TEST B

First Name

Last Name

School
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.
(a) A human skeleton is made up of bones.

Tick ONE box to show the main life process for which bones are important.

- breathing
- nutrition
- movement
- reproduction

(b) Birds also have a skeleton. The diagrams below show a human bone and a bird bone cut in half.

The bird bone is hollow (filled with air) inside. This makes it easier for the bird to fly.

Why do hollow bones make it easier for birds to fly?
(c) This bird eats only meat. Meat is all it needs for its bones to stay strong.

If humans ate only meat, their bones would not stay strong.

Tick **ONE** box to show what is best for humans to eat to keep their bones strong.

- all food without fat
- only fruit and vegetables
- any food that tastes good
- a balanced diet

**Describe a different way** humans can keep their bones strong.

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**Total**
(a) Layla collects different objects from the kitchen.

She looks at some of the properties of the materials these objects are made from.

Write a ✓ or ✘ in each empty box in the table to show the properties of the materials.

<table>
<thead>
<tr>
<th>Material/Object</th>
<th>Flexible</th>
<th>Hard</th>
<th>Transparent</th>
</tr>
</thead>
<tbody>
<tr>
<td>aluminium foil</td>
<td>✓</td>
<td>✘</td>
<td>✘</td>
</tr>
<tr>
<td>wax candle</td>
<td>✘</td>
<td>✘</td>
<td>✘</td>
</tr>
<tr>
<td>wooden rolling pin</td>
<td>✘</td>
<td>✓</td>
<td>✘</td>
</tr>
<tr>
<td>plastic food wrap</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>glass</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(b) Aluminium foil is flexible.

Give ONE use of aluminium foil in the kitchen where it is important that the foil is flexible.
(c) Layla knows some changes are reversible.

Tick THREE boxes to show which changes are reversible.

- cooling water
- cooking bread
- boiling an egg
- freezing water into ice
- mixing vinegar with bicarbonate of soda
- burning a candle
- dissolving salt in water

(d) Layla watches some water boiling near a window. The picture shows what she can see on the window.

(i) Write the missing label for the picture below by choosing from the words in the box below.

- water vapour
- condensation
- steam
- smoke

(ii) Why does the level of the water inside the saucepan go down if the water continues to boil?

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(a) When Jon bites a piece of apple, there is a force from Jon’s teeth on the apple.

(i) Draw **ONE** arrow on the picture below to show the direction of the force from Jon’s **bottom** teeth when he bites the apple.

(ii) Label the main type of tooth Jon uses to bite the apple.
(b) Jon visits the dentist regularly to help stop tooth decay.

Describe **ONE other** way Jon can help stop tooth decay.

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(c) Jon looks around the dentist's surgery. He can see the following objects.

**Tick ONE** box to show which object light passes through best.

- mirror
- glass
- pencil
- coat

(d) The dentist uses a lamp to see Jon's teeth clearly.

**Draw TWO** arrows on the diagram below to show the direction light travels for the dentist to see Jon's teeth.

![Diagram showing light path from lamp to Jon's teeth]
(a) Safara wants to find out what happens when solids are mixed with water.

She adds water to four different solids and stirs the mixtures. After 20 minutes she draws pictures of her results.

The table below names the four solids that Safara mixed with water.

Which solid was in each beaker?
Write A, B, C or D to complete each row of the table.

<table>
<thead>
<tr>
<th>Solid</th>
<th>Beaker</th>
</tr>
</thead>
<tbody>
<tr>
<td>soil</td>
<td></td>
</tr>
<tr>
<td>vitamin tablet</td>
<td></td>
</tr>
<tr>
<td>plastic beads</td>
<td></td>
</tr>
<tr>
<td>salt</td>
<td></td>
</tr>
</tbody>
</table>
(b) Explain what happened to the solid in beaker C.

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4b 1 mark

(c) In which beaker was there a non-reversible change?

Beaker ......................................

4c 1 mark

(d) Safara wants to separate the soil from her mixture of soil and water.

Tick ONE box to show which equipment would be best for separating the soil from the water.

4d 1 mark

(e) Safara wants to separate the salt from her mixture of salt and water.

Describe how Safara could get solid salt back from the salt and water mixture.

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4e 1 mark

Total
(a) Aysha has three different types of bean seed. She wants to find out which bean seed germinates most quickly.

(i) Does using the same type of soil for each bean seed help to make Aysha's test fair?

Tick ONE box.

yes □ no □

(ii) Give a reason for your answer.

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(b) (i) Does using watering cans of the same colour for each bean seed help to make Aysha’s test fair?

Tick ONE box.

yes [ ] no [ ]

(ii) Give a reason for your answer.

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(c) The table shows some of the factors in Aysha’s investigation.

Complete the table to show how Aysha should carry out her investigation. Tick ONE box in each row.

<table>
<thead>
<tr>
<th>Factor to be changed</th>
<th>Factor to be kept the same</th>
<th>Result to be measured</th>
</tr>
</thead>
<tbody>
<tr>
<td>the type of bean seed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>the time taken for the seed to germinate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>the place where the seeds are left</td>
<td></td>
<td></td>
</tr>
<tr>
<td>the type of pot the seed is grown in</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(d) Sarah thought it would be better if Aysha used more than one of each type of bean.

How could using more than one of each type of bean improve Aysha’s investigation?

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(a) Some children hit the prongs of a tuning fork on a desk. It makes a sound.

What happens to the prongs so that the tuning fork makes a sound?

(b) What happens to the sound made by the tuning fork if they hit the prongs harder?

(c) When the tuning fork is not touching the desk, the sound is quiet. When it touches the desk, the sound becomes louder.

Tick ONE box next to each question to show what the sound travels through to reach the children’s ears.

<table>
<thead>
<tr>
<th>What does the sound travel through when...</th>
<th>desk</th>
<th>air</th>
<th>both</th>
</tr>
</thead>
<tbody>
<tr>
<td>...the tuning fork is not touching the desk?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>...the tuning fork is touching the desk?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
(a) A **brine shrimp** is a tiny living thing. It lives in lakes and eats **algae** (green plants).

(b) Write the food chain for the three living things described above.

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(c) The lakes dry up in hot weather and fill up again when it rains. When the lake is dry the adult brine shrimps die, but the eggs do not.

Explain why it is important to the life cycle of brine shrimps that the eggs do **not** die when the lake dries up.

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**Total** 15
Materials used to keep drinks hot are called insulators.

You are asked to plan your own investigation to compare different kinds of insulating materials used to keep drinks hot.

You can plan to use any equipment and as many different kinds of insulating materials as you need.

Write a short draft in the box of the question YOU plan to investigate.

Use your draft to help you answer the questions on the next page.
(a) What **ONE** factor will you plan to change as you carry out your investigation?

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(8a) 1 mark

(b) Give **ONE** factor you will keep the same to make your test fair.

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(8b) 1 mark

(c) What factor will you observe or measure to collect your results?

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(8c) 1 mark

(d) Think of another investigation into ‘keeping drinks hot’.

What factor will you change as you carry out your new investigation?

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(8d) 1 mark

Total
(a) Dan is making bread. This is how he does it.

Dan wants to find out why yeast is used to make some types of bread. He carries out a test.
He makes one loaf of bread with yeast and one loaf without yeast.

Look at the pictures of Dan's test.

What is the effect of yeast in bread making?
(b) Dan wants to know if the water temperature makes a difference to the bread. He sets up a new test using two mixtures.

Which ingredients should go in each mixture to test if the temperature of the water makes a difference?

Tick as many boxes as you need.

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Mixture 1</th>
<th>Mixture 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>flour</td>
<td></td>
<td></td>
</tr>
<tr>
<td>yeast</td>
<td></td>
<td></td>
</tr>
<tr>
<td>sugar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>warm water</td>
<td></td>
<td></td>
</tr>
<tr>
<td>cold water</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(c) The yeast Dan uses is made up of lots of micro-organisms.

Write true or false next to each statement below about micro-organisms.

Micro-organisms...

- are very small. ...............................  
- cannot reproduce. ............................
- need nutrients. ..............................
- can grow. .................................