Nova’s States of Matter Explorer

Learning objective: To identify and illustrate the particle arrangement of solids, liquids, and gases, and understand the changes between these states.

Follow the drawing prompts below to help Nova the owl map out how matter behaves. Use the word bank to label your diagrams clearly.

Draw: Create a diagram sheet divided into three clear sections titled 'Solid', 'Liquid', and 'Gas'. Inside each section, draw a circle representing a container. Inside the containers, use small dots to represent particles. In the solid section, draw the dots in a regular, tightly packed grid. In the liquid section, draw the dots jumbled but touching. In the gas section, draw the dots spread out with plenty of white space between them. Draw a small, encouraging sketch of Nova the owl wearing goggles next to the 'Gas' section.

Label words: Solid · Liquid · Gas · Particles · Fixed position · Flow · Random movement · Vibrate

Steps:

1. Step 1: In the first box, draw a solid (like a block of ice). Show the particles packed tightly together in a neat pattern. Label the particles.

2. Step 2: In the second box, draw a liquid (like water in a beaker). Show the particles close together but able to slide past each other. Label the particles.

3. Step 3: In the third box, draw a gas (like steam). Show the particles far apart with lots of space between them. Label the particles.
4. Step 4: Explain why the particles in a solid stay in a fixed shape but the particles in a gas do not.
5. Step 5: If you heat up an ice cube, what state change occurs? Write the name of the process.