

Nova's Guide to the States of Matter

Learning objective: To describe and compare the properties of solids, liquids, and gases, and explain how materials change state.

Use this writing frame to help Nova the owl explain how different materials behave. Use the scientific vocabulary in your word bank to describe what happens to particles when things change state.

Everything in the world around us is made of tiny, invisible particles that behave differently depending on whether they are a solid, a liquid, or a gas.

Word bank: solid · liquid · gas · particles · melting · freezing · evaporation · condensation · vibrate · fixed shape · flow · compress

1. Solids: Describe the arrangement of particles in a solid using this sentence starter: In a solid, the particles are packed closely together in a fixed structure because... (2 marks)

2. Liquids: Explain how liquids differ from solids by completing this: Unlike solids, the particles in a liquid can move around and slide past one another, which means... (2 marks)

3. Gases: How do gases behave? Start your explanation with: Particles in a gas have much more energy and are far apart, allowing the gas to... (2 marks)

4. Changing State: Describe what happens when a solid turns into a liquid by writing: When heat is added to a solid, the particles gain energy and start to vibrate faster until... (3 marks)

5. Real-world Application: Give an example of condensation you have seen in daily life. Start with: An example of condensation is when water vapour cools down to form liquid droplets, such as... (2 marks)

Extension challenge: Challenge: Imagine you are a tiny particle. Write a short diary entry describing your day—are you stuck in a block of ice, flowing in a river, or floating freely in the air?