

Class 10 Science – Chapter 1

Chemical Reactions and Equations

A chemical reaction is a process in which one or more substances react to form new substances with different properties. The substances that take part in a chemical reaction are called reactants, and the substances formed are called products.

Indicators of a Chemical Reaction:

- 1 Change in colour
- 2 Change in temperature (heat is released or absorbed)
- 3 Formation of a gas
- 4 Formation of a precipitate
- 5 Change in state

Chemical Equations

A chemical equation represents a chemical reaction using symbols and formulas of the reactants and products.

Example: Magnesium + Oxygen \rightarrow Magnesium Oxide

Balanced Chemical Equation

A balanced chemical equation has an equal number of atoms of each element on both sides of the equation.

Types of Chemical Reactions:

- 1 Combination Reaction – Two or more substances combine to form a single product.
- 2 Decomposition Reaction – A single compound breaks down into two or more simpler substances.
- 3 Displacement Reaction – A more reactive element displaces a less reactive element from its compound.
- 4 Double Displacement Reaction – Exchange of ions between two compounds.
- 5 Oxidation and Reduction – Oxidation is loss of electrons, reduction is gain of electrons.

Corrosion

Corrosion is the gradual destruction of metals by chemical reactions with the environment. Rusting of iron is a common example of corrosion.

Rancidity

Rancidity is the oxidation of fats and oils in food that causes unpleasant smell and taste. It can be prevented by adding antioxidants, refrigeration, or storing food in airtight containers.