

# Science

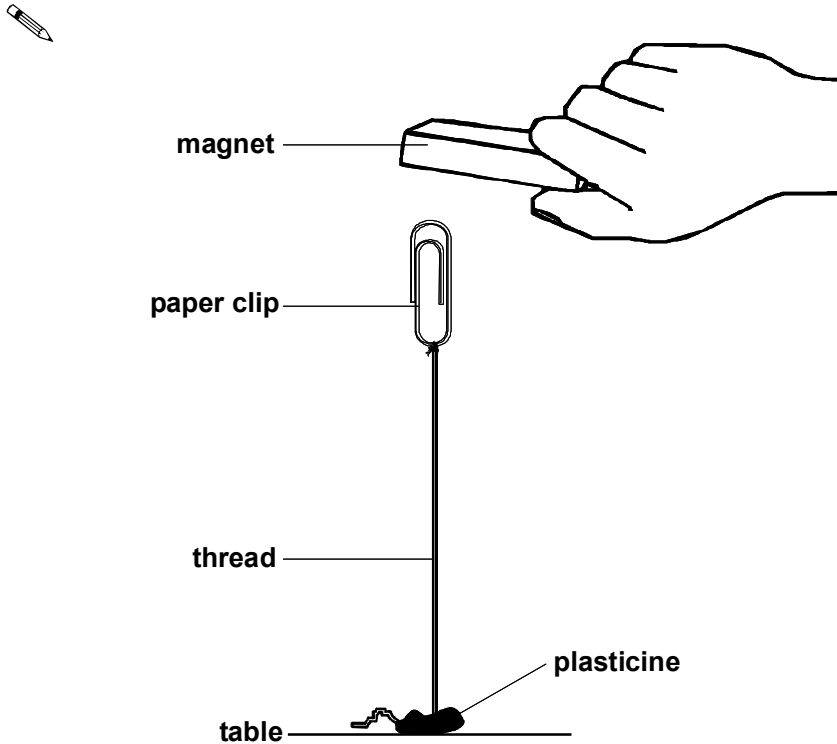
## Test A

**2001**  
40 min  
40 marks

### 1. Exploring magnetism

- (a) Sarah ties a paper clip to a piece of thread.  
She sticks the thread to the table.  
She holds a magnet above the paper clip.

Draw an arrow on the picture below to show the direction of the magnetic force acting on the paper clip.



1 mark

(b) What happens to the paper clip when Sarah lifts the magnet away?



.....

1 mark

(c) Sarah repeats her experiment using different objects instead of the paper clip.

Which of the following will act in the same way as the paper clip?

Tick **ONE** box.



aluminium foil

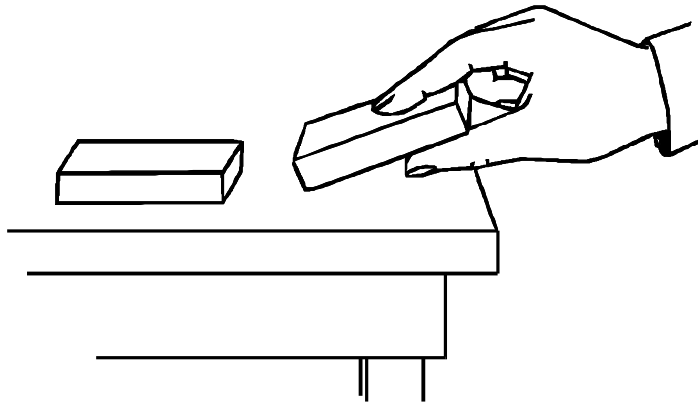
plastic pen lid

steel pin

wooden match

1 mark

(d) Joel has two magnets. He puts one on the table. He holds the other magnet close to it, like this:



The magnets do not touch each other, but the magnet on the table is pushed away.

Why is the magnet on the table pushed away?



.....

.....

1 mark

**2. Tooth care**

(a) Four children record how often they brush their teeth.

Name	Before breakfast	After breakfast	Before tea	Before bed
Mike	✓			✓
Ian		✓		✓
Lucy	✓		✓	
Molly		✓	✓	

Look at the table.

Which child is **likely** to have the healthiest teeth?



.....

1 mark

(b) Why does brushing help to reduce tooth decay?



.....

1 mark

(c) Which of the following would help most in reducing tooth decay?

Tick **ONE** box.



drink more orange juice

eat less sugar

eat less fat

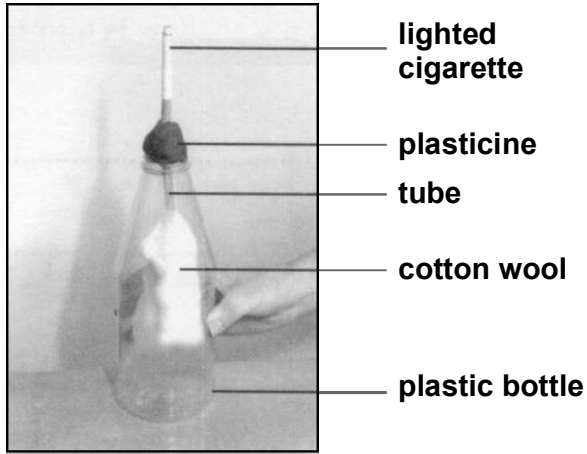
eat more vegetables

1 mark


**3. Smoking and health**

- (a) Some children watch a video showing what happens when air passes through a lighted cigarette.


The video shows a scientist using this model.




The scientist squeezes the plastic bottle. This forces air out.  
Then she lets go. This forces air back into the bottle, through the lighted cigarette.  
She does this several times. The cotton wool becomes black and dirty.  
What is taken into the bottle with the air and makes the cotton wool dirty?

 ..... 1 mark

- (b) What organ of the body does the cotton wool represent?

 ..... 1 mark

- (c) What harmful effects can cigarette smoking have on the body?

 .....  
..... 1 mark

4. Lamp

(a) At night, Ben switches on the lamp in his room.

There is a shadow of the chair on the floor.

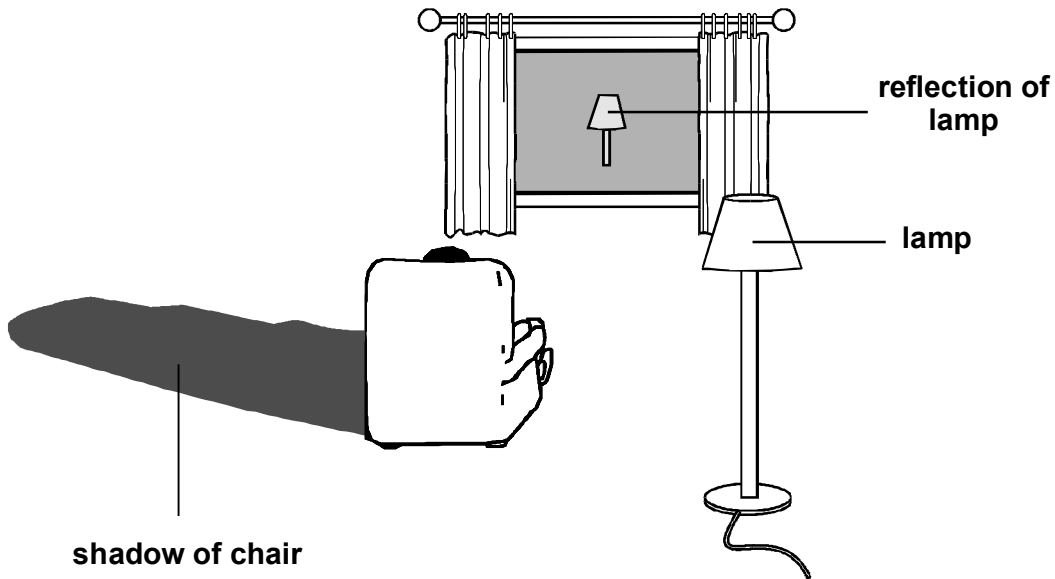
Explain how the shadow is formed from the light of the lamp.



.....  
.....

1 mark

(b) Ben looks at the window, and sees a reflection of the lamp.



Why is there a reflection of the lamp in the window?

Tick **ONE** box.

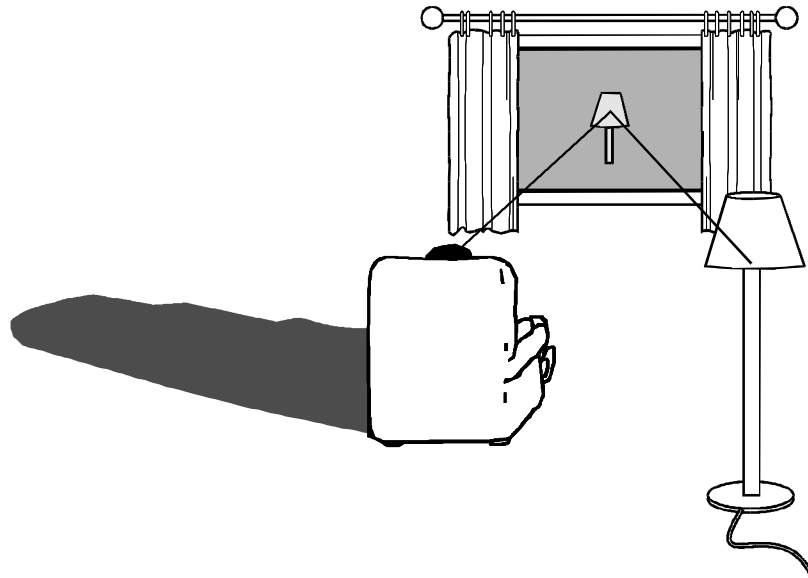
There is a reflection of the lamp in the window because the window is . . .



shiny	<input type="checkbox"/>	hard	<input type="checkbox"/>
strong	<input type="checkbox"/>	solid	<input type="checkbox"/>

1 mark

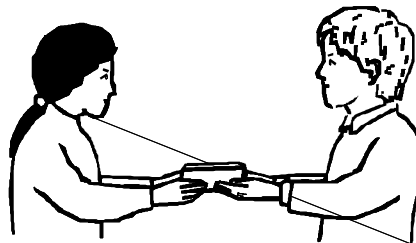
- (c) Draw **TWO** arrowheads on the lines in the picture below to show how light travels to let Ben see the reflection of the lamp.



1 mark

**5. Ice**

- (a) Some children pass round a block of ice. Their hands feel cold and wet.



What is the name for the process when ice changes to water?



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1 mark

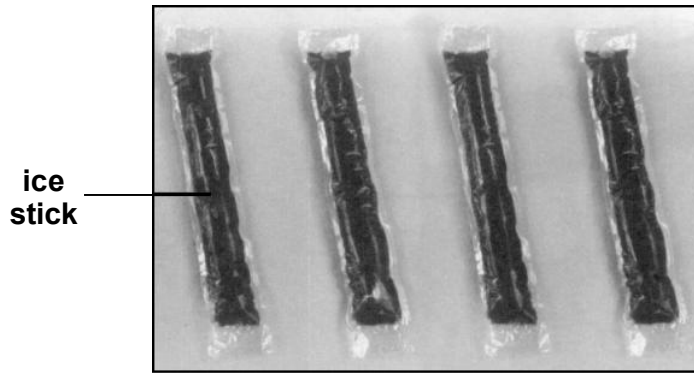
- (b) What causes the ice to change to water as they pass the block round from hand to hand?



.....

1 mark

- (c) The children have four identical frozen ice sticks. They put each one in a different place in the classroom. They leave each of them for half an hour.



They cut open the plastic wrappers and pour out the liquid.

They measure the volume of liquid from each ice stick to find out how much ice has turned to liquid.

Here are their results.

**Volume of liquid after half an hour**

Place	Anna's desk	Marcel's desk	Gina's desk	Daljit's desk
Volume of liquid (cm <sup>3</sup> )	12	16	9	15

Use the table to answer the following questions.

At whose desk did most of the ice stick stay **frozen**?



.....

1 mark

- (d) (i) Which of the four desks was in the warmest part of the classroom?



.....

1 mark

- (ii) Explain how you know which place was warmest.



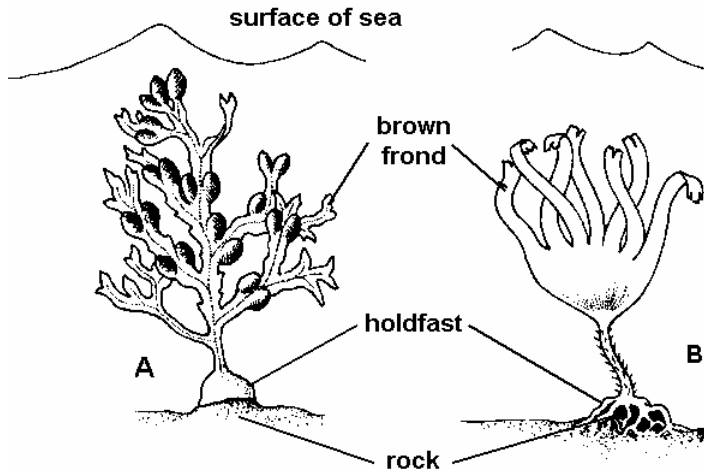
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1 mark

6. Seaweeds

(a) Seaweeds are plants. They live in the sea and on the seashore. Some children are using a key to identify two **brown** seaweeds.

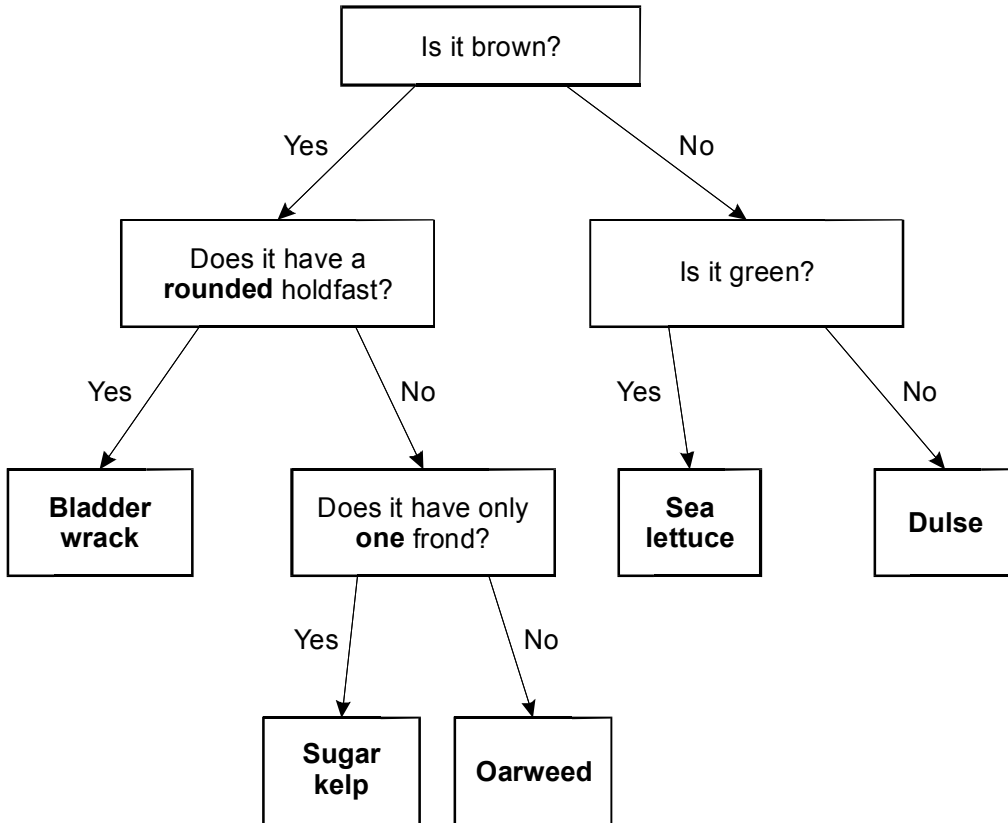


Use the key below to help you name seaweeds **A** and **B**.



A .....

B .....



2 marks



(b) One of the seaweeds on the key is red.

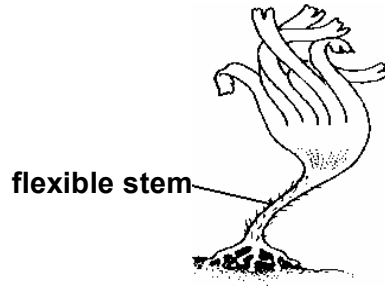
Name the red seaweed.



.....

1 mark

(c) This seaweed has a flexible stem.



Waves pull the seaweed in different directions.

Explain how a **flexible** (bendy) stem helps this seaweed to survive in the sea's waves.



.....

.....

1 mark

(d) Seaweed has a holdfast which keeps it in place.

Plants that live on land do not have a holdfast.

What part of a **land**-plant keeps the plant in place?



.....

1 mark

(e) The seaweed's fronds use light to make food material so that the seaweed grows.

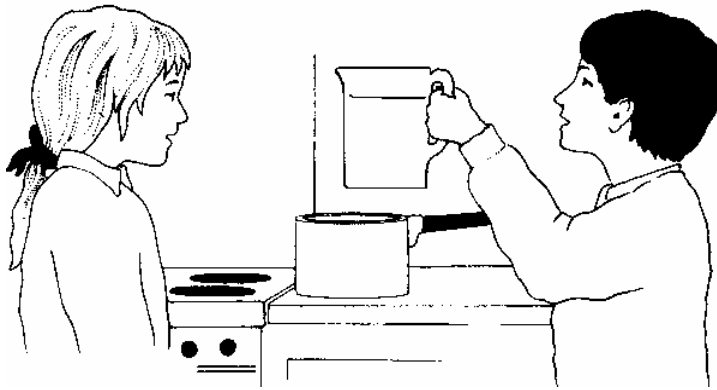
What part of a **land**-plant uses light to make food material?



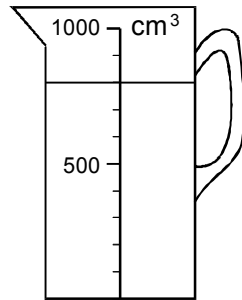
.....

1 mark

7. Cooking rice



- (a) Rebecca and Josh are cooking rice at home.  
They measure some water in a jug.



How much water did they measure?



..... cm<sup>3</sup>

1 mark

(b) They put the water into a metal saucepan.

They put the saucepan on the cooker.

Why is **metal** a good material for the saucepan?

Tick **ONE** box.



It is very heavy.

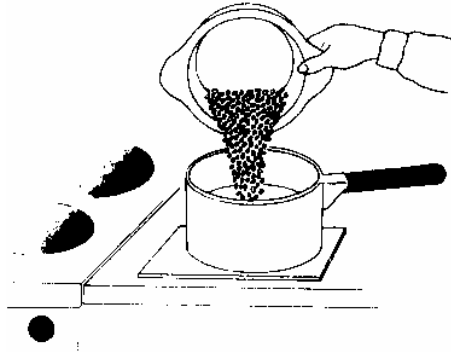
It is opaque.

It conducts electricity well.

It conducts heat well.

1 mark

(c) After five minutes, the water starts to boil.  
Josh puts the uncooked rice into the saucepan.



The metal saucepan is hot.

The wooden handle of the saucepan is still cool.

Explain why the **wood** is cool but the **metal** is hot.



.....

.....

1 mark

- (d) Rebecca and Josh must be careful with the hot saucepan, so that they do not burn themselves.

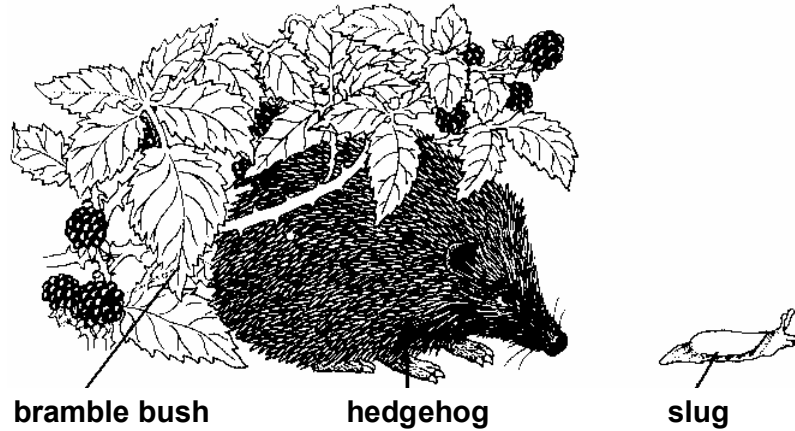
Describe **ONE** other thing that might burn the children while they are cooking the rice.



.....

1 mark

## 8. Hedgehogs



- (a) Look at the picture.

Which part of the hedgehog's body helps stop foxes from eating it?



.....

1 mark

- (b) The bush makes food material in its leaves.  
The hedgehog's food includes slugs.

The two sentences above describe the same life process.  
Which life process?

Tick **ONE** box.



growth	<input type="checkbox"/>	movement	<input type="checkbox"/>
excretion	<input type="checkbox"/>	nutrition	<input type="checkbox"/>
sensing	<input type="checkbox"/>	none of these	<input type="checkbox"/>

1 mark

(c) The hedgehog gives birth to young. This shows that it reproduces.

Which of the following shows that the bush also reproduces?

Tick **ONE** box.



New leaves grow in spring.

Leaf buds open in spring.

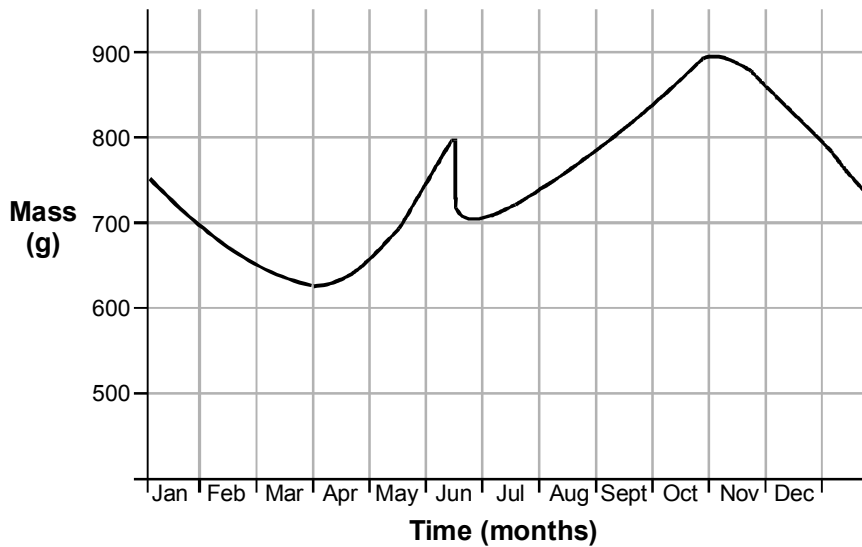
Leaves fall in autumn.

Seeds are dispersed in autumn.

1 mark

(d) This graph shows how the mass of a female hedgehog changes in one year.

**Graph showing change in mass of female hedgehog**



Look at the graph. It shows that the hedgehog lost weight when she hibernated (slept) through the winter.

It also shows when she gave birth.

In which month does the graph show that the hedgehog gave birth?



.....

1 mark

**9. Mixing materials**







Seema and Alan are mixing materials.

They put different materials in four clear plastic bags.

They tie the top of each bag.

They watch what happens and record their observations.

Mixture	Observations
<b>Bag A:</b> Brown sugar and water.	Water turns brown and cannot see the sugar after a while. 
<b>Bag B:</b> Oil and water.	Oil floats on top of the water. 
<b>Bag C:</b> Bicarbonate of soda and vinegar.	Lots of fizzing. It looks frothy. Bag puffs up. 
<b>Bag D:</b> Bicarbonate of soda and oil.	Bicarbonate goes in a lump at the bottom. 

(a) Write the names of the **THREE** liquids that the children used.



- (i) .....
- (ii) .....
- (iii) .....

1 mark

(b) Look at the table. In one bag dissolving was the only change.

In which bag was dissolving the only change?



.....

1 mark

(c) The mixture in Bag C fizzed and the bag puffed up.

Why did Bag C puff up?



.....

.....

1 mark

(d) Three of the mixtures can be separated to get the starting materials back again. One of the mixtures cannot be separated.

Which bag has a mixture that **cannot** be separated?



.....

1 mark

## 10. Pendulum

(a) Karen and Samuel make a pendulum with some modelling clay and some string.





When Karen lets go of the clay ball, the pendulum swings backwards and forwards.

What force causes the pendulum to move when Karen lets go?



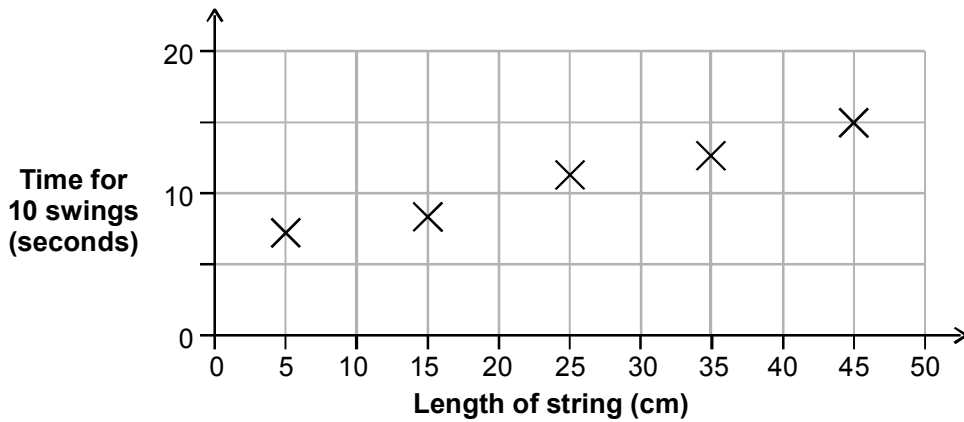
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1 mark

(b) They record how long it takes for the pendulum to swing 10 times.

Then they change the length of the string.  
They time the pendulum again.  
They do this with five different lengths of string.

Samuel plots the results on a graph.



Describe how the length of the string affects the time taken to swing.

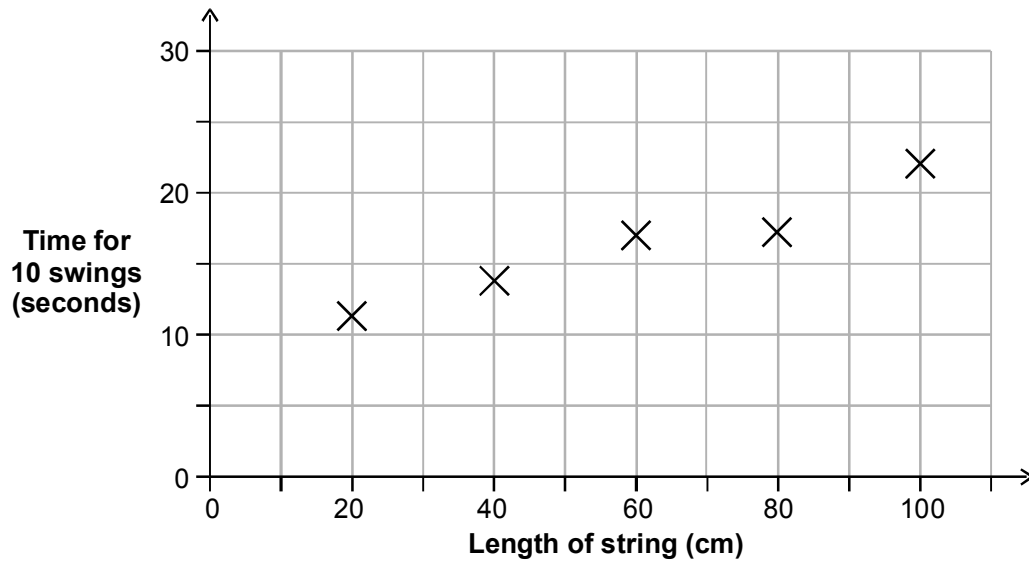


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2 marks

- (c) Jim and Funmi do the same experiment, with different lengths of string.  
Jim's graph looks like this.



Compare Jim's graph with Samuel's.  
One of the points on Jim's graph is drawn in the wrong place.

Circle the result on Jim's graph which is most likely to be wrong.

1 mark