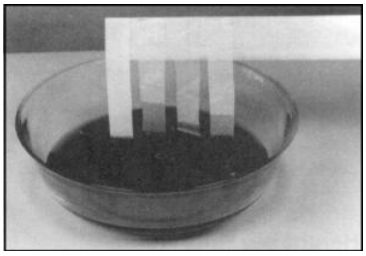
Science

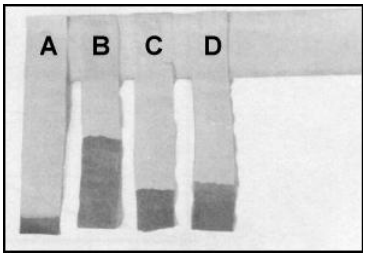
Test B

2001
40 min
40 marks

1. Absorbent materials

(a) Absorbent materials **soak up** water well.
Kay and Robin have four equal strips of different types of paper.
They want to find out which is most absorbent.





They dip the strips into coloured water, then take them out again.

This picture shows the pieces of paper after they are taken out of the water.

How can you tell from the picture that material B has soaked up the most water?

……

.....

1 mark

(b) Circle **TWO** materials that soak up water well.

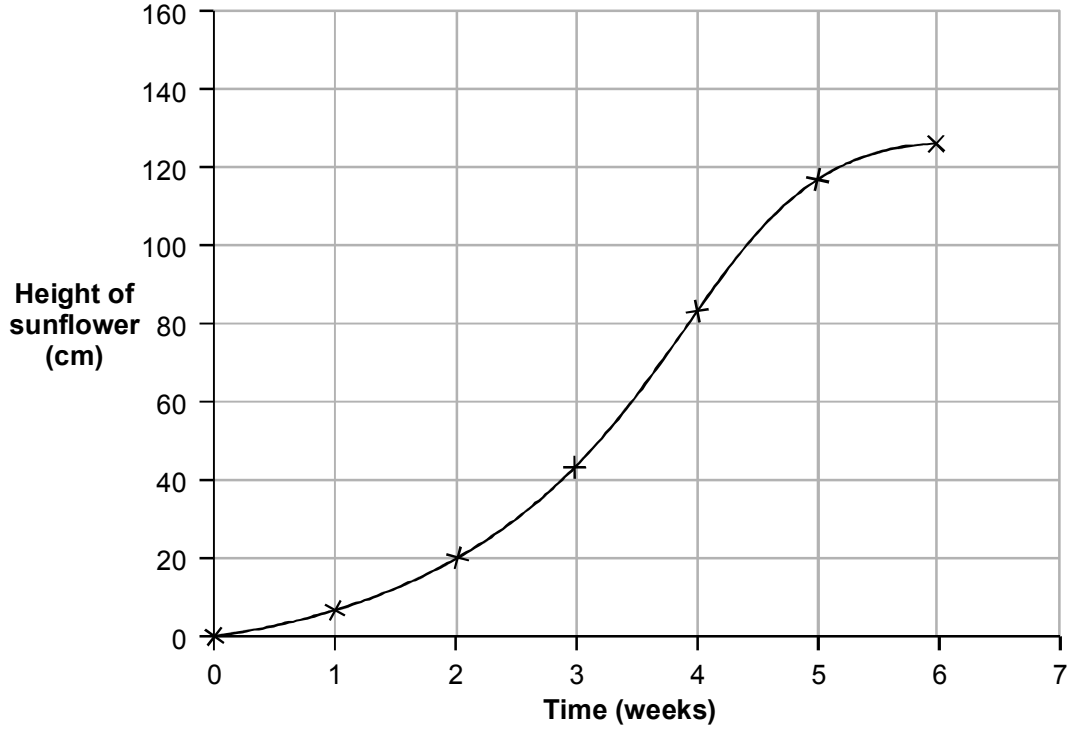
Kitchen roll	**Cotton fabric**
Plastic sheet	**Aluminium foil**

1 mark

2. Growing a sunflower

(a) Stephen plants a sunflower seed in the school garden.
He measures the height of the plant at the end of each week.

Graph to show the height of a sunflower



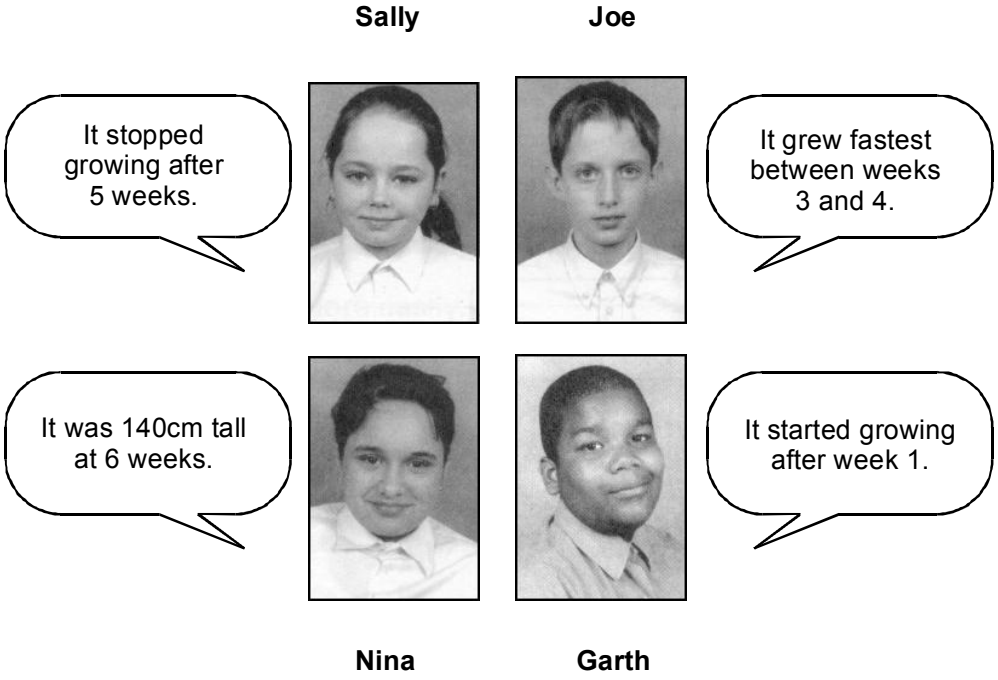
Use the graph to answer these questions.

How tall was the sunflower at 2 weeks?

..... cm

1 mark

(b) Some children look at Stephen's graph.
They have some ideas about the sunflower's growth.
Only **ONE** idea is correct.



Whose idea is correct?

.....

1 mark

(c) **Use the graph** to help you predict how tall the sunflower will be at week 7.

..... cm

1 mark

(d) The sunflower plant has a thick stem.
One function of the stem is to help support the sunflower plant.

What is another function of the stem?

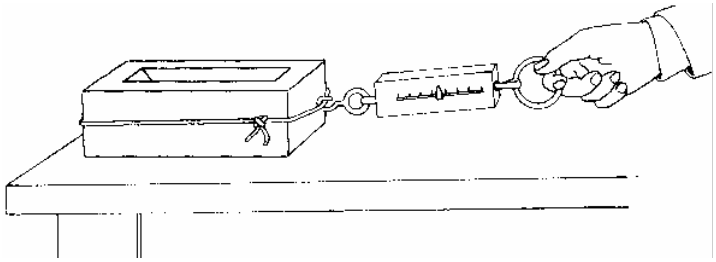
……

1 mark

3. Measuring forces

(a) Lizzie uses a forcemeter.

She measures the force needed to start a brick moving on different surfaces.



Here are her results.

Surface	Pulling force (Newtons)
A	19
B	30
C	16
D	6

Write **A**, **B**, **C** or **D** in each box below to put the surfaces in order of force needed to start the brick moving.

easiest surface to pull the brick on ☐ ☐ ☐ ☐ **hardest surface to pull the brick on**

1 mark

(b) Lizzie uses the forcemeter to pull the brick on a table top.
She spreads a spoonful of oil on the table top.
She puts the brick on the oil.

What happens when she tries pulling the brick on the oil?

Tick **ONE** box.

The brick moves more easily. ☐

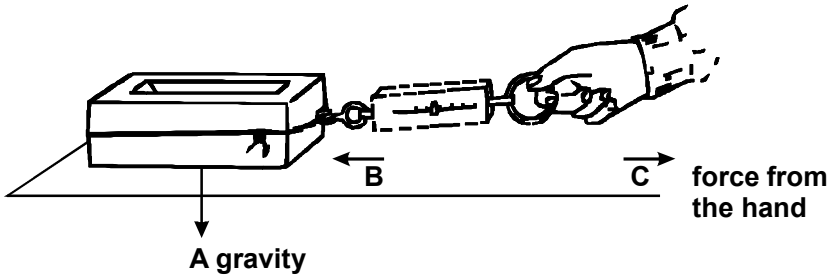
The brick is harder to move. ☐

The brick will not move. ☐

The brick floats. ☐

1 mark

(c) The diagram below shows three forces acting on the brick as it is pulled on each surface.



Force B makes it hard to start the brick moving.

Write the name of Force **B** below.

……

1 mark

4. The circulatory system

(a) Some children are learning about blood and how it flows around the human body.

Blood flows faster when the heart pumps faster.

Which **TWO** of the following make the heart pump **fastest**?

Tick **TWO** boxes.

swimming	☐	resting	☐
stretching	☐	running	☐

1 mark

(b) What do we measure to find out how fast the heart is pumping?

…….....……...……

1 mark

(c) What is the heart made from?

Tick **ONE** box.

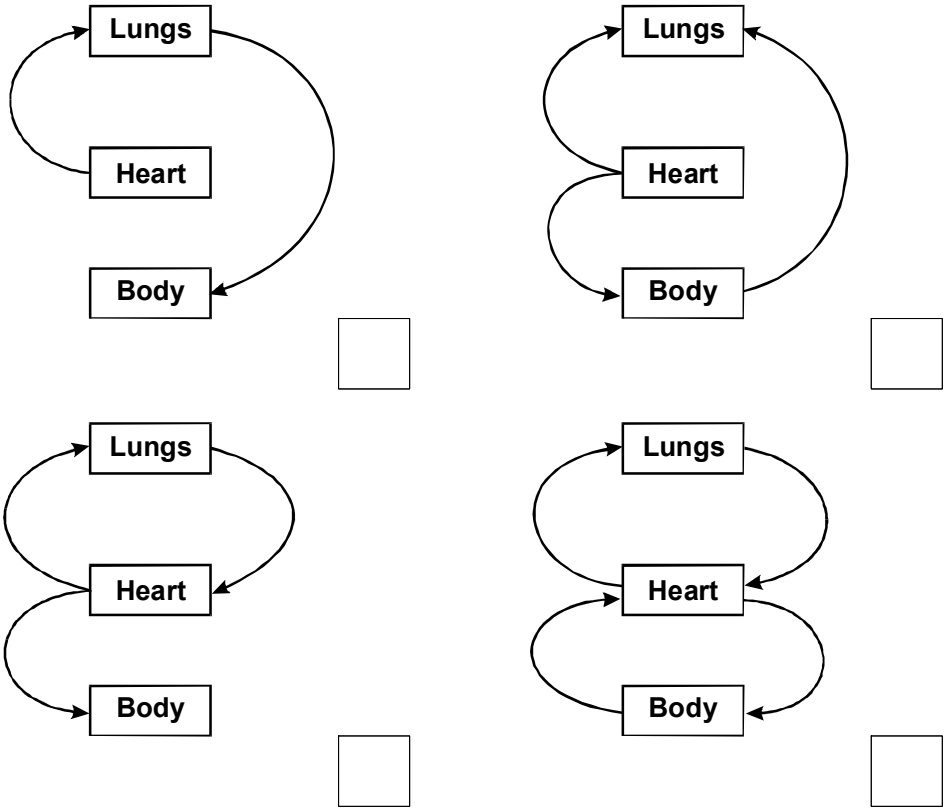
muscle	☐	blood	☐
bone	☐	skin	☐

1 mark

(d) The heart pumps the blood.

Which diagram best shows the path of the blood as it circulates?

Tick **ONE** box.



1 mark

(e) When the heart pumps the blood faster, we also breathe faster.

Complete this sentence.

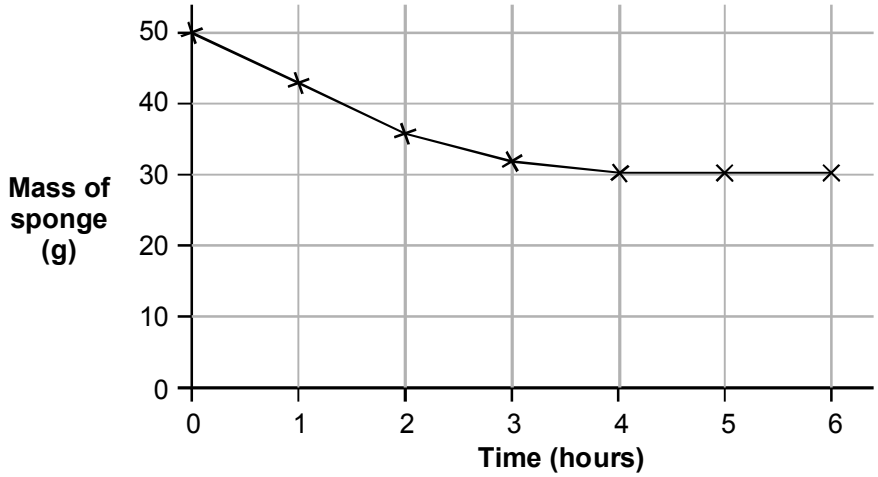
*We breathe **faster** because the body needs to*
take more .....……..... into the lungs.

1 mark

5. Drying sponge

(a) Dinesh puts a wet sponge on some scales.
He records its mass during the day.

He draws a graph of his results.



What is the mass of the wet sponge at the start of the investigation?

..... g

1 mark

(b) Describe how the mass of the wet sponge changes over the first four hours.

……

1 mark

(c) What process causes the mass of the drying sponge to change?

…….....……...……

1 mark

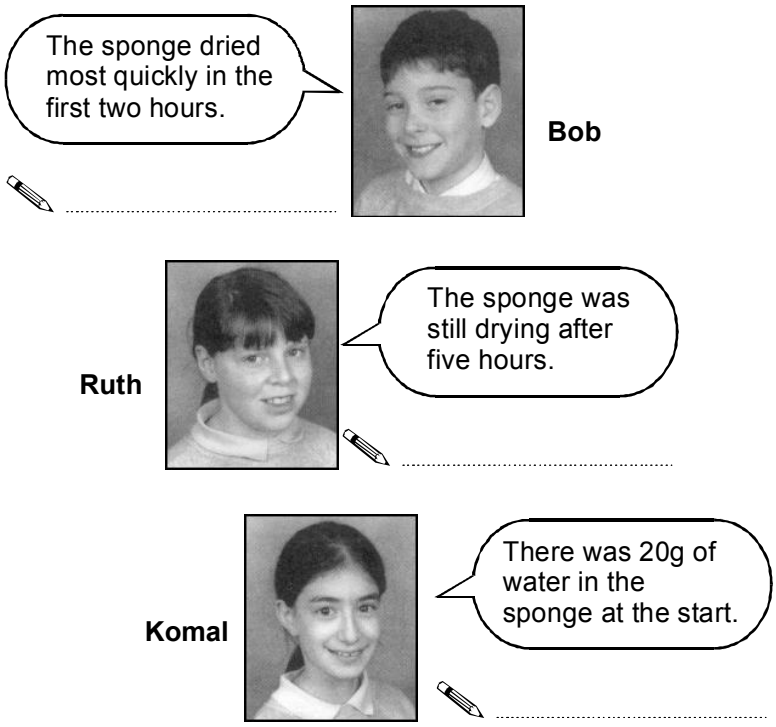
(d) What is the mass of the dry sponge?

…… g

1 mark

(e) Some other children discuss Dinesh's results.
Look at their ideas below.

Use the graph to help you write **true** or **false** next to each idea.



1 mark

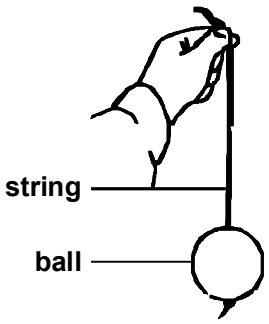
6. Earth and space

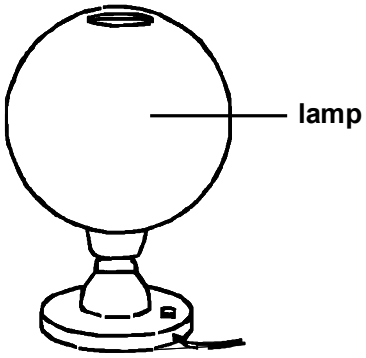
(a) **How long** does it take for the Earth to orbit the Sun?

…….....……...……

1 mark

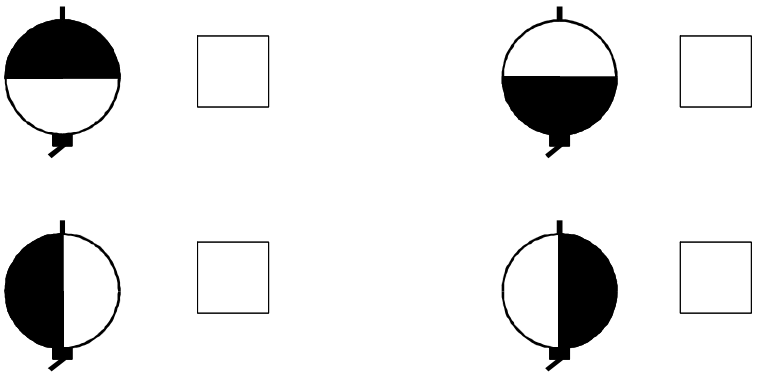
(b) Jan makes a model of the Earth and the Sun to show day-time and night-time.
She uses a lamp for the Sun and a ball for the Earth.





Which of the following correctly shows day and night in this model?

Tick **ONE** box.



1 mark

(c) How must Jan move the ball to show how one place on Earth has **day-time** and **night-time**?

Tick **ONE** box.

walk with the ball around the lamp ☐

spin the ball on the string ☐

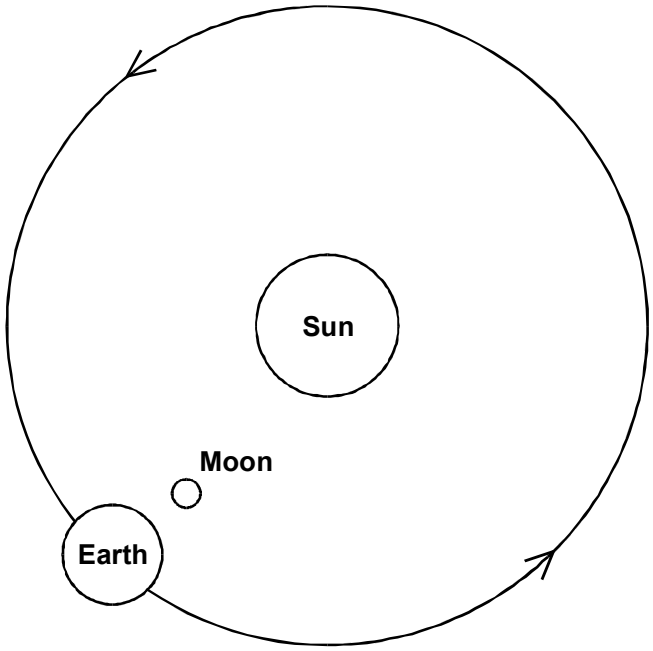
swing the ball backwards and forwards ☐

hold the ball lower then higher ☐

1 mark

(d) Jan draws this diagram to show how the Earth orbits the Sun.

Draw the orbit of the Moon on Jan's diagram.



1 mark

7. Burning materials

(a) Kate holds different materials in tongs over a candle flame.
She records what happens to each material.
Look at her notebook below.

Complete the notebook to show what will happen to the wooden lollipop stick in the flame.

Material	Observations
Chocolate	Bubbles, smokes and turns black.
Wax	Drips, smoke and flames. Nothing is left on the tongs.
Brick	Black coating. No other change.
Cotton	Flames. Grey ash is left.
Steel paper clip	Black coating. No other change.
Paper	Flames. Thin black material left.
Wooden lollipop stick	.....

1 mark

(b) Look at Kate's notebook.

Which **TWO** materials melted and then burned?

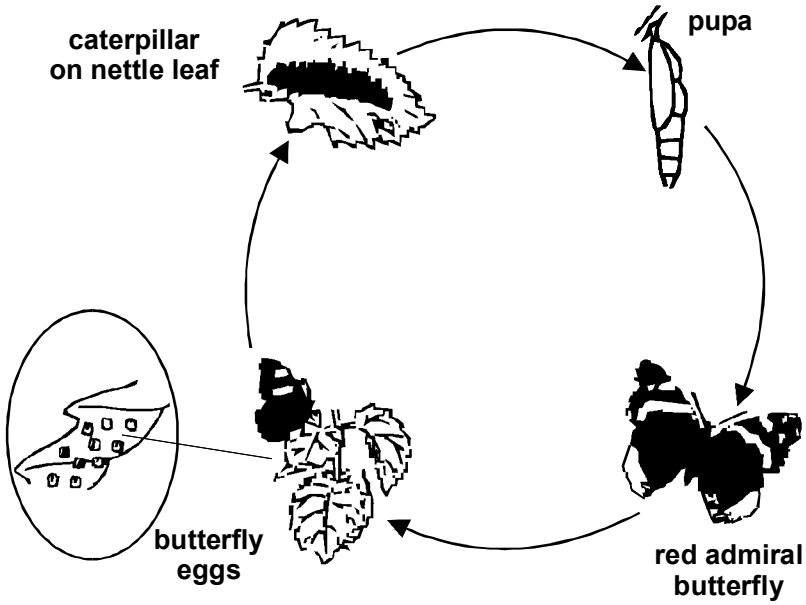
(i) .....

(ii) .....

1 mark

8. Butterfly garden

(a) This diagram shows the life cycle of a red admiral butterfly.



John wants to get rid of all the nettles in the school wildlife area.
This will affect the red admiral butterfly.

Give **TWO** different reasons why nettle plants are important in the life cycle of the red admiral butterfly.

(i) .....

1 mark

(ii) .....

1 mark

(b) Some birds eat caterpillars.

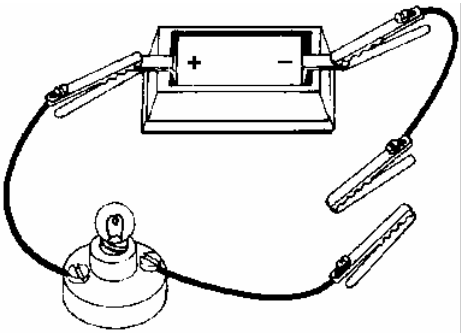
Use the diagram to help you complete the **food chain** below.

..... → ..... → bird

1 mark

9. Simple circuit

(a) Sue has a cell (battery), some wire and a bulb.
She makes a simple circuit.



Sue joins these objects into the circuit, to see if the bulb lights:

cork

iron nail

copper rod

plastic ruler

steel spoon

She records her results in this table.

Object	A	B	C	D	E
		spoon			
Bulb lights?	No	Yes	Yes	No	Yes

Object **B** is the steel spoon.

Complete the sentences below to say what objects **A** and **C** are.

(i) Object **A** is either the .....…..... or

the .....…..... 1 mark

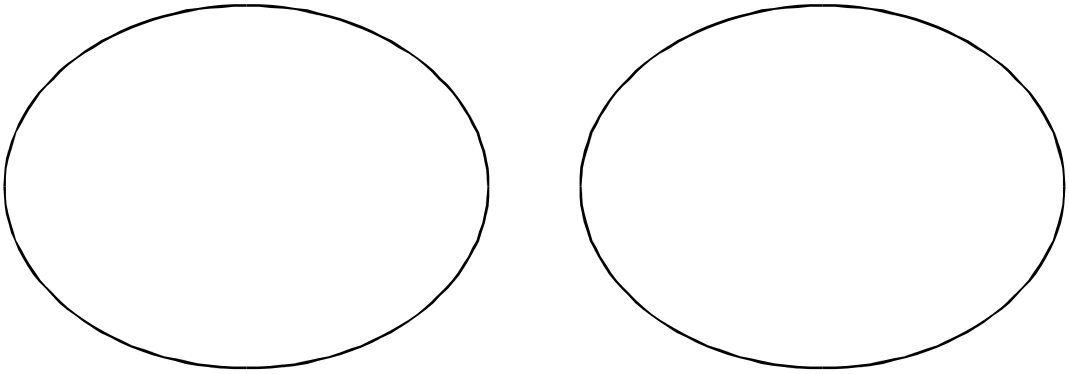
(ii) Object **C** is either the .....…..... or

the .....…… 1 mark

(b) Some of the objects are electrical insulators.
Some are electrical conductors.

Use the information in Sue's table. Write **A**, **B**, **C**, **D** and **E** in the correct group below to sort the objects.

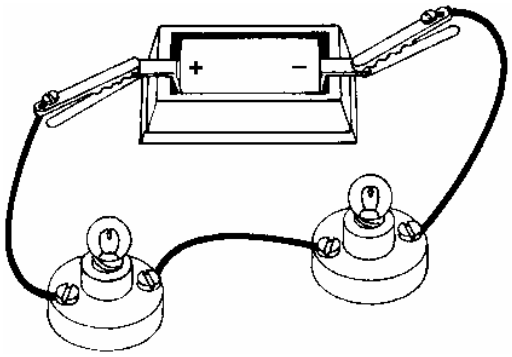
Electrical insulators **Electrical conductors**



1 mark

(c) David makes a circuit with two bulbs and one cell (battery).
He draws a picture of it.

In the space below, draw a circuit diagram of David's circuit.
Use symbols.



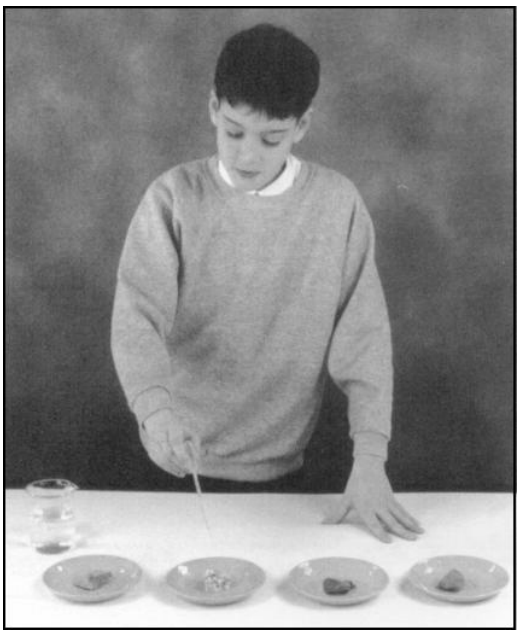
1 mark

10. Examining rocks

(a) Paul has four pieces of rock:

granite	**slate**
sandstone	**limestone**

He slowly drops some water onto each rock.



A small amount of water soaks into some of the rocks.

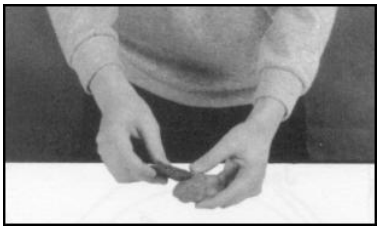
Which of these words describes a rock that water soaks into?

Tick **ONE** box.

translucent	☐	flexible	☐
permeable	☐	opaque	☐

1 mark

(b) Paul tests the rocks for hardness. He uses each rock to try to make a scratch on the other rocks.



He records his results in a table.

Rock used	Did it leave a scratch...			
	on slate?	on limestone?	on granite?	on sandstone?
slate		yes	no	yes
limestone	no		no	no
granite	yes	yes		yes
sandstone	no	yes	no	

Use the table to answer these questions.

Which rocks did the slate scratch?

…….....……...……

1 mark

(c) Which rock was the **hardest**?

…….....……...……

1 mark

(d) Use the information in the table to explain how you know this was the hardest rock.

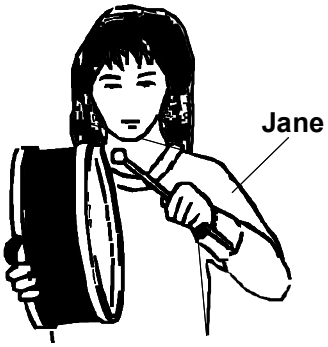
…….....……...……

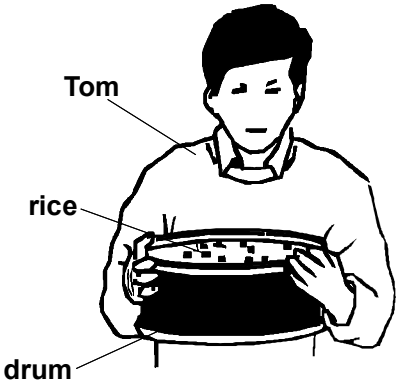
.....

1 mark

11. Sounds

(a) Jane hits a drum with a beater.
Tom can hear the sound.





What did the sound travel through to reach Tom's ears?

……

1 mark

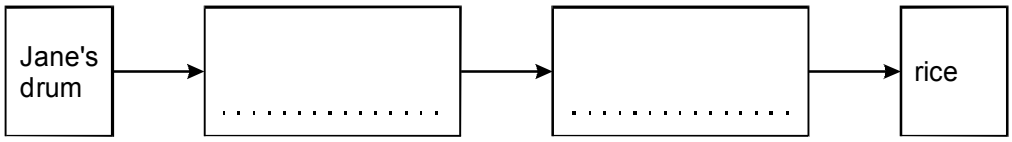
(b) When Jane hits her drum, it vibrates. The vibrations travel to Tom's drum. Then the rice on his drum moves.

Jane makes a flow chart. It shows the most direct path of the vibrations from her drum to the rice.

Choose **TWO** objects from the box below to complete Jane's flow chart.

the air	the beater
the floor	
Tom's drum	Jane's arm

Flow chart showing direct path of vibrations

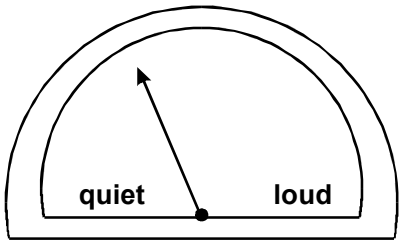


1 mark

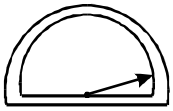
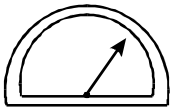
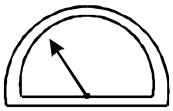
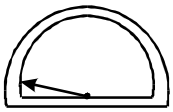
(c) Tom wants to find out if he can hear the sound of Jane's drum from different distances.

Jane hits her drum hard. Tom stands one metre away.
He uses a sound meter to measure the loudness of the sound.

Sound meter scale



They repeat their test at different distances.
Here are their results.

Distance between Jane and Tom (m)	Sound Tom hears	Sound meter scale
1	very loud	
25	loud	
50	quiet	
100	very quiet	

Describe how the loudness of the sound depends on the distance between Jane and Tom.

……

.....

2 marks