Table of Contents

CHEMISTRY

- Elements

Chemistry is the branch of science that studies the composition, structure, properties, and behavior of matter. Elements are substances that cannot be broken down into simpler substances and are composed of a single type of atom. The periodic table organizes elements based on their atomic number, electron configuration, and recurring chemical properties.

  - Metals

Metals are elements typically found on the left side of the periodic table with properties like high luster, conductivity, and malleability. In chemistry, metals can form positive ions by losing electrons during chemical reactions. Common examples of metals include iron, copper, gold, and zinc.

  - Non-metals

Non-metals in chemistry are elements that lack metallic properties such as being shiny, malleable, and good conductors of electricity. Some examples of non-metals include hydrogen, oxygen, nitrogen, carbon, and sulfur. They are essential for various chemical reactions, forming compounds with metals and other non-metals.

- Chemical Reactions

Chemical reactions are processes where substances transform into new ones through the breaking and forming of chemical bonds. These reactions follow the principles of conservation of mass and energy. They play a fundamental role in understanding the properties and behavior of matter in chemistry.

  - Acids and Bases

Acids and bases are fundamental concepts in chemistry that describe substances with specific properties. Acids release hydrogen ions (H+) when dissolved in water, while bases release hydroxide ions (OH-). The pH scale is used to measure the acidity or basicity of a substance, with acids having a pH less than 7 and bases having a pH greater than 7.

  - Oxidation and Reduction

Oxidation involves the loss of electrons from a substance, while reduction involves the gain of electrons. Together, these reactions make up redox reactions in chemistry. Oxidation and reduction are always paired processes that occur simultaneously.