Class 9 Science Worksheet: Chapter 1 - Matter in Our Surroundings

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Student Details:

- Name: _____
- Class: _____
- Date: _____

Instructions:

- Answer all the questions.
- Write neatly and legibly.
- For MCQs, circle the correct option.
- For assertion and reason questions, choose the correct option and provide brief explanations if necessary.

Section A: Multiple Choice Questions (MCQs)

1. **Which of the following best describes the property of gases?**

   a) Gases have a fixed shape and volume.

   b) Gases have a definite shape but no definite volume.

   c) Gases have neither a definite shape nor a definite volume.

   d) Gases have a fixed volume but no fixed shape.

2. **The process where a solid changes directly into a gas is known as:**

   a) Melting

   b) Freezing

   c) Sublimation

d) Deposition

3. **Which factor does NOT affect the rate of evaporation of a liquid?**

   a) Temperature

   b) Surface area

   c) Pressure

   d) Color of the liquid

4. **What is the primary difference between evaporation and boiling?**

   a) Evaporation occurs at the boiling point of the liquid, while boiling occurs at any temperature.

   b) Boiling occurs only on the surface, while evaporation occurs throughout the liquid.

   c) Evaporation occurs at any temperature, while boiling occurs at a specific temperature.

   d) Boiling occurs at the surface, while evaporation occurs throughout the liquid.

5. **Which property is unique to gases compared to solids and liquids?**

   a) Ability to flow

   b) Ability to expand and fill the container

   c) Definite volume

   d) Fixed shape

Section B: Assertion and Reason

Instructions: For each assertion and reason pair, choose the correct option.

6. **Assertion (A): The volume of a gas can be easily compressed.**

   Reason (R): The particles in a gas are closely packed and have little space between them.

   a) Both A and R are true, and R is the correct explanation of A.

   b) Both A and R are true, but R is not the correct explanation of A.

   c) A is true, but R is false.

   d) A is false, but R is true.

7. **Assertion (A): Water has the highest density in its solid state compared to its liquid state.**

   Reason (R): Water molecules in ice are more closely packed than in liquid water.

   a) Both A and R are true, and R is the correct explanation of A.

   b) Both A and R are true, but R is not the correct explanation of A.

   c) A is true, but R is false.

   d) A is false, but R is true.

Section C: Short Answer Questions

8. **Describe the changes that occur in the arrangement of particles when a substance transitions from a solid to a liquid.**
9. **Explain the concept of latent heat and how it is involved in the phase change of water from liquid to gas.**

10. **How does the presence of impurities affect the melting point of a substance? Provide an example.**
11. **Compare and contrast the properties of solids, liquids, and gases in terms of their particle arrangement and movement.**

Section D: Long Answer Questions

12. **Discuss the concept of diffusion in gases. How does it differ from diffusion in liquids and solids? Provide examples for each.**
13. **Describe the process of condensation and its significance in the water cycle. Include a diagram if possible.**
14. **Explain the phases of matter in terms of energy changes. How does energy transfer influence the state of matter?**
15. **Discuss the practical applications of sublimation in daily life. Include at least two examples and explain the process in each case.**