

# NCERT SOLUTIONS

## CLASS-VI SCIENCE

### CHAPTER- 4

#### SORTING MATERIALS INTO GROUPS

#### NCERT Solutions Class 6 Science Sorting Materials Into Groups

##### Question 1:

*Name 4 objects that are made from wood.*

**Answer:**

(I) Desk (ii) windows (iii) hammerhandles (IV) cardboard

##### Question 2:

*Which of the following objects shine?*

*Glass bowl*

*Plastic toy*

*Steel spoon*

*Cotton shirt*

**Answer:**

Shining objects are steel spoon and glass bowl

##### Question 3:

*Match the following objects with the materials that they are made up of.*

Objects	Materials
Book	Glass
Cups	Wood
Chair	Paper
Toy	Leather
Shoes	Plastics

**Answer:**

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

**Question 4:**

**Answer whether the statements given below are 'Right or 'Wrong'.**

- (1) Stone is opaque, while glass transparent.
- (2) A notebook has luster while eraser does not have luster
- (3) Chalk does not dissolve in water.
- (4) In water wood floats.
- (5) In water sugar does not dissolve.
- (6) Water mixes with oil.
- (7) Sand floats in water.
- (8) Vinegar can be dissolved in water.

**Answer:**

(1) Right (2) Wrong (3) Right (4) Right (5) Wrong (6) Wrong (7) Wrong (8) Right

**Question 5:**

**Categorize the following according to the question:**

Cricket ball  
Water  
Sugar  
Orange  
Football  
Globe  
Earthen pitcher  
Basketball

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

**Answer:**

- (a) (i) Round shaped: cricket ball, football,
- (ii) Other shapes: Sugar, water.
- (b) (i) Eatables: Apple, water, sugar and orange
- (ii) Non-eatables: Basketball, football, globe and earthen pitcher.

**Question 6:**

**Mention all the objects that float on water. Mention the objects that can also float on kerosene or on oil.**

**Answer:**

**(A) Objects on the list that float on water**

- (1) Wood
- (2) Paper
- (3) Sheet of plastics
- (4) Ice
- (5) Wax
- (6) Oil

**(B) Objects in the list that float on an oil:**

- (1) Plastic sheet
- (2) Paper
- (3) Wax in the candle
- (4) Wood
- (5) Thermopolis

**(C) Objects in the list that float on kerosene:**

- (1) Thermopolis
- (2) Paper
- (3) Thin plastic sheet

**Question 7:**

***In the given following, find the odd one out:***

**(1) Key, spoon, Table, child, Cupboard**

**(2) Rose, Jasmine, Ball, Marigold, Lotus**

**(3) Aluminum, Iron, Copper, Silver, sun**

**(4) Stone, Salt, Sand, ammonium sulphate**

**Answer:**

- (1) Child (expect this all others are non-living)
- (2) Ball (expect this all others are flowers)
- (3) Sun (expect this all others are metals)
- (4) Stone (expect this all others are soluble in water)

**EXTRA QUESTIONS:**

**I. VERY SHORT ANSWER AND QUESTIONS**

1. ***Why do we require to group materials? Give one reason.***

**Answer:**

It helps to describe their properties when we group materials for our convenience.

**2. Mention any two categories in which the objects can be grouped.**

**Answer:**

(1) Wood or metal/plastic are material used in making the object.

(2) Material of the object is soft or hard, or substance is soluble or insoluble in water.

**3. When a substance is compressed maybe soft or hard?**

**Answer:**

Substance is compressed it is soft.

**4. Give an example of a lustrous material.**

**Answer:**

Aluminum.

**5. Toys are made up of what material?**

Wood  
Aluminum  
Plastic  
Cotton

**Answer:**

Metal or Plastics.

**6. Is oil soluble in water?**

**Answer:**

It is insoluble because water is polar and oil is nonpolar, their molecules are not attracted to each other. The polar solvent molecules like water are attracted to other polar molecules for sugar,

**7. What objects are made of opaque materials?**

**Answer:**

Blackboard/steel plate, wooden doors, .

**8. What is the common difference between the state of sand and salt?**

**Answer:**

They are in solid state and have mass.

9. *Mention any three liquids that they are transparent.*

**Answer:**

Water, alcohol and Acetone/Benzene.

10. *Mention any two materials made from leather.*

**Answer:**

Shoes and Belt.

11. *Mention any objects or materials made from plastics.*

**Answer:**

Toys, cups, laptop, computer parts

12. *If we compare iron and sponge which is harder?*

**Answer:**

Iron is harder

13. *Mention any two gases, which are soluble in water.*

**Answer:**

Carbon di-oxide, oxygen

14. *Mention any two gases which are insoluble in water.*

**Answer:**

Nitrogen and Hydrogen

#### **SHORT QUESTION AND ANSWER.**

**Question1:**

*Explain some properties of the materials.*

**Answer:**

- (a) Material transparency
- (b) Hardness (thickness)
- (c) Floatation or submersible in water
- (d) Solubility
- (e) Appearance

**Question2:**

*Why cups made of cloth and not paper?*

**Answer:**

Generally, we use cups, which are made by glass, plastic and metal, which contain liquid. Cups, which are made by cloth, cannot hold a liquid due to the following reasons:

- (i) Cloth piece is very light to hold liquids
- (ii) Cloth piece contains micro pores through which the liquid oozes out.

**Question 3:**

**Mention the similarities between copper, iron and aluminum.**

**Answer:**

- (a) All of them contain luster,
- (b) All are metals,
- (c) They are very hard.

**Question 4:**

**Name some materials, which are made by paper.**

**Answer:**

Textbooks,  
Newspapers,  
Paper cups,  
Toys,  
Paper bags,  
Notebooks,  
Calendars, etc.

**Question 5:**

**Universal solvent (water) is very essential for the human body. Why?**

**Answer:**

The universal solvent can able to dissolve number of substances .so it is essential for the human body. It constitutes major part of cells located in human body.

**Question 6:**

**State the reason for the grouping materials.**

**Answer:**

It helps to describe their properties when we group materials for our convenience

**Question 7:**

**State the sorting material basis**

**Answer:**

It is mainly based on the similarities or dissimilarities

**Question 8:**

**Create a table of objects different types that are made from the same material.**

No	Materials	Objects made of these materials
1	Iron	Tables, doors, bathroom fitting, mesh
2	wood	Plough, bullock cart and its wheels
3	Leather	Shoes, belt
4	cotton	Bed ,pillow ,dress
5	plastics	Chairs, buckets
6	paper	Books, note books, toys

**Question 9:**

**Create a table and Find whether the following materials mix with Vinegar. Water, Mustard oil, Lemon juice, Kerosene, Coconut oil.**

Sl.no	Liquid	Mixes well/Does not mix
1	Kerosene	Does not mix
2	Coconut oil	Does not mix
3	Mustard oil	Does not mix
4	Lemon juice	Mixes well
5	Vinegar	Mixes well

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**Question 10:**

**Luster (shine) is the property of metal. Certain metal articles become dull and lose their shine why? Give reason**

**Answer:**

Metals react with moisture when exposed to air and gases present in it, hence the forming dull layer of other compounds in it.

**Question 11:**

**Coconut oil, Kerosene, mustard will not dissolve in water even if it was mixed with agitation. Forming two different layers, they separate after sometime. Explain why**

**Answer:**

The molecules of oil do not mix with the molecules of water. Oil cannot take the space between water molecules therefore, they are immiscible.

**Question 12:**

**Suggest a non-metal that has luster.**

**Answer:**

Iodine

**Question 13:**

**In solid state metal occurs generally and they are hard. Mention a metal, which exists in state of liquid, and a metal, which was soft and could be cut with the knife.**

**Answer:**

Metal is mercury which is state of liquid .Potassium and sodium can be cut with the knife because they are soft

**Question 14:**

**Mention the hardest substance that occurs naturally that you know.**

**Answer:**

The substance is diamond, fully formed by carbon

**Question 15:**

**Why is universal solvent water?**

**Answer:**

A large number of substances dissolve in water. Hence, it is termed as universal solvent.

### III. LONG ANSWER TYPE QUESTIONS

**Question 1:**

**“Grouping of objects helps the shopkeeper,” Describe the statement.**

**Answer:**

Shopkeeper feels easy by proper grouping of objects following ways:

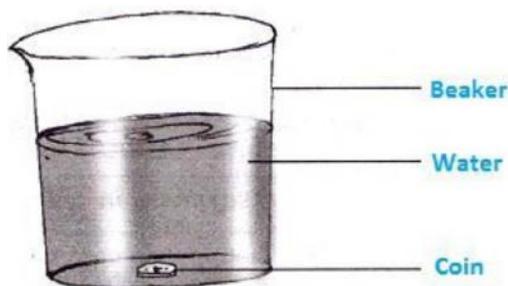
- (i) The object can be easily and quickly located.
- (ii) He will easily identify the goods that are going to be sold out and he can buy easily for his customers

**Question 2:**

**Water is transparent describe a process to prove it.**

**Answer:**

Clean water is partially filled in a beaker. In beaker of water put a coin. The beaker should be kept aside undisturbed for some time in the presence of light. Now, see the water from the top of the beaker in which coin was immersed. I think you will see the coin clearly. Yes, the coin immersed in water can be seen very clearly. This proves transparent liquid is water.

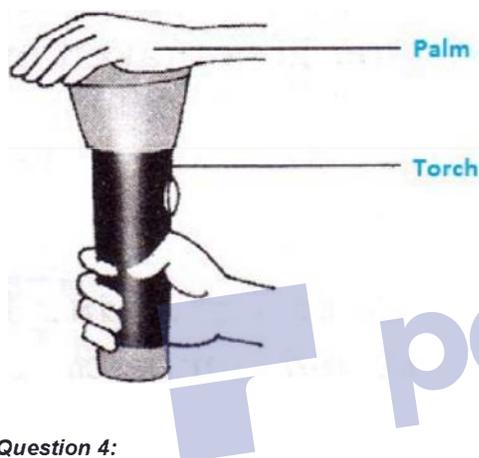


**Question 3:**

**'Our palm is translucent', write an experiment to show that.**

**Answer:**

When your palm covers the glass of a torch switching on the light. It can be observed that the light of torch passes through palm but not clearly. This shows that when a strong beam of light passes our palm therefore our palm is translucent.



**Question 4:**

**How can you show that solids like chalk powder and sand are not soluble in water? Some solids like sugar, salt are soluble in water. Give reason**

**Answer:**

Gather some amount of salt, sugar, sand and chalk powder. Ready with 4 beakers. About two-third with water was filled in each one of them. Teaspoonful of sugar was added to the first beaker, salt to the 2nd, in the third chalk powder and at the fourth beaker sand was filled. Each beaker with content can be stirred with the spoon/stirrer.

After some time, we can easily observe what happens to the substances added to the water. Write down your observations in the following.

**Inference:**

- (i) Chalk powder and sand are insoluble in water
- (ii) Sugar and salt are soluble in water.

