States of Matter

GCSE Chemistry · Written to the shared content for AQA, Edexcel and OCR

Name _____ Class _____ Date _____

1. Worked example

Bromine melts at −7 °C and boils at 59 °C. State its physical state at 25 °C and at 80 °C. (2 marks)

Step 1 · 25 °C

Above −7 °C but below 59 °C → liquid.

Step 2 · 80 °C

Above 59 °C → gas.

Answer: Liquid at 25 °C; gas at 80 °C

Check: Compare the temperature with both values.

2. Now try one with the steps

Describe what happens to the particles when a liquid boils. (3 marks)

Step 1 · Energy

Step 2 · Forces

Step 3 · Result

Answer:

3. Practice

Show your working. The marks tell you how much is expected.

1. Name the change of state from solid to liquid. [1]

2. Name the change of state from gas to liquid. [1]

3. Describe the arrangement and movement of particles in a solid. [2]

4. Give the state symbol for sodium chloride dissolved in water. [1]

5. Write the equation, with state symbols, for ice melting. [1]

6. Explain why energy must be supplied to melt a solid. [2]

7. A substance melts at −7 °C and boils at 59 °C. State its physical state at 25 °C. [1]

8. Ethanol melts at −114 °C and boils at 78 °C. State its physical state at 90 °C. [1]

9. Mercury melts at −39 °C. State its physical state at −50 °C. [1]

10. A substance melts at −95 °C and boils at 69 °C. Calculate the temperature range, in °C, over which it is a liquid. [1]

11. Explain why sodium chloride has a much higher melting point than water. [2]

12. Give two limitations of the simple particle model. [2]

13. Explain why the temperature of a pure substance stays the same while it is melting. [2]

14. Explain why (aq) and (l) are different state symbols. [2]

4. Before you hand it in

"Particles expand when heated."
Particles move faster and further apart; the substance expands, not the particles.

Using (l) for a solution
Use (aq) for anything dissolved in water.

"At the boiling point the substance is always a gas."

Below the boiling point (and above the melting point) it is liquid; above it, gas.