

Science

Test A

2002
40 min
40 marks




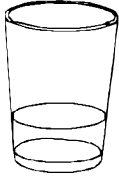




1. Changes

- (a) Kim and Juan change the way some things look. The pictures below show the changes.

Which changes are reversible?

Tick **ONE** box for each change.

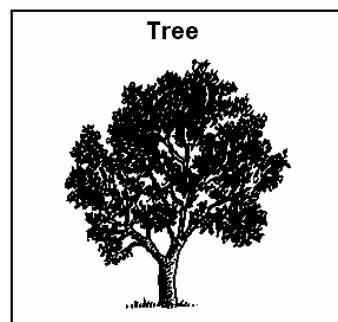
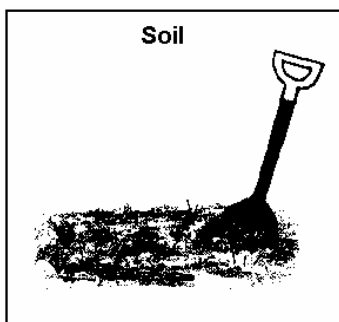
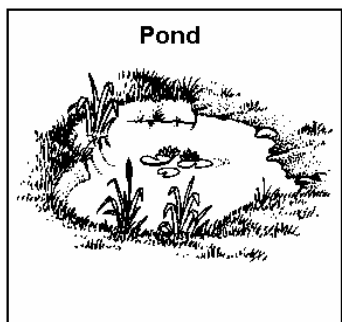
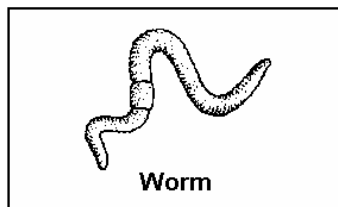
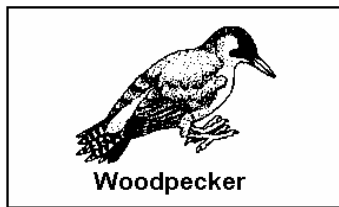
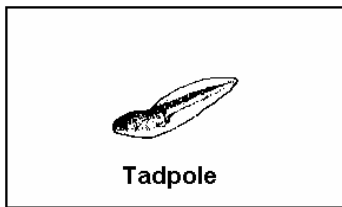


		Is this change reversible?	
		Yes	No
Bread 	Toast 		
Ice 	Water 		
Paper 	Ash 		
Plasticine 	Plasticine snail 		

2 marks

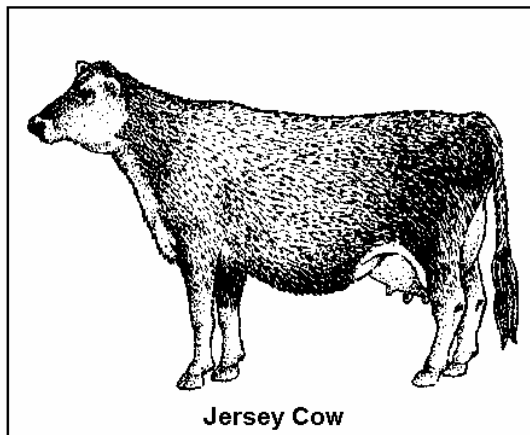
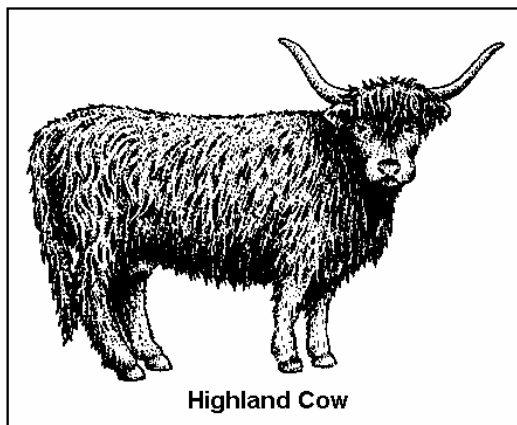
2. **Animals in their environment**

(a) Draw **THREE** lines to match each of these animals to the environment in which it lives.



1 mark

(b) Highland cows look different from other types of cow.



Look at the pictures of the cows.

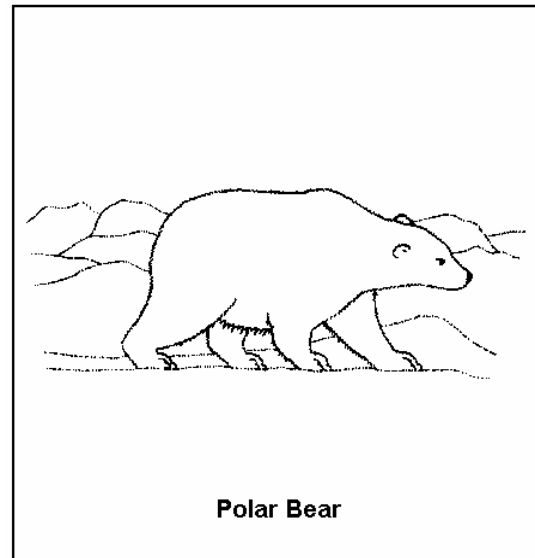
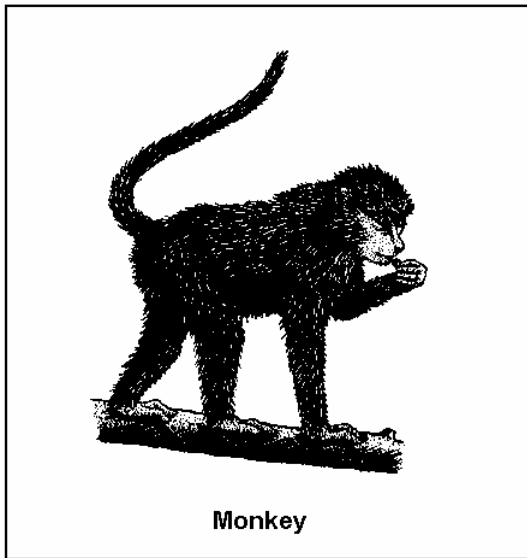
How are Highland cows better protected against cold weather than Jersey cows?




.....

1 mark

(c) These animals live in different environments.

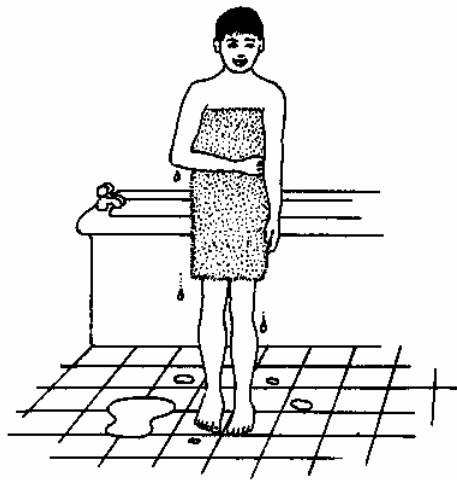


Complete the table below to describe **ONE** feature of a Polar Bear. Say how the feature helps the Polar Bear to live in its environment.

Animal	Lives in...	One feature that helps the animal to live in its environment	How the feature helps
Monkey	rainforest	<i>it has a tail</i>	<i>to help it balance</i>
Polar Bear	the Arctic	 <i>it has</i>

1 mark

3. Bathtime



- (a) Jack gets out of the bath. He dries himself with a towel.
Why is towelling a good material to dry himself with?



.....

1 mark

- (b) Small puddles of water drip on to the floor tiles and stay there.
Tick **ONE** box to say why the puddles stay on the floor tiles.

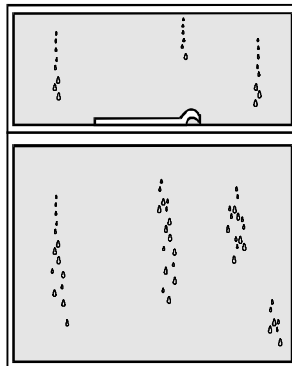


The puddles stay on the floor because the floor tiles...

- | | | | |
|-----------------|--------------------------|--------------|--------------------------|
| soak up water. | <input type="checkbox"/> | bend easily. | <input type="checkbox"/> |
| are waterproof. | <input type="checkbox"/> | are solid. | <input type="checkbox"/> |

1 mark

- (c) The bathroom window is closed.



Jack sees drops of water on the inside of the bathroom window.

Name the process that causes the water to appear on the bathroom window.

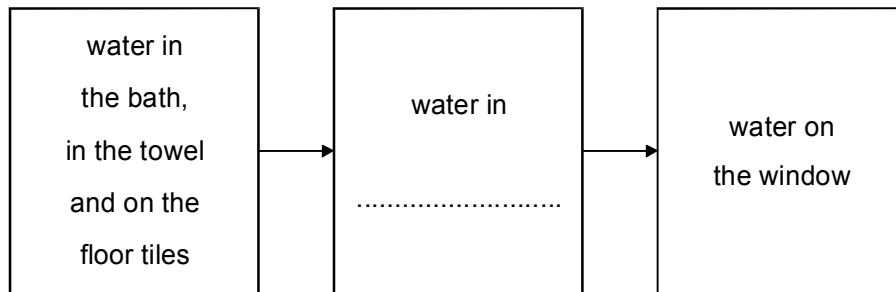


.....

1 mark

- (d) The flow diagram below shows where the water goes before it reaches the window.

Complete the flow diagram to show **where** the water is.



1 mark

- (e) Jack dries his hair with an electric hairdryer. He does not use the hairdryer in the bathroom because it might get wet.

Why is it dangerous to use an electric hairdryer near water?



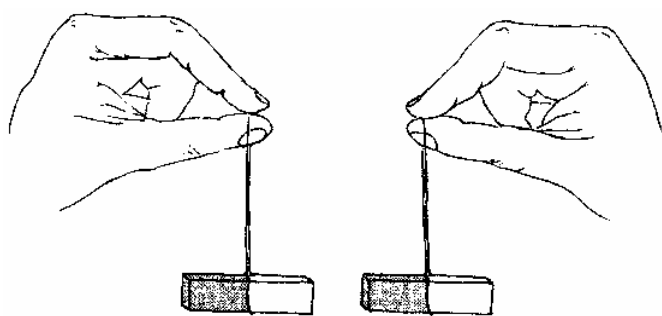
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1 mark

4. Exploring magnets

- (a) Wayne has two bar magnets. He hangs each bar magnet from a piece of string. He holds them close together like this:



What happens to the magnets when he holds them like this?

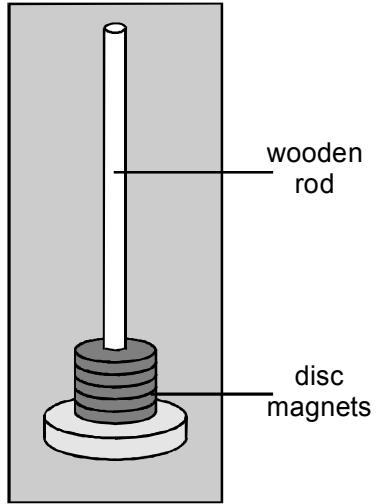


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1 mark

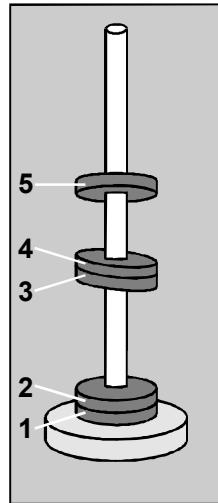
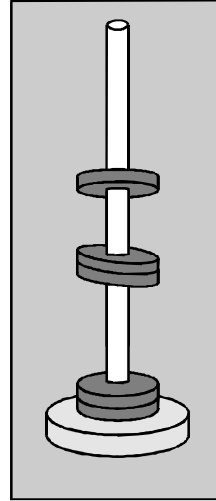
- (b)

Wayne has some disc magnets on a wooden rod.



He takes the magnets off the rod. He turns some of them over, then puts all the magnets back on the rod.

Some of the magnets float.



Why does magnet 5 float above magnet 4?



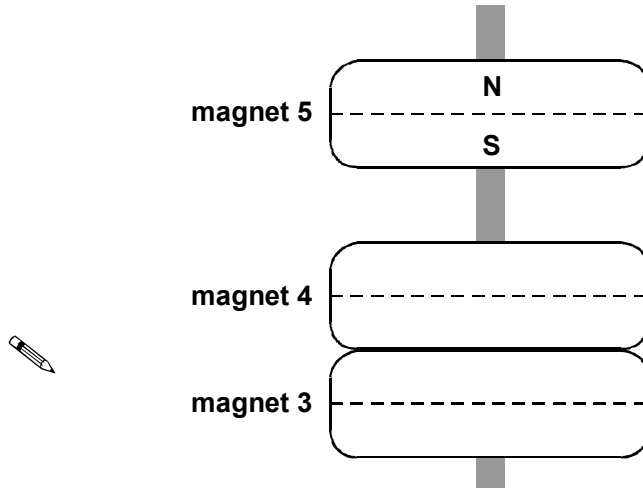
.....
.....

1 mark

- (c) Wayne draws a diagram of the floating magnets. Part of the diagram is given below. It shows magnets 3, 4 and 5.

The North and South poles on magnet 5 are labelled.

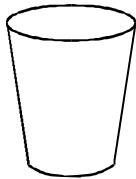
Label the North (N) and South (S) poles on magnets 3 and 4 below.



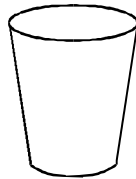
1 mark

5. Measuring temperature

- (a) Some children want to find out which material keeps a drink hottest. They fill three cups with hot water.



metal cup



polystyrene cup



plastic cup

They measure the temperature of the water. It is the same in each cup.

What equipment do they use to measure the temperature of the water?



.....

1 mark

(b) They leave all the cups in the same place to cool.

What else must the children keep the same for their test to be fair?



Tick **TWO** boxes.

The size of each cup.

The material used to make the cups.

The final temperature of the water.

The volume of hot water in each cup.

1 mark

(c) They measure the temperature again after 20 minutes.

In their test, the polystyrene cup keeps the water hottest.

Write **metal**, **polystyrene** and **plastic** in the correct order in the boxes below, to show how well each insulates heat.



**Good insulator
of heat**



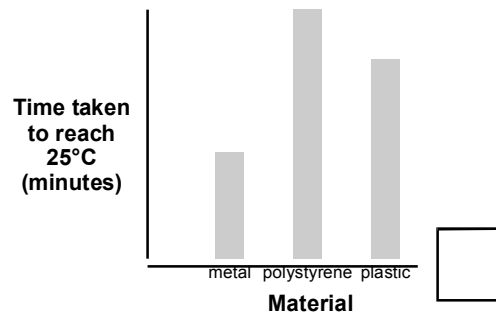
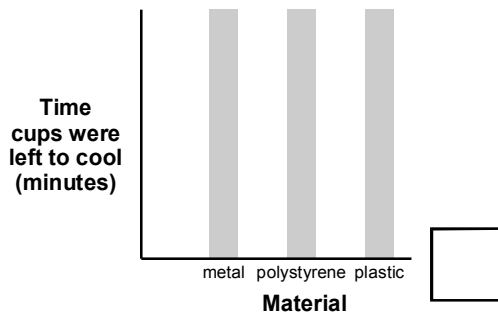
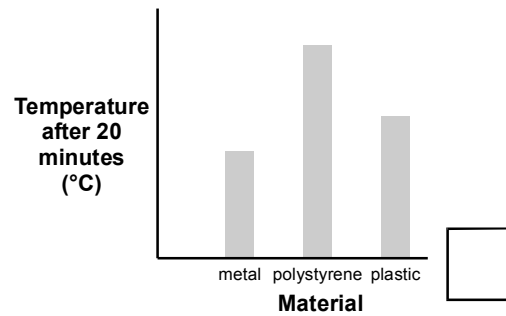
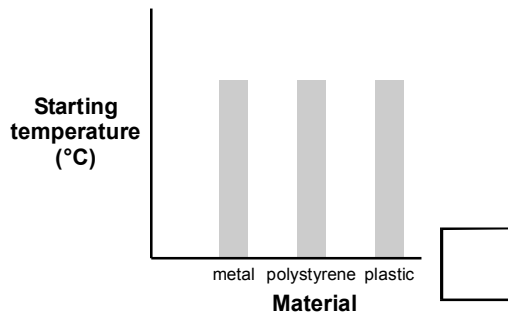
**Poor insulator
of heat**

1 mark

(d) The children want to record their results on a graph.

Which graph would best show the results at the end of **their test**?

 Tick **ONE** box.




1 mark

6. Human body

(a) Meena makes this list to show the functions of different parts of the body.


Functions of different parts of the body:	
1.	takes in food
2.	pumps blood
3.	takes in oxygen
4.	holds the body upright
5.	controls the body

(i) Which number on Meena's list gives the main function of the brain?



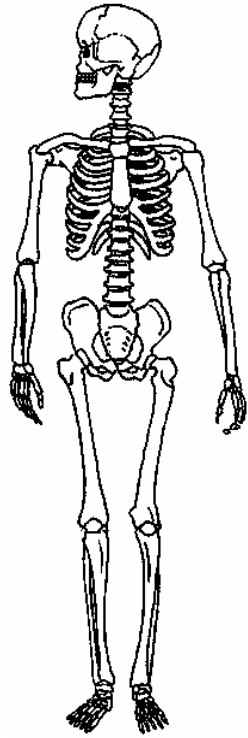
1 mark

(ii) Which number on Meena's list gives the main function of the heart?



1 mark

(b) Some of our bones help to protect our organs.



Name the set of bones that helps to protect the heart and lungs.



1 mark

(c) Meena reads in a book that the human heart beats about 4300 times an hour at resting rate.

Meena says: 'I want to check this information, but I cannot measure my heartbeat for an hour.'

How can Meena find out **quickly** if her heart beats about 4300 times an hour?


.....

1 mark

7. Time on Earth

(a) Our measurements of time are linked to the movements of the Moon and Earth.

How many **days** does each of the following movements take?

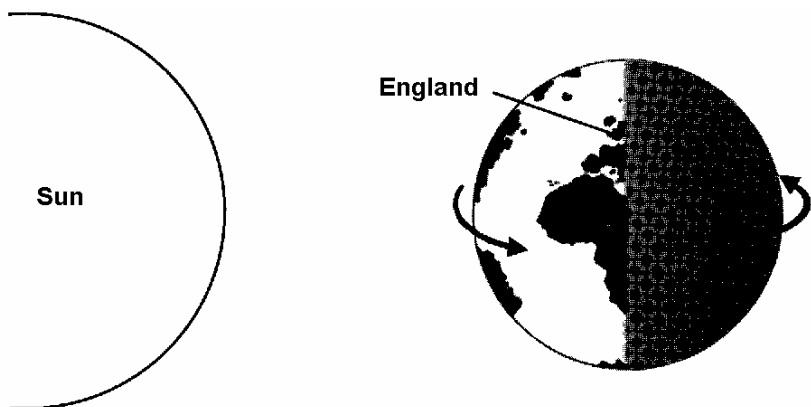


Complete the table below.

Movement	Time taken (days)
Earth to spin on its axis.	
Earth to orbit the Sun.	
Moon to orbit the Earth.	

2 marks

(b) Look at this diagram of the Sun and the Earth.



In the diagram above, what is the time in England?



Tick **ONE** box.

6 o'clock (morning)

6 o'clock (evening)

12 o'clock (midday)

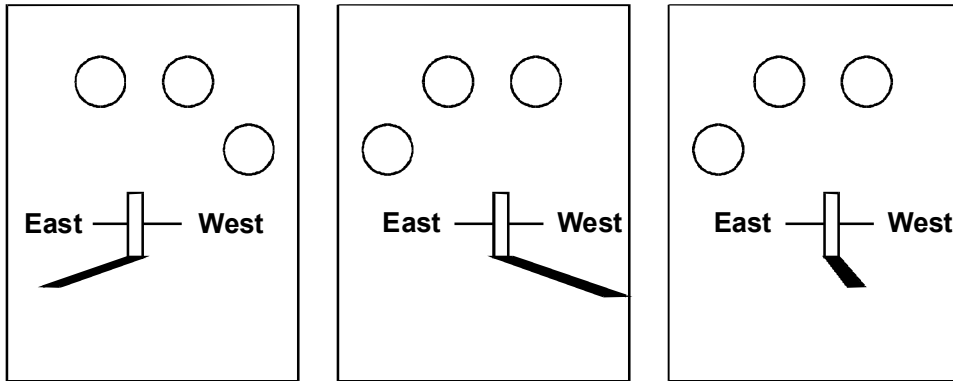
12 o'clock (midnight)

1 mark

- (c) The diagrams below show the same shadow stick at different times on the same day.

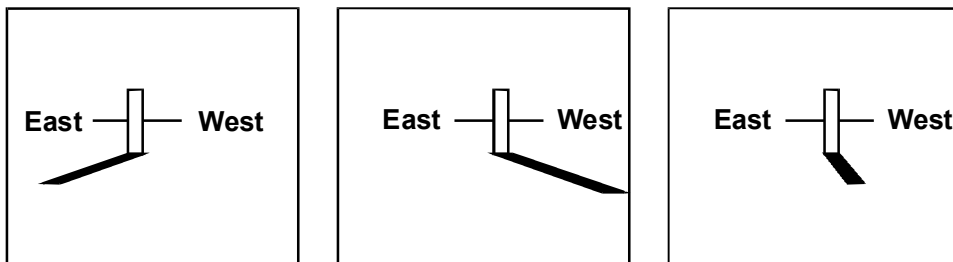
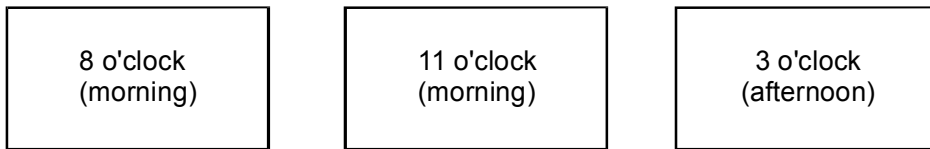
One circle on each diagram below shows the position of the Sun in the sky when each shadow is made.

- (i) Put a cross in one circle on **each** diagram to show the correct position of the Sun.



1 mark

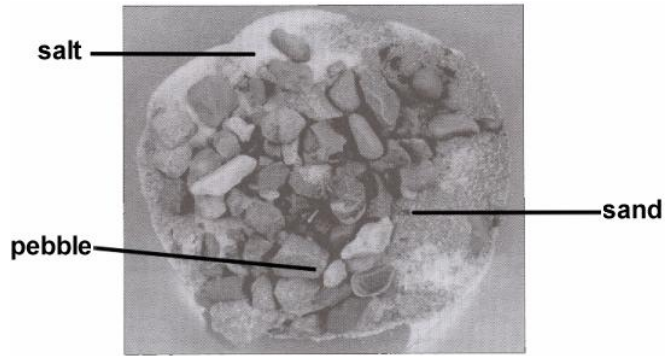
- (ii) Draw **THREE** lines below to match each shadow to the time it is made.



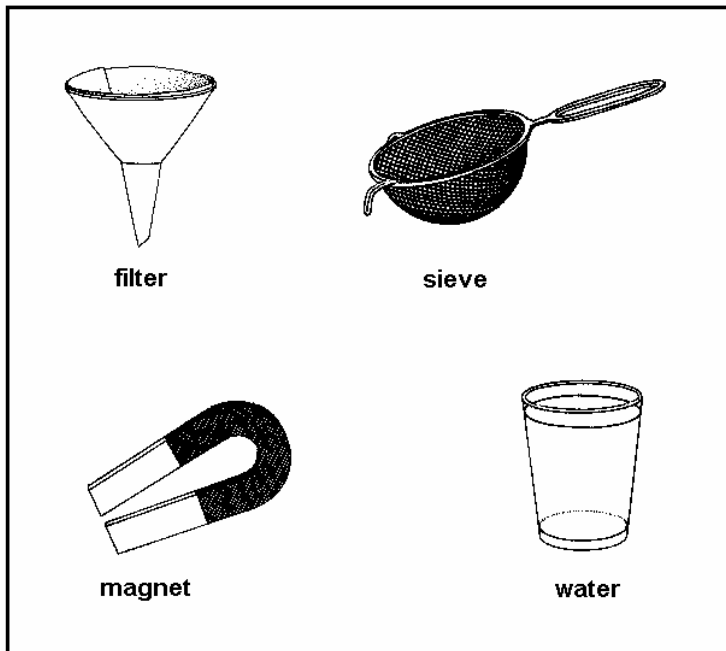
1 mark

8. Pebbles, salt and sand

(a) Joanne has a dry mixture of pebbles, salt and sand.



She has these four pieces of equipment to help her separate the mixture.



Which piece of equipment from the box above should Joanne use to separate the pebbles from her mixture?



.....

1 mark

(b) Which **TWO** pieces of equipment from the box should she use to separate the salt from the sand?



..... and

1 mark

- (c) Joanne uses these two things and some other equipment to separate the salt from the sand.

When she finishes, she has salt crystals in one container and sand in another container.



salt crystals



sand

Explain **fully** how Joanne separated the salt and sand mixture, so that she finished with salt crystals in one container and sand in another container.



.....

.....

.....

.....

.....

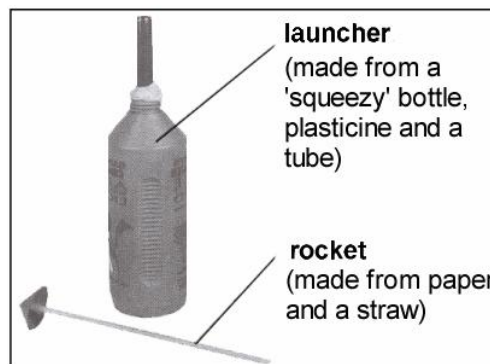
2 marks

9. Rockets

- (a) Alice makes a rocket and launcher.

She puts the rocket in the launcher.

She squeezes the launcher. A force makes the rocket shoot into the air.



Tick **ONE** box below to show where the force comes from.

the rocket

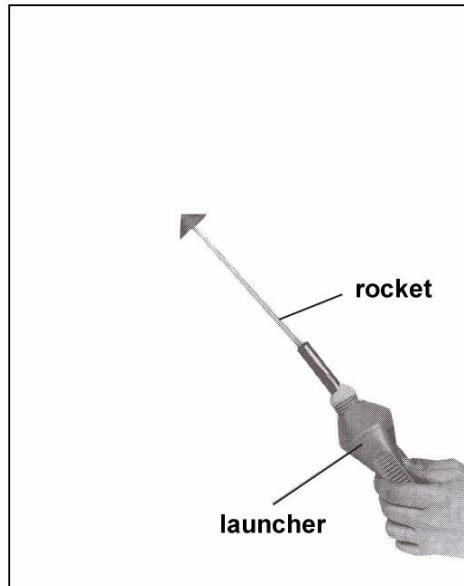
the tube

the air in the bottle

the air outside the bottle

1 mark

- (b) On the diagram below, draw an arrow to show the **direction of air resistance** on the rocket as it leaves the launcher.



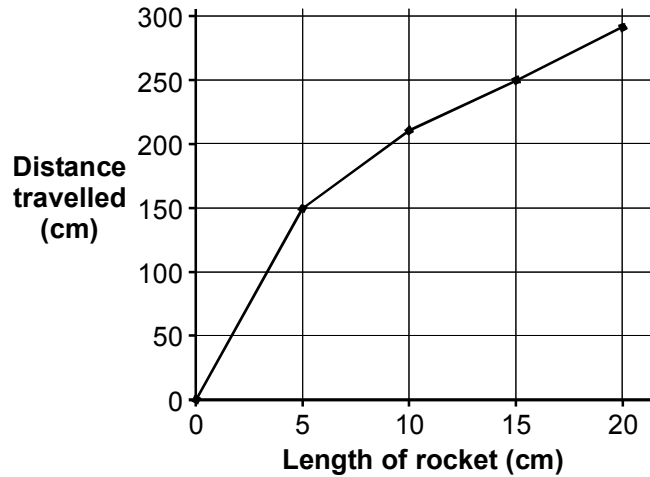
1 mark

- (c) Alice wants to find out if changing the length of the rocket makes a difference to how far it travels.

Alice predicts that the longer the rocket, the shorter the distance the rocket will travel.

She tests her prediction.

Here are her results.



- (i) Was Alice's prediction correct?



Yes

No

- (ii) Explain how the graph shows if her prediction was correct or incorrect.



.....
.....

1 mark

- (d) Alice does the test more than once.

Why does she repeat the test?



Tick **ONE** box.

to make it a fair test

to change her equipment

to check her results

to make the rocket go further

1 mark

10. Woodland survey

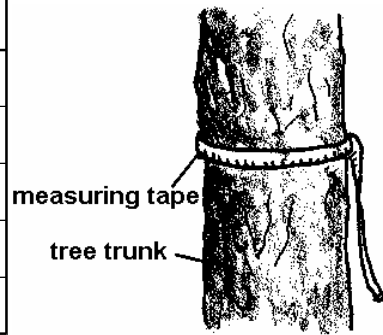
(a) Sam and Peter measure around the trunks of ten oak trees.

They measure five trees growing close together and five trees growing in open space. The trees are all the same age.

Here are their results.

sizes of tree trunks close together (cm)
101
67
80
32
96

sizes of tree trunks in open space (cm)
318
190
320
400
350



The **range** of measurements for tree trunks growing close together was 32–101 cm.

What was the range of measurements for tree trunks growing in open space?



..... cm

1 mark

(b) Use the information in the tables. Compare the size of tree trunks **growing close together** with the size of tree trunks growing in open space.



.....

1 mark

(c) Trees need light to help them grow.

How do trees use light to help them grow?



.....

1 mark

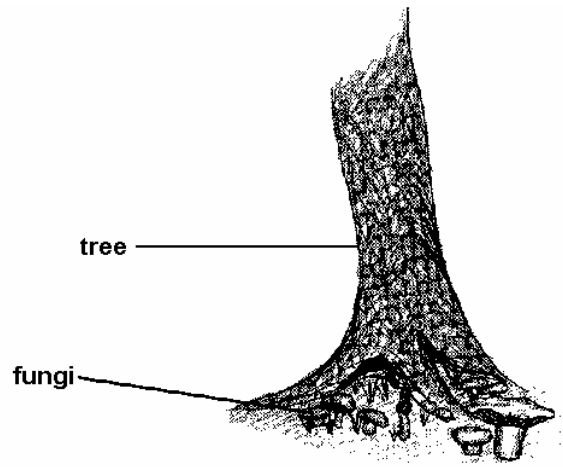
(d) Name **TWO** other things that trees need to **take in** to help them grow.



Light and and

2 marks

(e) Peter finds lots of fungi under a tree.



Write **true** or **false** next to each sentence about fungi below.

One has been done for you.



Fungi are living things. **true**

Fungi can grow.

Fungi can reproduce.

1 mark