

Nova's Guide to States of Matter

Learning objective: To describe and compare the properties of solids, liquids, and gases, and observe how they change state when heated or cooled.

Use the headings below to write a scientific report about the three states of matter. Use your observations and the word bank to help you describe what happens to particles in each state.

Everything in the world around us is made of matter, which can exist as a solid, a liquid, or a gas.

Word bank: particles · vibrate · fixed shape · flow · compress · expand · melt · evaporate · condense · solid · liquid · gas

1. Solids: Describe how the particles in a solid are arranged and why a solid keeps its fixed shape. You could start with: In a solid, the particles are packed closely together... (2 marks)

2. Liquids: Explain how liquid particles move compared to solids. You could start with: Liquids do not have a fixed shape because the particles can... (2 marks)

3. Gases: How do gases behave differently to liquids and solids? You could start with: Gases spread out to fill their container because the particles... (2 marks)

4. Changing State: What happens to ice when it is heated? You could start with: When heat is applied to a solid, the particles start to vibrate more until... (2 marks)

5. Conclusion: Why is it important to understand states of matter? You could start with: Understanding states of matter helps us to... (2 marks)

Extension challenge: Imagine you are Nova the owl. Write a short explanation for a younger student describing how water changes from a liquid to a gas during the water cycle.