Cambridge Assessment International Education

Science

Stage 7

Paper 1

2024

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 [ ].

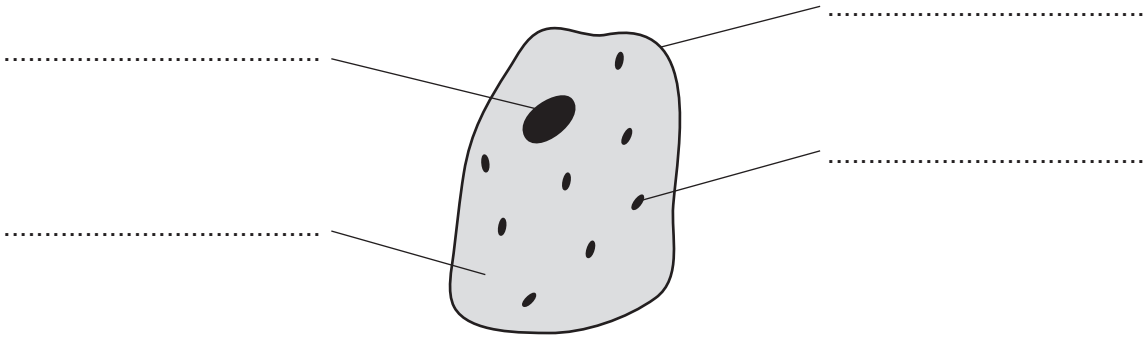
1 This question is about animal and plant cells.

(a) Look at the diagram of an **animal** cell.

Complete the labels on the diagram.

Choose from the list.

cell wall		**chloroplast**
cytoplasm	**mitochondrion**	**nucleus**
cell membrane		**sap vacuole**



[2]

(b) Name **two** cell structures that are **only** found in **plant** cells.

1 .....

2 .....

[2]

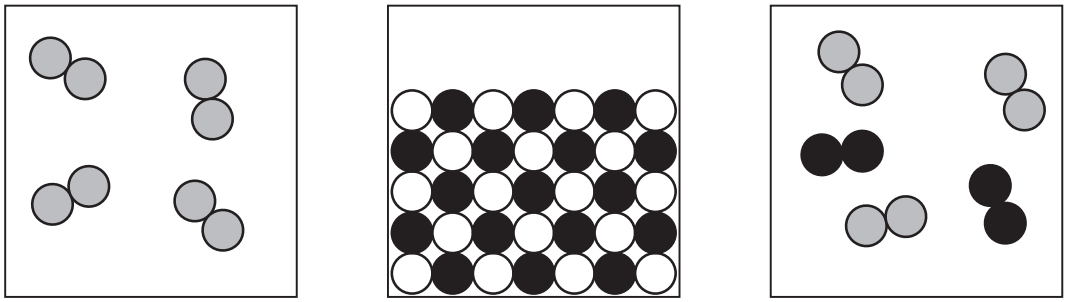
(c) What is the function of mitochondria in cells?

.....

..... [1]

2 Look at the particle models of some substances.

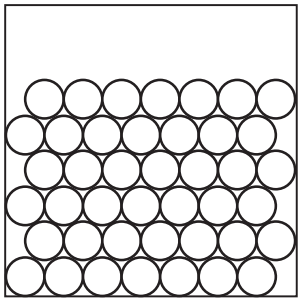
The circles ○, ● and ○ represent different types of atoms.



A

B

C



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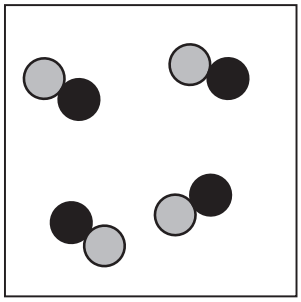

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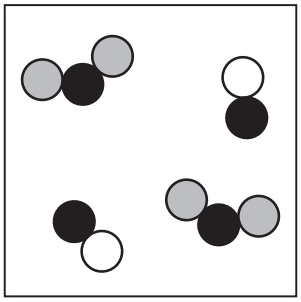


F

(a) Which particle model represents a solid element?

.....

[1]

(b) Which particle models represent pure compounds?

..... and .....

Explain your answer.

.....

.....

.....

[2]

(c) Which particle model represents a mixture of elements?

.....

[1]

(d) Which particle model represents a mixture of compounds?

.....

[1]

(e) Mercury is a liquid at room temperature.

The circle ◯ represents an atom of mercury.

Draw in the box the particle model of mercury at room temperature.

[1]

(f) Steel is an alloy.

Explain the meaning of the word **alloy**.

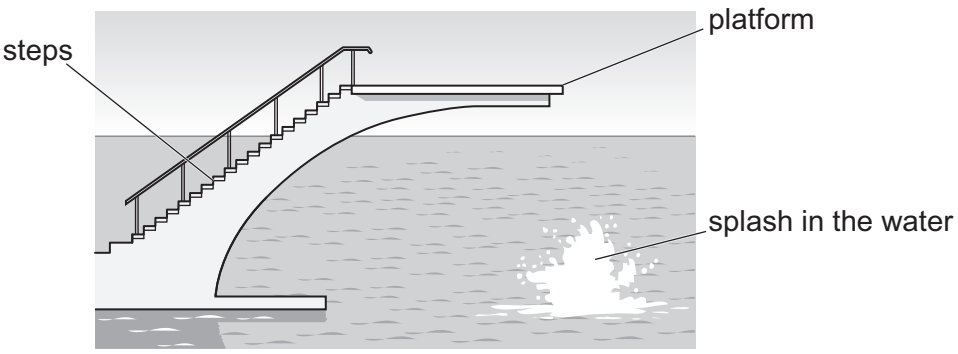
.....

.....

..... [2]

3 During an activity there are changes in energy.

Oliver climbs up the steps, walks along the platform and jumps into the water.



(a) Complete the sentences to describe the changes in energy.

Choose from the list.

chemical **electrical** **sound** **thermal**

When Oliver makes a splash in the water, some of his energy is converted into ..... energy and some into ..... energy.

[2]

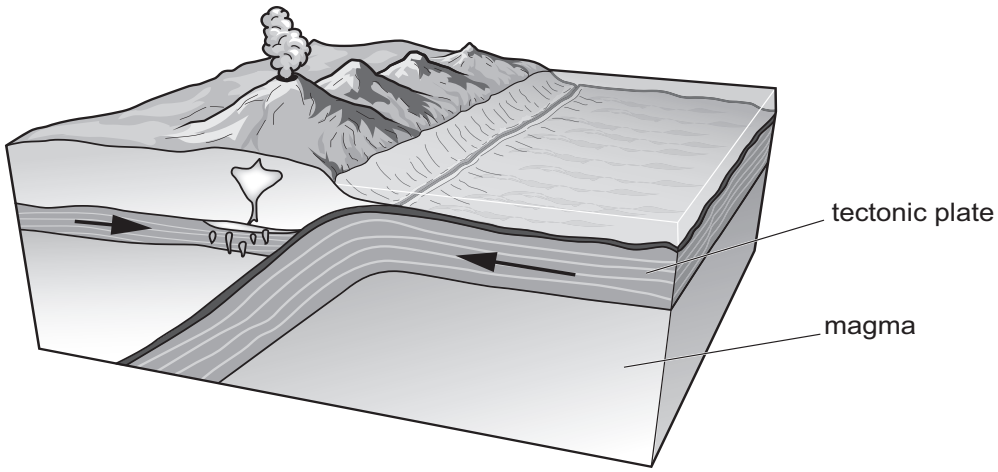
(b) Energy dissipates during an activity.

What does this mean?

.....

..... [1]

4 Look at the diagram of a model of a tectonic plate boundary.



(a) Describe **three** events that occur near this type of tectonic plate boundary.

1 .....

2 .....

3 .....

[3]

(b) Complete the sentences about the model of plate tectonics.

Choose from the list.

atmosphere	**magma**
core	**mantle**
crust	**water**

The solid outer layer of the Earth consists of the .....

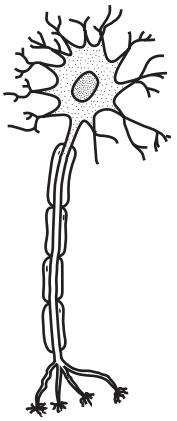
and the upper part of the .....

The solid outer layer of the Earth has tectonic plates that move.

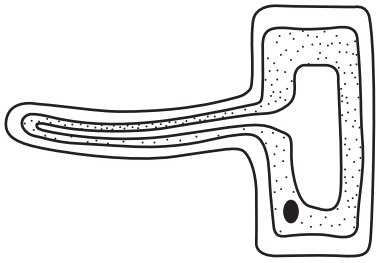
The tectonic plates move because of ..... flow in the mantle.

[2]

5 Look at the diagrams of two specialised cells.



cell **A**



root hair cell

NOT TO SCALE

(a) What is the name of cell **A**?

.....[1]

(b) Explain how the structure of the root hair cell is adapted to its function.

.....

.....

.....

.....

.....[2]

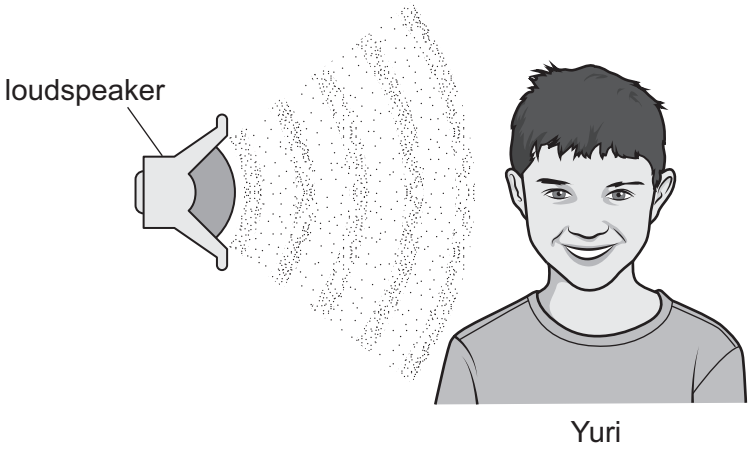
6 Blessy wants to identify some gases.

Draw a straight line to match each **gas** to the correct **test for the gas**.

gas	test for the gas
carbon dioxide	relights a glowing splint
hydrogen	turns limewater milky
oxygen	burns with a squeaky pop when ignited with a burning splint

[2]

7 Yuri draws a diagram to show how he hears the sound made by a loudspeaker.



The dots in the diagram represent air particles.

(a) Describe what happens to air particles when the loudspeaker makes a sound.

.....

.....

.....

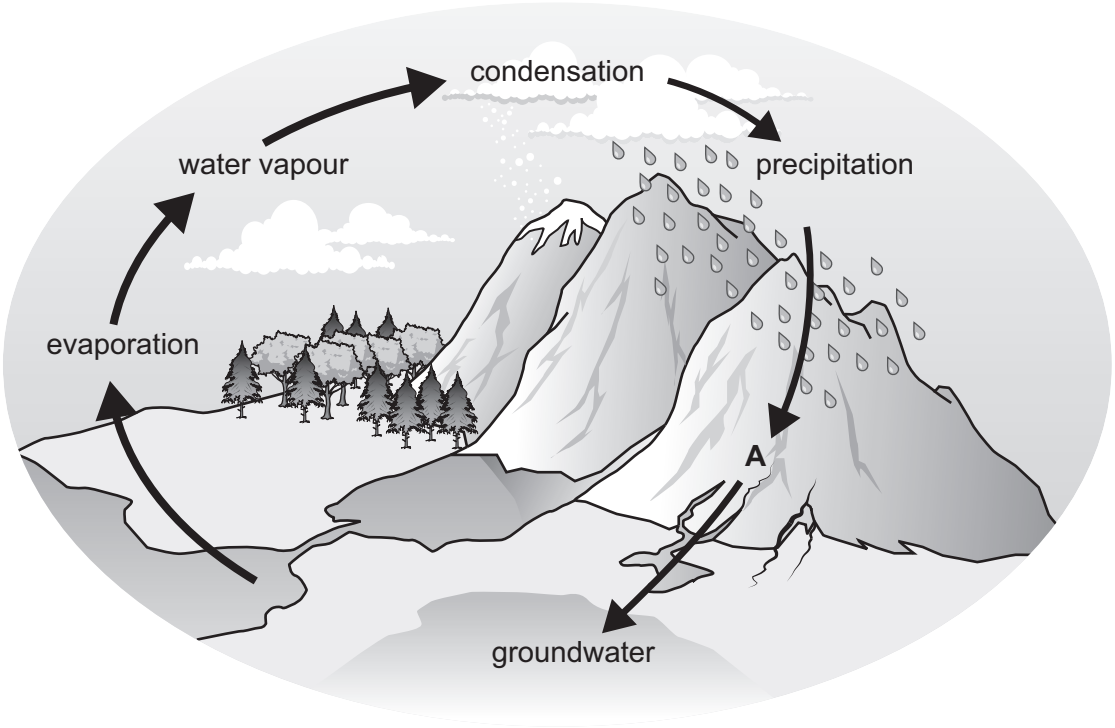
..... [2]

(b) Explain why sound does **not** travel through a vacuum.

.....

..... [1]

8 The diagram shows part of the water cycle.



(a) Identify and describe process **A**.

process **A** .....

description .....

.....

[2]

(b) Draw a straight line to match each **process** to its correct **description**.

process	description
precipitation	the process of water vapour changing into liquid water
condensation	the process of liquid water changing into water vapour
evaporation	the process by which water falls from clouds

[2]

9 Class 7 investigate growth in plants.

(a) The class use secondary information sources.

What is a secondary information source?

.....

..... [1]

(b) Class 7 investigate the growth of five different plant species.

In their first experiment the teacher:

- fills a plant pot with soil
- puts 5 seeds of a plant species into the soil
- waters the soil
- leaves the seeds for 10 days to grow into seedlings.

The teacher repeats the experiment four more times using different plant species.

Mia and Jamila each choose different ways to measure the growth of the seedlings.

Mia finds the mass of each plant pot and soil before and after the 10 days.

Jamila measures the height of the seedlings after 10 days and calculates the average height.

(i) Explain why Mia's method of measuring the growth does **not** give accurate results.

.....

..... [1]

(ii) Explain why Jamila's results are reliable.

.....

..... [1]

(iii) Describe and explain **one** safety precaution the teacher takes in this investigation.

safety precaution .....

.....

explanation .....

.....

[2]

10 Mike investigates three substances, milk, vinegar and bleach.

He wants to know the pH of each of the three liquids.

Write down how Mike does this investigation.

Include:

- the names of any chemicals he uses
- the method
- how Mike is able to make a conclusion from his results.

.....

.....

.....

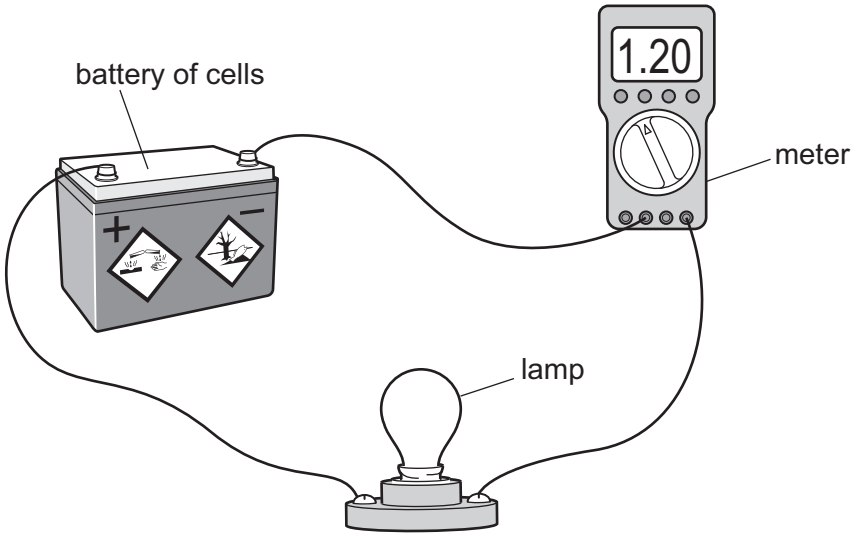
.....

.....

..... [3]

11 Lily investigates how the number of lamps in an electrical circuit affects the current.

She uses this electrical circuit.



(a) The battery of cells has hazard symbols.

hazard symbol **A**

hazard symbol **B**

Write down the meaning of each of these hazard symbols.

hazard symbol **A** .....

hazard symbol **B** .....

[2]

(b) The meter is used to measure current.

Write down the name of the meter used to measure current.

..... [1]

(c) Lily increases the number of lamps in the electrical circuit and records the current.

She repeats the experiment three times and calculates the average current.

Here are her results.

number of lamps	current in A	current in A	current in A	average current in A
1	1.22	1.20	1.18	1.20
2	0.60	0.61	0.59	0.60
3	0.42	0.38	1.30	0.40
4	0.30	0.30	0.30	0.30
5	0.25	0.27	0.20	

(i) Write down the anomalous current reading.

current ..... A [1]

(ii) Calculate the average current for 5 lamps.

average current ..... A [1]

(iii) Complete the sentence.

As the number of lamps is doubled the current .....

..... . [1]

12 Complete the sentence about tidal forces on Earth.

Tidal forces on Earth are due to the ..... force of attraction between the Earth, ... and ..... .

[2]

13 Describe the difference between electrical conductors and electrical insulators.

Use the idea of electrons in your answer.

.....

.....

..... [1]