

# Particles in Three States

30 minutes, 3 stages

All matter around you, your pencil, the water you drink, the air you breathe, is made of tiny particles. Understanding how these particles move and arrange themselves explains why solids stay in shape, why liquids pour, and why gases spread out ([Knowledge](#)). This homework helps you represent and describe particle behaviour in solids, liquids, and gases ([Skills](#)).

## Stage 1: Draw and Label (10 min)

Draw three boxes on your paper, one for each state of matter. Label them Solid, Liquid, and Gas.

In each box, draw circles to represent particles. Use what you know about how particles behave in each state.

For the solid box: Draw circles close together. Add small arrows to show they vibrate in place.

For the liquid box: Draw circles with small spaces between them. Add arrows showing they can slide past each other.

For the gas box: Draw circles spread far apart. Add arrows pointing in different directions to show particles moving all around.

Below each drawing, write one sentence describing how the particles are arranged. For example: "In a solid, particles are close together and vibrate in place" ([Knowledge](#)).

## Stage 2: Match and Explain (12 min)

Read each description below. Write the state of matter it describes: solid, liquid, or gas.

1. Particles are separated by large spaces and move constantly in all directions.
2. Particles are close together and vibrate in place.
3. Particles have spaces between them and can slide past each other.

Now choose one state of matter. Write two sentences explaining how the arrangement and movement of its particles connect to how that matter behaves in real life. For example, you might explain why ice holds its shape, or why juice flows, or why steam spreads through a room ([Understanding](#)).

## Stage 3: Attractive Forces (8 min)

Attractive forces are the "pulls" between particles that hold them together. These forces are strongest in solids and weakest in gases ([Knowledge](#)).

Look at your three drawings from Stage 1. In each box, write one of these labels: Strong attractive forces, Medium attractive forces, or Weak attractive forces.

Then answer this question: Why do you think attractive forces are stronger in solids than in gases? Write two or three sentences ([Knowledge](#)).

## Self-check

1. Can you draw and label particles in a solid, liquid, and gas, showing how they are arranged and how they move?
2. Can you explain how the movement and spacing of particles connects to whether something is a solid, liquid, or gas?

3. Can you describe why attractive forces between particles are different in each state of matter?

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