Materials around us

Historical Perspective

Early humans relied on naturally available materials like stones, wood, and animal skins for tools and shelter. The discovery of metals, such as copper and bronze, marked the beginning of the Bronze Age, leading to significant advancements in tools and weapons. Later, the Iron Age revolutionized construction and trade with stronger materials. Initially, natural materials like wood, clay, and metals were harnessed. The invention of synthetic materials such as plastic in modern times further transformed how materials are used.

Understanding Materials Through Observation

Glass is transparent, allowing light to pass through, but it is brittle and unsuitable for weight-bearing objects like chairs.

Plastic is lightweight, does not rust, and can be molded into various shapes, making it highly versatile.

Materials in Our World

The world consists of a fascinating variety of living and non-living things, each with unique shapes, colors, and functions. These entities are made from a wide range of materials such as cotton, glass, metal, mud, paper, plastic, and wood. Materials form the foundation of everything around us. Some objects, like trees or buildings, are visible, while others, like air or microscopic organisms, remain unseen but are equally important.

Classification of Materials

Classification refers to the systematic grouping of materials based on specific properties, which help determine their best applications.

Major Classifications

i. Hardness

Hard Materials: Resist deformation (e.g., metals, stones).

Soft Materials: Easily deformed or compressed (e.g., cotton, sponge).

ii. Lustre

Lustrous Materials: Reflect light and appear shiny (e.g., gold, glass).

Non-lustrous Materials: Have a dull appearance (e.g., wood, clay).

iii. Transparency

Transparent Materials: Allow complete light passage (e.g., clear glass).

Opaque Materials: Block all light (e.g., wood, metal).

Translucent Materials: Allow partial light passage (e.g., frosted glass).

iv. Conductivity

Conductors: Allow electricity or heat to pass through (e.g., copper, aluminum).

Insulators: Prevent electricity or heat from passing through (e.g., plastic, rubber).

Summary Table: Material Classification

Property	Categories	Examples
Hardness	Hard	Metal, Stone
	Soft	Cotton, Sponge
Lustre	Lustrous	Gold, Glass
	Non-lustrous	Wood, Clay
Transparency	Transparent	Clear Glass
	Opaque	Wood, Metal
	Translucent	Frosted Glass
Conductivity	Conductor	Copper, Aluminum
	Insulator	Plastic, Rubber