Science test

Test A

First name ________________________________________________
Last name ________________________________________________
School ___________________________________________________

For marker's use only

<table>
<thead>
<tr>
<th>Page</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
</tr>
</tbody>
</table>
INSTRUCTIONS

Read this carefully.

You have **45 minutes** for this test.

**Answers**

This pencil shows where you will need to put your answer.

For some questions you may need to draw an answer instead of writing one.

Some questions may have a box like this for you to write down your thoughts and ideas.
Conducting electricity

(a) Year 6 are testing objects to see if they conduct electricity.

The children use this circuit to test the objects.

The children place the objects between the clips.

How will the children know if each object conducts electricity?

(b) Does each object conduct electricity?
Write yes or no in each row of the table.

<table>
<thead>
<tr>
<th>Object</th>
<th>Does the object conduct electricity?</th>
</tr>
</thead>
<tbody>
<tr>
<td>wooden ruler</td>
<td></td>
</tr>
<tr>
<td>steel scissors</td>
<td></td>
</tr>
<tr>
<td>sheet of paper</td>
<td></td>
</tr>
<tr>
<td>rubber</td>
<td></td>
</tr>
<tr>
<td>brass pin</td>
<td></td>
</tr>
</tbody>
</table>
Sweets

(a) Alisha and Peter have some small sweets. Peter puts one on his tongue.

Peter made a plan to test his idea that the sweet **dissolves**.

**Peter’s plan**

<table>
<thead>
<tr>
<th>Step 1</th>
<th>Step 2</th>
<th>Step 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Put sweet in 50cm³ of cold water.</td>
<td>Leave the sweet from 9:00am until 11:00am.</td>
<td>Observe the result.</td>
</tr>
</tbody>
</table>

How long did Peter plan to leave the sweet in water?

........................................................................................................................................... hours

(b) Peter took photographs of the sweet in the beaker at the beginning and end of his investigation.

9:00am Beginning of Peter’s investigation 9:20am End of Peter’s investigation

Photograph A Photograph B
What part of his plan did Peter change when he carried out the investigation?

............................................................................................................................................................................
............................................................................................................................................................................

2b 1 mark

(c) Look at photographs A and B.

Use the evidence in photographs A and B to write a conclusion for Peter’s investigation.

............................................................................................................................................................................
............................................................................................................................................................................

2c 1 mark

(d) Alisha made a plan to test her idea that the sweet melts rather than dissolves.

Where should Alisha put her sweet to test her idea that it melts?

Tick ONE box.

a cold place ☐ a hot place ☐

a dry place ☐ a wet place ☐

2d 1 mark
(a) Rosie is doing a survey about canine teeth. She counts the number of adult canine teeth each pupil in year 4 has. She also counts the number of adult canine teeth each pupil in year 6 has.

<table>
<thead>
<tr>
<th>Number of adult canines</th>
<th>Number of pupils</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Year 4</td>
</tr>
<tr>
<td>0</td>
<td>![Bars for Year 4 (0)]</td>
</tr>
<tr>
<td>1</td>
<td>![Bars for Year 4 (1)]</td>
</tr>
<tr>
<td>2</td>
<td>![Bars for Year 4 (2)]</td>
</tr>
<tr>
<td>3</td>
<td>![Bars for Year 4 (3)]</td>
</tr>
<tr>
<td>4</td>
<td>![Bars for Year 4 (4)]</td>
</tr>
</tbody>
</table>

How many pupils in year 4 have only two adult canine teeth?

..................................................... pupils

(b) Rosie draws the bars for year 4 and year 6 on the graph below to show her results. She has not shaded in the bars for year 6.

Shade in the bars for year 6 on the graph below. Use the key and table to help you.
(c) Rosie knows that to keep her teeth healthy she should not eat too many sweets and other sugary foods.

Name ONE other thing that Rosie can do to help keep her teeth healthy.

..................................................................................................................................................

(d) Different teeth have different functions when we eat food.

What function do the **incisor teeth** have that molar teeth do not?

..................................................................................................................................................

(e) Write **true** or **false** next to each of the statements below.

**True or false?**

Children lose their first teeth and grow new teeth. .........................

Human teeth can reproduce. .............................................
Earth, Sun and Moon

(a) Martin is making a model of the Earth, Sun and Moon. He collects some objects that can be used to model the Earth, Sun and Moon.

<table>
<thead>
<tr>
<th>Object</th>
<th>melon</th>
<th>pea</th>
<th>poppy seed</th>
</tr>
</thead>
<tbody>
<tr>
<td>What it models</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(b) What shape are the Earth, Sun and Moon in space?

(c) Martin uses his model to show what causes day and night.

How can Martin show what causes day and night using his model?

Tick ONE box.

- spin the Earth on its axis
- move the Earth around the Sun
- spin the Sun on its axis
- move the Sun around the Earth
(d) Complete the sentence below about the Moon’s orbit.

The Moon orbits the Earth once every................................................

(e) Martin shines a torch on a globe.
It models the Sun shining on the Earth.

Estimate what time of day it would be on the Earth at place A.

Places B and C have been done for you.

<table>
<thead>
<tr>
<th>Place</th>
<th>Time of day</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>6pm</td>
</tr>
<tr>
<td>C</td>
<td>9pm</td>
</tr>
</tbody>
</table>
Keeping cool

(a) Jamal is thinking about how to keep ice cubes from changing into water on a hot day.

Jamal says ‘I think if you put the ice cubes inside lots of plastic bags they will stay frozen for longer.’

Tick ONE box to show what sort of statement Jamal has made.

- an observation
- a prediction
- a conclusion
- a measurement

(b) Jamal puts four ice cubes in different numbers of plastic bags.

He records the time it takes the ice cubes to change to water.

Name the process that describes the change from ice to water.

4 ice cubes with no bag
4 ice cubes in 1 bag
4 ice cubes in 2 bags
4 ice cubes in 3 bags

.................................................................
(c) Jamal records his results in a table.

<table>
<thead>
<tr>
<th>Number of plastic bags</th>
<th>Time for ice to change to water (minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>140</td>
</tr>
<tr>
<td>1</td>
<td>160</td>
</tr>
<tr>
<td>2</td>
<td>205</td>
</tr>
<tr>
<td>3</td>
<td>225</td>
</tr>
</tbody>
</table>

Choose **ONE** word from the box below to complete the sentence about the plastic bags.

- dissolved
- condensed
- heated
- insulated
- evaporated

The table shows that the ice is ............................................... by the plastic bags so that the ice changes to water more slowly.

(d) Tick **ONE** box to show the temperature of water when it changes to ice.

-10°C  
0°C  
10°C  
100°C  

(a) Polly has a straw.
She cuts one end of the straw.

She blows into the cut end of the straw.
It makes a sound.

The sound is caused by vibrations.

Name **TWO** things that vibrate to cause this sound.

(b) Polly thinks that changing the length of the straw may change how high or low the note is.

What is the scientific name for how high or low a note is?
(c) Polly cuts four identical straws into different lengths.

Her friends blow gently into the straws. The note from each straw is different. Some notes are high and some are low.

Describe how the length of a straw affects how high or low the note is.

........................................................................................................................................
........................................................................................................................................

(d) (i) Tania says ‘Polly’s test is not a fair test because a different person is blowing into each straw.’

Why might Polly’s test not be a fair test if different people blow into each straw?

........................................................................................................................................
........................................................................................................................................

(ii) Polly says ‘It might not be a fair test even if one person blows into each straw.’

Explain why it might not be a fair test even if one person blows into each straw.

........................................................................................................................................
........................................................................................................................................
Nadif is growing some plants from seeds. He takes a seed tray and fills it with damp soil. He plants some seeds. Then he puts a transparent lid over the top.

Nadif checks his seeds each day. He notices that drops of water appear on the inside of the lid.

What is the scientific name for the process where water vapour changes into water?
(b) First, the small seedling uses food in the seed to help it grow. As it grows, the food in the seed is used up. Then the young plant makes new food for growth.

In what part of the plant is new food made for growth?

..................................................................................................................

(c) Why is it important for the young plant that the lid of the seed tray is transparent?

..................................................................................................................

(d) The root of the young plant anchors it into the soil.

Give **ONE** other way the root helps the young plant grow.

..................................................................................................................

..................................................................................................................
Remote control

(a) Ruth wants to find out how well the remote control turns on her TV when different materials are put in front of it.

Ruth holds writing paper in front of the remote control. The TV still turns on. Ruth steps back until the remote does not turn the TV on.

Ruth repeats the test with different materials. The table below shows her results.

<table>
<thead>
<tr>
<th>Material</th>
<th>Distance from TV when remote does not work (steps)</th>
</tr>
</thead>
<tbody>
<tr>
<td>writing paper</td>
<td>5</td>
</tr>
<tr>
<td>clear plastic bag</td>
<td>25</td>
</tr>
<tr>
<td>tracing paper</td>
<td>8</td>
</tr>
<tr>
<td>foil</td>
<td>0</td>
</tr>
<tr>
<td>book</td>
<td>0</td>
</tr>
</tbody>
</table>

Complete the graph to show the results for the tracing paper.
(b) Ruth’s brother says she should not test the book as it makes the test unfair.

Why does the book make her test unfair?

............................................................................................................................

1 mark

(c) Ruth’s brother repeats the investigation to check the results. He takes fewer steps back for each material before the TV does not turn on.

Tick **ONE** box to explain why Ruth’s brother takes fewer steps back before the TV does not turn on.

- he presses the remote control harder
- he uses smaller pieces of each material
- his steps are bigger
- the batteries in the remote control are newer

1 mark

(d) Ruth could improve her investigation by getting more accurate results.

Describe how Ruth could get more accurate results.

............................................................................................................................

1 mark

(e) Ruth sees a pattern in her results. She states ‘My results suggest that the remote control uses light to turn on the TV.’

Describe the evidence in Ruth’s table of results that supports her statement.

............................................................................................................................

............................................................................................................................

1 mark

Total out of 5
Yeast

(a) Yeast is a type of micro-organism.
Class 6G know that bread needs yeast to rise.
The yeast must be mixed with water and sugar.

They want to find out if the temperature of the water affects the yeast.
They put sugar in a bottle and add water at a temperature of 20°C.

Name the scientific word that describes what happens to the sugar when it is mixed with water.

......................................................

(b) The class then add yeast to the sugar and water in the bottle.
They put a balloon over the top of the bottle.
They time how long it takes for the balloon to stand up.

The balloon starts to blow up.

Write true or false next to each statement about the investigation.

True or false?

A gas is produced by the yeast. ........................................

A reversible change has happened. .................................

The balloon is flexible. ................................................
(c) The class repeat the test using water at different temperatures. The teacher adds the same amount of yeast, sugar and water each time. The table below shows their results.

<table>
<thead>
<tr>
<th>Temperature of water (°C)</th>
<th>3</th>
<th>20</th>
<th>30</th>
<th>50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time taken for balloon to stand up (mins)</td>
<td>52</td>
<td>18</td>
<td>16</td>
<td>4</td>
</tr>
</tbody>
</table>

Describe how the temperature of the water affects the time taken for the balloon to stand up.

.................................................................................................................................................................................................

.................................................................................................................................................................................................

(d) A cook book says that yeast works most quickly with water at a temperature of 20°C to 30°C.

(i) Tick ONE box to show if the results in the table support the information in the cook book.

- yes  
- no  

(ii) Use examples from the results table to help you explain your answer.

.................................................................................................................................................................................................

.................................................................................................................................................................................................

Total out of 5
END OF TEST

Please check your answers