Cambridge Assessment International Education

Cambridge Lower Secondary Checkpoint

CANDIDATE NAME

CENTRE NUMBER | | | | | |

CANDIDATE NUMBER | | | | |

6415819966

SCIENCE **1113/02**

Paper 2 **April 2022**

45 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

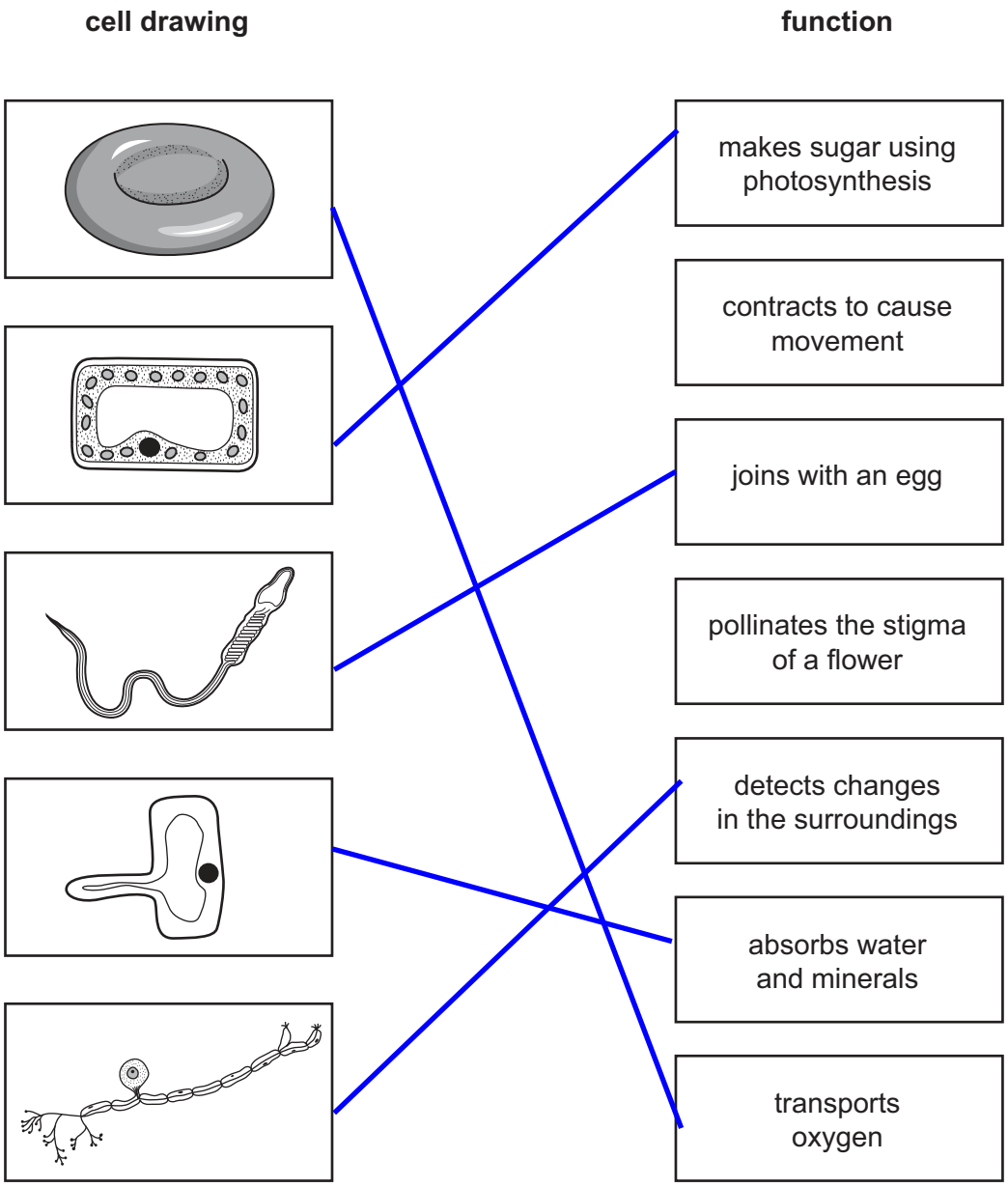
- The total mark for this paper is 50.
- The number of marks for each question or part question is shown in brackets [ ].

This document has **20** pages.

IB22 05_1113_02/7RP

1 Draw **one** line from each **cell drawing** to its correct **function.**

Draw only **five** lines.



[4]

2 Pierre reacts metal compounds and acids to make three different salts.

The table shows the metal compounds and the acids Pierre uses.

(a) Complete the table to show the salts the reactions make.

metal compound	acid	salt made
calcium carbonate	nitric acid	calcium nitrate
sodium hydroxide	sulfuric acid	sodium sulfate
potassium hydroxide	hydrochloric acid	potassium chloride

[3]

(b) When calcium carbonate reacts with nitric acid a gas is made.

Write down the name of this gas.

carbon dioxide [1]

3 This question is about the Sun and the Moon.

(a) Why does the Sun appear to move across the sky?

Because the Earth rotates around its own axis [1]

(b) The Sun is a **source** of light.

(i) Describe how we see the Sun.

The Sun emits light which travels to our eyes

[1]

(ii) Write down the name of **another** source of light in space.

star [1]

(c) The Moon is **not** a source of light.

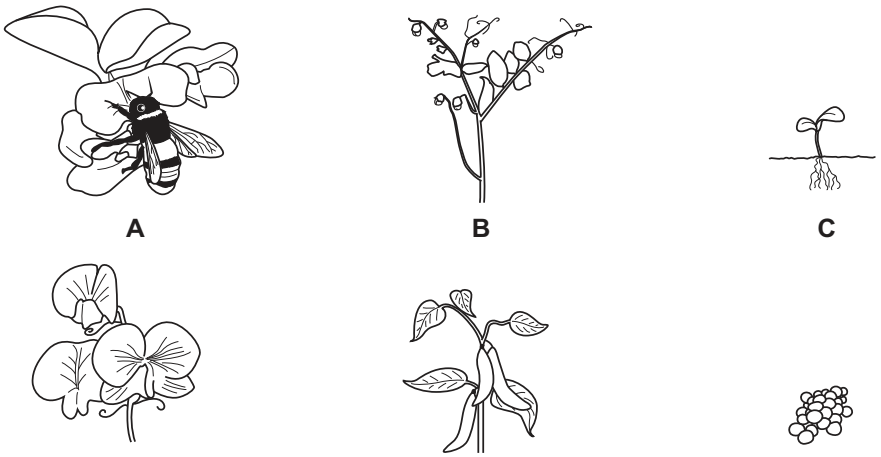
Explain why we see the Moon.

Light from the Sun travels to the Moon and is reflected off to our eyes

[1]

4 The diagram shows six stages in the life cycle of a pea plant.

The stages are **not** in the correct order.



NOT TO SCALE

Write the letters to show the stages in the correct order.

Two of the stages have been done for you.

F	C	B	D	A	E

[2]

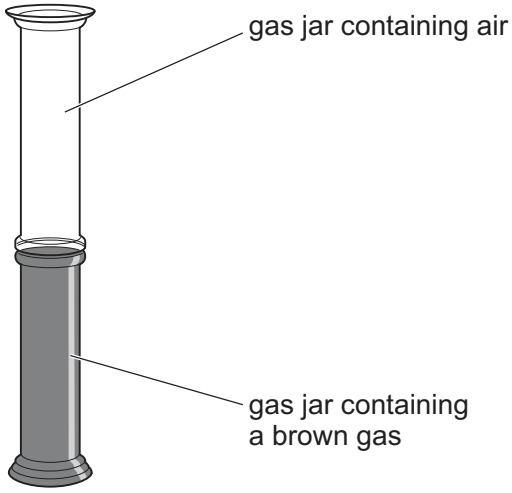
5 The table shows the properties of solids, liquids and gases.

(a) Complete the table.

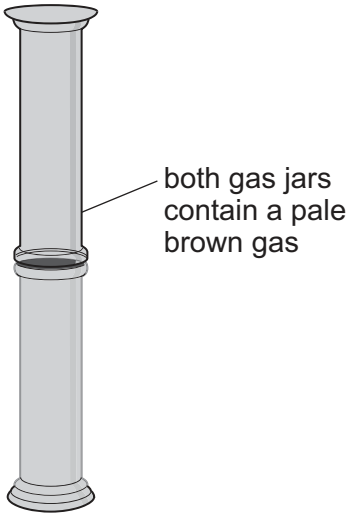
	arrangement of particles	movement of particles
solid	very close together	vibrate around fixed position
liquid	close together	slide past over each other
gas	far apart	move quickly

[2]

(b) This diagram shows two gas jars that have just been joined together.



This diagram shows the two gas jars 10 minutes later.



(i) Name the process that happens during the 10 minutes.

diffusion ..... [1]

(ii) Describe how the process happens.

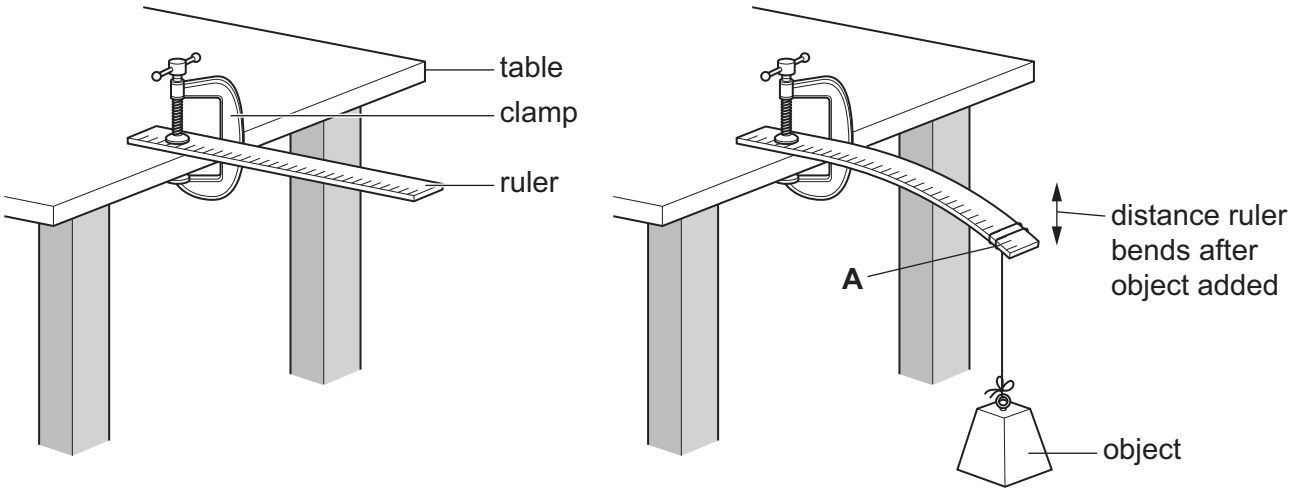
Use ideas about particles.

The particles of brown gas move from the bottom jar to the upper jar

..... [1]

6 Chen investigates how much a ruler bends when he adds different objects.

no object **object added**



He adds the objects at position **A**.

He writes his results in a table.

weight of object in N	distance ruler bends after object added in cm
0	0.0
1	2.1
2	4.0
3	6.1
4	8.2

(a) (i) Describe what happens as the weight of the object increases.

The more weight, the more ruler bends [1]

(ii) Explain why this happens.

There is a downward force acting on the ruler

[1]

(b) Chen repeats the investigation.

He moves the object **closer** to the clamp.

The object has a weight of 2 N.

(i) Predict the distance the ruler will bend.

3 cm [1]

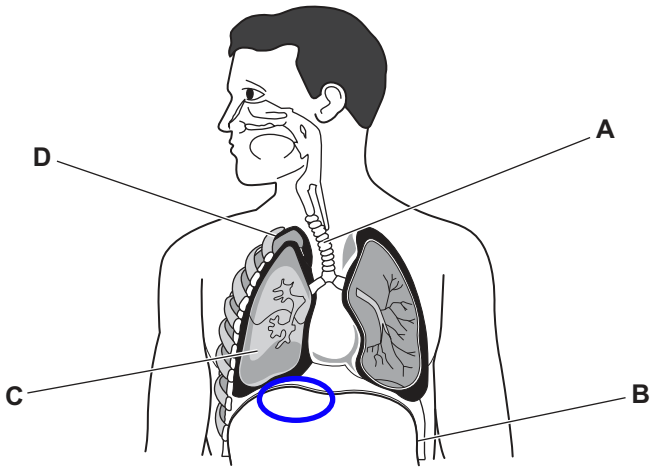
(ii) Explain your prediction in **(b)(i)**.

Use ideas about the principle of moments in your answer.

As the distance decreases, the moment caused by the weight decreases, too

[2]

7 The diagram shows the human respiratory system.



(a) (i) Circle the letter on the diagram that identifies the **diaphragm** . [1]

(ii) Write down **one** function of the diaphragm.

help us breathe

[1]

(b) (i) Write down **one** function of the air sacs (alveoli) inside the lungs.

diffuse oxygen to the blood [1]

(ii) Describe **one** way the air sacs are adapted for their function.

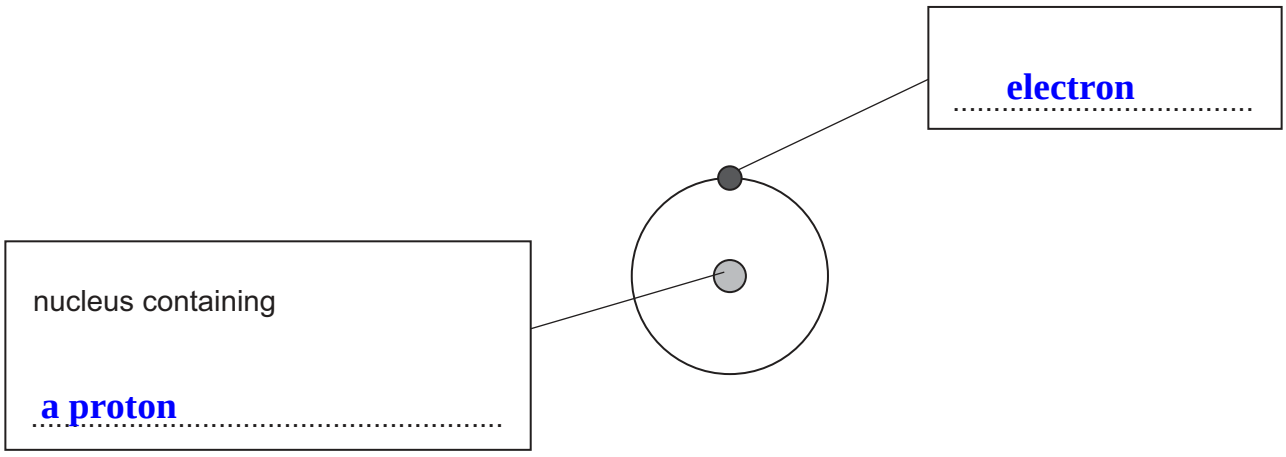
large surface area

[1]

8 The diagram shows an atom of hydrogen.

The nucleus contains only one particle.

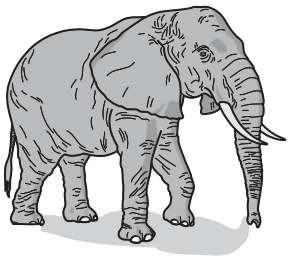
(a) Complete the labels on the diagram.



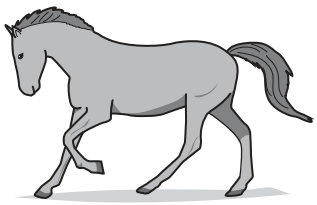
[2]

(b) Write down the chemical symbol for hydrogen. H [1]

9 Yuri investigates why the size of the leg of an elephant is different from the size of the leg of a horse.



5000 kilograms



500 kilograms

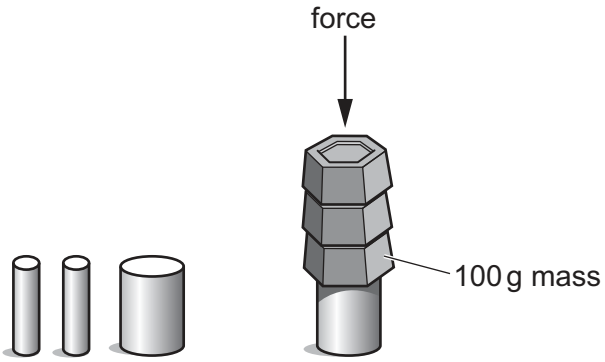
NOT TO SCALE

Yuri makes model legs of both animals.

He uses modelling clay to make different-sized cylinders.

Yuri places one cylinder on a desk.

He places 100 g masses on top of this cylinder until the cylinder starts to squash and change shape.



modelling clay cylinders

Yuri tests **two** different diameters of cylinder.

(a) The cylinders are all cut to the same length.

Explain why this is important.

To make a fair test

..... [1]

(b) What equipment does Yuri use to measure the diameter of the cylinders?

callipers [1]

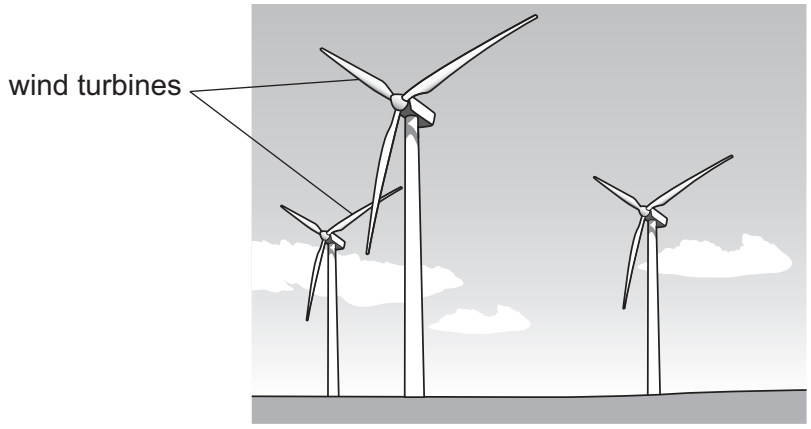
(c) Yuri uses **two** cylinders for each diameter.

Explain why using **two** cylinders is important.

to have reliable results

..... [1]

10 Wind is an energy resource.



(a) Wind turbines supply energy.

Suggest **two disadvantages** of using wind turbines.

1 costly to set up

2 They have to be set up at the places that are windy

[2]

(b) People in many countries are trying to **increase** the number of wind turbines.

Suggest why.

Because wind turbines is a kind of renewable source of energy. By using it, we can protect our environment

[2]

11 Gasoline burns in oxygen to make carbon dioxide and water.

Circle **two** words that describe this reaction.

displacement

endothermic

exothermic

neutralisation

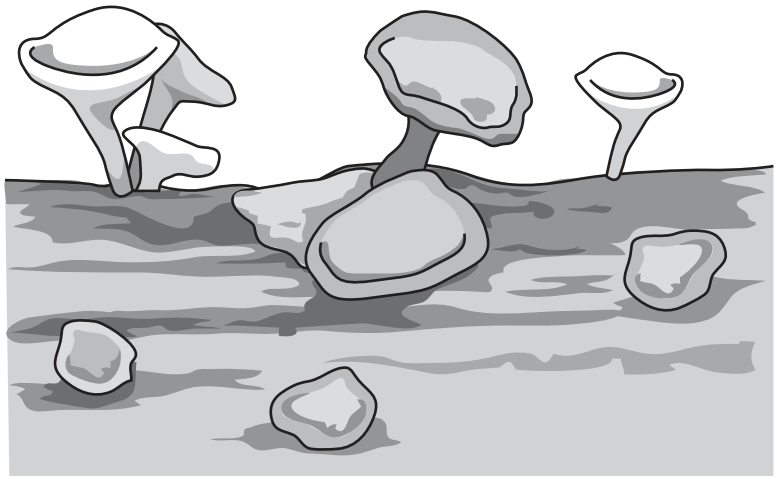
oxidation

respiration

rusting

[2]

12 The diagram shows fungi growing on a piece of wood.



Fungi are decomposers.

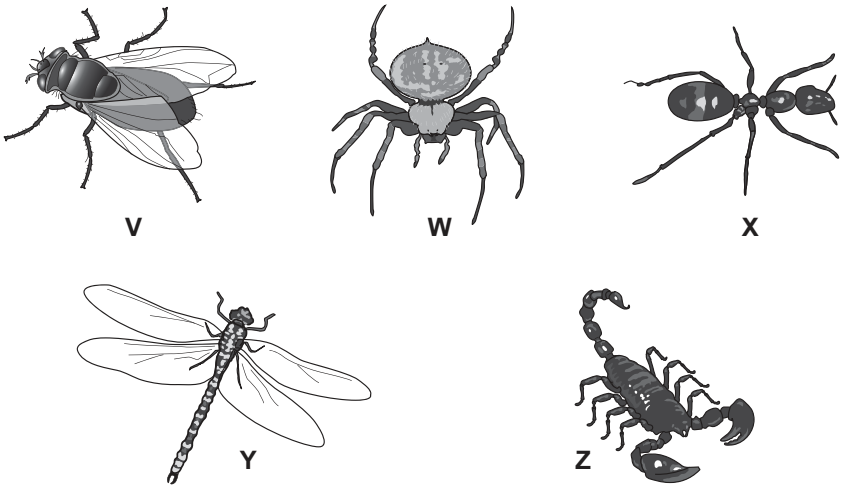
What are decomposers? Organisms that break down dead living things

Why are decomposers important? They return carbon back to the environment

[2]

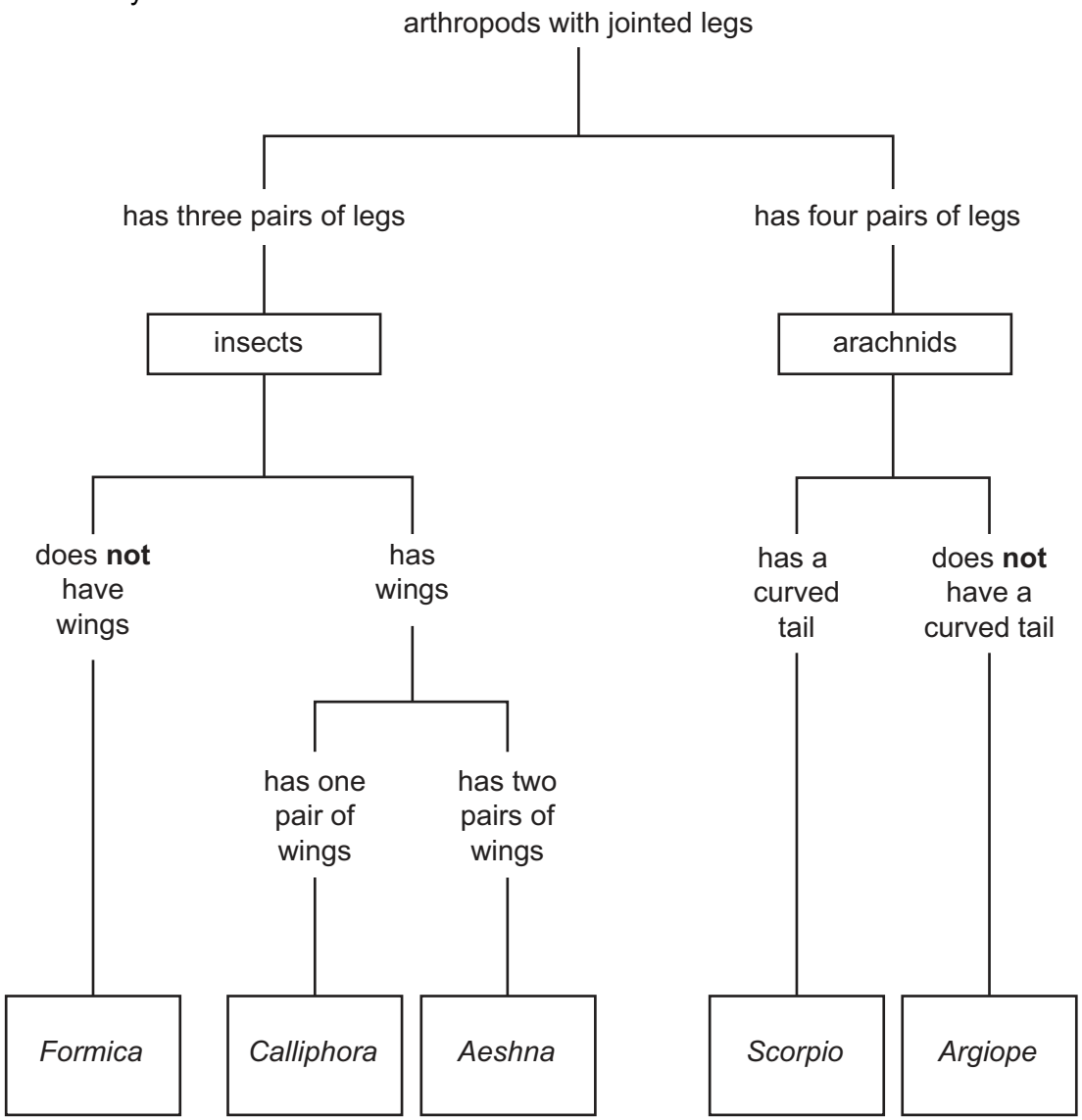
13 The diagram shows five arthropods.

These arthropods all have jointed legs.



NOT TO SCALE

Look at the key.



Use the key to find the names of arthropods **V**, **W**, **X**, **Y** and **Z**.

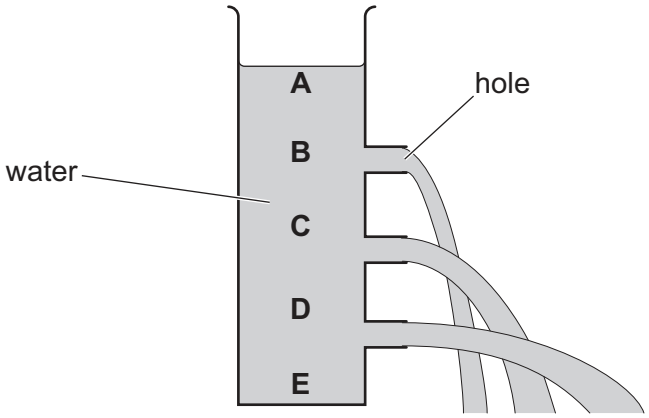
Write your answers in the table.

name	letter
Aeshna	Y
Argiope	W
Calliphora	V
Formica	X
Scorpio	Z

[2]

14 Lily investigates water pressure.

(a) Water is inside a container with holes in one side.



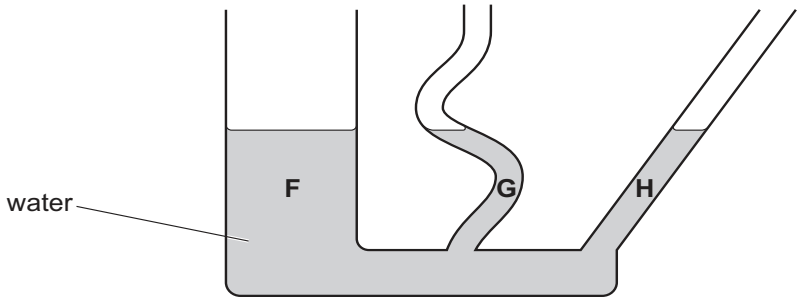
Where is the water pressure the **greatest**?

Circle the correct answer.

A **B** **C** **D** **E**

[1]

(b) Water is inside a different shaped container.



Compare the water pressure at **F**, **G** and **H**.

The water pressure at F, G and H are the same

[1]

15 Potassium is an element in Group 1 of the Periodic Table.

(a) Look at the word equation.

potassium + water ⟶ potassium hydroxide + hydrogen

Write down the name of **one product** of this reaction.

hydrogen [1]

(b) Look at the order of the elements in Group 1 of the Periodic Table.

Li	lithium
Na	sodium
	potassium
Rb	rubidium
Cs	caesium
Fr	francium

(i) What is the chemical symbol for potassium?

Circle the correct answer.

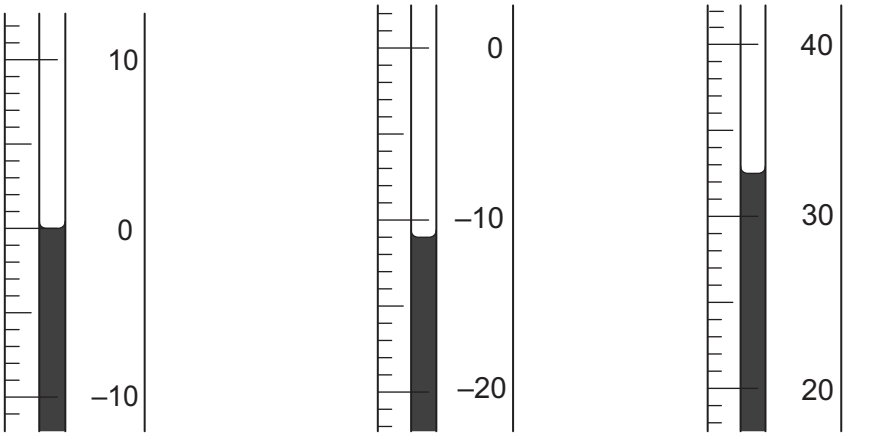
(K) **N** **Na** **P** **Po**

[1]

(ii) Predict which Group 1 element reacts the **fastest** with water. Fr [1]

16 Angelique measures the temperature of three samples of water.

The diagrams show her results.



thermometer **A** thermometer **B** thermometer **C**

Record the temperature of each thermometer in the table.

thermometer	temperature in °C
A	0
B	-11
C	32.5

[2]