

- **Endothermic reaction** – Heat is absorbed in the reaction. Very few combination reactions are endothermic. For example,



- **Decomposition reaction**

- A single reactant breaks into several simple products.

Examples: 2FeSO_4 Ferrous sulphate $\xrightarrow{\Delta}$ Fe_2O_3 Ferric oxide + SO_2 + SO_3
 CaCO_3 Limestone $\xrightarrow{\Delta}$ CaO Calcium oxide + CO_2
 2AgCl Silver chloride $\xrightarrow{\Delta}$ 2Ag Silver + Cl_2

- All decomposition reactions are **endothermic [they absorb heat]**.

- **Displacement reactions:**

- In displacement reactions, a more reactive metal can displace a less reactive metal from their compounds in aqueous solutions. (However, a less reactive metal cannot displace a more reactive metal.)

Example: $\text{CuSO}_4 + \text{Zn} \rightarrow \text{ZnSO}_4 + \text{Cu}$
 Copper Sulphate (Blue) + Zinc (Red) → Zinc Sulphate (Colourless) + Copper
 $\text{Fe s} + \text{CuSO}_4\text{aq} \rightarrow \text{Cu s} + \text{FeSO}_4\text{aq}$
 Iron Copper sulphate → Copper Iron sulphate

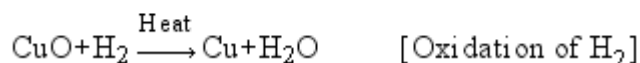
- **Double displacement reaction**

- Exchange of ions occurs between two compounds.

Example; $\text{Na}_2\text{SO}_4\text{aq} + \text{BaCl}_2\text{s} \rightarrow \text{BaSO}_4\text{aq} + 2\text{NaCl s}$
 Sodium sulphate Barium chloride → Barium sulphate Sodium chloride

- When the aqueous solution of two compounds react by exchanging their respective ions, such that one of the products formed is insoluble salt and appears in the form of a precipitate, then the reaction is said to be **precipitation reaction**.
- When an acid solution reacts with a base and the two exchange their respective ions, such that only salt and water are products, then the reaction is called **neutralisation reaction**.
- When two compounds react with each other and displace their ions, in such a manner that one of the product formed either decomposes into gaseous compounds or is formed in gaseous state, then the reaction is called **gas-forming reaction**.

- **Oxidation** → When a substance gains oxygen or loses hydrogen



- **Oxidation in everyday life**

- **Corrosion** – When a metal is oxidised by the action of air and moisture [that's why metals are coated]
- **Rancidity** – When fats and oils are oxidised, their smell and taste change [that's why food is kept in air-tight containers]
- **Reduction** → When one substance loses oxygen or gains hydrogen



- **Redox** – Oxidation-reduction reaction

