Cambridge Primary Checkpoint

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

SCIENCE **0097/01**

Paper 1 **October 2023**

35 minutes

You must answer on the question paper.

No additional materials are needed.

INSTRUCTIONS

- Answer **all** questions.
- Use a black or dark blue pen. You may use an HB pencil for any diagrams or graphs.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
- Do **not** use an erasable pen or correction fluid.
- Do **not** write on any bar codes.
- You should show all your working in the booklet.
- You may use a calculator.

INFORMATION

- The total mark for this paper is 40.
- The number of marks for each question or part question is shown in brackets [ ].

This document has **16** pages. Any blank pages are indicated.

1 Look at the food web from a wetland habitat.
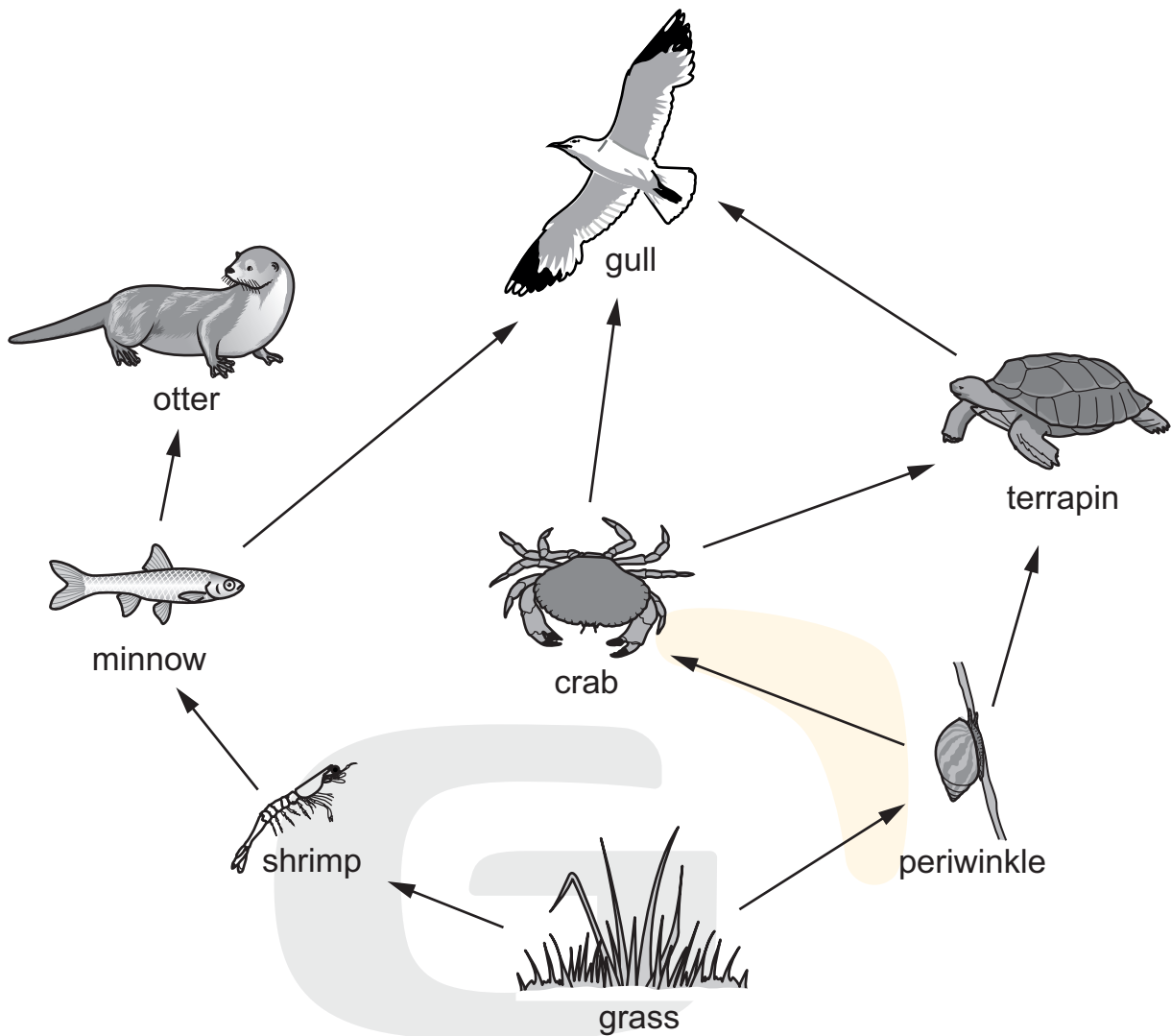
(a) Write down **one** food chain from this food web that includes the minnow.

[1]

(b) Write down the name of **one** carnivore from this food web.

[1]

(c) Write down the name of **one** living thing in this food web that gains energy from the terrapin.

[1]

2 Baking soda is a white solid.

Vinegar is a colourless solution.

Chen adds baking soda to vinegar.

The mixture fizzes and bubbles and a colourless solution is made.

The temperature of the mixture goes down.

Two of the substances made are carbon dioxide and water.

(a) Chen concludes a chemical reaction has taken place.

Write down **two** observations that support his conclusion.

1 ....

2 ....

[2]

(b) Write down the names of the **reactants** in this reaction.

.... [1]

(c) Which **product** is a colourless liquid?

.... [1]

3 Safia investigates how light is reflected from two mirrors.

She draws a diagram to show the result of her investigation.

Look at the diagram showing a ray of light and two mirrors.
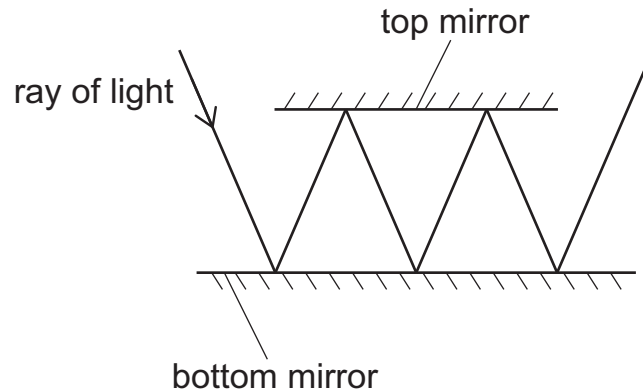
(a) The ray of light is reflected when it touches the bottom mirror.

Describe what happens when a ray of light is reflected.

....

.... [1]

(b) Complete the sentences to show the number of reflections from each mirror.

The top mirror has .... reflections.

The bottom mirror has .... reflections.

[1]

(c) Safia wants to increase the total number of reflections.

Describe what Safia does to increase the total number of reflections.

....

.... [1]

4 Hassan collects information about different igneous rocks.

igneous rock	crystal size in mm	colour
A	10.2	grey
B	8.4	black
C	15.2	grey
D	0.5	black
E	no crystals	grey
F	no crystals	black

(a) Which igneous rocks have crystal sizes larger than 8 mm **and** are grey in colour?

.... [1]

(b) Igneous rocks are formed from molten rock.

Molten rock that cools the slowest has the biggest crystals.

Complete the sentences.

The igneous rock that cooled the slowest is ....

The igneous rock **E** has **no** crystals because ....

....

....

[2]

5 Ahmed investigates the growth of a fungus called yeast.

Ahmed:

- puts the same mass of yeast into two bottles, **A** and **B**

- puts the same mass of sugar in each bottle

- puts $50\,cm^3$ of water into bottle **A**

- puts $50\,cm^3$ of acid into bottle **B**

- puts a balloon over the top of each bottle

- measures the circumference of each balloon every 15 minutes.

The diagram shows his investigation after 60 minutes.

yeast, sugar and water — bottle **A**

balloon

yeast, sugar and acid — bottle **B**
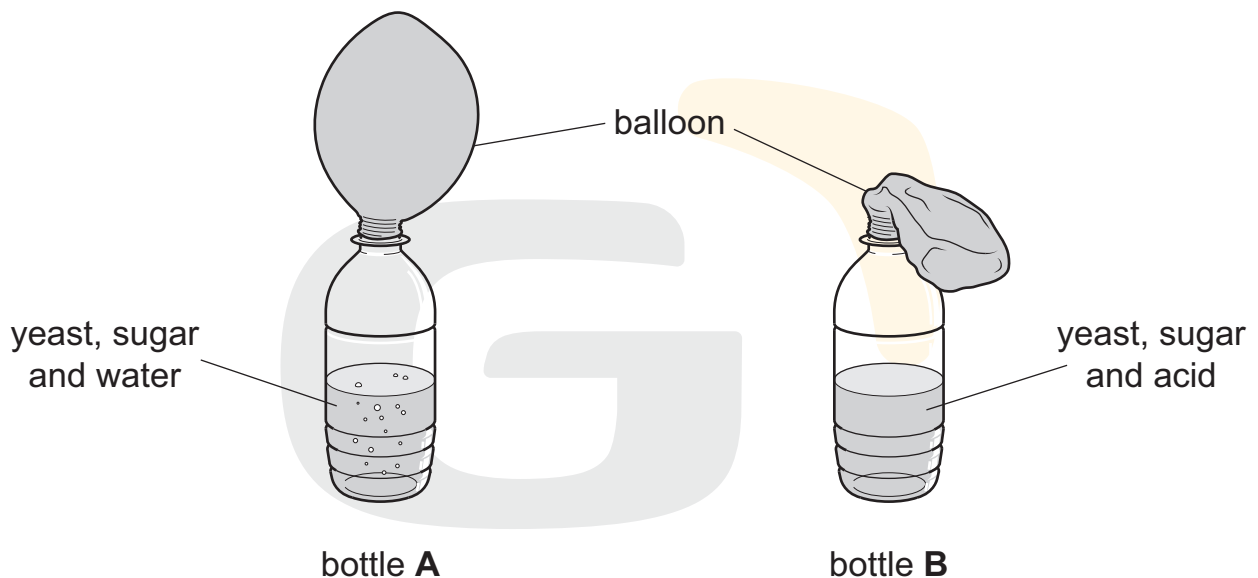
(a) The circumference is the distance around the outside of the balloon.

Ahmed uses a piece of string and a ruler to measure the circumference of the balloon.

Describe how Ahmed uses the string **and** ruler to measure the circumference.

....

....

.... [2]

(b) Ahmed records his results in a table.

| time | circumference of balloon in cm | |
	bottle A	bottle B
0	8 cm	8 cm
15	10 cm	8 cm
30	14 cm	9 cm
45	16 cm	9 cm
60	18 cm	10 cm

Ahmed has made **two** mistakes in his results table.

Write down the **two** mistakes Ahmed has made.

1 ....

....

2 ....

....

[2]

(c) Acid is a defence mechanism in the human body.

Which organ in the human body uses acid as a defence mechanism?

Circle the correct answer.

brain   intestine   lungs   mouth   stomach

[1]

6 This question is about the properties of gases.

Look at the table that shows some properties of four gases.

gas	colour of gas	odour of gas
carbon dioxide	colourless	odourless
chlorine	pale green	like bleach
nitrogen	colourless	odourless
oxygen	colourless	odourless

(a) Write down **two other** properties of all gases.

1 ....

2 ....

[2]

(b) Blessy thinks that all gases are colourless.

Explain why Blessy is **not** correct.

Use information from the table in your answer.

....

.... [1]

7 Mia has two electrical circuits.
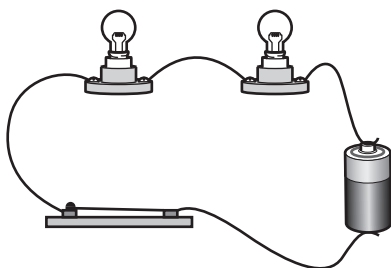
electrical circuit **A**   electrical circuit **B**
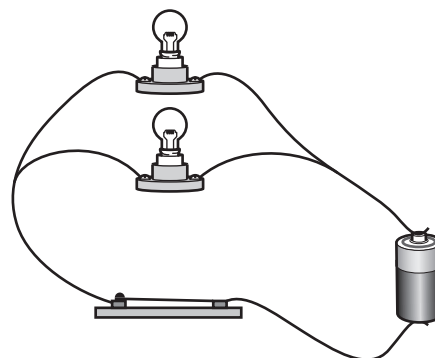
Both circuits have identical components.
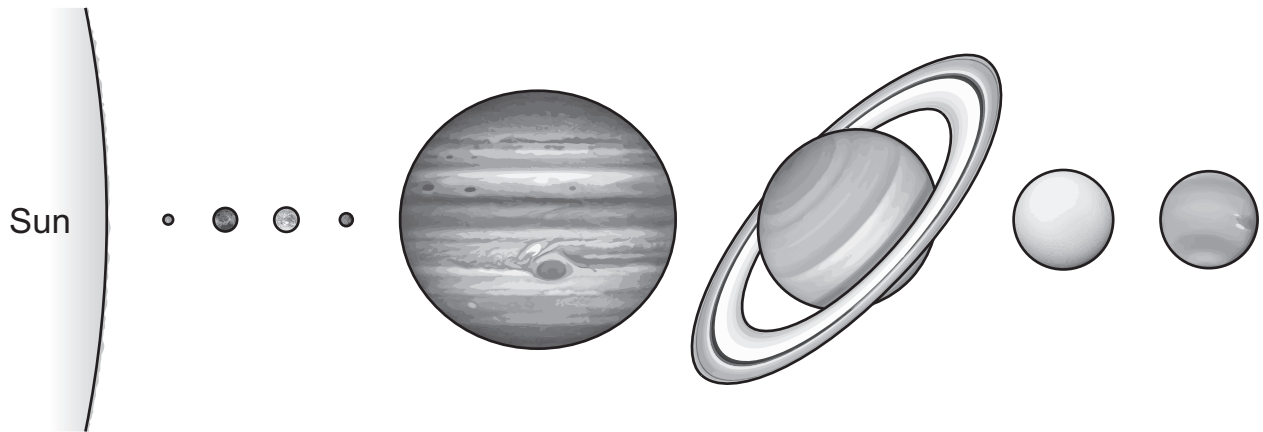
Complete the sentences.

The parallel circuit is electrical circuit ....

The circuit with the brightest lamps is electrical circuit ....

[1]

8 The diagram shows the order of the planets in the Solar System.

Sun

Not drawn to scale
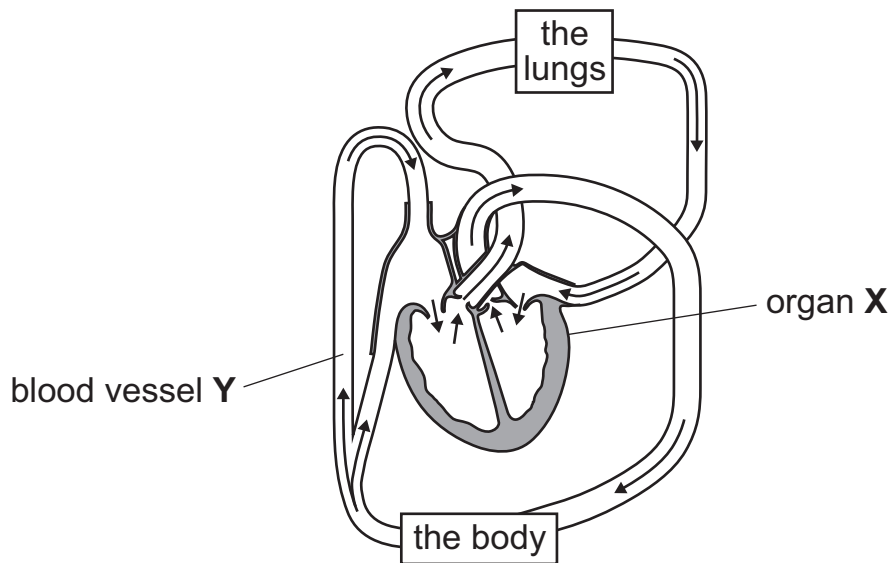
(a) Look at the diagram.

Draw the orbit of Earth's Moon on the diagram.

[1]

(b) Write down the names of **two** planets further from the Sun than Saturn.

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

9 The diagram shows the human circulatory system.

(a) Organ **X** pumps blood through the circulatory system.

Name organ **X**.

.... [1]

(b) Blood vessel **Y** is a vein.

Name **one other** type of blood vessel in the human circulatory system.

.... [1]

(c) What is a function of the human circulatory system?

Tick (✓) **one** correct box.

break down food ☐

control the body ☐

move the bones ☐

transport waste ☐

[1]

10 This question is about melting point and boiling point.

(a) Describe the change of state that happens at the melting point.

from .... to .... [1]
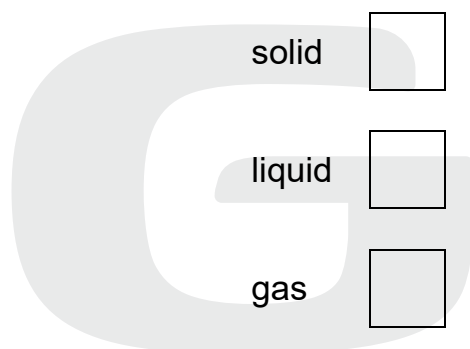
(b) What is meant by the words **boiling point**?

....

.... [1]

(c) Ethanoic acid has a melting point of 17 °C and a boiling point of 118 °C.

Room temperature is 25 °C.

Tick (✓) one box to show if ethanoic acid is a solid, liquid or gas at room temperature.

solid ☐

liquid ☐

gas ☐

Explain your answer.

....

....

.... [2]

11 A force diagram is a type of model.

Look at the force diagram for a box.
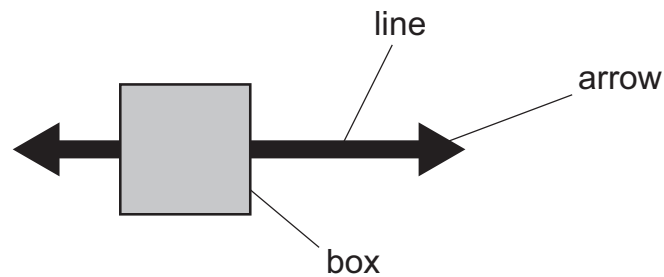
(a) Which statements describe how this model helps students understand forces?

Tick (✓) **two** correct boxes.

forces **cannot** be seen ☐

forces **cannot** be heard ☐

the arrow shows the direction of a force ☐

the arrow shows the type of force ☐

the length of the line shows the direction of a force ☐

the length of the line shows the type of force ☐

[2]

(b) Look at the force diagram of the box.

Complete the sentence about the movement of the box.

The box moves ....

because ....

....

[2]

12 The table shows the percentage of the Moon visible from Earth each night.

night	percentage (%) of the Moon visible from Earth
1	1
2	5
3	10
4	18
5	25
6	38
7	48
8	60
9	70
10	80

(a) Complete the line graph by:

- plotting the last four points as small crosses
- drawing a line through all the points.
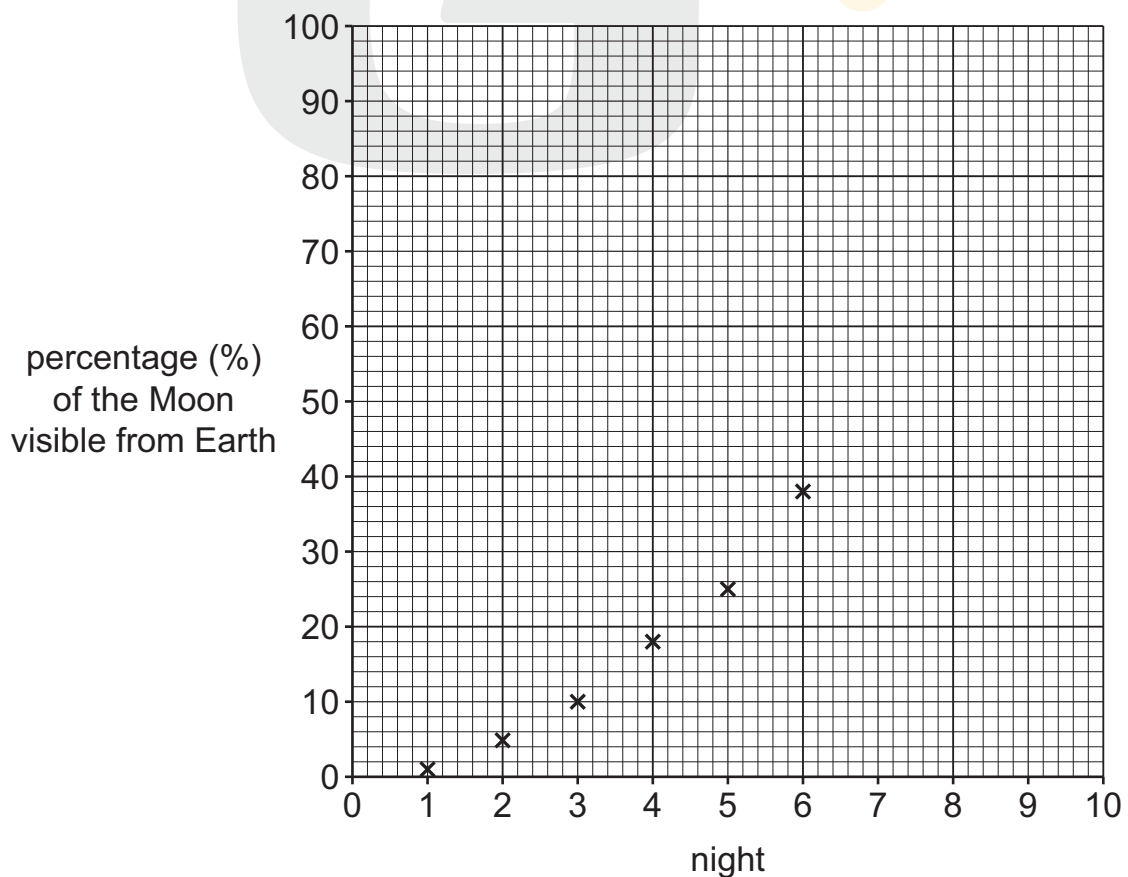
[2]

(b) Complete the sentence to describe the pattern.

As the number of nights increases the ....

....

[1]

13 Mass and weight are different.

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

description	measurement
mass of an apple	40 kg
weight of a book	100 g
mass of a chair	10 N

[1]

(b) Complete the sentences.

Choose words from the list.

decreases   **increases**   **stays the same**

When gravity decreases, the mass ....

When gravity increases, the weight ....

[1]

BLANK PAGE