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Sorting Materials into Groups

Lesson at a Glance

- **Material:** The matter from which something is or can be made is called *material*.
- **Hard:** A material which is difficult to compress or scratch is said to be *hard*.
- **Insoluble:** Substances which do not mix with water and do not disappear in water even after stirring for a long time are called *insoluble* in water.
- **Soluble:** Substances which completely disappear or dissolve in water are called *soluble* in water.
- **Lustre:** Materials that are shiny, or their freshly cut surfaces are shiny are called lustrous materials and their shine is called *lustre*. Materials that have lustre are usually metals.
- **Metal:** It is a hard, shiny, solid material which is able to be shaped and can conduct electricity and heat.
- **Opaque:** The materials through which we are not able to see are said to be *opaque*.
- **Translucent:** The materials through which objects can be seen but not clearly are said to be *translucent*.
- **Transparent:** The materials through which things can be seen clearly are said to be *transparent*.
- **Rough:** An object having an uneven or irregular surface, not smooth or levelled or polished is said to be *rough*.
- Materials are grouped together on the basis of similarities and dissimilarities in their properties. For example, hard or soft, soluble or not soluble in water, made of metal or wood/other materials, freshly cut surface has lustre (shine) or looks dull.
- Materials can be grouped on the basis of whether the object is solid, liquid or gas, whether it is conductor of heat or it is a non-conductor of heat. For example, metals are

conductors of heat but wood, plastics are non-conductors of heat.

- We can also group materials on whether they float or sink in water.
- Materials can be grouped on the basis of whether they are opaque, transparent or translucent materials. This can be tested by looking through them.
- Dividing materials in groups makes it convenient to study their properties and also observe any patterns in these properties.

TEXTBOOK QUESTIONS SOLVED

Q.1. Name five objects which can be made from wood.

Ans. (i) Table (ii) Chair (iii) Doors
(iv) Boat
(v) Bed

Q.2. Select those objects from the following which shine:
Glass bowl, plastic toy, steel spoon, cotton shirt

Ans. Glass bowl and steel spoon are shining objects.

Q.3. Match the objects given below with the materials from which they could be made. Remember, an object could be made from more than one material and a given material could be used for making many objects.

Objects	Materials
Book	Glass
Tumbler	Wood
Chair	Paper
Toy	Leather
Shoes	Plastic

Ans.

Objects	Materials
Book	Paper
Tumbler	Glass and plastic
Chair	Wood and plastic
Toy	Plastic and wood
Shoes	Leather

Q.4. State whether the statements given below are 'true' or 'false'.

- (i) Stone is transparent, while glass is opaque.
- (ii) A notebook has lustre while eraser does not.
- (iii) Chalk dissolves in water.
- (iv) A piece of wood floats on water.
- (v) Sugar does not dissolve in water.
- (vi) Oil mixes with water.
- (vii) Sand settles down in water.
- (viii) Vinegar dissolves in water.

Ans. (i) False (ii) False (iii) False
 (iv) True (v) False (vi) False
 (vii) True (viii) True

Q.5. Given below are the names of some objects and materials:

Water, basket ball, orange, sugar, globe, apple and earthen pitcher

Group them as:

- (a) Round shaped and other shapes
- (b) Eatables and non-eatables

Ans. (a) (i) **Round shaped:** Basket ball, apple, orange, globe, earthen pitcher.
 (ii) **Other shapes:** Water, sugar.
 (b) (i) **Eatables:** Water, orange, sugar and apple.
 (ii) **Non-eatables:** Basket ball, globe and earthen pitcher.

Q.6. List all the items known to you that float on water. Check and see if they will float on an oil or kerosene.

Ans. (A) List of some items that float on water:

- (i) Paper (ii) Wood
- (iii) Thin plastic sheets (iv) Wax
- (v) Ice (vi) Thermocol
- (vii) Oils

(B) List of items that float on an oil:

- (i) Paper (ii) Plastic sheet
- (iii) Wax (iv) Thermocol
- (v) Wood

(C) List of items that float on kerosene:

- (i) Paper (ii) Thermocol
- (iii) Thin plastic sheet

Q.7. Find the odd one out from the following:

- (a) Chair, Bed, Table, Baby, Cupboard
- (b) Rose, Jasmine, Boat, Marigold, Lotus
- (c) Aluminium, Iron, Copper, Silver, Sand
- (d) Sugar, Salt, Sand, Copper sulphate

Ans. (a) Baby (all others are non-living)
 (b) Boat (all others are flowers)
 (c) Sand (all others are metals)
 (d) Sand (all others are soluble in water)