Cambridge Assessment International Education

Cambridge Primary Checkpoint

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER			

2431464910

SCIENCE **0097/02**

Paper 2 **October 2023**

35 minutes

You must answer on the question paper.

No additional materials are needed.

INSTRUCTIONS

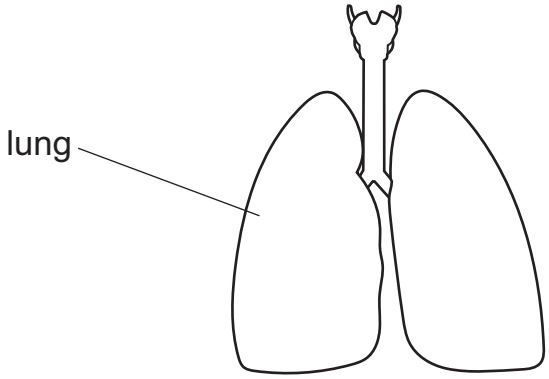
- Answer **all** questions.
- Use a black or dark blue pen. You may use an HB pencil for any diagrams or graphs.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
- Do **not** use an erasable pen or correction 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 The picture shows part of an organ system in the human body.



(a) Name this organ system.

.....

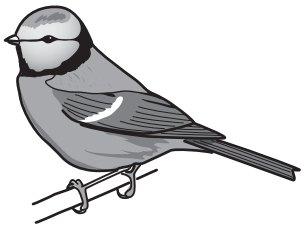
[1]

(b) Which gas moves from the lungs into the blood?

.....

[1]

(c) Look at the picture of an animal.



Suggest why this animal is likely to have lungs similar to humans.

Tick (✓) **one** box.

the animal is a reptile	☐
the animal is an invertebrate	☐
the animal is a mammal	☐
the animal is a vertebrate	☐

[1]

2 Glucose dissolves in water to make glucose solution.

The table shows the maximum mass of glucose that dissolves in 100 g of water at different temperatures.

temperature in °C	maximum mass of glucose in g
10	40
20	47
30	54
40	61
50	67
60	75

(a) Describe the relationship between the temperature of the water and the maximum mass of glucose dissolved.

Explain your answer using ideas about particles.

description .....

.....

explanation .....

.....

[2]

(b) Identify the **solvent** and the **solute** in the glucose solution.

The solvent is .....

The solute is .....

[1]

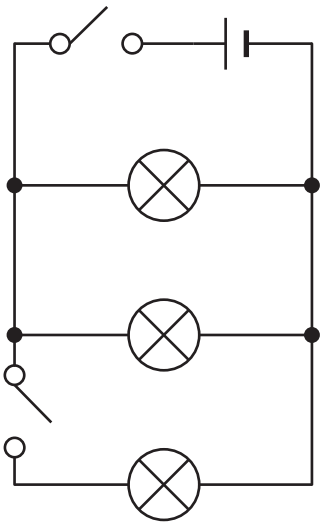
(c) Dissolving glucose in water is a physical change.

Explain why dissolving is a physical change.

.....

..... [1]

3 Priya draws a diagram of an electrical circuit.



(a) This electrical circuit is a **parallel** circuit containing six electrical symbols.

Complete the sentences with the names of the electrical symbols.

The circuit has only **one** .....

The circuit has only **two** .....

The circuit has only **three** .....

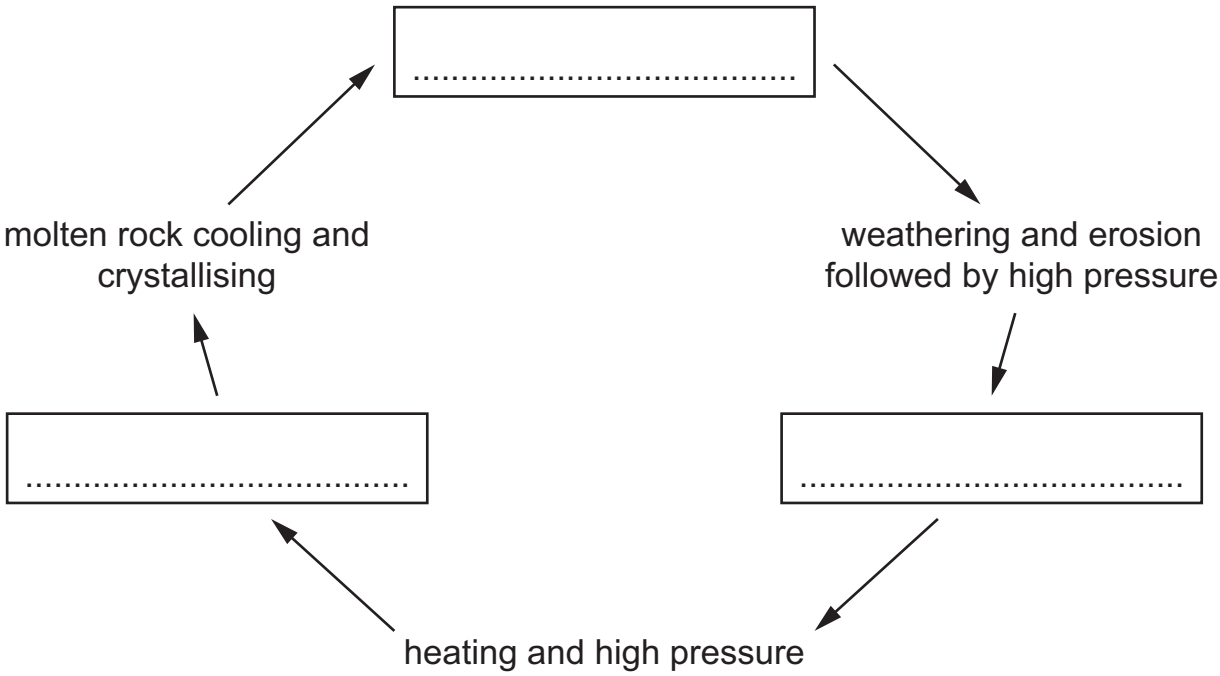
[2]

(b) Priya changes the parallel circuit to make it into a series circuit.

Draw this **series** circuit containing the six electrical symbols.

[2]

4 **(a)** Complete the rock cycle diagram by writing the names of the **three** types of rock in the correct boxes.



[2]

(b) Fossils of dead animals are sometimes found in rocks.

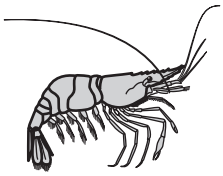
Describe how fossils are formed.

.....

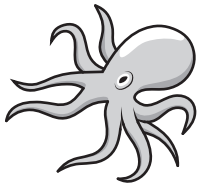
.....

..... [2]

5 Anastasia finds pictures of some animals.



shrimp



octopus

snail

starfish

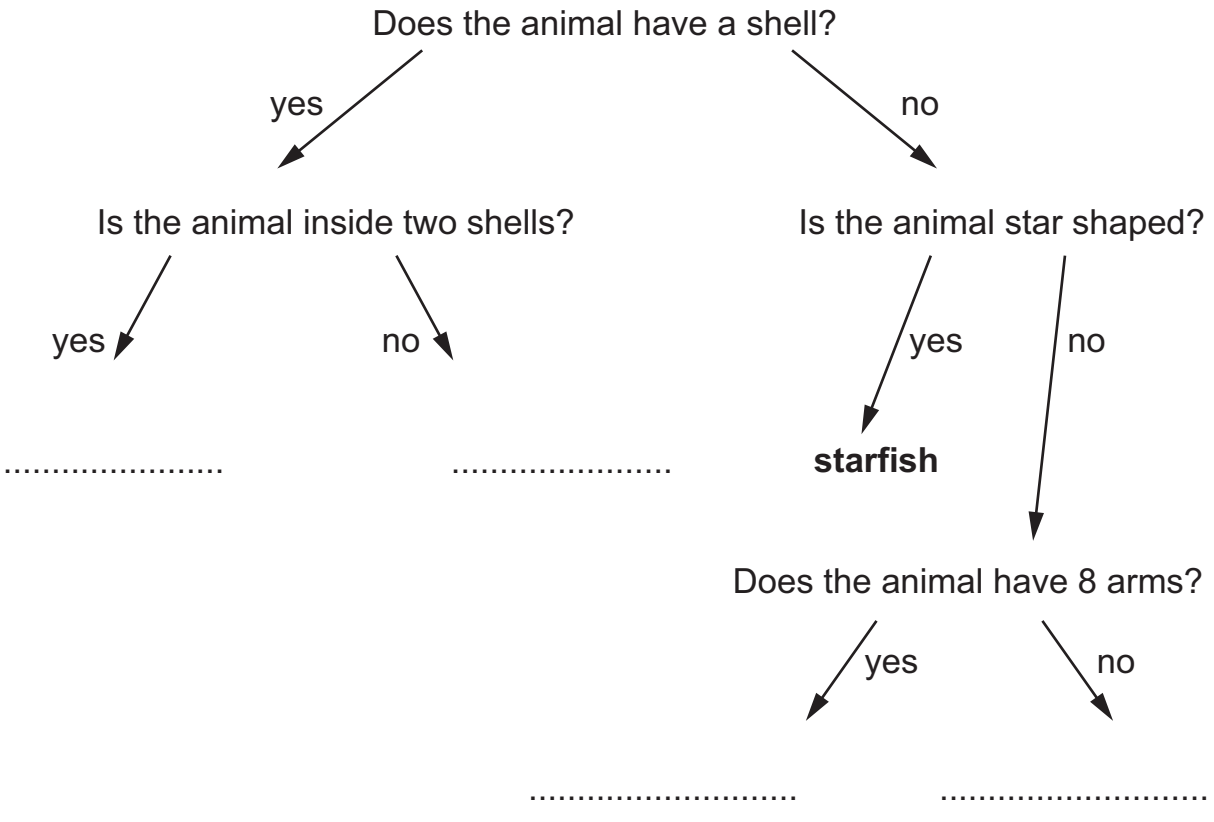
scallop

Not drawn to scale

(a) Anastasia uses the pictures to make a key.

Complete the key.

One animal has been done for you.



[2]

(b) The snail is a herbivore in a food web.

A producer starts the food web.

Complete the sentence.

The source of energy for the producer in the food web is the .....

[1]

(c) A toxic substance is found in the soil.

Describe how the toxic substance moves from the soil into the body of a snail in the food web.

.....

.....

..... [2]

6 Carlos and Mike investigate the rate of evaporation in four different samples of salt solution.

Each salt solution contains 100 cm^3 of water but different masses of salt.

Carlos and Mike:

- put one of the salt solutions into a beaker
- find the mass of the beaker and the salt solution
- put the beaker and salt solution into an oven with a temperature of 70 °C
- take the beaker and salt solution out of the oven after 8 hours
- leave the beaker and salt solution to cool
- find the mass of the beaker and salt solution
- repeat this method for the other three salt solutions.

Look at their results table.

mass in g of			change in mass in g
salt in salt solution	**beaker and salt solution at start**	**beaker and salt solution after 8 hours**	
5	125	65	.....
10	130	80	50
15	135	90	45
20	140	100	40

(a) Calculate the change in mass for 5 g of salt in salt solution.

Write your answer in the table.

[1]

(b) Carlos and Mike decide to test one more salt solution.

This solution contains 25 g of salt in 100 cm^3 of water.

Predict the change in mass in this experiment.

change in mass = ... g [1]

(c) Describe **one** possible safety risk in this investigation and how to reduce this risk.

safety risk .....

.....

how to reduce this risk .....

.....

[2]

(d) Tick (✓) the box that shows the **independent** variable in this investigation.

change in mass ☐

mass of salt in salt solution ☐

temperature of oven ☐

time in the oven ☐

[1]

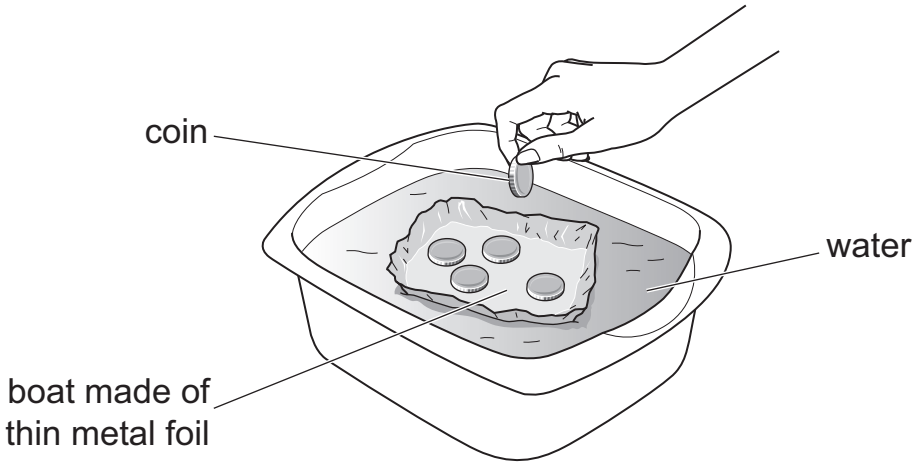
(e) Tick (✓) the box that shows a variable that is **controlled** to make the investigation fair.

change in mass	☐
mass of salt in salt solution	☐
mass of beaker and salt solution at start	☐
mass of beaker and salt solution after 8 hours	☐
temperature of the oven	☐

[1]

7 Lily investigates floating and sinking.

She drops coins into a boat made of thin metal foil.



(a) The boat floats when there are 10 coins in the boat.

Complete the sentence.

The boat sinks when there are 16 coins in the boat because .....

.....

..... [1]

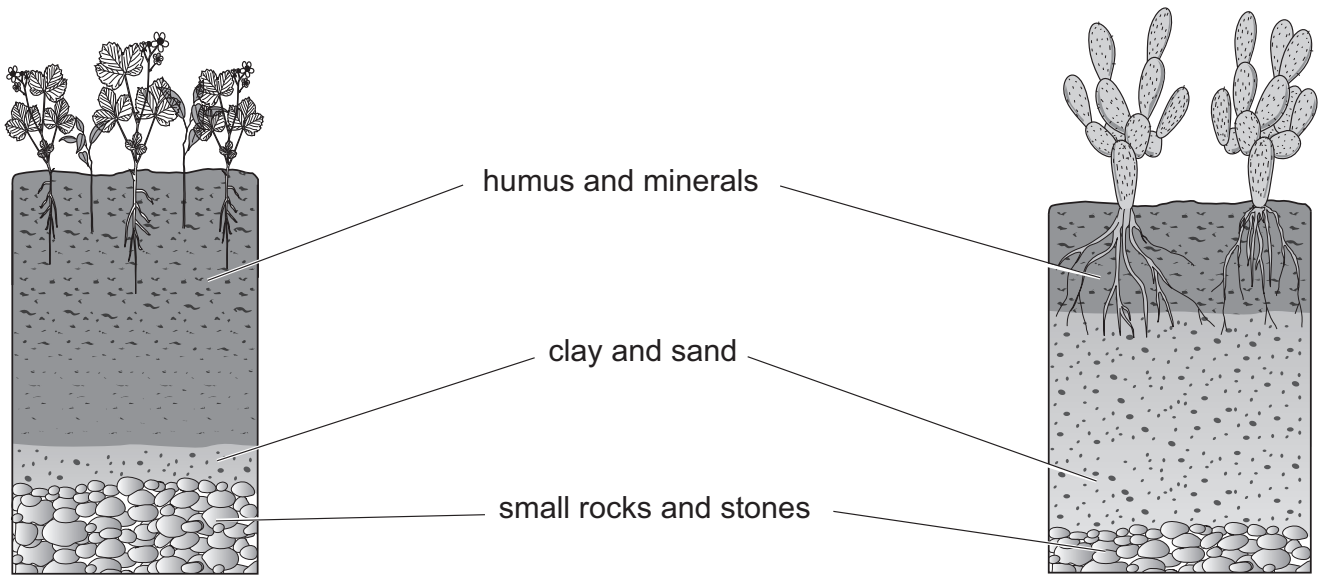
(b) Lily wants to make the boat sink when there are only 10 coins in the boat.

Suggest what she does **to the boat** to make it sink with only 10 coins.

.....

..... [1]

8 The diagrams show a section through the soil of a grassland and a desert.



(a) Write down a **similarity** between the grassland soil and the desert soil.

.....

..... [1]

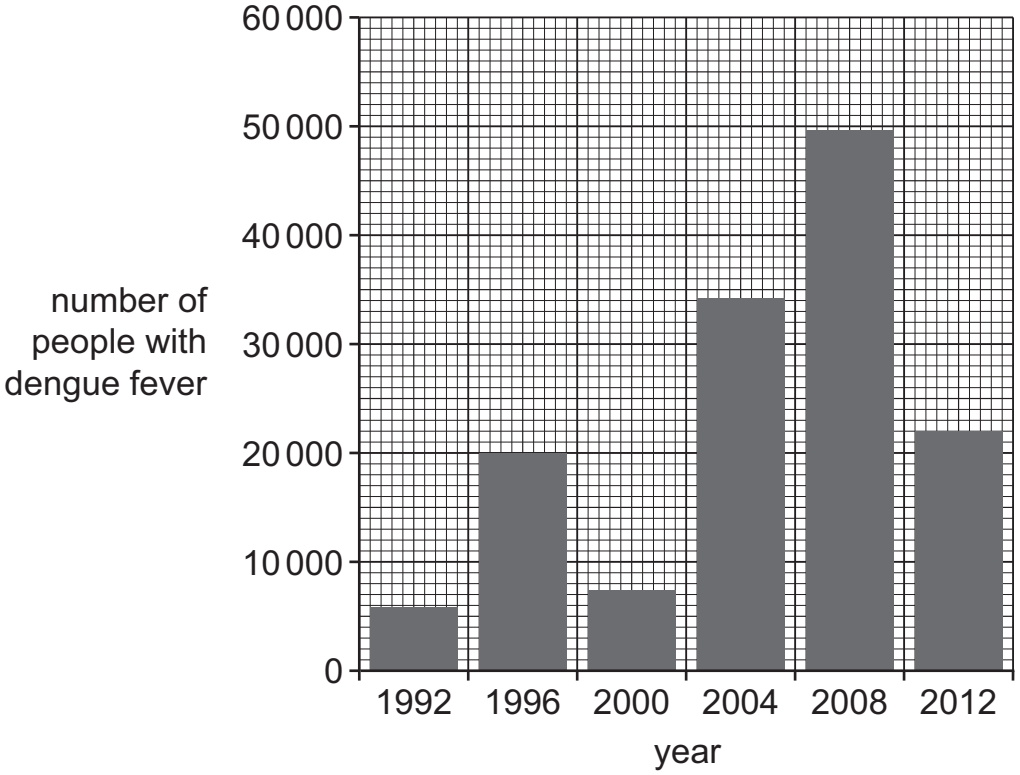
(b) Suggest why plants found in the grassland soil do **not** grow in the desert soil.

.....

..... [1]

9 Dengue fever is a disease caused by an infection with a virus.

The chart shows the number of people with dengue fever in a country.



(a) Which year had the highest number of people with dengue fever?

..... [1]

(b) How many people had dengue fever in 1996?

..... [1]

(c) The disease is transmitted when people are bitten by insects.

Circle the name that describes an insect that transmits disease.

bacteria **consumer** **predator** **vector**

[1]

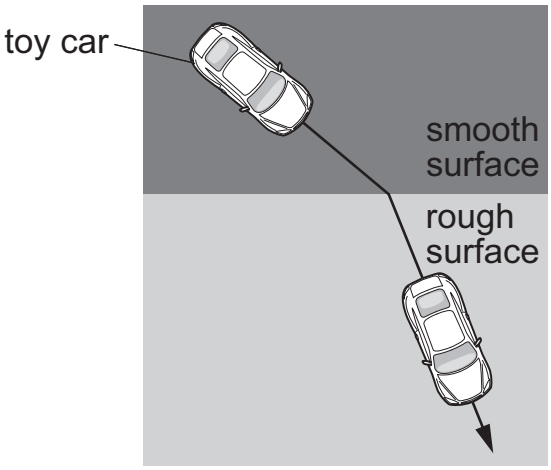
(d) Describe **one** way to avoid being bitten by insects.

.....

..... [1]

10 Yuri uses a toy car to make a model.

He uses the model to explain a property of a ray of light.



(a) Describe **two** things that happen to the car as it travels from the smooth surface to the rough surface.

1 .....

2 .....

[2]

(b) Circle the property of a light ray shown by this model.

opaque **reflection** **refraction** **transparent**

[1]

(c) The smooth surface in the model represents air.

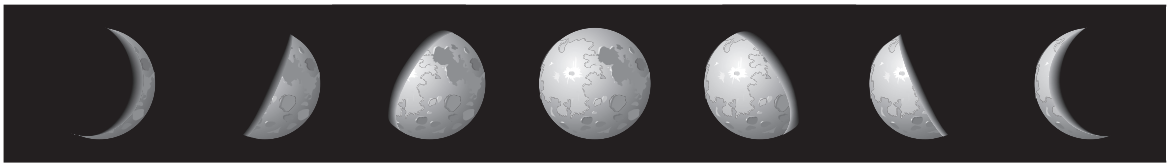
Air is a medium that a light ray passes through.

Write down the **name** of another medium that a light ray passes through.

..... [1]

11 The Moon changes in appearance over its monthly cycle.

(a) The diagram shows seven different phases of the Moon in the Northern Hemisphere.



There are eight phases of the Moon but only seven are drawn in the diagram.

Explain why it is **not** possible to draw the other phase.

.....

..... [1]

(b) The diagram shows a waxing crescent of the Moon in the Northern Hemisphere and the Southern Hemisphere.

Northern Hemisphere

Southern Hemisphere

Look at the diagrams.

Complete the sentences.

One **similarity** between the waxing crescents in the diagram is .....

.....

..... .

One **difference** between the waxing crescents in the diagram is .....

.....

..... .

[1]

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