Nova’s States of Matter Experiment Record

Learning objective: To compare and group materials together according to whether they are solids, liquids, or gases and observe how they change state when they are heated or cooled.

Help Nova the owl record her scientific findings! Choose three different materials (such as an ice cube, a piece of chocolate, or a balloon). Complete the experiment record for each item to show how its state of matter changes during your observation.

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

1. Material Observation: Identify your chosen material and describe its state (solid, liquid, or gas) before the experiment begins. What do the particles look like in this state? (2 marks)

2. The Change: Describe what happened to the material when you applied heat or cooling. Did it change state? Explain the process that occurred (e.g., melting or freezing). (3 marks)

3. Temperature Influence: Explain how the temperature of the environment affected your material. Why does adding heat energy cause these changes in states of matter? (3 marks)

4. Reversibility: Is this change reversible? If you could change the temperature back to how it was at the start, would the material return to its original state? Explain your reasoning. (2 marks)

5. Scientific Conclusion: Based on your observations, write a summary sentence explaining how materials can move between states of matter. (2 marks)

Extension challenge: Nova wants to know: If you left a puddle of water on the playground on a sunny day, what would happen to it? Write a short paragraph explaining the process of evaporation and where the water goes.