

## **Topic: Properties of Materials – Wood (I)**

### **Sub-topics:**

1. Identification of Wood
  2. Classification of Wood
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### **Lesson Objectives**

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

- Identify wood as a common natural material.
  - Classify wood into major types.
  - State the characteristics and uses of different types of wood.
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### **Introduction**

Wood is one of the oldest and most widely used materials in technology and construction. It is obtained from trees and used in furniture, building, carpentry, and even tools.

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### **1. Identification of Wood**

Wood is the **hard, fibrous substance** found beneath the bark of trees. It comes in various colors, grains, hardness, and textures.

#### **How to Identify Wood:**

- **By Appearance:** Look at the grain pattern, color, and texture.
  - **By Smell:** Some woods have distinct natural smells.
  - **By Hardness:** Some woods feel hard and dense, others are soft and light.
  - **By Use:** Certain woods are best suited for furniture, construction, or tool handles.
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### **2. Classification of Wood**

Wood is generally classified into two main types:

| Type            | Description   | Examples                           | Uses                                     |
|-----------------|---|------------------------------------|--|
| <b>Hardwood</b> | Comes from <b>broad-leaved, deciduous trees</b> (trees that shed leaves annually). Usually <b>hard and dense</b> .        | Iroko, Mahogany, Obeche, Teak, Oak | Furniture, doors, flooring, construction |
| <b>Softwood</b> | Comes from <b>coniferous, evergreen trees</b> (trees that have needles and cones). Usually <b>light and easy to cut</b> . | Pine, Cedar, Spruce, Fir           | Paper, matchsticks, furniture, roofing   |

#### Key Differences Between Hardwood and Softwood:

| Feature     | Hardwood             | Softwood           |
|-------------|----------------------|--------------------|
| Tree Type   | Deciduous            | Coniferous         |
| Density     | Higher               | Lower              |
| Growth Rate | Slower               | Faster             |
| Leaves      | Broad leaves         | Needle-like leaves |
| Cost        | Often more expensive | Usually cheaper    |

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#### Uses of Wood Based on Properties

##### Wood Type Typical Uses

**Hardwood** Furniture, decking, heavy-duty flooring, doors

**Softwood** Pencils, paper, interior frames, temporary structures

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#### Important Note

Not all hardwoods are hard, and not all softwoods are soft. The classification is based on tree type, not necessarily the hardness.