

The Particle Model of Matter

30 minutes, 3 stages

All matter, from your water bottle to the air you breathe, is made of tiny particles that are always moving ([Knowledge](#)). Tonight you will practise explaining solids, liquids, and gases by describing what their particles are doing ([Outcome](#), [Skills](#)).

Stage 1: Warm-up (8 min)

Answer these questions in full sentences.

1. What are the three main ideas of the particle model of matter? ([Knowledge](#))
2. Name the three states of matter you have studied this year.
3. True or false: particles of matter ever stop moving completely. Explain your answer.
4. Think of one solid, one liquid, and one gas you used or saw today (at home, at school, or at lunch). Write down what they were.

Stage 2: Draw and describe (15 min)

Draw three boxes on a piece of paper, labelled Solid, Liquid, and Gas. In each box, draw dots to represent particles, showing how close together or spread out they are ([Skills](#), [Skills](#)).

Under each drawing, write two or three sentences describing:

- how close the particles are to each other
- how the particles move
- how strong the attractive force is between the particles ([Knowledge](#))

Use these sentence starters if you need help:

"In a solid, the particles are..."

"In a liquid, the particles are..."

"In a gas, the particles are..."

Remember: attractive forces are strongest in solids and weakest in gases ([Knowledge](#)).

Now answer this question in writing: Ice, water, and water vapour are all made of the same particles. What changes between these three states, and what stays the same? ([Understanding](#), [Understanding](#))

Stage 3: Apply it (7 min)

Imagine you are explaining the particle model of matter to a younger sibling or friend who has never heard of it. Write a short paragraph (four to six sentences) that:

- states the three main ideas of the particle model
- gives one everyday example of a solid, a liquid, and a gas
- describes how the particles behave differently in each one

Try to use the words "particles," "spaces," "attractive force," and "movement" at least once each.

Self-check

1. Can you name and describe the arrangement and movement of particles in solids, liquids, and gases without looking at your notes? ([Skills](#))

2. In which state of matter are the attractive forces between particles the strongest? The weakest? ([Knowledge](#))
3. Could you explain, in your own words, why a gas can spread out to fill a whole room while a solid keeps its shape? ([Understanding](#))

If you answered yes to all three, you have a solid understanding of the particle model of matter. If any answer was "not sure," go back and reread your Stage 2 drawings before your next science class.