

# Science Test A

**2003**  
40 min  
40 marks

**1. Balanced Diets**

(a) A class carries out a survey to find out how often the children eat vegetables.

**Tally chart to show how often the children eat vegetables**

How often?	How often?
more than once a day	/
once a day	/
once a week	/
less than once a week	
never	

Use the tally chart. How many children eat vegetables more than once a day?



.....

1 mark

(b) Eleven children gave the same answer as each other.

Use the tally chart to find out what answer these eleven children gave.



.....

1 mark

- (c) In a balanced diet, each food group has a special function in the body. Each food below is a good source of something the body needs.

Draw THREE lines below to match each food to its special function.



<b>Food</b>	<b>Function: Good source of...</b>
carrots and oranges	fuel for activity.
chicken and eggs	new material for growth.
bread and cakes	vitamins for health.

1 mark

- (d) Nasreen makes a poster to show how to stay healthy. Only some of the ideas on her poster are good.

Tick TWO boxes to show the best ideas on the poster below.



**To stay healthy you should:**

- eat lots of fried food.
- eat different kinds of food.
- smoke every day.
- exercise often.

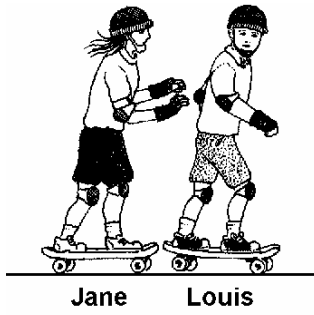
1 mark

**2. Opposing Forces**

(a) Some children are riding skateboards. It is easy to get hurt riding a skateboard.  
Look at the picture below.

List **TWO** pieces of safety equipment that the children have used.

- (1) .....
- (2) .....



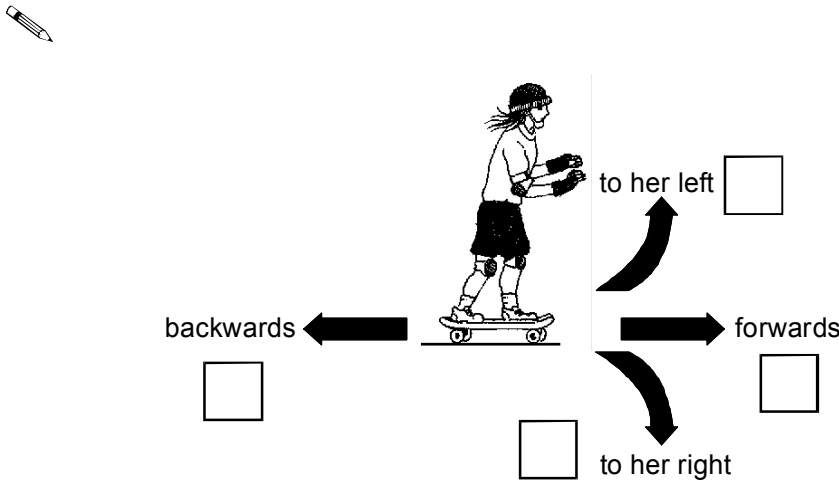
1 mark

(b) Jane and Louis are facing in the same direction. They are on level ground and they are not moving.

Jane gently pushes Louis on his skateboard. He moves forwards.  
As Louis moves, Jane also moves.

In which direction do **Jane** and her skateboard move when she pushes Louis?

Tick **ONE** box.



1 mark

(c) Jane and Louis go back to the same starting places. Jane gives Louis a bigger push on his skateboard. They both move faster this time.

(i) What happens to the distance that Louis travels on this second push compared to the first push?



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1 mark

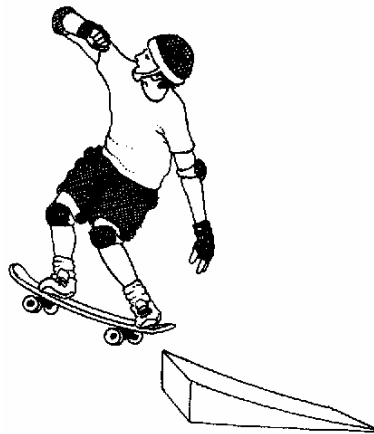
(ii) What happens to the distance that Jane travels on the second push compared to the first push?



.....

1 mark

(d) Dave goes over a jump on his skateboard. When he jumps he stays in the air for a short time.



What force makes him return to the ground?



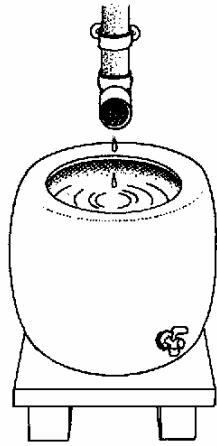
.....

1 mark

**3. Vegetable Patch**

(a) Kami sees all of the things below while he is working in his vegetable patch.

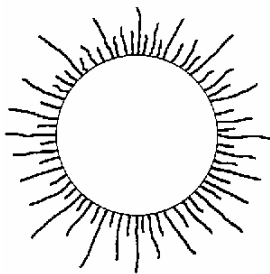
Tick **FIVE** boxes to show which of these things are living.



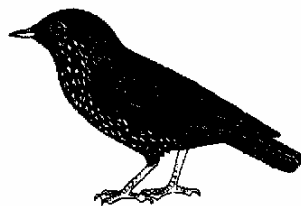
**water**



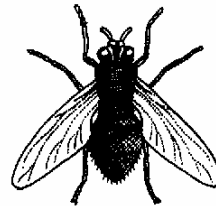
**tree**



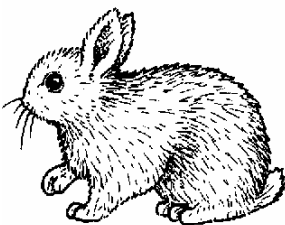
**sun**



**starling**



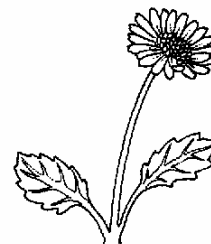
**fly**



**rabbit**



**bonfire**



**daisy**

2 marks

- (b) Kami grows cabbages in his vegetable patch. Some of the **cabbages** are eaten by **snails**. Some of the snails are eaten by birds called **thrushes**.

Write a food chain to show this information.

Use arrows in your food chain.



.....

2 marks

- (c) A cabbage has many leaves.

Tick **ONE** box to show why leaves are important to a cabbage plant.



The leaves...

attract insects.

anchor the plant in the ground.

collect pollen.

produce new material for growth.

1 mark

- (d) Kami cuts a cabbage in half. The leaves on the outside of the cabbage are dark. The leaves on the inside are a pale yellow colour.

Which statement best explains why the leaves on the inside are paler?

Tick **ONE** box.



The leaves on the inside of the cabbage get...

less light.

less water.

more minerals.

more air.

1 mark


4. Paper Towels

(a) Each of four children examined a different type of paper towel.



Decide the kind of statement all the children have made.

Tick **ONE** box.

 a prediction

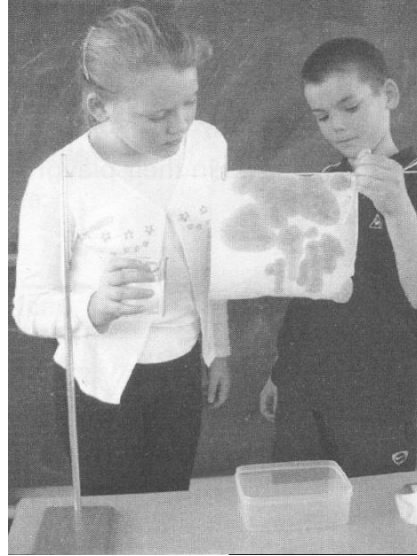
a measurement

a plan

an observation

1 mark

- (b) Robert and Lauren dropped water onto the four towels until they would hold not more water.



They recorded their results in a table.

<i>Type of paper towel</i>	<i>Amount of water soaked up (cm<sup>3</sup>)</i>
<i>Wipa</i>	<i>12</i>
<i>Soaka</i>	<i>18</i>
<i>Moppa</i>	<i>9</i>
<i>Cleana</i>	<i>15</i>

They are trying to find out something about the towels.

What question were the children investigating?



.....  
 .....

1 mark

- (c) What is the **ONE** factor they **changed** as they carried out their investigation?



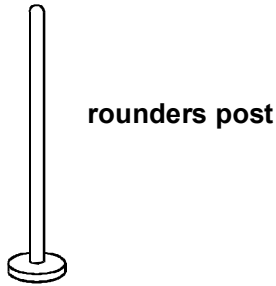
.....

1 mark



5. Shadows

- (a) One sunny day, some children use a rounders post to make shadows in their playground.



When light shines on the rounders post, a shadow forms.

Where does the light come from?



.....

1 mark

- (b) The rounders post makes a dark shadow.

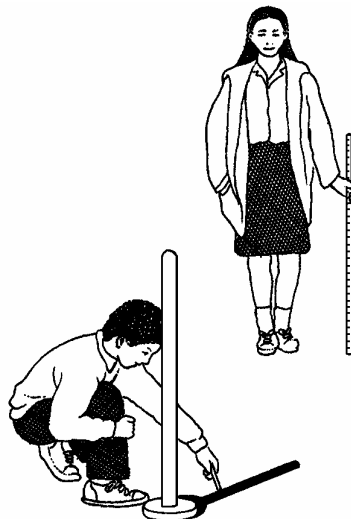
Tick **ONE** box to complete the sentence below.

The rounders post makes a **dark** shadow because it is...

opaque.	<input type="checkbox"/>	smooth.	<input type="checkbox"/>
solid.	<input type="checkbox"/>	transparent.	<input type="checkbox"/>
tall.	<input type="checkbox"/>	heavy.	<input type="checkbox"/>

1 mark

- (c) The children draw round the shadow of the rounders post every half hour from 9:30 until 12 noon.



They measure the length of each shadow and record their results in this table:

Time (am)	Length of shadow (cm)
9:30	146
10:00	130
10:30	116
11:00	109
11:30	106
12:00	103

What happened to the length of the shadow during the morning?

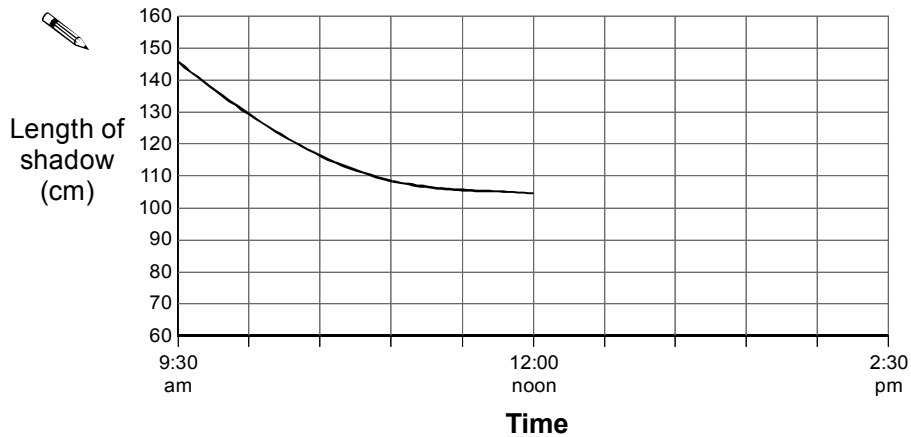


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1 mark

(d) The children make a line graph to show the results from the morning.

Continue the line on the graph to show how the length of the shadow would change between 12 noon and 2:30pm.



1 mark

## 6. Germinating Seeds

(a)



These children have recorded their observations about lettuce seeds germinating at three temperatures.

They planted the same number of seeds at each temperature.



Temperature (°C)	Total number of lettuce seeds germinated					
	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6
5	0	0	.....	0	1	1
15	0	0	0	1	5	9
25	0	2	8	13	17	19

Complete the table to show how many seeds germinated at 5°C on Day 3.

1 mark

(b) The children were trying to find out something about seeds.

What question were the children investigating?



.....

.....

1 mark

(c) The children discussed the results in the table.

Look at their results table to decide whether each conclusion is **true**, **false** or you **can't tell**.

Tick **ONE** correct box for each conclusion.



	True	False	Can't tell
The quickest germination was at 25°C.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
At 25°C all the seeds germinated by Day 6.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5°C is too cold for seeds to germinate.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The best temperature for germination was 15°C.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2 marks

Alan made a prediction:



The best temperature to germinate **any** kind of seed is 25°C.

(d) Faiza said:



You have not collected enough information to support your prediction.

(i) Who do you agree with?

Tick **ONE** box.



agree with Alan

agree with Faiza

disagree with Alan and Faiza

(ii) Explain your answer.



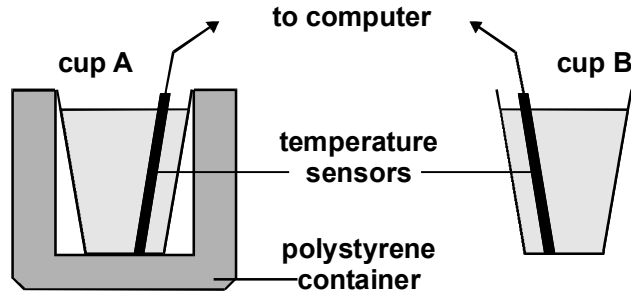
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1 mark

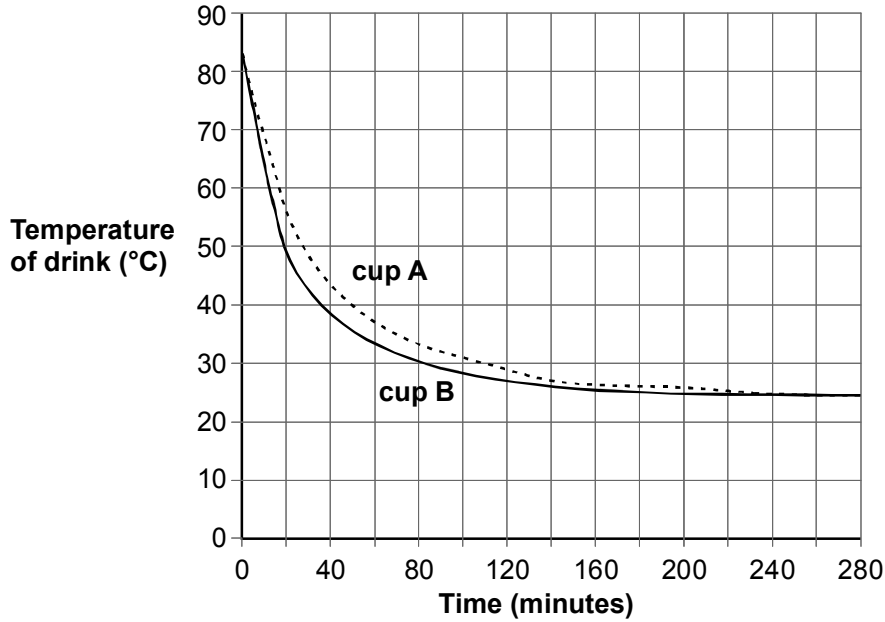
**7. Temperature Changes in Drinks**

- (a) Rashida wants to test if a polystyrene container keeps her drink hot for longer. She makes her drink from boiled water.

She measures the temperature in two plastic cups (A and B) every ten minutes with sensors joined to a computer.



The graph below shows her results.



How does the graph tell you that the drink in cup B cooled more quickly than the drink in cup A in the first 40 minutes?



.....  
 .....

1 mark

- (b) Use the graph.

Estimate the temperature of the room.



.....°C

1 mark

(c) Which of the following best describes the polystyrene around cup A?

Tick **ONE** box.



thermal insulator

thermal conductor

warming material

cooling material

1 mark

(d) Using a polystyrene container or cup is a good way for Rashida to help stop heat leaving her drink.

Describe another way Rashida could help stop heat leaving her drink to keep it hot for longer.



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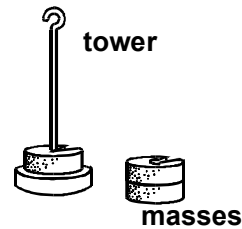
1 mark

## 8. Stacking Masses

(a) Abdul has some stacking masses.

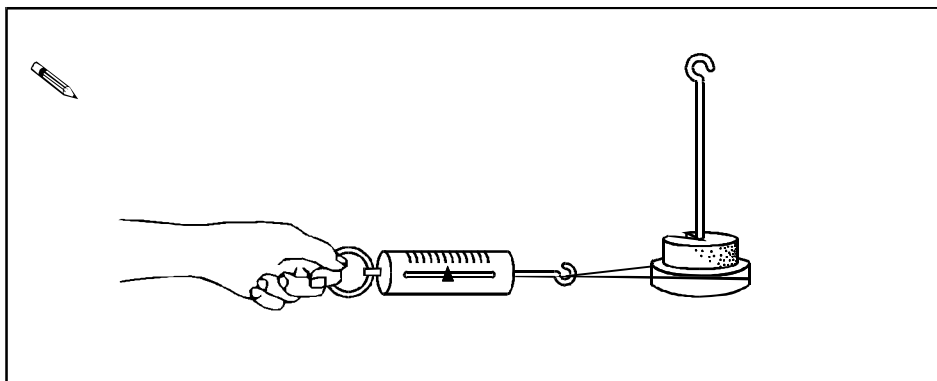
He puts one mass on the stacking tower.

He uses a forcemeter to pull the tower.



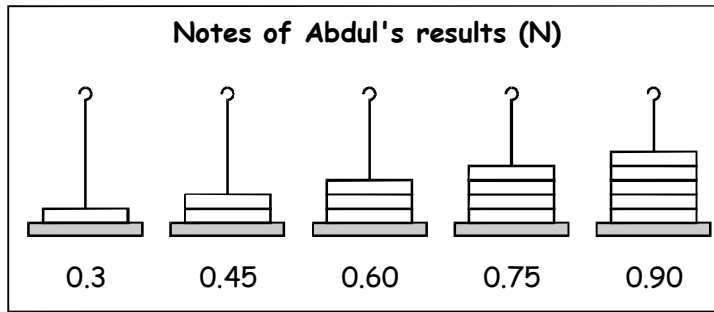
There is a force on the tower from the forcemeter.

Draw an arrow on the picture below to show the direction of this force.



1 mark

- (b) Abdul measures the force needed to pull the tower. He notes the forcemeter reading each time he adds a mass to the tower.



Look at the notes of Abdul's results.

Describe what Abdul's notes tell him about the **number of masses** and the **size of the force** needed to pull them.



.....

.....

2 marks

- (c) Abdul puts his results into this table, but he makes a mistake.

Number of masses	Forcemeter reading (N)
1	0.90
2	0.75
3	0.60
4	0.45
5	0.30

What is the mistake in Abdul's table?



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1 mark

(d) Abdul notices his mistake. He corrects his table.

Then he says: 'I wonder if I made any mistakes when I did my test?'

What should he do to check if he made any mistakes in his test?



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.....

1 mark

### 9. Citric Acid and Bicarbonate of Soda

(a) Class 6B have these materials.

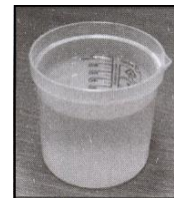
**Citric acid powder**



**Bicarbonate of soda powder**



**Water**



Tick **ONE** box in each row to show whether each material is a solid, a liquid or a gas.



<b>Material</b>	<b>Solid</b>	<b>Liquid</b>	<b>Gas</b>
Citric acid powder			
Bicarbonate of soda powder			
Water			

2 marks



(b) The teacher mixes citric acid powder with water. The powder dissolves.

Explain fully how the children could separate the mixture to get the citric acid powder back.



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2 marks