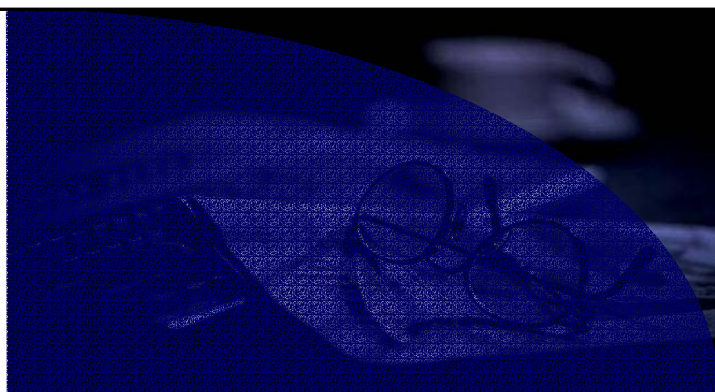


assessment for learning

year 7



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7G Particle model of solids, liquids and gases

Assessment for learning...year 7 (level 3-6)

Answer all questions:

Total marks	26
Time allowed	25 mins.

Question 1:

This question is about **three** different fuels, A, B and C.

Fuel A is stored in tanks. It is not stored under pressure. It flows along a pipe to where it is needed.

Fuel B is stored under pressure in small cylinders. It is used by campers.

Fuel C can be stored in sacks or bags.

(a) (i) Tick the correct box.

Fuel A is a:

solid

liquid

gas

1 mark

Name a fuel which A could be

1 mark

(ii) Tick the correct box.

When fuel B comes out of the cylinder this is a:

solid

liquid

gas

1 mark

Name a fuel which B could be

1 mark

(iii) Tick the correct box.

Fuel C is a:

solid

liquid

gas

1 mark

Name a fuel which C could be

1 mark

(b) Complete the statement to describe what happens when a fuel burns.

Two waste products formed from burning fuels are

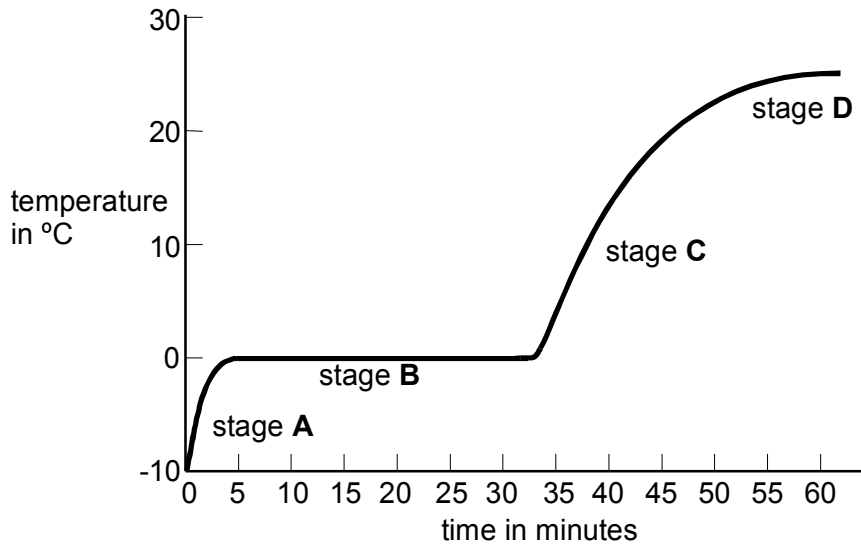
..... and

2 marks

Maximum 8 marks

Question 2:

A test tube of crushed ice is taken out of a freezer and left in a warm room. The graph shows how the temperature in the test tube changes.



(a) What is happening to the ice at stage **B**?

.....

1 mark

(b) Why does the temperature of the water stop rising at 23°C (stage **D**)?

.....
.....

1 mark

(c) Four descriptions of the ways molecules could move are given below.

They vibrate around fixed points.

They move past each other and are close together.

They move in straight lines, colliding occasionally.

They all move in the same direction at the same speed.

(i) How do the molecules move at stage **A**?
Write **A** in the correct box above.

1 mark

(ii) How do the molecules move at stage **C**?
Write **C** in the correct box above.

1 mark

(d) Ice from a freezer is put in a glass of water at room temperature. The ice floats in the water.

(i) What does this show about the density of the ice compared to that of water?

Tick the correct box.

Ice is more dense than water.

Ice and water have the same density.

Ice is less dense than water.

Ice has a density of zero.

1 mark

(ii) The fact that ice floats in water tells us something about the distances between the molecules.

Tick the box by the correct statement.

The molecules are further apart in ice than in water.

The molecules are the same distance apart in ice and in water.

The molecules are closer together in ice than in water.



1 mark

Maximum 6 marks

Question 3:

This question is about four chemical elements.

(a) The melting points and boiling points of the four elements are shown in the table. Complete the table to give the physical state, **solid**, **liquid** or **gas**, of each element at room temperature, 21°C.

element	melting point in °C	boiling point in °C	physical state at room temperature, 21°C
bromine	-7	59	
chlorine	-101	-34	
fluorine	-220	-188	
iodine	114	184	

4 marks

(b) Bromine can be a solid, a liquid or a gas depending on the temperature. In which physical state will 10 g of bromine store the most thermal energy?

.....

1 mark

(c) Is bromine a **solid**, a **liquid** or a **gas** when the arrangement of particles is:

(i) far apart and random?

1 mark

(ii) close together but random?

1 mark

(iii) close together in a regular pattern?

1 mark

Maximum 8 marks

Question 3:

(a) The table below shows the melting points of four metals.

metal	melting point, in °C
gold	1064
mercury	-37
sodium	98
iron	1540

(i) Which metal in the table has the highest melting point?

.....

1 mark

(ii) Which metal in the table has the lowest melting point?

.....

1 mark

(b) Gold can be a **gas** or a **liquid** or a **solid**.

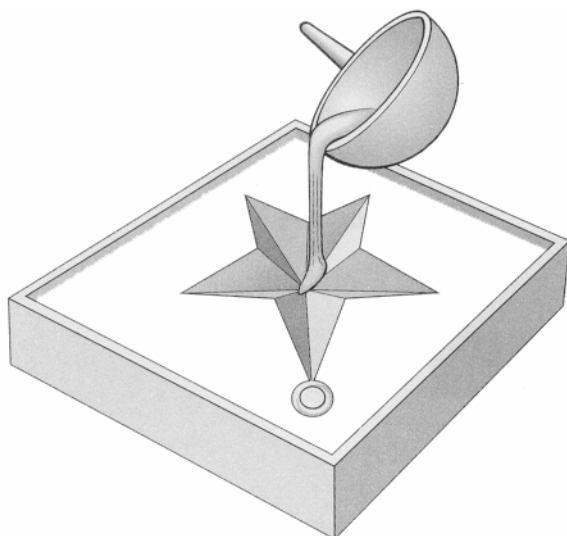
Choose from these words to fill the gaps below.

When gold is heated from room temperature to 1070°C, the gold

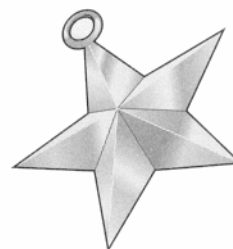
changes from a to a

1 mark

(c) 5 g of gold is melted and **all** of it is poured into a mould to make a pendant as shown below.



melted gold is poured into a mould



gold pendant

What is the mass of the gold pendant?

..... g

1 mark

(d) The table below shows how the four metals react with oxygen when heated in air.

metal	reaction when heated in air
gold	no change
mercury	slowly forms a red powder
sodium	bursts into flames straight away
iron	very slowly turns black

(i) Which is the **most** reactive metal in the table?

.....

1 mark

(ii) Which is the **least** reactive metal in the table?

.....

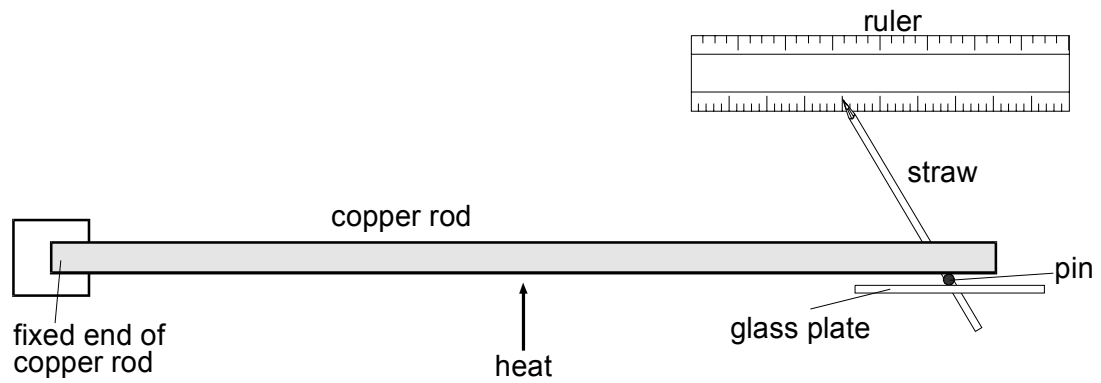
1 mark

Maximum 6 marks

Question 4:

Sarah wanted to find out how the length of a copper rod changes when it is heated.

She fixed one end of the rod and allowed the other end to roll on a pin which had been put on a glass plate. A drinking straw, attached to the pin, showed the movement of the end of the rod.



(a)(i) What happens to the motion of the copper atoms in the rod as it is heated?

.....
.....

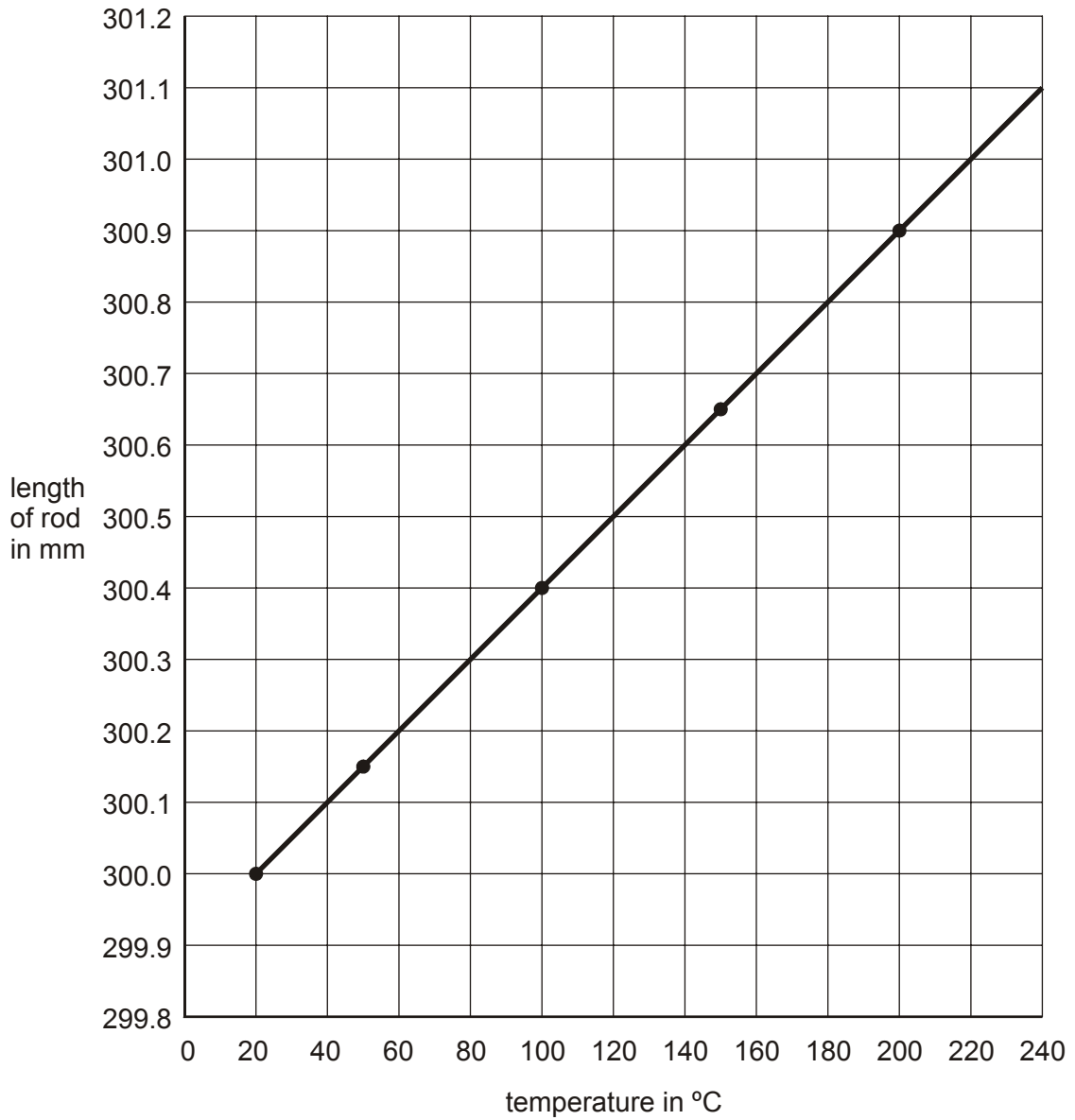
1 mark

(ii) What happens to the average distance between the atoms of copper when the rod is heated?

.....
.....

1 mark

(b) The graph shows the length of a copper rod at different temperatures. The rod was 300.0 mm long at room temperature.



(i) At what temperature has the rod increased its length by 1.0 mm?
 °C

1 mark

(ii) The rod was 300.0 mm long at room temperature. What will its length become if it is placed in melting ice at 0°C?
 mm

1 mark

Maximum 4 marks