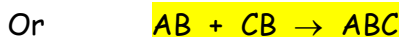
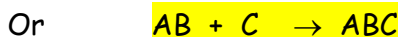


COMMON CHEMICAL REACTIONS CLASSIFIED

1. COMBINATION REACTION

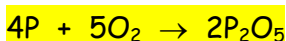
(KEY FEATURE: ONE PRODUCT)



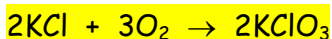
1. Metal + Nonmetal \rightarrow Ionic Compound *



2. Nonmetal + Nonmetal \rightarrow Molecular Compound



3. Compound + Element \rightarrow Compound



4. Compound + Compound \rightarrow Compound

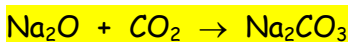
Metal oxide + Water \rightarrow Base (has OH) *



Nonmetal oxide + Water \rightarrow Acid

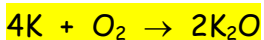


Metal oxide + $\text{CO}_2 \rightarrow$ Metal carbonate *



5. Combustion of Elements *

Element + $\text{O}_2 \rightarrow$ Element oxide



COMMON CHEMICAL REACTIONS CLASSIFIED

2. DECOMPOSITION REACTION

(KEY FEATURE: ONE REACTANT)



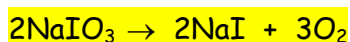
1. Ionic Compound \rightarrow Metal + Metal *



2. Molecular Compound \rightarrow Nonmetal + Nonmetal



3. Compound \rightarrow Compound + Element



3. DISPLACEMENT, OR SINGLE REPLACEMENT REACTION

(KEY FEATURE: ELEMENT + COMPOUND \rightarrow ELEMENT + COMPOUND)



1. Metal + Compound \rightarrow Metal + Compound *



Use Activity Series of Metals to determine if displacement reaction occurs.

2. Nonmetal + Compound \rightarrow Nonmetal + Compound *



If Group VIIA Nonmetal, activity decreases down the group.

COMMON CHEMICAL REACTIONS CLASSIFIED

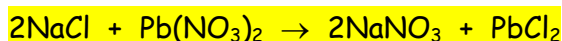
4. METATHESIS, OR DOUBLE DISPLACEMENT REACTION

(KEY FEATURE: COMPOUND + COMPOUND → COMPOUND + COMPOUND)



1. Precipitation Reactions *

Reactions will be between two ionic compounds in solution.



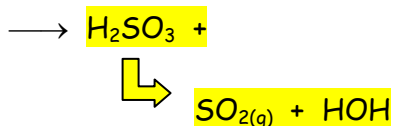
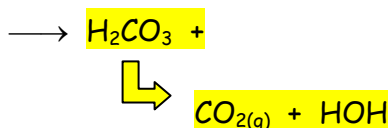
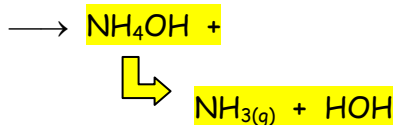
Write ionic equations, using solubility rules and ionic equation guidelines attached.

2. Acid-Base Neutralization *



3. Formation of a Gas

Small molecular weight weak acids formed in double displacement reactions will be gaseous. Some other molecular compounds formed decompose into a gas and water upon formation, i.e.,

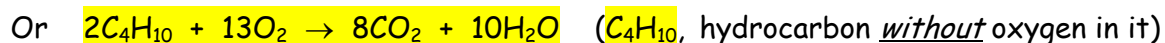
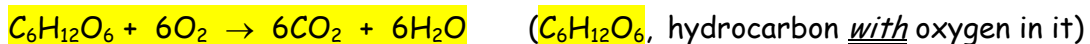


COMMON CHEMICAL REACTIONS CLASSIFIED

5. COMBUSTION OF A HYDROCARBON $\rightarrow \text{CO}_2 + \text{H}_2\text{O}$

(KEY FEATURE: $\text{C}_x\text{H}_y\text{O}_z + \text{O}_2 \rightarrow \text{CO}_2 + \text{H}_2\text{O}$ OR $\text{C}_x\text{H}_y + \text{O}_2 \rightarrow \text{CO}_2 + \text{H}_2\text{O}$)

NOTE: THE HYDROCARBON MAY OR MAY NOT HAVE OXYGEN IN IT, BUT THE COMPOUND WILL REACT WITH O_2 TO PRODUCE CARBON DIOXIDE, CO_2 + WATER, H_2O .



Balance Oxygen's last!

Fraction first for uneven number, then multiply by 2 (in this case)

TO PREDICT PRODUCTS FOR REACTIONS *:

1. Identify the type of reaction.
2. Write correct formulas for reactants if they are not given. If the compound is ionic, be sure to consider the ions involved.
3. Figure out "who goes with who".
4. Write correct formulas for the products. If the compound is ionic, be sure to consider the ions involved.
5. Balance
6. Use the Activity Series of Metals for Single Replacement Reactions only.
7. Use Solubility Rules for Double Replacement Reactions only.