

6.7 Synthesis and Decomposition Reactions

Just as ~~elements~~ can be grouped into groups depending on their chemical properties.

Group 1 - Alkali metals - strongly reactive
 Group 18 - Noble gases - unreactive

Reactions can also be grouped into TYPES of Reactions depending on the number of products that occur.

Reactions:

- ① Synthesis
- ② Decomposition
- ③ Single displacement
- ④ Double displacement
- ⑤ Combustion

Synthesis: smaller molecules or compounds combine to form larger ones.

$A + B \rightarrow AB$

Examples:

- Hydrogen and Oxygen produce water.
 $2H_2 + O_2 \rightarrow 2H_2O$
- Hydrogen Chloride and Ammonia produce Ammonium Chloride.
 $HCl + NH_3 \rightarrow NH_4Cl$ ✓
- Carbon dioxide and water make Carbonic Acid.
 $CO_2 + H_2O \rightarrow H_2CO_3$ ✓

DECOMPOSITION reactions: Larger Molecule or compound breaks down into smaller ones.

Ex:

- Decomposition of water.
- Nitrogen Trifluoride breaks into Nitrogen gas and fluorine gas.
- Ammonium Nitrate decomposes into Nitrous acid and water.

Apr 25-12:54 PM