Write the formulas of the 2 new compounds by switching the metal ion.
    a. Subscripts of poly atomic ions transfer across but not subscripts of metals or subscripts outside the ( ).
5. At least one of the new products must be insoluble in water.
    a. Decide what type of compound it is, i.e. nitrate, sulfate etc.
    b. look on the solubility chart to see if it is soluble or insoluble. Watch out for exceptions
6. If one of the compounds is insoluble then you must write the formulas of both products. IF NOT (in other words they are both soluble) Write NO REACTION.
    a. Write the formula and charge of the metal
    b. Write the formula and charge of the non metal
    c. calculate the least common multiple of the 2 charges
    d. Write the formula
7. Repeat step 6 for the other product.

e. Combustion – A compound that has carbon, hydrogen and sometimes oxygen reacting with OXYGEN.
    i. Complete combustion the products are Carbon Dioxide and water
    ii. Incomplete combustion the products are Carbon MONOXIDE and water

2. Balance the equation by following the notes you took the day I wasn't here