Cambridge Assessment International Education

Science

Stage 9

Paper 1

2025

Cambridge Lower Secondary Progression Test

Name

Class

Date

45 minutes

No additional materials are needed.

INSTRUCTIONS

- Answer **all** questions.
- Write your answer to each question in the space provided.
- You should show all your working on the question paper.

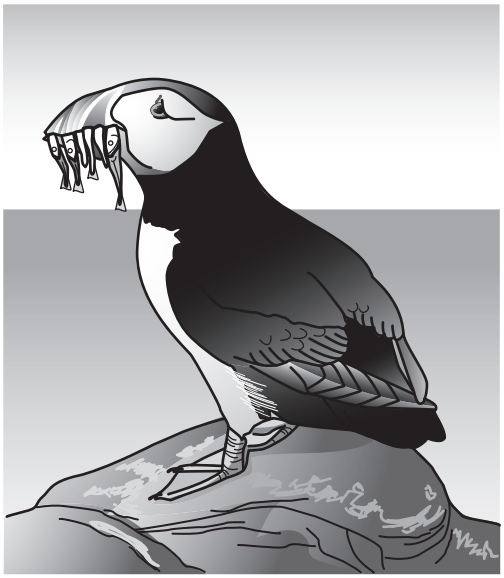
INFORMATION

- The total mark for this paper is 50.
- The number of marks for each question or part question is shown in brackets [ ].

1 Puffins are birds.

During the winter puffins live at sea.

Puffins return to land to lay their eggs.



(a) Puffins feed on fish that live in sea water.

This sea water is very cold.

If the temperature of the sea water increases the fish move away.

Predict what happens to the population of puffins if the temperature of the sea water increases.

Explain your answer.

prediction .....

explanation .....

.....

[2]

(b) Humans introduce predators to the area where the puffins lay their eggs.

Explain the effect of introducing these predators on the population of puffins.

.....

.....

[1]

2 Look at the electronic structures of the atoms of some elements, **A**, **B**, **C**, **D** and **E**.

A 2.7

B 2.8.7

C 2.4

D 2

E 2.8.8.2

Write letters to answer the questions about these elements.

You may use each letter once, more than once or not at all.

(a) Which element is in **Period 4** of the Periodic Table?

..... [1]

(b) Which element is in **Group 4** of the Periodic Table?

..... [1]

(c) Which **two** elements are in the **same group** of the Periodic Table?

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

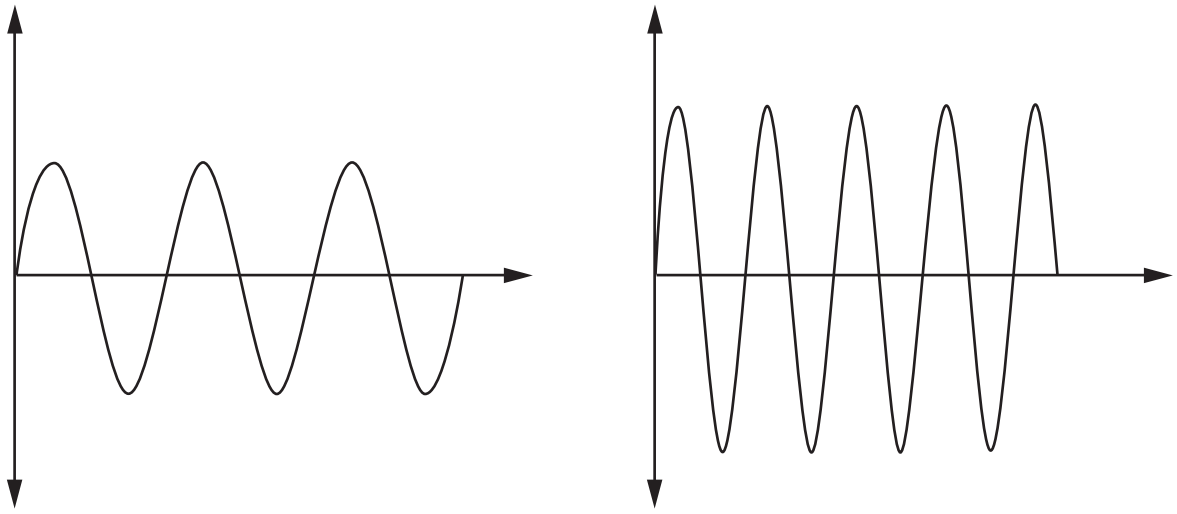
(d) Which **two** elements are in the **same period** of the Periodic Table?

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

3 A car has sensors that make a sound.

The sound changes the closer the car gets to an object.

Look at the diagram of two waveforms for the sound made by the sensors.



waveform when car is **far** from an object

waveform when car is **close** to an object

Describe how the sound from the sensors changes as the car gets closer to an object.

Explain your answer using information from the waveforms.

description .....

.....

.....

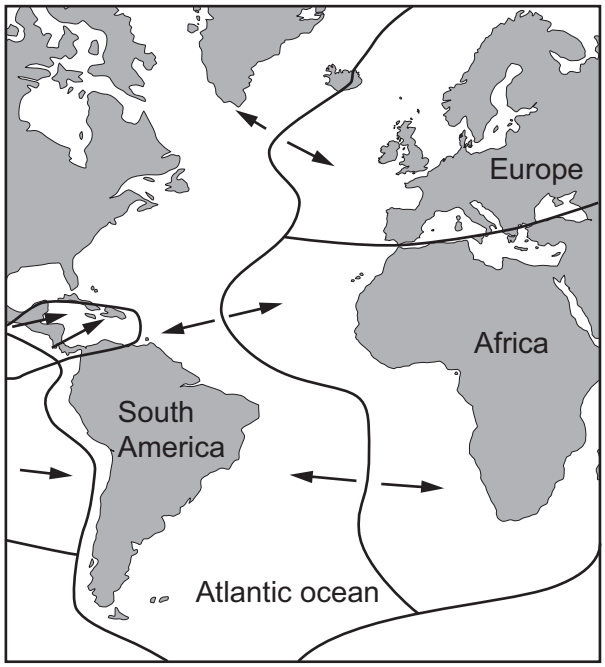
explanation .....

.....

.....

[3]

4 Look at the diagram of the Atlantic Ocean and the tectonic plate movements.



The tectonic plates move.

(a) Complete the sentence.

Tectonic plates move because of ..... in the mantle. [1]

(b) The coast of South America and the coast of Africa have a jigsaw appearance.

This is evidence for tectonic plates.

Write down **two other** pieces of evidence for tectonic plates.

1 .....

.....

2 .....

.....

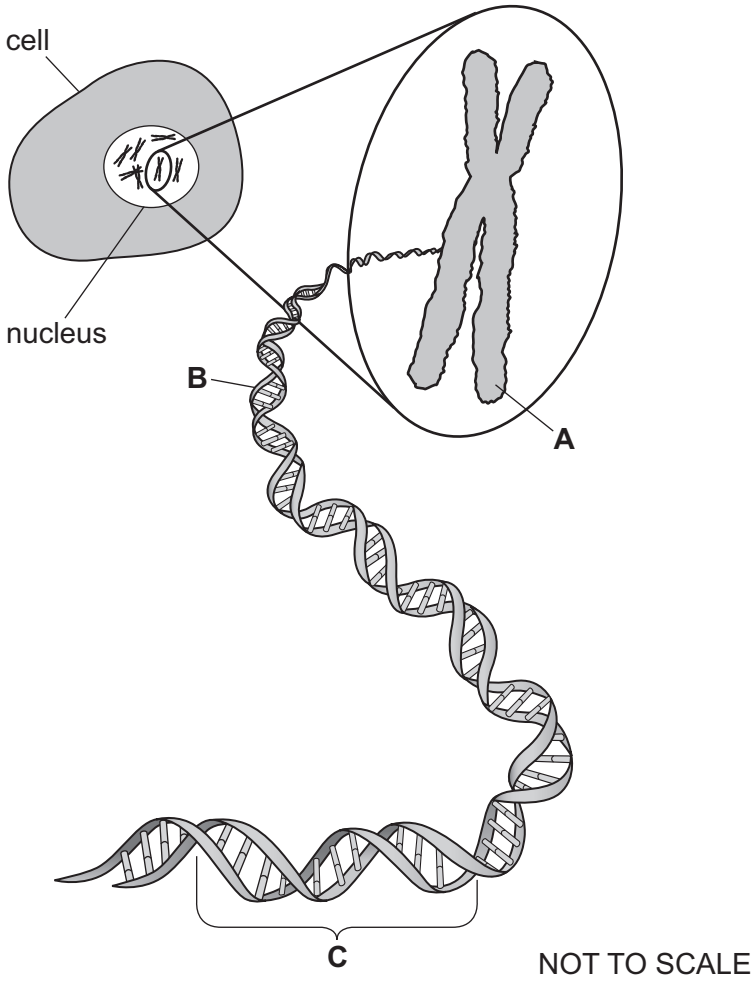
[2]

(c) The distance between the coast of South America and the coast of Africa is increasing.

Explain why.

..... [1]

5 The diagram shows a cell and the components of the nucleus of the cell.



(a) Name structure **A**, structure **B** and structure **C**.

A .....

B .....

C .....

[3]

(b) Name the structure that determines the characteristics of an organism.

..... [1]

6 The table shows some properties of some elements in Group 1 of the Periodic Table.

The elements are in the same order as the Periodic Table.

element	melting point in °C	boiling point in °C	atomic radius in pm
sodium	98	883	180
potassium	64	760	220
rubidium	39	[redacted]	235
caesium	28	671	267

(a) Write down the name of **one other** Group 1 element.

.....[1]

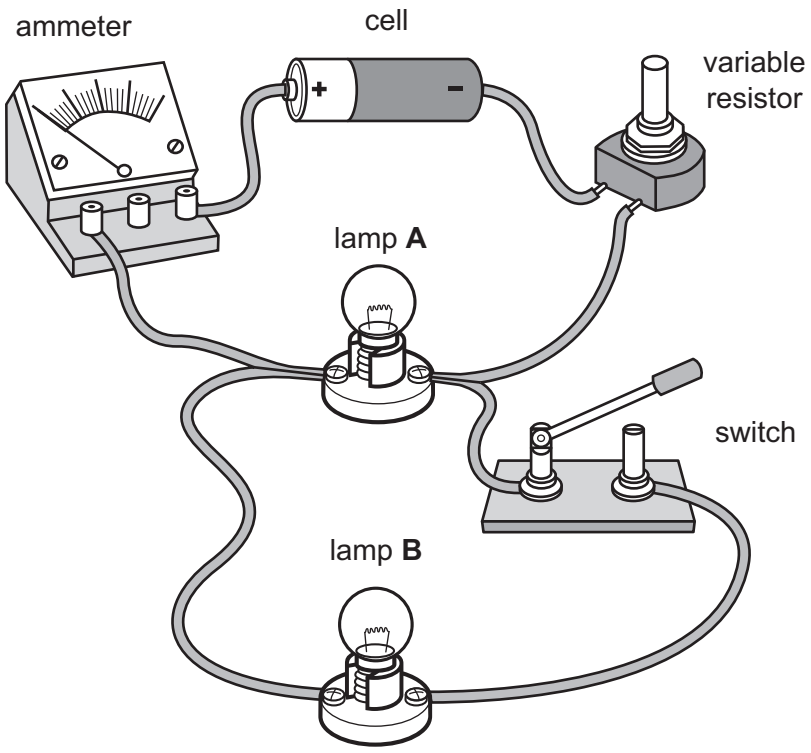
(b) Predict the boiling point of rubidium.

boiling point of rubidium = ... °C [1]

(c) Describe how the atomic radius of the elements changes down Group 1.

.....[1]

7 Mia makes a parallel electrical circuit using two identical lamps.



(a) Mia closes the switch.

The ammeter has a reading of 4 A.

Complete the sentences.

The current through lamp **A** is ..... A.

The current through lamp **B** is ..... A.

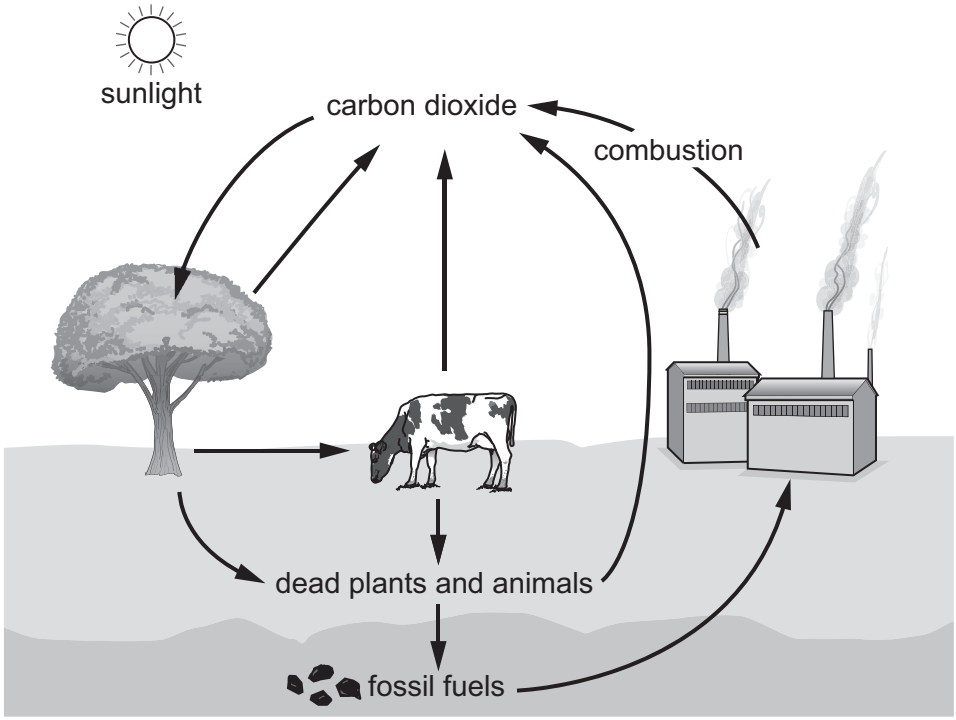
[1]

(b) Complete the circuit diagram of her circuit.

Use standard electrical symbols.

[3]

8 Look at the diagram of the carbon cycle.



Combustion of fossil fuels **releases** carbon dioxide into the atmosphere.

Name **two other** processes that release carbon dioxide into the atmosphere.

1 .....

2 .....

[2]

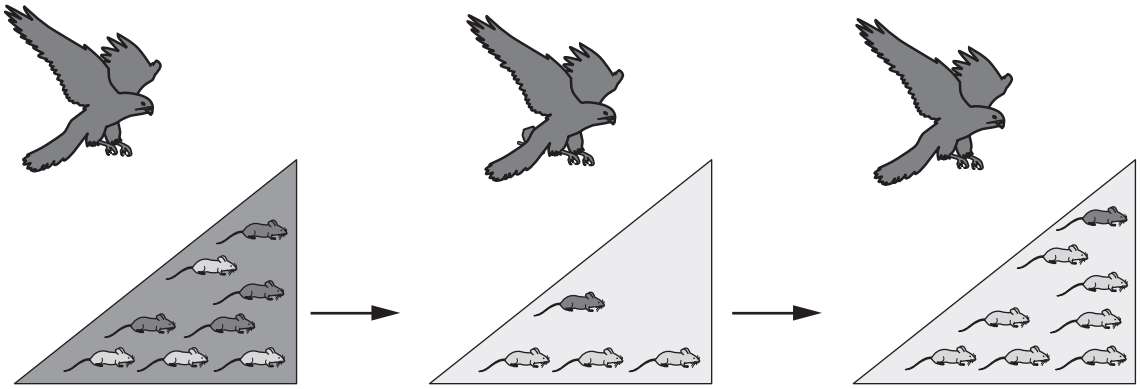
9 Eagles are birds that feed on mice.

Mice are either dark in colour or light in colour.

A population of mice move from an area with ground that is dark in colour to an area with ground that is light in colour.

The diagram shows how the population of mice that are:

- dark in colour changes over time
- light in colour changes over time.



ground that is dark in colour ground that is light in colour ground that is light in colour

Complete the sentences about the **change** in population of mice over time.

The population of mice that are dark in colour .....

The population of mice that are light in colour .....

Explain your answer.

Use ideas about natural selection.

.....

.....

.....

.....

.....

[4]

10 Blessy makes pure dry zinc sulfate crystals.

She reacts insoluble zinc carbonate with dilute sulfuric acid.

Describe the experiment Blessy does to make pure dry zinc sulfate crystals.

.....

.....

.....

.....

..... [3]

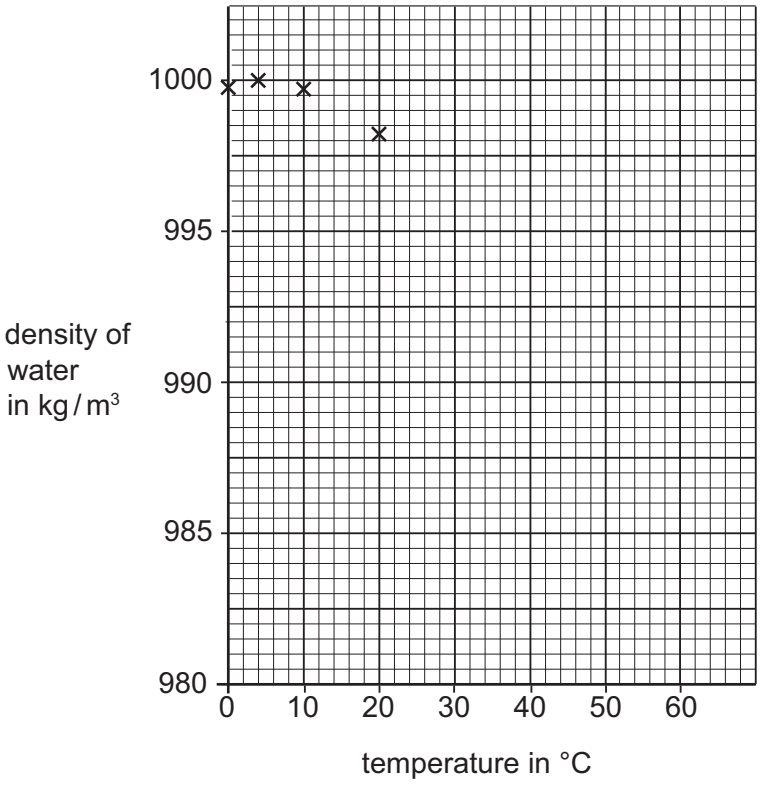
11 Carlos collects information about the density of water at different temperatures.

temperature in °C	**density in kg / m^3**
0	999.8
4	1000.0
10	999.7
20	998.2
30	995.7
40	992.2
60	983.2

(a) Carlos starts to plot a graph.

Complete the graph of the information in the table by:

- plotting the results for 30 °C, 40 °C and 60 °C
- drawing a smooth curve through the points.



[2]

(b) Ice has a density of 918 kg / m^3 at 0 °C.

Complete the sentence to explain if ice will float or sink when dropped in 0 °C water.

Use data from the table in your answer.

The ice will ..... because .....

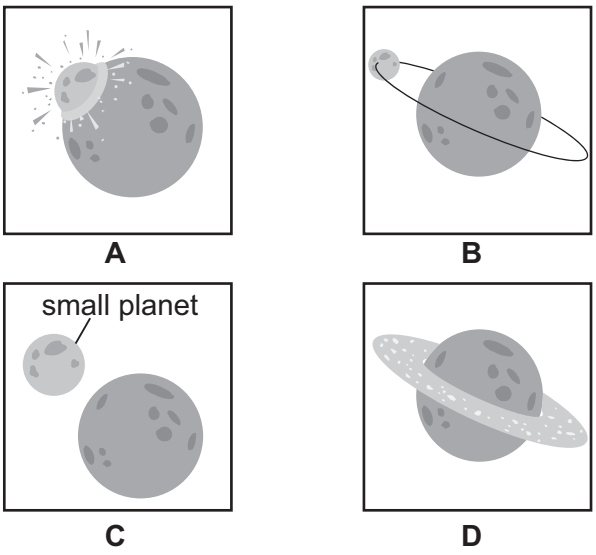
.....

.....

..... .

[2]

12 Pierre draws four diagrams to describe the collision theory for the formation of the Moon.



(a) Complete the table by:

- writing the **letter** of each diagram in the **correct order**
- writing a **description** of what each diagram shows in the collision theory for the formation of the Moon.

letter	description
.....	.....
.....	.....
.....	.....
.....	.....

[3]

(b) Describe **one** piece of evidence for the collision theory for the formation of the Moon.

.....

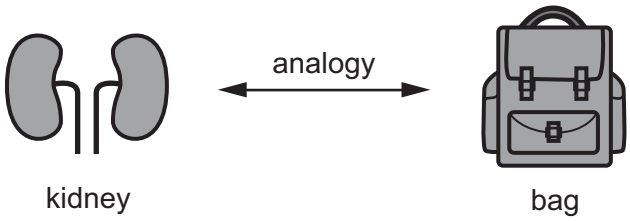
..... [1]

13 A teacher describes the function of the kidneys using an analogy.

'When kidneys clean the blood, it is like cleaning the contents of a bag.

All the contents are removed from the bag to be cleaned.

The useful contents are put back into the bag.'



Describe the **one strength** and **one limitation** of this analogy about the kidneys.

strength .....

.....

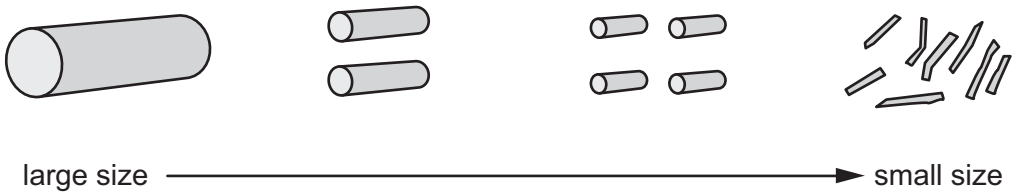
limitation .....

.....

[2]

14 Angelique collects some wood.

She sorts the wood into samples of different sizes.



Angelique investigates which sample of wood burns the fastest.

She writes a hypothesis.

(a) Suggest the hypothesis Angelique writes.

Give a scientific reason for your answer.

I think .....

.....

because .....

.....

.....

[2]

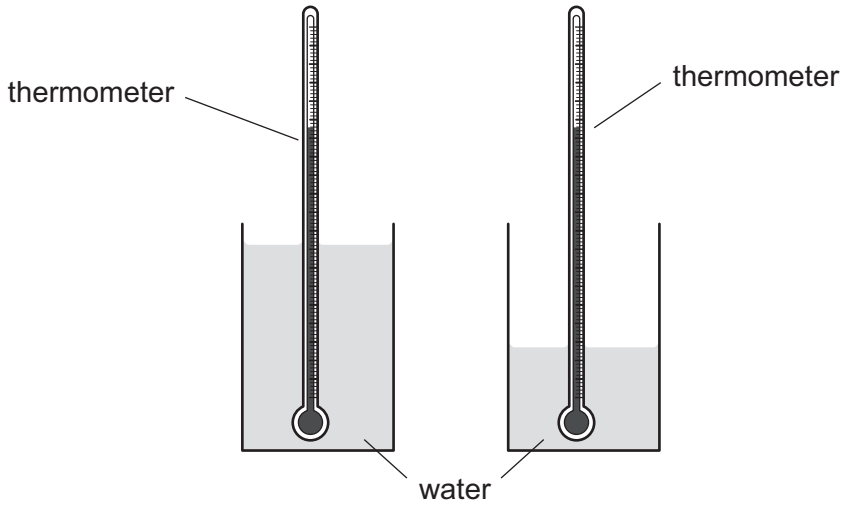
(b) Suggest **two** measurements Angelique makes to test her hypothesis about which sample of wood burns fastest.

1 .....

2 .....

[2]

15 Yuri draws a model to help explain the difference between heat and temperature.



Yuri says:

'My model is good because I can see similarities and differences.'

(a) The temperature of water is the **same** in each beaker.

Describe how the model shows the temperature is the same.

.....

..... [1]

(b) The heat content of water is **different** in each beaker.

Describe how the model shows this difference.

.....

..... [1]