C02 + H20 $\rightarrow$ H2C03 (aq)
SO3 + H20 $\rightarrow$ H2SO4
Na2o + H20 $\rightarrow$ 2NaOH

**Decomposition**
A binary Compound decomposes into it’s elements
eg 2Nacl $\rightarrow$ 2Na + Cl2

A metal Nitrite decomposes into a metal nitrite and oxygen gas
2NaN03 $\rightarrow$ 2NaN02 + O2

A metal carbonate into a metal oxide and carbon dioxide gas
Na2C03 $\rightarrow$ Na20 + C02

A metal hydroxide decomposes into a metal oxide and water
Zn(OH)2 $\rightarrow$ ZnO + H20

**Single Displacement**
- Single displacement occurs when an element is higher on the activity series.
- If it it higher on the activity series it will displace that element if it is not no reaction will occur
- There is a activity series for halogens as well
- When an element displaces another you must write a balanced equation

**Double Displacement**
- Double displacement occur when the anions and cations switch places
- AB + CD $\rightarrow$ AD + BC
- You must check if either product is a precipitate, if both products are aqueous no reaction will occur

**Combustion**
- A chemical reaction in which a fuel burns in oxygen to produce combustion products

**Complete Combustion**
- When the products produced are carbon dioxide and water
- Occurs when there is a plentiful supply of oxygen
- CH4(g) + 2 O2(g) $\rightarrow$ CO2(g) + 2 H2O(g) + energy

**Incomplete Combustion**
- When the products may include carbon dioxide soot, carbon monoxide
- Occurs when there is a limited supply of oxygen
- 2 C7H16(l) + 11 O2(g) $\rightarrow$ 14 CO(g) + 8 H2O(g) + energy

**Concerns Related to Incomplete Combustion**
- Soot particles from incomplete combustion are an inhalation hazard
- Soot particles are to small to be filtered by the respiratory tract and as a result these particles may penetrate deep into the lungs and irritate tissue
- Carbon Monoxide also produced is a silent killer