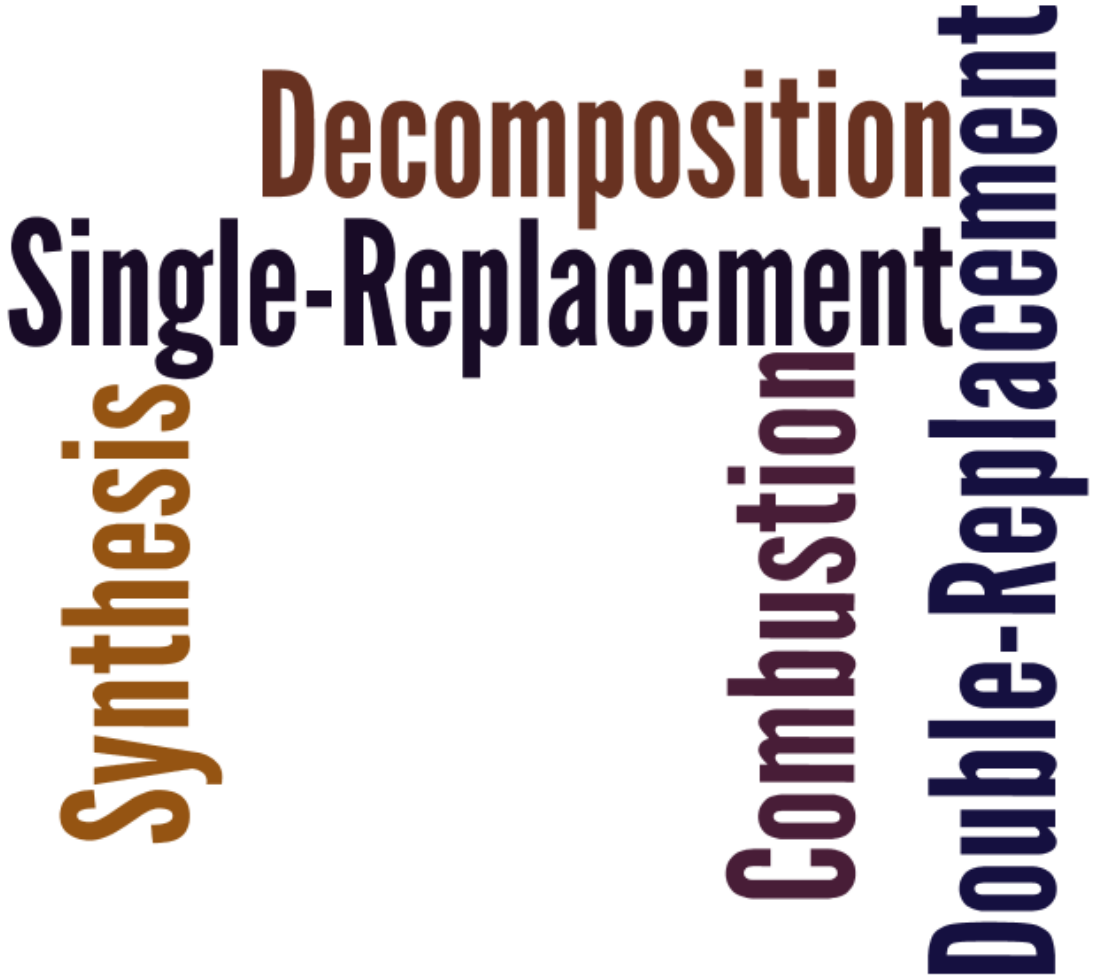
Reaction Types



Outcome:

Write & Classify balanced chemical reactions from written descriptions of reactions.

Synthesis (direct combination)

$4Fe + 3O_2 \rightarrow 2Fe_2O_3$

$2Mg + O_2 \rightarrow 2MgO$

TWO or **MORE** substances react to **PRODUCE** a **SINGLE** substance.

General Form: $A + B \rightarrow AB$

Example: $N_2 + 3H_2 \rightarrow 2NH_3$

Brad + Angelina → Brangelina

Decomposition

$2H_2O_2 \rightarrow 2H_2O + O_2$

A **SINGLE** compound is **BROKEN DOWN** into **TWO** or **MORE** substances.

General Form: $AB \rightarrow A + B$

Example: $2KClO_3 \rightarrow 2KCl + 3O_2$

→

+

Bennifer → Brad + Jennifer

Single Replacement

$Cu + AgNO_3 \rightarrow CuNO_3 + Ag$

$2HCl + Zn \rightarrow ZnCl_2 + H_2$

ATOMS of an **ELEMENT** **REPLACE** the **ATOMS** of a **SECOND** **ELEMENT** or **COMPOUND**.

General Form: ***A + BC → B + AC***

Example: ***$2Na + Mg(OH)_2 \rightarrow Mg + 2NaOH$***


+


→


+


Bennifer + Angelina → Brangelina + Jennifer

Double Replacement

$Pb(NO_3)_2 + 2KI \rightarrow 2KNO_3 + PbI_2$

Involves the **EXCHANGE** of **POSITIVE** ions between two **IONIC COMPOUNDS**.

General Form: ***AB + CD → AD + CB***

Example: $Al_2(SO_4)_3 + 3Ca(OH)_2 \rightarrow 2Al(OH)_3 + 3CaSO_4$


+

→

+


Pink Panther + Black Eye → Black Panther + Pink Eye

Combustion

Reaction of a **HYDROCARBON** and **OXYGEN**.

General Form: $Hydrocarbon + O_2 \rightarrow CO_2 + H_2O$

Example: $C_3H_8 + 5O_2 \rightarrow 3CO_2 + 4H_2O$

Hydrocarbon + Oxygen → Carbon Dioxide + Water

$$C_xH_y + O_2 \rightarrow CO_2 + H_2O$$