



INDIAN SCHOOL AL WADI AL KABIR



CLASS: VI	DEPARTMENT: SCIENCE 2022 - 23	DATE:16 .11.2022
WORKSHEET NO.: 12 WITH ANSWERS	TOPIC: SORTING MATERIALS INTO GROUPS	Note: A4 FILE FORMAT
NAME OF THE STUDENT:	CLASS & SEC:	ROLL NO.

I. VERY SHORT ANSWER TYPE QUESTIONS (1M):

1. Which state of matter has a fixed shape and volume? **[Hint: Solid]**
2. Why does wood floats on water? **[Hint: Wood is lighter than water. Therefore, it floats on water.]**
3. Name the naturally occurring hardest substance known. **[Hint: Diamond, is made up of carbon.]**
4. Give an example to explain that one object can be made from different materials.
[Hint: A plate can be made from steel, glass or plastic.]
5. Give one example to explain that different materials are used to make one object.
[Hint: A bag is made of cloth, plastic and metal.]
6. Why don't we use paper to prepare tables and chairs? **[Hint: Paper is not hard and can get easily wet with water, hence not used to make furniture.]**
7. Name any two-water soluble and water-insoluble materials.
[Hint: Soluble materials – Salt and sugar, Insoluble materials – Sand and chalk powder.]
8. Name the two gases used by aquatic plants and animals, that are soluble in water.
[Hint: Aquatic plants -Oxygen and Carbon dioxide Aquatic animals -Oxygen]
9. How is carbon dioxide gas dissolved in water helpful to the plants which live in water?
[Hint: Plants that live in water use carbon dioxide for photosynthesis.]
10. Which of the following are shiny objects?

Wood, copper wire, paper, chalk, aluminium sheet, steel spoon

[Hint: Copper wire, aluminium sheet and steel spoon are shiny objects.]

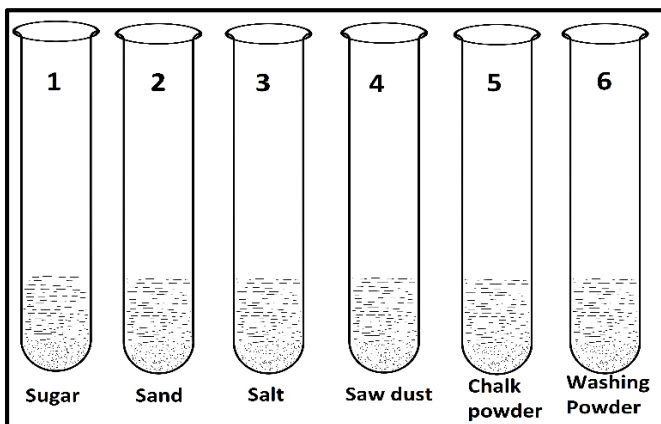
For question numbers 11 to 13, two statements are given - one labelled Assertion (A) and the other labelled Reason (R).

Select the correct answer to these questions from the codes (i), (ii), (iii) and (iv) as given below -

4. Is a grouping of materials necessary? Give one reason. **[Hint: Yes. By grouping, we can find the required items whenever required, easily and can also compare them with similar items.]**

III. CASE STUDY BASED QUESTIONS:

1. Take 10ml of water in 6 test tubes each and add different samples of substances to each test tube as shown in the given figure. Shake the test tubes vigorously for a couple of seconds and leave them undisturbed. In which of these test tubes, sample substances will remain insoluble in water?



- a] 1, 2 and 3
b] **2, 4 and 5**
c] 2, 3 and 4
d] 4, 5 and 6
2. A source of light was observed, through three sheets of paper. These were -
Sheet 1: Butter paper; Sheet 2: White tissue paper; Sheet 3: Paper painted with black acrylic paint.
Which of the following is a correct statement regarding these sheets of paper?
a] 1 is translucent, 2 is transparent and 3 is opaque
b] 1 is transparent while 2 and 3 are translucent
c] 1 is translucent while 2 and 3 are opaque
d] **1 and 2 are translucent while 3 is opaque**
3. An empty metallic bottle, glass bottle and plastic bottle, each of the same size was lowered by applying similar force, into a bucket filled with water. What will happen when the force is removed?
a) Metal bottle will float upwards and the others will stay at the bottom
b) **Plastic bottle will float upwards and the others will stay at the bottom**
c) Glass bottle will float upwards and the others will stay at the bottom
d) All three kinds of bottles will slowly begin to float upwards

IV. a) SHORT ANSWER TYPE QUESTIONS: (2M)

1. Define – a) Classification - **[Hint: The systematic arrangement of things on the basis of certain similarities and differences is called sorting or classification.]**
b) Material – **[Hint: The substance which is used in making different objects is known as Material.]**
2. What are the similarities between iron, copper and aluminium? **[Hint: The similarities between iron, copper and aluminium are: a) They all have lustre, b) They all are metals, c) They all are hard, d) They all conduct electricity.]**
3. Mustard oil and grease both are insoluble in water, but mustard oil floats whereas grease settle down, why? **[Hint: Mustard oil is lighter than water hence it floats, while grease is heavier and thus sinks.]**
4. Why is a tumbler not made with a piece of cloth? **[Hint: This is because we generally use a tumbler to keep a liquid. A tumbler made of a piece of cloth cannot be used to keep water. So, a tumbler is made with a material which has the property to hold the liquid.]**
5. What do you mean by the lustre of a substance? **[Hint: Those materials which have a shiny appearance are said to be lustrous. Metals are generally lustrous in nature. E.g.: Gold and Silver.]**
6. Metals have lustre (shine). Give a reason why some metal articles become dull and lose their shine. **[Hint: Metals when exposed to air react with moisture and gases present in them, thereby forming a dull layer of some other compound on it.]**
7. How is the density of an object related to its floating or sinking?
[Hint: An object will float if its density is lesser than liquid. It will sink if its density is greater than that of the surrounding liquid.]
8. Why do you think oxygen dissolved in water is important for the survival of aquatic animals and plants?? **[Oxygen gas is soluble in water. The plants and animals which live in water use the oxygen dissolved in water for respiration]**
9. Metals generally occur in a solid state and are hard. Name a metal that exists in a liquid state and a metal that is soft and can be cut with a knife.
[Hint: Mercury is a metal that exists in a liquid state. Sodium and Potassium are soft metals and can be cut with a knife.]

10. Take a small cotton ball and place it in a tumbler/bowl filled with water. Observe it for at least 10 minutes. Will it float or sink in water and why? **[Hint: Cotton ball initially floats on water but after a few minutes, it sinks because it absorbs water and becomes heavy.]**

IV. b) SHORT ANSWER TYPE QUESTIONS: (3M)

1. Find the odd one out from the following and give a reason for your choice -
- a) Nail, knives, Magnet, Beaker, Coin **[Hint: Beaker (made of glass); all others are made of metals]**
- b) Wood, Stone, Iron, Cotton, Diamond **[Hint: Cotton (soft material); all others are made of hard materials]**
2. What are miscible and immiscible liquids? Give one example for each.
[Hint: Liquids that get completely mixed with each other are called miscible liquids. E.g.: Honey, milk, vinegar etc.]
Liquids that do not mix with each other are called immiscible liquids. E.g.: Mustard oil, kerosene etc.]
3. Differentiate between transparent, translucent and opaque objects.

TRANSPARENT	TRANSLUCENT	OPAQUE
Objects that allow light to pass through them completely are called transparent materials. E.g.: Glass, air, clear water etc.	Objects that allow only a small amount of light to pass through them are called translucent objects. E.g.: Butter paper, thin plastic, tissue paper etc.	Objects that do not allow any light to pass through them are called opaque objects. E.g.: Wood, metals, brick walls etc.

4. What is the need for classifying materials into different groups?
[Hint: Importance of classification –
i] Classification helps in the systematic study of objects.
ii] Classification helps in identifying and locating things.
iii] It helps to study the properties of objects of one kind
iv] It helps to understand similarities and dissimilarities among objects.]
5. Give reasons for the following -
- a) When blue ink is dropped in water, the water turns blue.
[Hint: Water and ink are miscible liquids (liquids that mix well with each other)]
- b) A leaf floats in water while a stone sink.

[Hint: Leaf has less density hence it floats in water, stone has high density hence it sinks.]

c) Mercury is used in thermometers. [Hint: Mercury is lustrous so it is easy to read the temperature.]

d) We keep our money and valuables in a metallic or wooden almirah and not in a glass cupboard? [Hint: Metallic or wooden almirahs are opaque so no one can see what is kept inside it. Glass is transparent so everyone can see what is kept inside the glass cupboard]

6. 'Grouping of objects helps the shopkeeper.' Justify the statement.

[Hint: Proper grouping of objects helps the shopkeeper in the following ways – i) He can locate the required object easily and quickly. ii) He can easily come to know what stocks are going to finish and he should purchase them for his customers.]

7. Mixtures of red chilli powder in water, butter in water, petrol in water, and honey in water were given to Radha, Sudha, Sofia and Raveena, respectively. Whose mixture is in solution form?

[Hint: Since honey gets dissolved in water so a mixture of Raveena i.e., honey in water is in solution form. Whereas red chilli powder, butter and petrol float on water.]

8. What do you mean by the hardness of materials? [Hint: It is the property of materials that can be found out by pressing the materials. Material may be soft or hard.]

Soft materials - Materials that can be compressed or scratched easily are called soft materials. E.g.: Cotton, sponge. Hard materials - Materials that are difficult to compress or scratched easily are called hard materials. E.g.: Iron and most other metals.]

V. LONG ANSWER TYPE QUESTIONS: (5M)

1. It was Pratiksha's birthday. Her grandmother gave her two gifts made up of metals, one old dull silver spoon and a pair of lustrous gold earrings. She was surprised to see the difference in the appearance of the two metals. Can you explain the reason for this difference?

[Hint: Gold metal does not lose its shine or luster when exposed to the atmosphere. gold metal will remain unaffected by air, water and other gases in the atmosphere whereas silver metal on long exposure to moist air loses its shine and becomes dull. That's why the old silver spoon was giving a dull appearance.]

2. X, Y and Z are the three types of materials. Materials X and Y can break into pieces easily when hit with an object but material Z does not break easily. The material X is used in the windows of the bathroom of our house whereas material Y is used in the windows of our drawing room. The material Z is used in making doors and almirahs of our house.

a) What do you think material X could be? What is the general name of materials like X?

[Hint: ground glass, translucent]

b) What could material Y be? Write the general name of materials like Y.

[Hint: clear glass, transparent]

c) What could material Z be? What is the general name of materials like Z?

[Hint: wood, opaque]

3. Compare any three properties solids, liquids and gases.

PHYSICAL PROPERTY	SOLIDS	LIQUIDS	GASES
SHAPE	Has a fixed shape	Takes up the shape of the container	Takes up the shape of the container
VOLUME	Fixed volume	Fixed volume	Changes volume to fill its container
FLUIDITY	Does not flow easily	Flows easily	Flows easily
COMPRESSIBILITY	Not easy to compress	Not easy to compress	Easy to compress
SPACE BETWEEN PARTICLES	Most closely packed	Less closely packed	Far apart from each other

4. Complete the following table given below:

MATERIAL	STATE	SOLUBLE / INSOLUBLE / MISCIBLE / IMMISCIBLE
1. Saw dust	Solid	Insoluble
2. salt	Solid	Soluble
3. Honey	Liquid	Miscible
4. Carbon dioxide	Gas	Soluble
5. Mustard oil	Liquid	Immiscible

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