

Year 6 Science Assessment: States of Matter

Learning objective: To understand and describe the properties of solids, liquids, and gases, and explain how materials change state through heating and cooling.

Read each question carefully. Use your scientific knowledge to explain your answers clearly. Write your responses in the spaces provided.

Nova the barn owl is conducting an experiment in the forest. She is observing a block of ice melting into a puddle, steam rising from a hot cup of tea, and the morning dew forming on the leaves of a tree.

Word bank: solid · liquid · gas · particles · evaporation · condensation · melting · freezing · temperature · reversible

1. Identify the state of matter for ice, the puddle, and the steam observed by Nova. [3 marks] (3 marks)

2. Using your knowledge of particles, describe how the particles in a solid are different from the particles in a gas. [2 marks] (2 marks)

3. Max the monkey wants to measure the temperature at which water turns into a gas. What is this process called, and what happens to the energy of the particles during this change? [3 marks] (3 marks)

4. Explain why the formation of dew on a leaf in the morning is an example of condensation. [4 marks] (4 marks)

5. If you leave a £2.50 ice lolly out in the sun, it melts. Is this change reversible or irreversible? Explain your reasoning. [3 marks] (3 marks)

6. Design a fair test to investigate whether salt affects the melting point of ice. Include what you will change, what you will measure, and one thing you must keep the same to ensure it is a fair test. [5 marks] (5 marks)

7. Why does a gas fill the entire space of a container, whereas a liquid takes the shape of the bottom of the container? [5 marks] (5 marks)

Draw: Draw a diagram showing the arrangement of particles in a block of ice (solid) and in the steam rising from a kettle (gas). Label your drawings clearly.

Extension challenge: Total: /25