

Nova's States of Matter Laboratory

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

Nova the owl is conducting experiments in her woodland lab. Look at the items below and sort them into the correct 'State of Matter' category. Then, explain why you placed them there using the scientific properties of solids, liquids, and gases.

Word bank: solid · liquid · gas · fixed shape · flows · fills the container · particles · heated · cooled

1. Sort these items: A wooden pencil, a cup of orange juice, and the air inside a balloon. Which is a solid, which is a liquid, and which is a gas? (3 marks)

2. Nova puts a block of ice in a warm sunbeam. Explain what happens to the ice and why it changes state. (2 marks)

3. If you pour orange juice from a tall glass into a wide bowl, does the amount of juice change? Does the shape of the juice change? Explain why. (2 marks)

4. Why can you squash a sponge (a solid) but you cannot easily squash a wooden block? Think about the tiny particles inside. (2 marks)

5. Nova boils a kettle to make herbal tea. What state of matter is the steam coming out of the spout? How do you know? (2 marks)

Draw: Draw a diagram showing how particles look inside a solid (packed tightly), a liquid (close but moving), and a gas (far apart and moving quickly).



Extension challenge: Research what temperature water turns from a liquid into a solid. Write a short poem about the 'Great Freeze' using at least three scientific words from the word bank.