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.
Solids, liquids and gases

(a) Megan has three cups.
There is a solid in one cup, liquid in another, and gas in another.

Megan writes a description of what is in each cup.

Draw THREE lines to match solid, liquid and gas to the best description of what is in each cup.

<table>
<thead>
<tr>
<th>Description</th>
<th>solid</th>
<th>liquid</th>
<th>gas</th>
</tr>
</thead>
<tbody>
<tr>
<td>I cannot see anything inside the cup.</td>
<td>I cannot pour the material out of the cup.</td>
<td>When I move the cup, the material changes shape.</td>
<td></td>
</tr>
</tbody>
</table>

(b) Megan’s teacher says gases spread out to completely fill up any container.

All of the gas from the small container can fill up a big container.

Write yes or no in each row to complete the table.

<table>
<thead>
<tr>
<th>Do they spread out to completely fill up any container?</th>
<th>Gases</th>
<th>Liquids</th>
<th>Solids</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>yes</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Teeth

(a) Sue wants to find out how four different drinks affect teeth.

Egg shell and teeth are made of the same type of material. Sue puts the same amount of egg shell in four beakers. She puts a different drink into each beaker.

Show how much drink Sue must put in each beaker for her test to be fair. Draw a line on beakers B, C and D.

Beaker A has been done for you.

(b) After six days, Sue looks in the beakers. Beaker C has the least amount of egg shell left in it.

Tick ONE box to show which drink is most likely to be in beaker C.

- lemonade
- milk
- tea
- water
(c) Sue decides to drink less of the drink in beaker C to help stop tooth decay.

Give **TWO other** ways Sue can help stop tooth decay.

(i) ...............................................................................................................

(ii) ...............................................................................................................

(d) The shape of animals’ teeth can be different because they eat different things.

A lion has long, sharp canine teeth for eating meat.

(i) **How do canine teeth help the lion to eat meat?**

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

A cow has large, flat molar teeth for eating grass.

(ii) **How do molar teeth help the cow to eat grass?**

...............................................................................................................
String instruments

(a) Sam makes a string instrument. He ties the string tightly. He plucks the string. The instrument makes a sound.

Clare hears the sound.

What does the sound travel through to reach Clare’s ear?

(b) Sam plucks the string again. It sounds louder.

How did Sam pluck the string with his finger to make it sound louder?
(c) Clare looks carefully at the string as Sam plucks it.

When Clare looks carefully at the string, what can she see that tells her the string is making the sound?

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

(d) Sam makes the string shorter by tying it further down the stick.

He ties it tightly.

He plucks the string.

How is the sound of the shorter string different from the sound of the longer string?

Tick ONE box.

With the shorter string...

the note is lower.  

the note is higher.  

the sound lasts longer.  

the sound travels further.  

.....................................................................................................................................................................
Fish tank

(a) Neil has a tropical fish tank. He has Clown Loach fish in his tank.

Algae also grow in his tank. Algae are small green plants. Neil moves his fish tank from a dark corner into the sunlight.

Tick ONE box to show what will happen to the algae in Neil’s tank when he puts it into sunlight.

More sunlight will make the algae (green plants)...

- stop growing.
- grow more quickly.
- die.
- turn yellow.

(b) Neil wants to keep his fish tank clean of algae. He knows water snails eat algae. Neil decides to buy water snails.

He then reads that Clown Loach fish eat water snails.

Write the food chain for the Clown Loach fish.
(c) Instead, Neil uses two magnets to clean algae off the sides of the tank. He puts magnet B on the outside and magnet A on the inside.

Neil moves magnet B on the outside of the tank.

As he moves magnet B, magnet A moves with it.

Magnet A scrapes away the algae inside the tank.

Explain why magnet A moves with magnet B.

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

(d) Neil must keep the temperature of the water at 25°C to keep his fish healthy.

This thermometer shows the temperature of the water in Neil’s tank.

(i) Tick ONE box to show if the temperature of the water will keep the fish healthy.

yes  no

(ii) Explain your answer.

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

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

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

Sieves

(a) Ahmed uses different sieves to separate different mixtures. His mixtures are made of salt, sugar, rice, dried peas and pasta.

Ahmed has three sieves. Draw THREE lines to match each mixture to the sieve that separates the mixture.
(b) Ahmed cannot separate a sugar and salt mixture with any of his sieves.

Explain why both the sugar and salt go through all Ahmed’s sieves.

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

(b) 1 mark

(c) Ahmed mixes salt and water.

Salt and water cannot be separated with any sieve.

(i) Explain what happens to the salt when he mixes it with water.

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

(i) 1 mark

(ii) Describe how Ahmed could separate a mixture of salt and water.

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

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

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

(ii) 1 mark

(d) Ahmed makes a new mixture of soil and water.

He sieves the mixture. Some of the soil stays in the sieve but some soil goes through the sieve with the water.

What is a better way for Ahmed to separate more of the soil from the water quickly?

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

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

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

(d) 1 mark

Total out of 5
Bananas

(a) Alan hears that bananas ripen and turn yellow more quickly if they are kept with a ripe apple. He takes two bags and puts an unripe, green banana in each. Then he puts a ripe apple in one of the bags.

Write true or false next to each statement below to show how Alan should make the test fair.

To make the test fair...

both bananas must be unripe. .......................

an apple must be put in both bags. .......................

the bags must be left in the same place. .......................

(b) Alan leaves the bags for 7 days. His results are shown below.

**TEST 1:**

- Results after 7 days
  - The banana in bag A is green.
  - The banana in bag B is yellow.
  - The apple in bag B has not changed.

Tick ONE box to show what Alan has recorded.

- measurements
- predictions
- observations
- conclusions
(c) (i) **Tick ONE box to show if the results from Test 1 support the statement that apples make bananas ripen more quickly.**

- yes [ ]
- no [ ]

(ii) **Give examples from Alan’s results to explain your answer.**

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

(d) Alan does a second test. He puts different types of ripe fruit in bags with a green banana. He leaves the bags for 7 days. His results are shown below.

**TEST 2:**

<table>
<thead>
<tr>
<th>Bag</th>
<th>What fruit is in the bag with the banana?</th>
<th>After 7 days, the banana is...</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>nothing</td>
<td>yellow</td>
</tr>
<tr>
<td>D</td>
<td>lemon</td>
<td>yellow</td>
</tr>
<tr>
<td>E</td>
<td>orange</td>
<td>yellow</td>
</tr>
<tr>
<td>F</td>
<td>grapes</td>
<td>yellow</td>
</tr>
</tbody>
</table>

What question was Alan investigating?

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

(e) Alan says ‘My results are **not** what I expected. I must do Test 2 again to check my results.’

Look at the results for **both** of Alan’s tests.

What evidence from **Test 1** shows that the results from **Test 2** need to be checked?

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

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

Total out of 6 [ ]
Dominic wants to find out if the saltiness of water affects how well things float. Dominic pushes a straw into a clay ball. He puts them in a measuring cylinder filled with water. Dominic notices the bottom of the clay ball floats level with 32 cm³ on the measuring cylinder.

(i) What force is pulling down on the straw and clay ball?

(ii) What force makes the straw and clay ball float even though there is a force pulling them down?
(b) Dominic records the height of the clay ball in the measuring cylinder. Then he repeats his test. Each time he adds another teaspoon of salt to the water. The table below shows his results.

Estimate the height of the clay ball in the measuring cylinder when two teaspoons of salt are added.

<table>
<thead>
<tr>
<th>Amount of salt in water (teaspoons)</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level at which clay ball floats (cm³)</td>
<td>32</td>
<td>34</td>
<td>..........</td>
<td>39</td>
</tr>
</tbody>
</table>

(c) Tick ONE box to show which material caused the forces acting on the straw and clay ball to change.

- water
- salt
- sand
- air

(d) Circle the correct word from each box to complete the sentence about the force on the clay ball.

The greater the \( \underline{\text{upwards}} \) force on the clay ball, the \( \underline{\text{higher}} \) it floats.
Scientists have found out that babies who spend more time in daylight sleep better at night.

To test their idea, the scientists needed to find out how well some babies sleep at night normally.

What could the scientists measure or observe to find out how well babies sleep?

...........................................................................................................................................
(b) The scientists asked the parents to increase the time their babies spend in daylight. They measured how well the babies slept again.

Write **yes** or **no** next to each statement to show how parents could increase the time their baby spends in daylight.

- Parents could... Would the baby spend more time in daylight?
  - play with the baby more often in the garden. .........................
  - keep the curtains closed in the baby's room. .........................
  - take the baby for a walk in the pram. .........................

(c) The parents must be careful that the sunlight does not burn the baby.

Describe **ONE** way parents can keep babies safe in sunlight.

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

(d) To test their idea, the scientists needed to do the test with more than one baby.

Explain why they needed to do the test with more than one baby.

..................................................................................................................
..................................................................................................................
Candle

(a) When a candle is lit, some changes happen.

Some of the wax melts.
Some of the wax burns.

Are the changes in the table reversible?
Write yes or no in each row.

<table>
<thead>
<tr>
<th>Change</th>
<th>Is the change reversible?</th>
</tr>
</thead>
<tbody>
<tr>
<td>The wax melts.</td>
<td></td>
</tr>
<tr>
<td>The wax burns.</td>
<td></td>
</tr>
</tbody>
</table>

(b) Write true or false next to each statement below.

True or false?

The wax must be heated to melt. ................................

When a solid melts it changes into a gas. ........................

Temperature shows how hot or cold something is. ................

(c) Draw a line on the graph to predict what will happen to the mass of a 100 g candle when it is lit.

<table>
<thead>
<tr>
<th>Mass of candle (g)</th>
<th>Time (minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>
END OF TEST

Please check your answers