INDIAN SCHOOL AL WADI AL KABIR

CLASS: VI	**DEPARTMENT: SCIENCE 2021 - 22**	**DATE: 30.11.2021**
WORKSHEET NO.: 12 **WS 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. 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. 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]
3. What is the basis of grouping materials? [Hint: Materials are grouped together on the basis of similarities and differences in their properties.]
4. List five physical properties of materials. [Hint: Lustre, hardness or soft, solubility in water, physical state, density]
5. Which state of matter has fixed shape and volume? [Hint: Solid]
6. Why wood floats on water? [Hint: Wood is lighter than water. Therefore, it floats on water.]
7. Name the naturally occurring hardest substance known. [Hint: Diamond, it is made up of carbon.]
8. Why don't we use papers to prepare tables and chairs? [Hint: Paper is not hard and can get easily wet with water, hence not used to make furniture.]
9. Name any two-water soluble and water insoluble materials. [Hint: Soluble materials – Salt and sugar, Insoluble materials – Sand and chalk powder.]
10. How is carbon dioxide gas dissolved in water helpful to the plants which live in water?
    [Hint: Plants live in water use carbon dioxide for photosynthesis]

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 -

i) Both A and R are true and R is correct explanation of the assertion.

ii) Both A and R are true but R is not the correct explanation of the assertion.

iii) A is true but R is false.

iv) A is false but R is true

11. **Assertion (A):** Copper metal have lower density than water.

Reason (R): The materials which sink in the water have higher density than water.

[iv] A is false but R is true.

12. **Assertion (A):** Diamond is a hard material.

Reason (R): The material which can be compressed or scratched easily are called hard materials.

[iii] A is true but R is false.

13. **Assertion (A):** Shopkeepers usually keep biscuits, sweets etc. in transparent containers of glass or plastic.

Reason (R): Buyers could see through the transparent containers.

[i] Both A and R are true and R is correct explanation of the assertion.

II. PASSAGE BASED QUESTIONS:

Anything that can be seen and touched is called an object. The objects could be of different shapes, colours and sizes. Some objects may be living like animals and plants while some may be non-living like chairs and tables. Objects are made of substances called materials. The matter of which an object is made is called material, for example, chair is made of wood, book is made of paper. The placing of objects into groups according to certain features is called classification. Classification of objects into groups is important as it helps us in – 1. Finding an object from a large group, 2. Understanding some basic properties of an object, 3. Giving a clarity about similarities and differences amongst the various groups.

1. Which of the following is a matter?

a] Air b] Steel

c] Water d] All of these

2. Anything that has a mass and occupies space is called -

a] Classification b] Volume

c] Matter d] Air

3. A good example of grouping can be seen in a -

a] Playground b] Supermarket

c] Store room d] Hospital

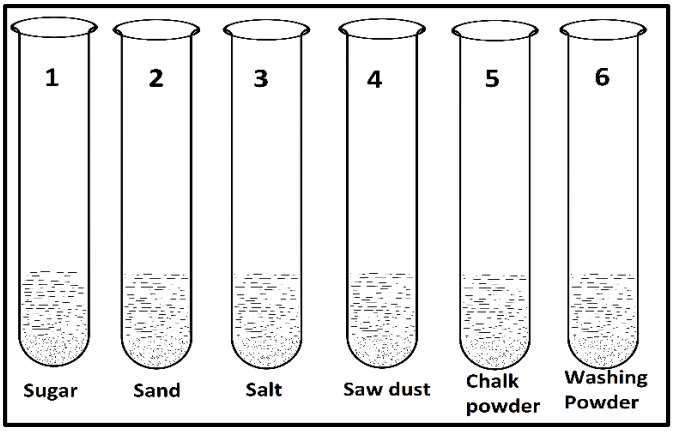
4. Purpose of sorting materials into groups is -

a] to study their properties b] convenience

c] both (a) and (b) d] inconvenience

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. Rahul found a bag containing the following materials.

i) Mirror ii) Paper stained with oil

iii) Magnet iv) Glass spectacles

Help Rahul in finding out material(s) which is/are opaque.

a] (i) only b] (iv) only

c] (ii) and (iv) d] (i) and (iii)

3. While doing an activity in class, the teacher asked Paheli to handover a translucent material. Which among the following materials will Paheli pick and give her teacher?

   a] Glass tumbler b] Mirror

   c] Muslin cloth d] Aluminium foil

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

1. 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.]
2. Mustard oil and grease both are insoluble in water, but mustard oil floats whereas grease settles down, why? [Hint: Mustard oil is lighter than water hence it floats, while grease is heavier thus sinks.]
3. Write any four properties of materials. [Hint: The four properties of materials are: a) Appearance, b) Hardness, c) Solubility and d) Transparency]
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 a property to hold the liquid.]
5. What do you mean by lustre of a substance? [Hint: Those materials which have shiny appearance are said to be lustrous. Metals are generally lustrous in nature. E.g.: Gold and Silver.]
6. Metals have lustre (shine). Give reason why some metal articles become dull and lose their shine. [Hint: Metals when exposed to air react with moisture and gases present in it, thereby forming a dull layer of some other compound on it.]
7. Is grouping of materials necessary? Give one reason. [Hint: Yes. By grouping, we can find the required items whenever required, easily and can also compare with similar items.]
8. How is 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.]
9. 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]

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 few minutes, it sinks because it absorbs water and become heavy]

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

1. 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.]

2. Differentiate among 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 wall etc.

3. What is the need for classifying materials into different groups?

   [Hint: Importance of classification –

   i] Classification helps in 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.]

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

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

5. ‘Grouping of objects helps the shopkeeper.’ Justify the statement.
   [Hint: Proper grouping of objects helps 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.]
6. 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 mixture of Raveena i.e., honey in water is in solution form. Whereas red chilli powder, butter and petrol float on water.]
7. Find the odd one out from the followings and give reason for your choice -
   a] Nail, Utensils, 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 hard materials]
8. What do you mean by hardness of materials? [Hint: It is the property of materials that can be found out by pressing the materials. A 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 of the other metals.]

V. LONG ANSWER TYPE QUESTIONS: (5M)

1. It was Paheli’s birthday. Her grandmother gave her two gifts made up of metals, one old dull silver spoon and a pair of lustrous gold ear-rings. 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 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 old silver spoon was giving dull appearance.]
2. X, Y and Z are the three types of materials. The 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 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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