**2** A solid bar of chocolate is taken from a refrigerator.


(Source: © MarySan/Shutterstock)

(a) The temperature of the chocolate bar is 5 °C.

Describe the arrangement and motion of the particles inside the chocolate bar.

**(2)**

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(b) The chocolate is heated at a constant rate until the temperature reaches 45 °C.

The chocolate has a melting point of 32 °C and a boiling point of 55 °C.

(i) Describe the motion of the particles in the chocolate when the chocolate is at a temperature of 45 °C.

**(2)**

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(ii) Which of these is used to measure the temperature of the chocolate?

**(1)**

☒ **A** balance

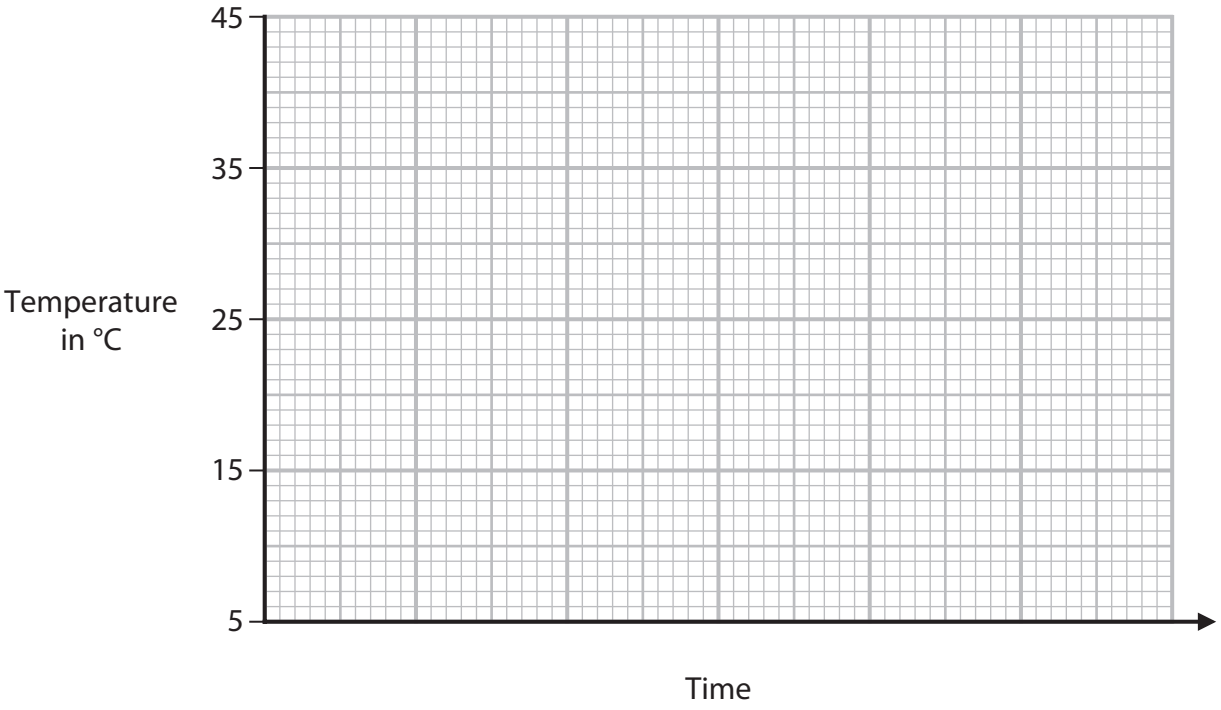
☒ **B** ruler

☒ **C** stopwatch

☒ **D** thermometer

(iii) Use the axes to sketch a graph of how the temperature of the chocolate changes with time when it is heated from 5 °C to 45 °C.

**(3)**




**(Total for Question 2 = 8 marks)**