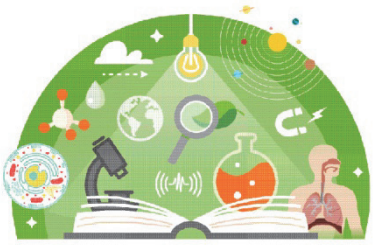
CAMBRIDGE
International Education



Science

Stage 9

Paper 2 **2026**

Cambridge Lower Secondary Progression Test

Name

Class

Date

45 minutes

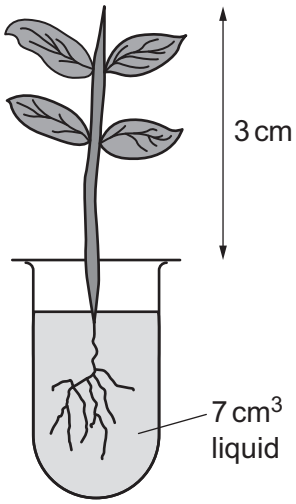
No additional materials are needed.

INSTRUCTIONS
- Answer **all** questions.
- Write your answers 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 Mike investigates the minerals that plants need to maintain healthy growth.

The diagram shows the equipment Mike uses.



Look at the plan Mike uses.

- Take five identical plants.
- Put each plant into 7 cm^3 of five different liquids, **A** to **E**.
- Each liquid, **A** to **E**, contains different types of nutrients.
- Let the plants grow for five weeks.

At the start of the investigation, each plant has a height of 3 cm and has four leaves.

(a) (i) Suggest **two other** variables that Mike controls in his investigation

1 .....

2 .....

[2]

(ii) Write down the **independent** variable in this investigation.

..... [1]

(b) The table shows the observations Mike makes after five weeks.

	observation		
liquid	**height of plant in cm**	**number of leaves**	**appearance of leaves**
A	4.5	4	green
B	5.0	4	yellow
C	6.0	5	yellow
D	6.0	5	green
E	3.5	2	yellow

(i) One of the liquids is pure water.

Pure water does **not** contain any nutrients.

Mike writes this conclusion.

'Liquid E is pure water.'

Do the observations support this conclusion?

Circle the correct answer.

yes **no**

Explain your answer.

.....

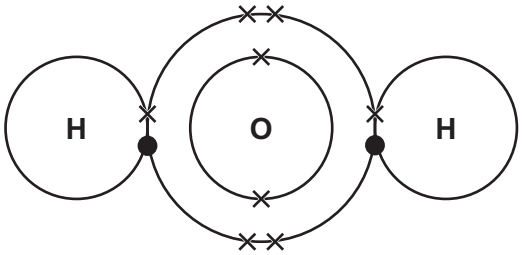
.....

[1]

(ii) Circle which liquid contains the **best** nutrients for plant growth.

A **B** **C** **D** [1]

2 Look at the diagram of the structure of water.

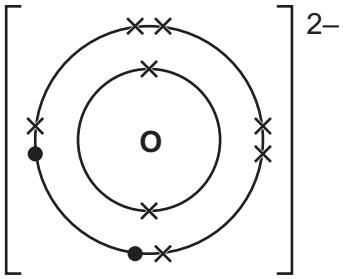


(a) Complete the sentence.

Two hydrogen atoms and one oxygen atom chemically joined together make a water ..... . [1]

(b) Circle **one** covalent bond on the diagram of the structure of water. [1]

(c) Look at the electronic structure of an oxide ion, O^{2-}.



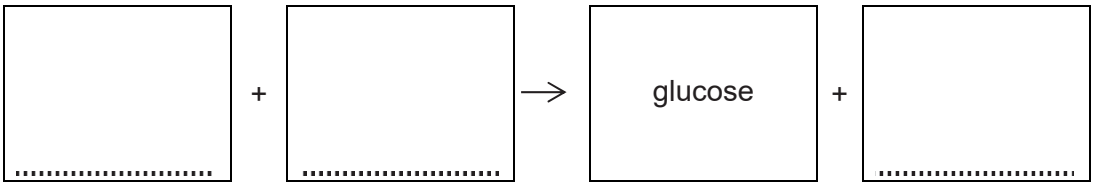
Describe how an oxygen atom makes an oxide ion.

.....

..... [1]

3 Photosynthesis is the process by which plants make glucose.

(a) Complete the **word** equation for photosynthesis.



[1]

(b) Photosynthesis happens in the palisade cells of a leaf.

Name the part of the palisade cell where photosynthesis happens.

..... [1]

(c) Name the chemical that gives plant leaves their green colour.

..... [1]

(d) Mia puts a green plant in a dark room.

Explain why the plant does **not** make glucose.

..... [1]

4 A lump of sodium chloride has a mass of 20.0 g.

The lump has a volume of 9.2 cm^3.

(a) Write down the equation to calculate density.

..... [1]

(b) Calculate the density of the lump of sodium chloride.

Include the unit of density in your answer.

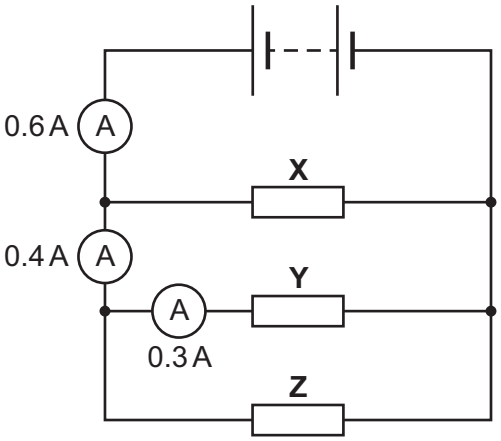
density = ... unit = ... [2]

5 Blessy makes an electrical circuit.

The circuit has:

- a battery of cells
- three different resistors **X**, **Y**, and **Z**
- three ammeters.

The diagram shows the readings on the ammeters.



(a) What is the current in resistor **X**?

current = ... A [1]

(b) What is the current in resistor **Z**?

current = ... A [1]

(c) The voltage across resistor **Y** is 12 V.

Calculate the resistance of resistor **Y**.

Include the unit of resistance.

resistance = ... unit = ... [3]

(d) Blessy wants to increase the total current in her circuit.

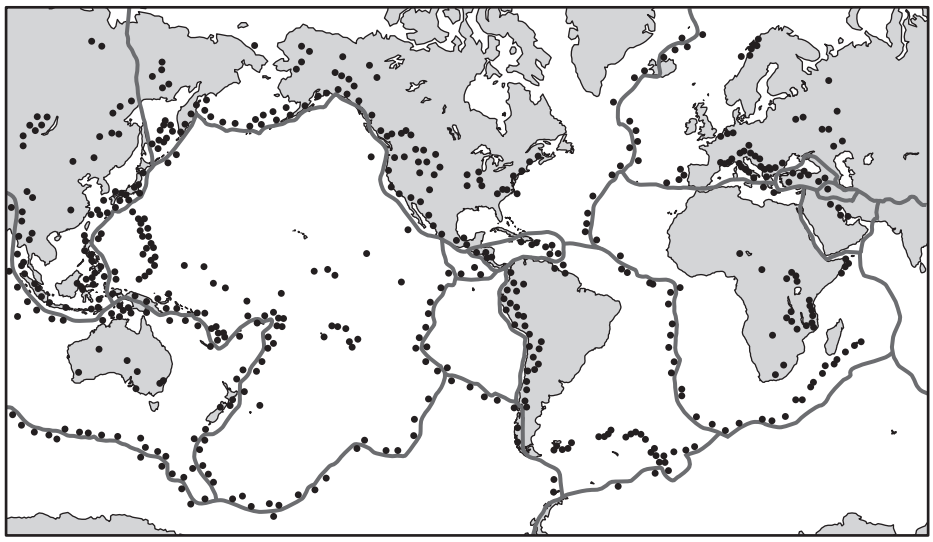
What electrical component does she add to her circuit?

..... [1]

6 This question is about tectonic plates.

(a) Look at the map.

key
tectonic plate boundary ——
earthquake •



Describe **one** piece of evidence for tectonic plates.

Use information from the map.

..... [1]

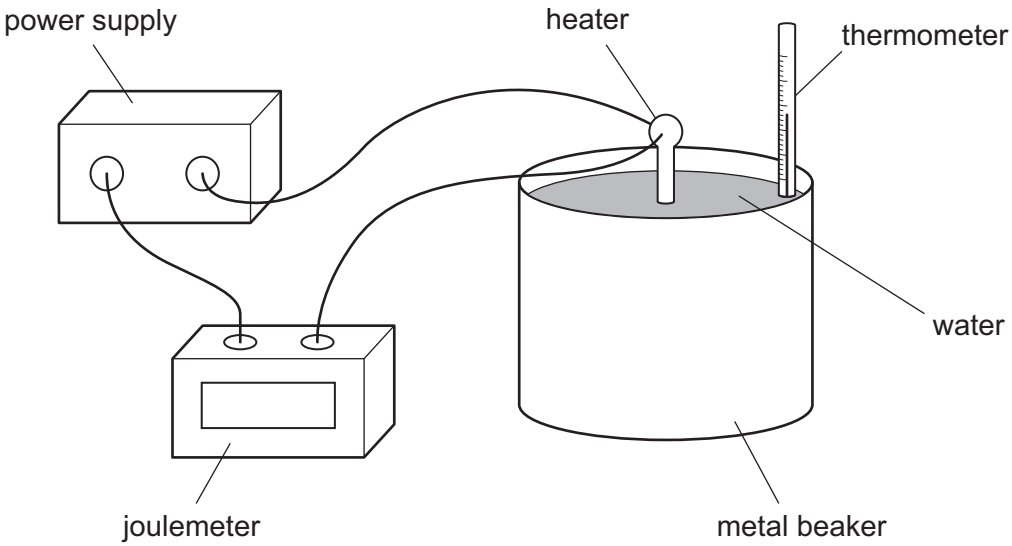
(b) Write down **one other** piece of evidence for tectonic plates.

..... [1]

7 Pierre investigates heating 500 cm^3 of water in a metal beaker.

In his first investigation, Pierre uses a joulemeter to measure how much energy is needed to heat the water from 20 °C to 80 °C.

Look at the equipment Pierre uses.



(a) Describe how **all** of the water in the metal beaker becomes hot by convection.

.....

.....

.....

..... [3]

(b) Pierre repeats his investigation on two more days.

He records the energy needed to heat all of the water from 20 °C to 80 °C.

The room temperature is the same for all three days.

Look at the table of Pierre's results.

day	energy needed in J
1	140 000
2	179 000
3	155 000

(i) State if Pierre's results are precise.

Circle the correct answer.

yes **no**

Explain your answer.

.....

.....

[1]

(ii) Pierre's results are much higher than the true value of the energy needed to heat the water from 20 °C to 80 °C.

Suggest **one** way Pierre makes his investigation more accurate.

.....

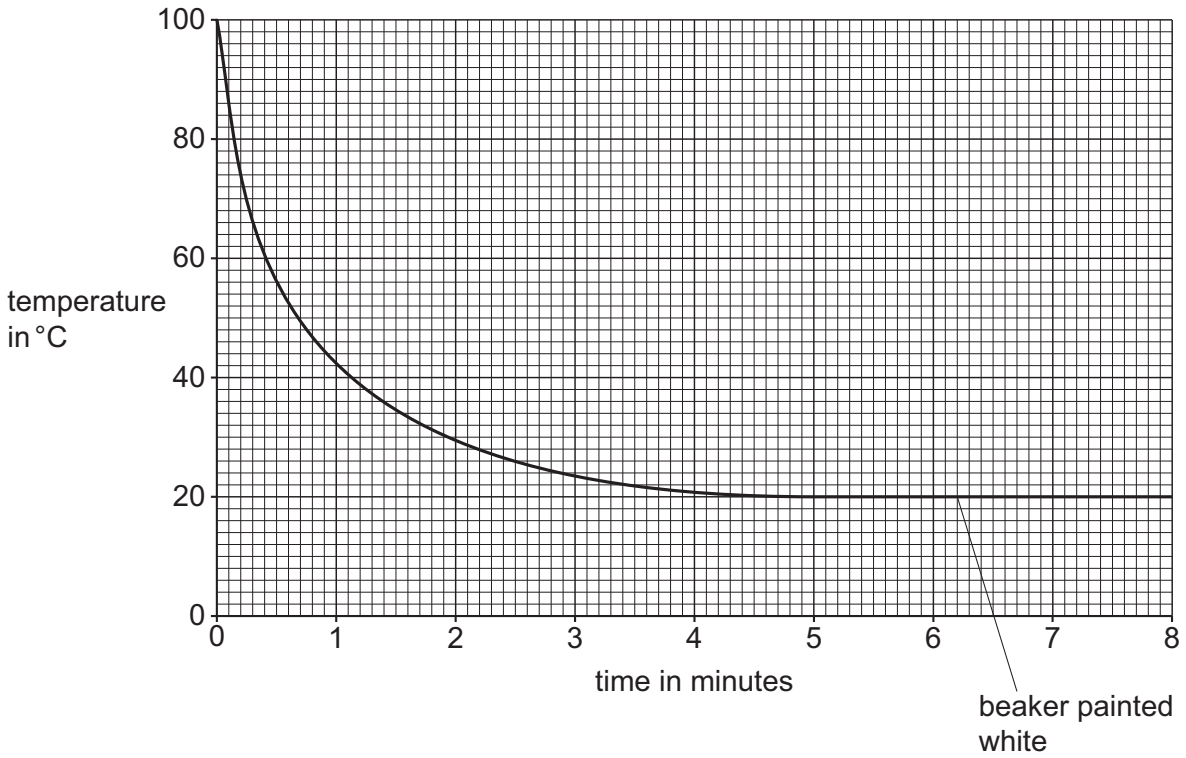
..... [1]

(c) Pierre does a second investigation.

He puts 500 cm^3 of water at 100 °C into a metal beaker which is painted **white**.

He measures the temperature of the water every minute and plots his results on a graph.

Look at the graph of Pierre's results.



Pierre repeats the same experiment on the same day using an identical metal beaker which is painted **black**.

The room temperature is the same for both experiments.

Sketch on the graph the expected curve for the beaker painted black.

[1]

8 This question is about one theory for the formation of the Moon.

Complete the sentence.

Use words from the list.

a collision	**an explosion**	**friction**
Mars	**Jupiter**	**star**
Earth	**planet**	**asteroid**

The Moon was formed by ..... between .....

and a small ..... .

[3]

9 Human females have XX chromosomes.

Human males have XY chromosomes.

Look at the table.

The table shows the inheritance of sex in humans from the chromosomes in a female and the chromosomes in a male.

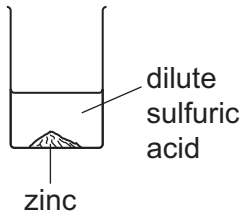
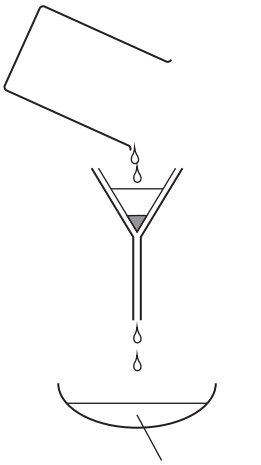
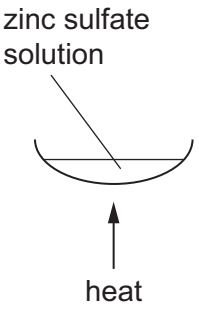
		female			
		X		**X**	
male	**X**	.....	.....	XX	girl
	Y	XY	boy	.....	.....

Complete the table. [2]

10 Mia is making zinc sulfate crystals.

She reacts zinc with dilute sulfuric acid.

Look at the steps in her method.

Step 1	**Step 2**	**Step 3**
Zinc and dilute sulfuric acid are reacted together until no more zinc reacts. Bubbles of hydrogen gas are made.	The reaction mixture is separated to give zinc sulfate solution.	Zinc sulfate crystals are made.
		

(a) Look at **step 1**.

Explain how Mia knows the reaction is finished.

.....

..... [1]

(b) Write down the name of the separation process in **step 2.**

..... [1]

(c) Describe how Mia makes pure dry crystals of zinc sulfate from the zinc sulfate solution in **step 3**.

.....

.....

..... [2]

11 Angelique has three liquids, **A**, **B** and **C**.

She places two solid objects, **D** and **E**, into each liquid.

The table shows the density of each liquid and solid.

liquid or solid	density in kg / m^3
A	1000
B	900
C	1100
D	950
E	1150

Which statements are correct?

Tick (✓) **two** boxes.

Solid **D** floats in liquid **A** and floats in liquid **C**. ☐

Solid **D** floats in liquid **B** and sinks in liquid **A** and liquid **C**. ☐

Solid **D** floats in liquid **A** and sinks in liquid **B**. ☐

Solid **E** floats in liquid **A** only. ☐

Solid **E** floats in liquid **A**, liquid **B** and liquid **C**. ☐

[2]

12 Youssef researches climate change on the internet.

It is important that Youssef knows who wrote the information on the internet.

Write down **two** reasons why.

1 .....

2 .....

[2]

13 Priya investigates the reaction between marble chips and dilute hydrochloric acid.

The reaction makes carbon dioxide gas.

Priya adds 0.5 g of marble chips to 25 cm^3 of dilute hydrochloric acid.

She measures the total volume of carbon dioxide gas made every minute for 4 minutes.

(a) Look at her results.

the volume after 2 minutes is 40 cm^3

25 cm^3 = 1 minute

3 minutes = 48 cm^3

at the start the volume is 0 cm^3

52 cm^3 is the volume after 4 minutes

Priya presents her results in a table.

Complete her table of results.

time in minutes	

[2]

(b) Using dilute hydrochloric acid is a safety risk.

Describe how this safety risk is controlled.

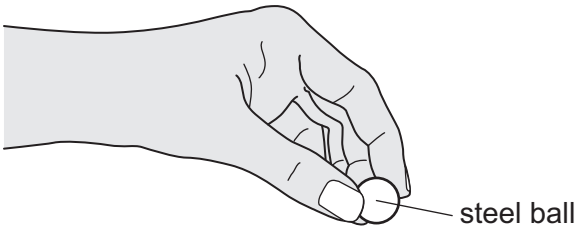
.....

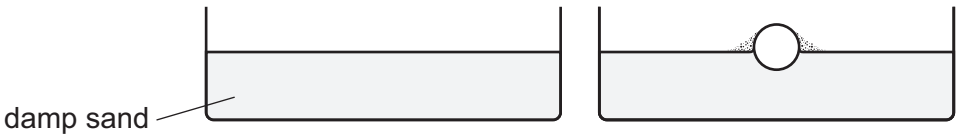
..... [1]

14 Asteroids make a hole called a crater when they hit the surface of the Earth.

Oliver plans an experiment to model how a crater is made when an asteroid hits the surface of the Earth.

Look at the equipment Oliver uses.





before ball is dropped **after ball is dropped**

Oliver wants to investigate if the drop height of the steel ball affects the depth of the crater.

Write down a plan for his investigation.

.....

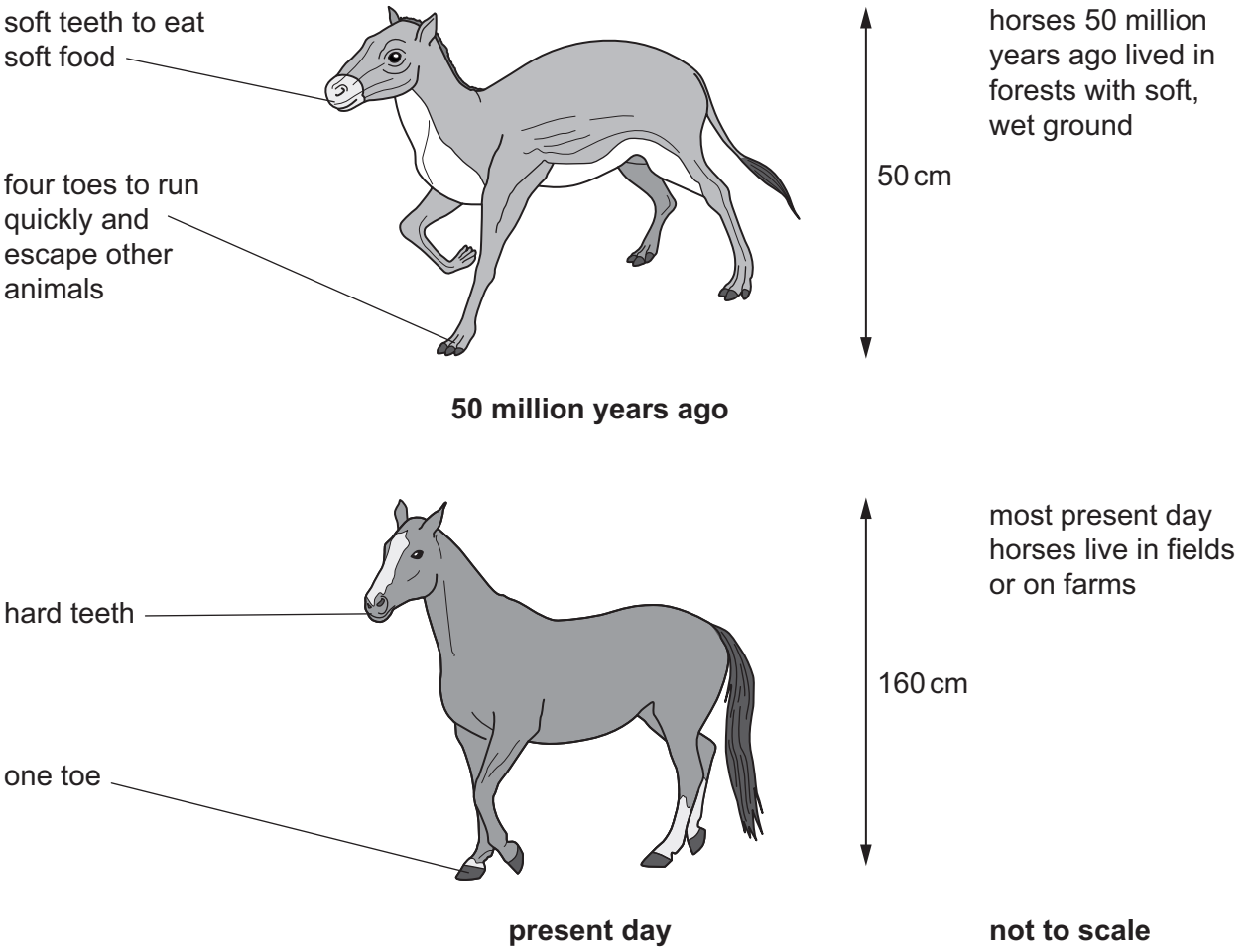
.....

.....

..... [2]

  [Turn over

15 The diagram shows how horses have changed over the last 50 million years.



Explain **three** reasons for the changes shown in the diagram.

Use ideas about natural selection.

1 .....

.....

2 .....

.....

3 .....

.....

[3]

