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| Class: VI | DEPARTMENT: SCIENCE 2023-24 | DATE: 16-11-2023 |
| WORKSHEET NO: 12 WITH ANSWERS | TOPIC: SORTING MATERIALS INTO GROUPS | NOTE: A4 FILE FORMAT |
| NAME OF THE STUDENT: | CLASS & SEC: | ROLL NO. |

I. OBJECTIVE-TYPE QUESTIONS

1. Four baskets filled with different objects were placed in front of a classroom. Each student was asked to compress the objects to examine their hardness or softness and arrange them in order from hardest to softest. The contents of the four baskets were:

- i. Styrofoam
- ii. Flour dough
- iii. Wooden blocks
- iv. A bunch of cottons

What would be the correct order?

- a) **iii, i, ii, iv**
- c) ii, iii, iv, i

- b) iii, i, iv, ii
- d) ii, iii, i, iv

2. An ordinary chair requires a strong structure to support the weight of a person sitting on it. Which of the following materials should not be considered for building a chair?

- a) **Glass**
- c) Wood
- b) Metal
- d) Plastic

3. A source of light was observed through three sheets of paper –

- i) A butter paper
- ii) A white tissue paper
- iii) A paper painted with black acrylic paint.

Which of the following is the correct statement regarding these sheets of paper?

- a) i) is translucent, ii) is transparent and iii) is opaque
- b) i) is transparent while ii) and iii) are translucent
- c) i) is translucent while ii) and iii) are opaque
- d) **i) and ii) are translucent while iii) is opaque**

4. Shreya is provided with the following objects and asked to put them in a bucket containing water. A wooden toy, an iron nail, a stone, a plant leaf and a plastic ball. Which among the given objects will float and sink in water?

- a) Wooden toys and iron nails will float, whereas plant leaves, stone and plastic balls will sink.
- b) Wooden toys, plant leaves and plastic balls will float, whereas iron nails and stone will sink.**
- c) Iron nails and plastic balls will float, whereas stone, plant leaves and wooden toys will sink.
- d) Plant leaves will float, whereas wooden toys, plastic balls, stones and iron nails will sink.

5. A spoonful each, of sawdust, powdered sugar and salt was added to a glass containing water. Which of the following can be observed?

- a) Salt and sawdust are soluble in water, but sugar is insoluble.
- b) Salt and sugar are soluble in water, but sawdust is insoluble.**
- c) Sugar and sawdust are soluble in water, but salt is insoluble.
- d) Sugar, sawdust and salt are all soluble in water.

6. A person examines the physical properties of a kitchen sponge, a lump of cotton, a plastic bottle and a ceramic bottle. Choose the option that correctly describes them.

- a) It is easier to break plastic bottles than to break ceramic bottles.
- b) It is easier to compress cotton than to compress a kitchen sponge.**
- c) It is easier to stretch ceramic bottles than to stretch plastic bottles.
- d) It is easier to tear up a kitchen sponge than to tear up a lump of cotton.

For the following questions, 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 the 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*

7. **Assertion (A):** Materials which can be compressed or scratched easily are called soft materials.
Reason (R): Iron is a hard material.

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

8. **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 the correct explanation of the assertion.**

9. **Assertion (A):** Vinegar forms a separate layer when mixed with water.

Reason (R): Liquids that get completely mixed are called miscible liquids.

iv) A is false but R is true.

10. **Assertion (A):** Some metal articles become dull and lose their shine.

Reason (R): Continuous exposure to air and moisture causes some metals to lose their lustre.

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

II. VERY SHORT QUESTIONS (2M):

1. Both mustard oil and grease 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 and thus sinks.]**

2. 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. E.g.: Gold and Silver.]

3. 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.]

4. Give examples for i) An object that can be made from different materials and
ii) Different objects that can be made from the same material.

[Hint: i) A plate can be made from steel, glass or plastic.

ii) Tables, chairs, doors and windows can be made from wood.]

5. How can you convert an opaque white paper into a translucent paper?

[Hint: An opaque white paper can be converted into translucent paper by spreading some oil on it.]

III. SHORT ANSWER TYPE QUESTIONS: (3M)

1. What are miscible and immiscible liquids? Give examples for each.

**[Hint: Liquids that get completely mixed are called miscible liquids.
E.g.: Honey, milk, vinegar etc.]**

Liquids that do not mix are called immiscible liquids.

E.g.: Mustard oil, kerosene etc.]

2. 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 sinks.

[Hint: A leaf has less density hence it floats in water; a stone has high density hence it sinks.]

c) Gold and silver are used in jewellery. **[Hint: These metals are lustrous in their appearance.]**

3. Why is a sponge considered to be a soft material?

[Hint: Hardness is the property of materials that can be found out by pressing the materials. Material may be soft or hard. Materials that can be compressed or scratched easily are called soft materials. Materials that are difficult to compress or scratch easily are called hard materials. Since a sponge can easily be compressed, it is considered to be a soft material.]

4. Differentiate soluble and insoluble substances with examples.

[Hint: Substances that completely dissolve in water are said to be soluble in water. E.g.: salt, and sugar.

Substances that do not dissolve in water even on stirring are said to be insoluble in water. E.g.: chalk powder and sand.]

IV. LONG ANSWER TYPE QUESTIONS. (5M)

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

[Hint: The systematic arrangement of things based on certain similarities and differences is called sorting or classification.

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.]

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]

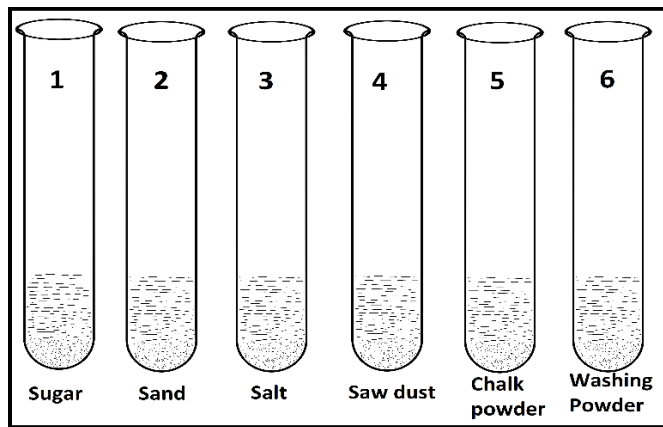
3. How can materials be classified based on physical state? Compare the properties. [Hint:

Based on physical state, materials can be classified into 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 |

V. SOURCE-BASED/ CASE STUDY-BASED QUESTIONS

1. Take 10 ml 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. 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. Matter is anything that has mass and occupies space. The matter by which an object is made of is called a material. For example, the chair is made of wood, and the book is made of paper. The placing of objects into groups according to certain features is called classification. Materials can be grouped based on their similarities and differences in their properties. Classification of objects into groups is important as it helps us find an object from a large group, understand some basic properties of an object and give clarity about similarities and differences among the various groups.

i. Anything that has mass and occupies space is called -

a) Classification

b) Volume

c) Matter

d) Air

ii. What is the basis of grouping materials? **[Hint: Materials are grouped on the basis of similarities and differences in their properties.]**

iii. List five physical properties of materials. **[Hint: Lustre, hardness, solubility in water, physical state and density]**

iv. Why is it necessary to classify objects? Give one reason. **[Hint: By grouping, we can find the required object from a large group easily and can also compare them with similar items.]**

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