

Year 4 Science Assessment: States of Matter

Learning objective: To identify, classify, and explain the properties of solids, liquids, and gases, and understand how temperature changes affect the state of matter.

Read each question carefully. Use your scientific vocabulary to provide clear, detailed answers. Max, our maths-loving monkey, wants you to be as precise as possible!

Nova the owl is observing the forest pond. In the morning, the water is liquid, but the puddles on the bank have turned into solid ice. As the sun rises, the ice melts and the water begins to warm up. Later, Nova notices steam rising from a warm rock near the water's edge.

Word bank: solid · liquid · gas · particle · evaporation · condensation · melting · freezing · temperature · vibrate

1. Identify the three states of matter Nova observed in the passage. For each state, describe how the particles behave. (3 marks)

2. Explain the process of evaporation using the example of the steam Nova saw rising from the rock. (2 marks)

3. If a bottle of apple juice costs £1.20 and you freeze it into an ice lolly, does the mass of the juice change? Justify your answer using your knowledge of states of matter. (3 marks)

4. Compare and contrast the properties of a solid and a liquid. Why does a liquid take the shape of its container while a solid does not? (4 marks)

5. What might happen to the particles in a block of chocolate if it is left in a hot car? Explain why this change occurs. (3 marks)

6. Nova wonders why we see condensation on the outside of a cold glass of lemonade on a hot day. Explain the scientific process that causes this. (5 marks)

Draw: Draw a labelled diagram showing the particle arrangement of a solid, a liquid, and a gas. Use circles to represent the particles.



Extension challenge: Total: /25. Extension Task: Imagine you are an explorer in a land where the temperature never rises above -20°C. Write a short journal entry (100 words) describing how this extreme cold affects the materials around you, using at least five words from the word bank.