2 (a) Describe the arrangement and motion of particles in a solid.

You may draw a diagram to help your answer.

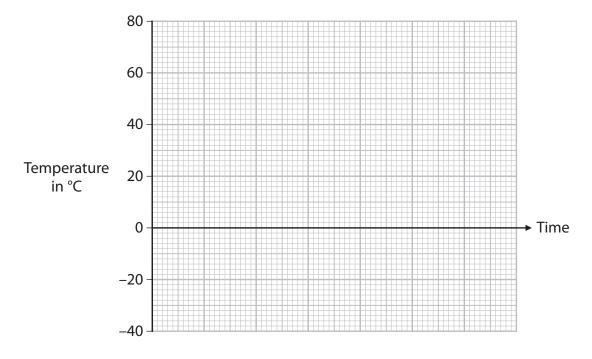
(3)

(b) A solid changes state by melting at a certain temperature.

For phosphorus, this change of state occurs at 44 $^{\circ}\text{C}.$

Sketch how the temperature of a sample of phosphorus changes when it is heated at a constant rate from $-40\,^{\circ}\text{C}$ to $80\,^{\circ}\text{C}$.

(3)



(Total for Question 2 = 6 marks)