Class 9 Science Worksheet 3: 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 statements correctly describes the behavior of particles in a liquid?**

   a) Particles are fixed in place and cannot move.

   b) Particles are closely packed and vibrate about fixed positions.

   c) Particles are loosely packed and move around freely.

   d) Particles are far apart and move rapidly in all directions.

2. **The process where a liquid changes into a solid is called:**

   a) Melting

   b) Freezing

   c) Condensation

   d) Sublimation

3. **What determines the state of matter of a substance?**

   a) The temperature only

   b) The pressure only

   c) The temperature and pressure

   d) The density and mass

4. **Which of the following is an example of sublimation?**

   a) Ice melting into water

   b) Water boiling into steam

   c) Dry ice turning into carbon dioxide gas

   d) Water vapor condensing into liquid water

5. **In which state of matter do particles have the most kinetic energy?**

   a) Solid

   b) Liquid

   c) Gas

   d) Plasma

Section B: Assertion and Reason

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

6. **Assertion (A): A gas has neither a definite shape nor a definite volume.**

   Reason (R): Gas particles move freely and occupy the entire volume of their container.

   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): Solids expand when heated.**

   Reason (R): Heating increases the movement of particles, causing them to push against each other.

   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. **Why does ice float on water? Explain in terms of density.**
9. **What is the difference between condensation and evaporation? Provide examples.**
10. **How does pressure affect the boiling point of a liquid?**
11. **Describe how diffusion occurs in solids and compare it to diffusion in liquids and gases.**

Section D: Long Answer Questions

12. **Explain the different states of matter with a focus on the arrangement and movement of particles. How do these factors affect the properties of each state?**
13. **Discuss the processes of evaporation and condensation in the water cycle. Include a diagram to illustrate these processes.**
14. **Describe the phase changes that occur when heating a substance from a solid to a gas. Include the terms sublimation and deposition in your explanation.**
15. **Explain the concept of latent heat. How does it apply to the processes of melting and boiling?**
