

SMART EXAM RESOURCES
0653 COMBINED SCIENCES
CHEMISTRY

TOPIC 1: PARTICULATE NATURE OF MATTER

SUB-TOPIC: STATE CHANGES

1 During the reaction, the sodium melts.

Describe, in terms of particle bonds and energy, what happens when sodium melts.

.....

.....

..... [2]

MARK SCHEME:

(sodium) particles gain (sufficient) energy ; to (overcome the attractive forces and) break the bonds between particles ;	2
--	----------

STATE CHANGES

2 Caesium metal is stored in a sealed glass tube as shown in Fig. 5.1.

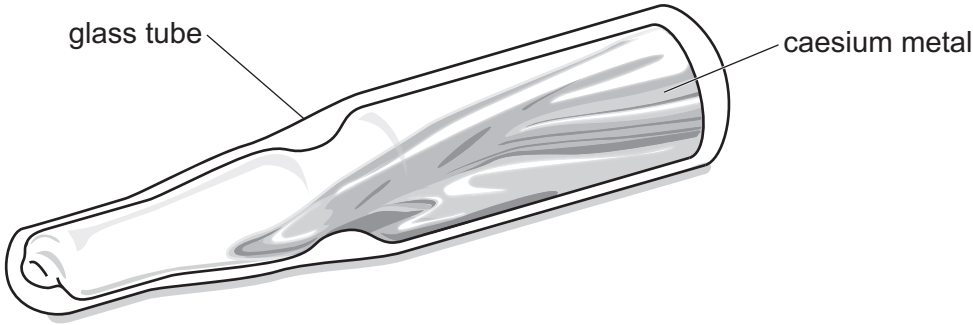


Fig. 5.1

The caesium melts when a warm hand is placed around the sealed glass tube.

Explain, in terms of particles, why thermal energy is needed to melt caesium metal.

.....

.....

..... [1]

MARK SCHEME:

(iv)	the idea that attractive forces between particles have to be broken down / decreased / atoms gain speed / KE so they move further apart / owtte ;	1
------	---	---

STATE CHANGES

3 Naphthalene is a solid that melts at 80°C to form a liquid.

- (a) Some solid naphthalene is heated until it has all melted. The liquid is then allowed to cool slowly.

The temperature is measured every minute as the liquid cools and becomes solid again.

Fig. 6.1 shows a graph of the results.

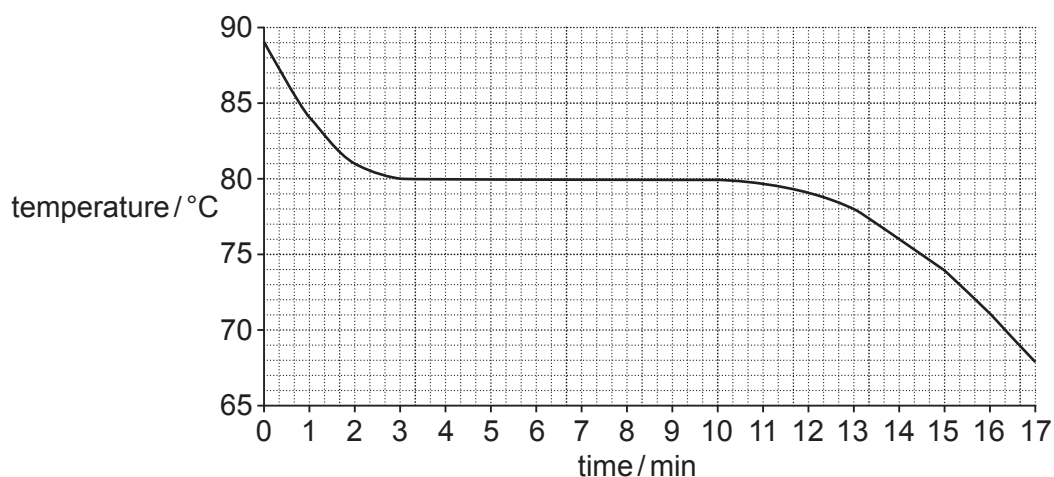


Fig. 6.1

On Fig. 6.1, draw an **X** to show a part of the graph at which all of the naphthalene is liquid. [1]

MARK SCHEME:

X drawn anywhere on curve between 0 s and 3 s ;	1
---	---