READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name in the spaces at the top of this page.
Write in dark blue or black pen.

DO NOT WRITE IN ANY BARCODES.

Answer all questions.

The number of marks is given in brackets [ ] at the end of each question or part question.
You should show all your working in the booklet.
The total number of marks for this paper is 50.
1. The pictures show some living things found in a desert.

- ant
- plant
- lizard
- snake

(a) Draw arrows (→) between the pictures to make a food chain.

(b) Name the producer in this food chain.

..................................................................................................................................................................
(c) The producer uses energy. Where does it get its energy from? Tick (✓) one box.

- food
- rain
- soil
- Sun
- wind

(d) Name one predator in this food chain.

(e) Use one word to complete the sentence.

plant  predator  prey  producer

An animal being hunted by another animal is the ________________________
Felipe investigates four water samples.

He measures the melting point and the boiling point of each water sample.

Here are his results.

<table>
<thead>
<tr>
<th>water sample</th>
<th>melting point in °C</th>
<th>boiling point in °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>-10</td>
<td>108</td>
</tr>
<tr>
<td>B</td>
<td>0</td>
<td>100</td>
</tr>
<tr>
<td>C</td>
<td>-2</td>
<td>102</td>
</tr>
<tr>
<td>D</td>
<td>-5</td>
<td>104</td>
</tr>
</tbody>
</table>

(a) Water sample A is salt solution.

Which water sample is pure water?

-------------------------------------------------------------------------------------------------------------------------------------

Explain how you could tell from the information in the table.

------------------------------------------------------------------------------------------------------------------------------------- [2]

(b) Complete the sentence about melting.

Choose words from the list.

solid  '  liquid  '  gas

During melting a ...................................... changes into a  ....................................  [1]
(c) Complete the sentence about boiling.

Choose words from the list.

solid     liquid     gas

During boiling a ................................ changes into a ................................ [1]

3 For thousands of years people have studied the movement of the Earth and Moon.

(a) Which of the following takes 24 hours?

Tick (✓) one box.

One full rotation of the Earth on its axis  [ ]
One orbit of the Earth around the Sun  [ ]
One orbit of the Moon around the Earth  [ ]

[b) The shadow on a sundial can be used to tell the time during the day.

What two things change about the shadow during the day?

1. .................................................................

2. ................................................................. [2]
4 Class four are looking at a diagram of the human arm.

(a) What are biceps and triceps?

(b) To make the arm move the biceps and triceps either relax or contract.

Write contract or relax after biceps and triceps to say what is happening in each diagram.
5 We cannot always see the full Moon in a cloudless night sky.

(a) What is the reason for this? Complete the sentence.

We only see the part of the Moon that ............................................................. light from the .............................................................

(b) At night time, we cannot see the Sun in the sky.

What causes this to happen?

Tick (✓) one box.

- The Earth spins on its axis.
- The Sun moves round the Earth.
- The Moon blocks the Sun.
- The Earth moves round the Sun.
6 Tomas and Jakub investigate electrical conductors.

They put different materials in an electric circuit.

(a) They keep the length of the material the same each time.

Why do they do this?

(b) Draw the circuit diagram for this experiment.

Choose the correct symbols from those shown.

- [Diagram of circuit symbols]
(c) Tomas and Jakub measure the brightness of the lamp for each material they test.

Here is their scale for lamp brightness.

| no light | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | bright light |

Here are their results.

<table>
<thead>
<tr>
<th>material</th>
<th>lamp brightness</th>
</tr>
</thead>
<tbody>
<tr>
<td>brass</td>
<td>4</td>
</tr>
<tr>
<td>copper</td>
<td>9</td>
</tr>
<tr>
<td>wood</td>
<td>0</td>
</tr>
<tr>
<td>silver</td>
<td>10</td>
</tr>
<tr>
<td>plastic</td>
<td>0</td>
</tr>
<tr>
<td>lead</td>
<td>3</td>
</tr>
</tbody>
</table>

Draw a bar chart of their results.
(d) Which material is the best electrical conductor?

................................................................................................................................................. [1]

(e) Name one material that does not conduct electricity.

......................................................................................................................................................... [1]

7 A ball rolls along the ground.
It has energy because it is moving.

(a) The ball rolls faster.
What has happened to the amount of energy it has now?

Circle the correct answer.

increases decreases stays the same [1]

(b) The ball rolls slower.
What has happened to the amount of energy it has now?

Circle the correct answer

increases decreases stays the same [1]

(c) The ball stops moving.
What has happened to the amount of energy it has now?

Circle the correct answer.

increases decreases stays the same [1]
Humans can have positive and negative effects on the environment.

(a) From the list choose three things that are positive effects.

Tick (✓) three boxes.

- protecting habitats
- overfishing
- removing trees
- recycling
- not littering

(b) Another negative effect is 'loss of species'.

What does 'loss of species' mean?

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

[2]

[1]
9  (a) Draw a line to connect the word and the explanation.

<table>
<thead>
<tr>
<th>word</th>
<th>explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>soluble</td>
<td>a solid that does not dissolve in a liquid</td>
</tr>
<tr>
<td>insoluble</td>
<td>a solid that dissolves in a liquid</td>
</tr>
<tr>
<td>solvent</td>
<td>a liquid that dissolves a solid</td>
</tr>
</tbody>
</table>

(b) Complete the sentence.

Some solids dissolve in water to form a

10 Look at these pictures of apparatus A, B and C.

- bar magnet A
- filter paper in funnel B
- water C

(a) Which apparatus would you use to separate sand from water?

........................................................................................................... [1]

(b) Which apparatus would you use to separate a mixture of sand and iron filings?

........................................................................................................... [1]
11 A magnet is moved close to four objects.

Tick (✓) the correct boxes to show what happens.

<table>
<thead>
<tr>
<th>object</th>
<th>attract</th>
<th>repel</th>
<th>no effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>plastic straw</td>
<td>N</td>
<td>S</td>
<td></td>
</tr>
<tr>
<td>magnet</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>magnet</td>
<td>S</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>iron nail</td>
<td>N</td>
<td>S</td>
<td></td>
</tr>
<tr>
<td>magnet</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>candle</td>
<td>N</td>
<td>S</td>
<td></td>
</tr>
<tr>
<td>magnet</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

12 The foot bones of the skeleton grow as humans grow.

(a) Why do foot bones need to grow as humans get older?

(b) The length of a foot can be measured.

What piece of apparatus do you use to measure the length of a foot?

length of foot

...........................................................................................................
13 Minahil wants to separate a mixture of salt and sand.

The diagram shows the steps she uses.

They are not in the correct order.

(a) Put the steps in the correct order.

Two have been done for you.

A | E

[2]

(b) Which solid substance is on the filter paper in step E?

........................................................................................................................................[1]
(c) Steps B and F are processes.

Draw a line between the step and the process that happens.

**Step**

- Heat

**Process**

- Condensation
- Dissolution
- Evaporation
- Filtration
14 The pie chart shows some of the waste produced by humans.

Use the pie chart to answer the questions.

(a) The largest amount of waste produced is ........................................ [1]

(b) Some of these waste products can be decomposed.

Name two.

........................................................................ and ........................................ [1]

(c) Suggest how the amount of waste glass can be reduced.

.................................................................................................................... [1]