

Sorting of Materials

Introduction

We see many objects around us - Paper made from wood, Bulbs made of glass and their filaments made of metal, clothes made of silk and cotton, utensils made of stainless steel and so on. We see that each of these objects are different in **appearance, texture, characteristics and features**. In this chapter, we will study the features of some of these materials



Objects and Materials

- **Objects refers to anything that can be seen or felt.** Eg: A water bottle, a mirror, a table, a dress material etc



Table

Dress Material

- **Material refers to the matter from which the thing is made** Eg: A water bottle is made of plastic, a mirror is made of glass, a table is made of wood etc



Table made from wood



Dress materials made from cotton

- **Understanding of objects and materials helps us to analyze why a certain object is built with a certain material** Eg: Let's say we need to make a pair of **spectacles**. We could choose from a variety of material available to us - **Wood, Glass, Plastic, Gold etc**. We cannot obviously use wood because we cannot see through it. We cannot see through gold either and also it is very expensive. We need a material that is light and most importantly transparent. **So, we chose either plastic or glass which is transparent and also economical.**



Appearance

- Materials **look** different from each other.
- While some look **lustrous and shiny**, others look **non-lustrous and dull**.
- Wood** looks non-lustrous.
- Iron, Aluminum, Copper, Gold etc look lustrous, shiny and bright** Generally, such substances which appear bright and shiny are called **metals**



Hardness or Smoothness

- Materials also **feel**
- Some of them are **soft** while the others are **hard**.
- Materials which can be compressed or scratched easily are referred to as Soft** Eg: Sponge, Cotton
- Materials which are difficult to compress, cut or break are referred to as Hard** Eg: Iron, Copper.

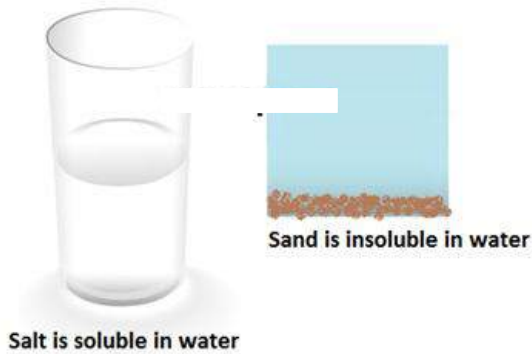


Soft Items

Hard Items

Solubility in water

- Dissolve different solutes like salt, sugar, sand, chalk powder, sawdust in water . Give them a stir and wait for some time.
- While some of them **disappear** in water others **remain as it is in water**.
- **Soluble substances are those which disappear when mixed with water. Eg: salt, sugar**
- **Insoluble substances are those which don't disappear or dissolve when mixed with water. Eg: sand, chalk, sawdust**



Floatation in water

- Some substances **float** on water while others **sink** right to the bottom.
- Objects which are heavier than water sink whereas objects which are lighter than water float on water.
- When leaves from a tree fall on the pond water they float. A paper boat, thin twigs etc are light and they float on water.
- Pieces of stone, heavy bricks etc sink in water



Transparent Translucent and Opaque

- **Materials which allow light to pass through them completely are called Transparent objects. Objects on the other side of Transparent objects can be seen clearly.** Eg: Glass, water and air.
- **Materials which don't allow light to pass through them completely are called Opaque objects. Objects on the other side of opaque objects cannot be seen at all.** Eg: Wood, metals etc.
- **Materials which allow light to pass through them partially are called Translucent objects. Objects on the other side of translucent objects can be seen but not very clearly.** Eg: Oily paper, certain types of designed glass, tissue paper etc

