⚙️ Topic: Properties of Materials – Metals (II)

Sub-topics:

1. Classification of Metals
2. Forms of Metals
3. Uses of Metals

🎯 Lesson Objectives

By the end of the lesson, students should be able to:

- Classify metals based on composition.
- Identify different forms in which metals are available.
- State various uses of metals in everyday life.

🧩 1. Classification of Metals

Metals can be classified in various ways, but commonly based on **composition** and **structure**:

a. By Composition:

- **Pure Metals**: Metals in their natural state, not mixed with other elements.
    - E.g. Copper, Aluminum, Zinc, Lead
- **Alloys**: Mixtures of metals or metals with non-metals.
    - E.g. Bronze, Brass, Steel

b. By Magnetic Property:

- **Magnetic Metals**: Iron, Steel, Nickel
- **Non-Magnetic Metals**: Aluminum, Copper, Zinc

🧱 2. Forms of Metals

Metals are produced and sold in different **standard forms** for use in manufacturing and construction.

Form	Description	Example Use
Sheet	Flat and thin metal plates	Roofing sheets, car bodies
Rod	Long cylindrical bar	Construction, window frames
Bar	Thick straight metal	Grills, support bars
Tube	Hollow cylindrical metal	Plumbing, poles
Wire	Thin and flexible strand	Electric cables
Plate	Thick flat metal, larger than sheet	Shipbuilding, bridges
Foil	Very thin sheet	Food wrapping (e.g., aluminum foil)

🛠️ 3. Uses of Metals

Metals are used in various sectors due to their strength, durability, and other useful properties:

🔧 Domestic Uses

- Cooking utensils (pots, pans) – Aluminum, Stainless Steel
- Electrical wiring – Copper
- Roofing – Aluminum sheets

🏗️ Industrial Uses

- Construction – Iron (rods, beams), Steel
- Tools – Steel tools (hammers, spanners)

🚗 Transportation

- Cars, aircraft, and ships are made using aluminum, steel, and alloys.

🔋 Electronics

- Copper and aluminum are used in circuits and electrical appliances.