

CANDIDATE  
NAME

CENTRE  
NUMBER

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CANDIDATE  
NUMBER

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**SCIENCE**

Paper 1

**1113/01**

**October 2018**

**45 minutes**

Candidates answer on the Question Paper.

Additional Materials:      Pen                      Calculator  
   Pencil  
   Ruler

**READ THESE INSTRUCTIONS FIRST**

Write your Centre number, candidate number and name on all the work you hand in.

Write in dark blue or black pen.

You may use an HB pencil for any diagrams, graphs or rough working.

Do not use staples, paper clips, glue or correction fluid.

DO **NOT** WRITE IN ANY BARCODES.

Answer **all** questions.

You should show all your working in the booklet.

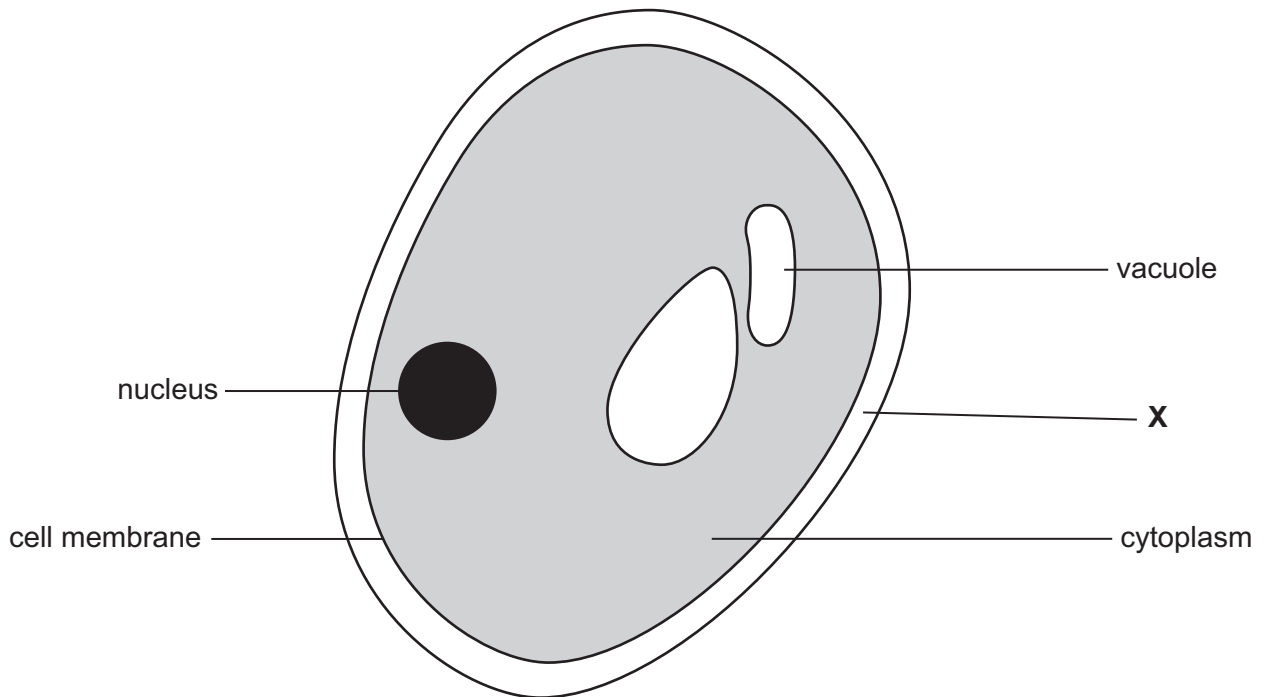
At the end of the examination, fasten all your work securely together.

The number of marks is given in brackets [ ] at the end of each question or part question.

The total number of marks for this paper is 50.

This document consists of **19** printed pages and **1** blank page.

- 1 Safia uses a microscope to look at cells.  
She makes a labelled drawing of a cell.



(a) Name the structure labelled X.

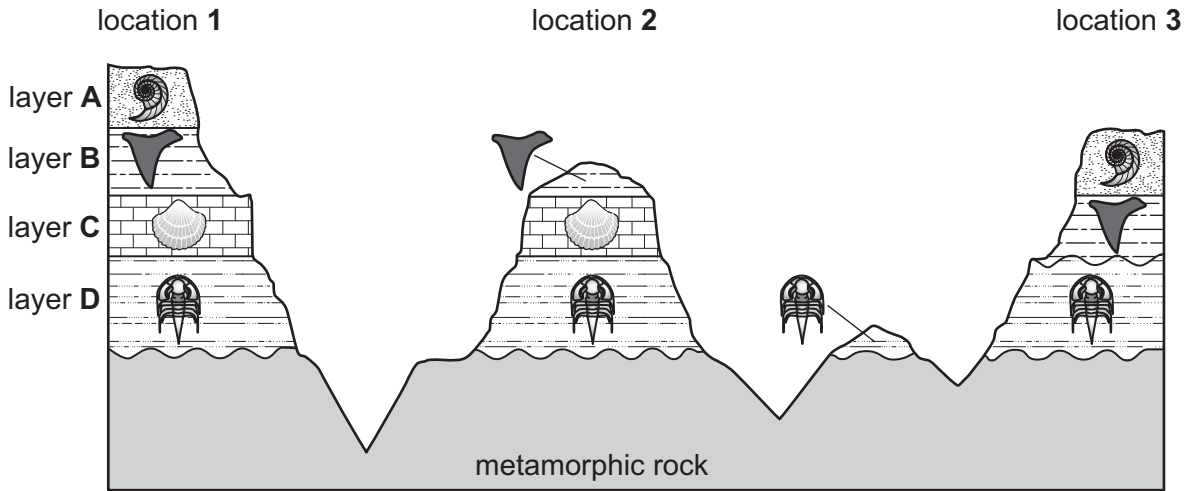
..... [1]

(b) Safia cannot be sure whether the cell is animal or plant.

Use the information from the diagram to explain why.

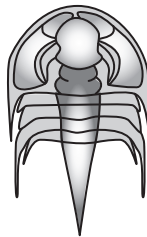
.....  
.....  
..... [2]

2 The diagram shows a cross-section of rocks in three different locations.



(a) Fossils are found in the layers of rocks.

Look at the picture of one of the fossils.



(i) This fossil is the **oldest** shown in the diagram.

Explain how you can tell.

..... [1]

(ii) The fossil is found in a sedimentary rock.

Circle the sedimentary rock in the list.

**basalt**

**granite**

**marble**

**sandstone**

[1]

(b) Complete the sentence to explain how metamorphic rocks form.

Choose words from the list.

**heat**

**ice**

**pressure**

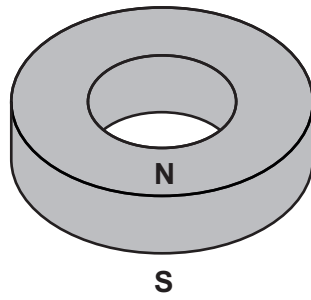
**water**

**wind**

Metamorphic rocks form when other rocks are changed by

..... and ..... [2]

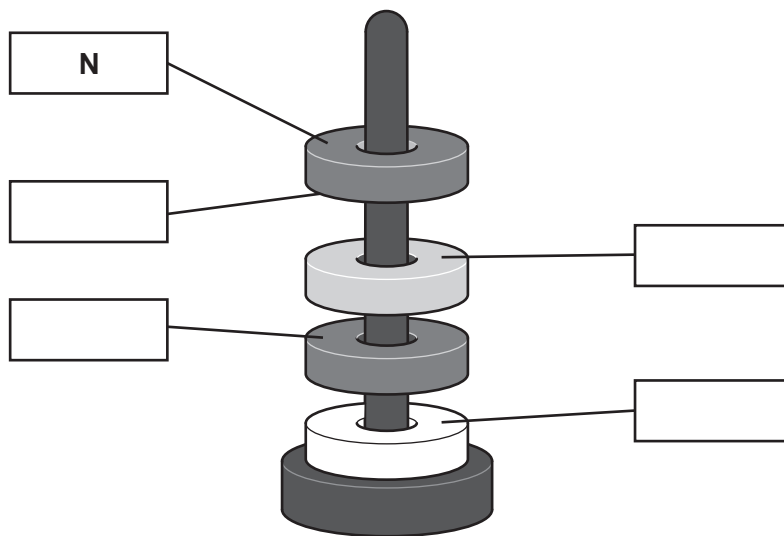
3 Ring magnets have a north pole (N) and a south pole (S).



Gabriella has a toy made of ring magnets.

She puts four ring magnets on the toy.

There are gaps between the magnets.



Complete the missing labels in the boxes on the diagram.

Use **N** for a north pole.

Use **S** for a south pole.

The first one has been done for you.

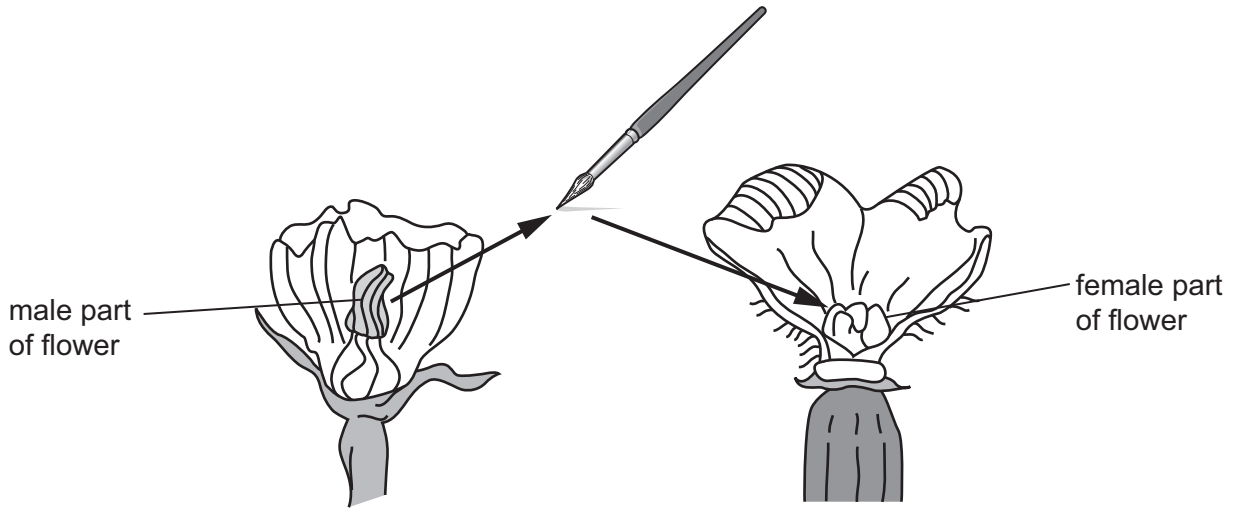
[2]

4 Oliver grows several different varieties of cucumber plants.

He produces new plants by breeding different varieties together.

Oliver uses a brush to transfer grains containing male cells from a flower of one variety to the female parts of another variety.

This is shown in the diagram.



(a) Name the grains containing the male cells.

..... [1]

(b) Name the process of transferring the grains to the female parts of a flower.

..... [1]

(c) Name the process that must take place before seeds are formed.

..... [1]

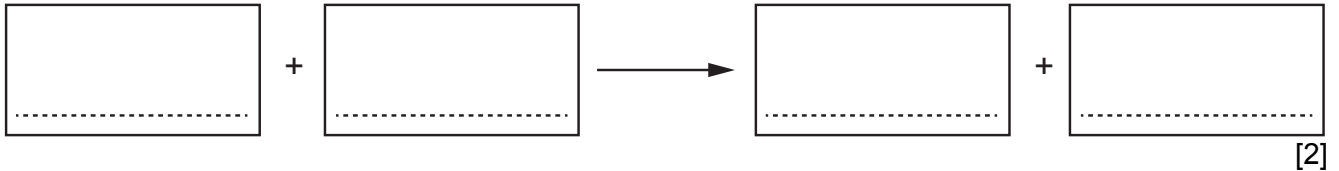
5 Chen investigates displacement reactions.

(a) Chen adds iron to copper sulfate solution in a test-tube.

A reaction takes place.

Copper and iron sulfate are made.

Complete the word equation for this reaction.



[2]

(b) Chen repeats his method with some other metals and metal salt solutions.

Here are his results.

metal	metal salt solution	does it react?
copper	zinc sulfate	no
copper	iron sulfate	no
iron	copper sulfate	yes
iron	zinc sulfate	no
zinc	copper sulfate	yes
zinc	iron sulfate	yes

Put these metals in order of reactivity, starting with the **most** reactive.

**copper**

**iron**

**zinc**

**most** reactive .....

.....

**least** reactive .....

[1]

(c) Chen notices the test-tube gets warm when a reaction takes place.

What name describes a reaction that gives out heat?

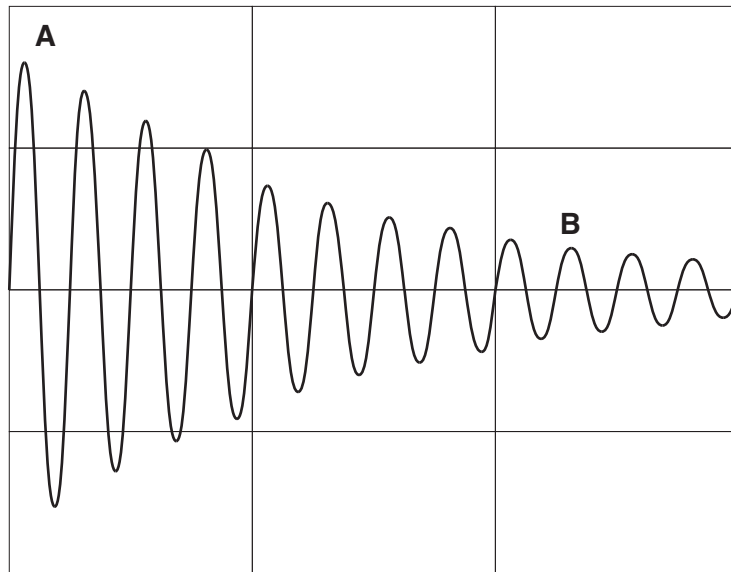
..... [1]

(d) Chen's teacher suggests that he change his experiment to find out which reaction gives out the most heat.

Describe how Chen changes his experiment.

.....  
.....  
.....  
..... [2]

6 Sound waves can be shown on an oscilloscope.



Complete the sentences.

Choose words from the list.

**amplitude**

**frequency**

**noise**

**particle**

**size**

At **A** the wave has the highest .....

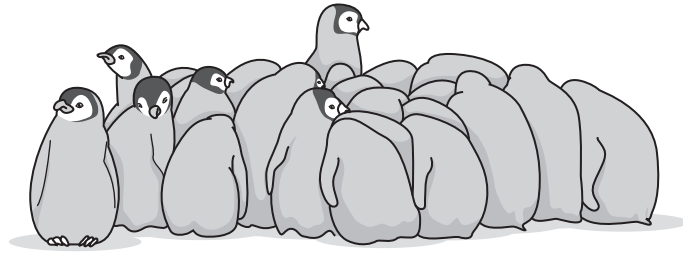
At **A** and **B** the wave has the same .....

[2]



7 Angélique and Pierre watch a film about penguins.

One scene shows penguins together in a group at a temperature of  $-30^{\circ}\text{C}$ .



Pierre predicts that the penguins in the middle of the group will be the warmest.

Angélique suggests that they plan an investigation to test Pierre's prediction.

They decide to use test-tubes filled with hot water to represent eight penguins.

She labels one tube **A** and stands it on its own.

She labels another tube **B** and places it in the middle of six other tubes all labelled **C**.

Angélique fills the eight test-tubes with hot water.



Angélique and Pierre record the temperatures of the water in tubes **A**, **B** and **C** over a period of time.

(a) Name **two** pieces of apparatus they use to obtain the measurements they need.

..... and ..... [2]

(b) State **one** variable they need to keep the same in their investigation.

variable .....

Explain your answer.

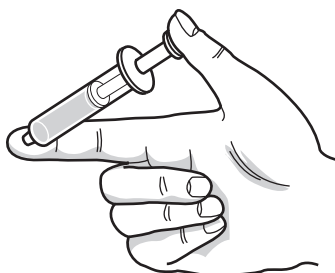
.....  
.....

[2]

8 Aiko and Carlos are investigating states of matter.

They do three tests on five different substances.

**Test 1** Fill a syringe with the substance and try to squash it.



**Test 2** Put the substance into a beaker.

**Test 3** Heat the substance in an evaporating dish.

Here are their results.

substance	test 1	test 2	test 3
<b>A</b>	could not fill the syringe with this substance	did not take on the shape of the beaker	melted
<b>B</b>	filled the syringe but could not be squashed	took on the shape of the beaker	turned into steam leaving nothing in the dish
<b>C</b>	could not fill the syringe with this substance	did not take on the shape of the beaker	burnt
<b>D</b>	could be squashed in the syringe	could not see this substance in the beaker	did not do this as nothing to see
<b>E</b>	filled the syringe but could not be squashed	took on the shape of the beaker	turned to steam but left a white solid behind in the dish

Use their results to answer these questions.

(a) Which substance is a **gas**?

Choose from **A, B, C, D** or **E**. .....

Explain your answer.

.....  
 ..... [2]

(b) Which **two** substances are **solids**?

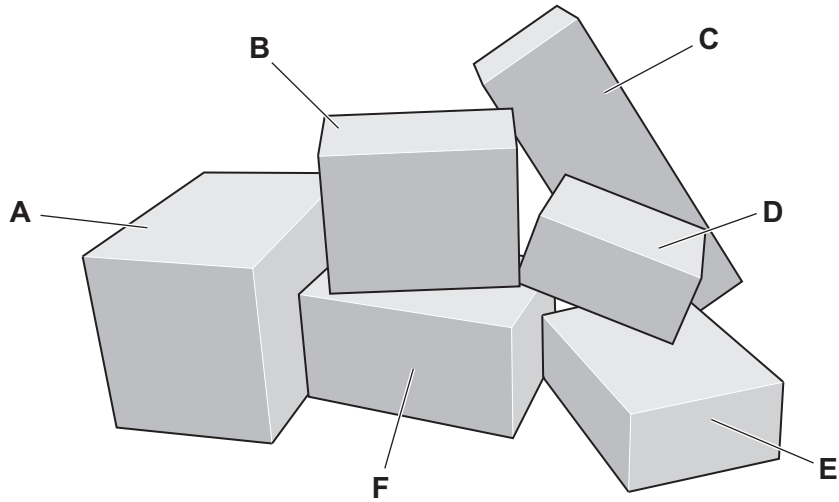
Choose from **A, B, C, D** and **E**. ..... and .....

Explain your answer.

.....  
.....

[2]

9 Pierre and Carlos have six boxes.



They collect information about the six boxes.

box	colour	volume in cm <sup>3</sup>	mass in g	density in g/cm <sup>3</sup>
A	red	15	18.0	1.2
B	red	12	75.6	6.3
C	green	12	86.4	7.2
D	green	8	78.4	9.8
E	red	10	41.0	4.1
F	green	13	83.2	6.4

(a) Pierre says

**‘The green boxes are denser than the red boxes.’**

Does the evidence in the table support his statement?

.....

Explain your answer.

.....  
 .....

[2]

(b) Carlos says

**'The largest box is the most dense.'**

Does the evidence in the table support his statement?

.....

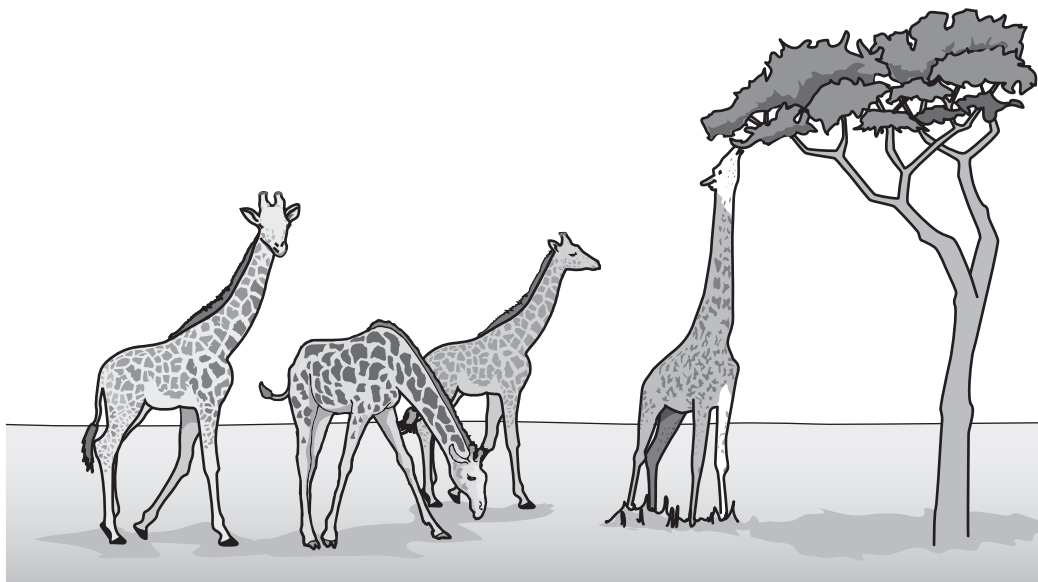
Explain your answer.

.....  
 .....

[2]

10 The diagram shows four giraffes.

They have different patterns on their bodies.



Tick (✓) the boxes next to the **two** sentences that prove that they are all the **same species**.

They all eat the same food.

They can all breed with each other.

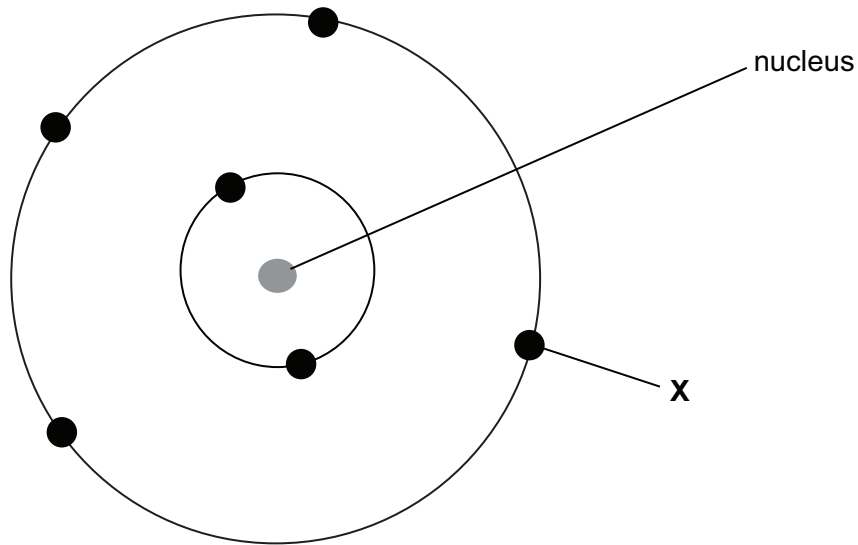
They share similar features.

They live in the same habitat.

Their offspring would all be able to have young.

[2]

11 The diagram shows a model of an atom of an element.



(a) Name the part of the atom labelled **X**.

..... [1]

(b) Describe how you can tell that the element is in Group 4 of the Periodic Table.

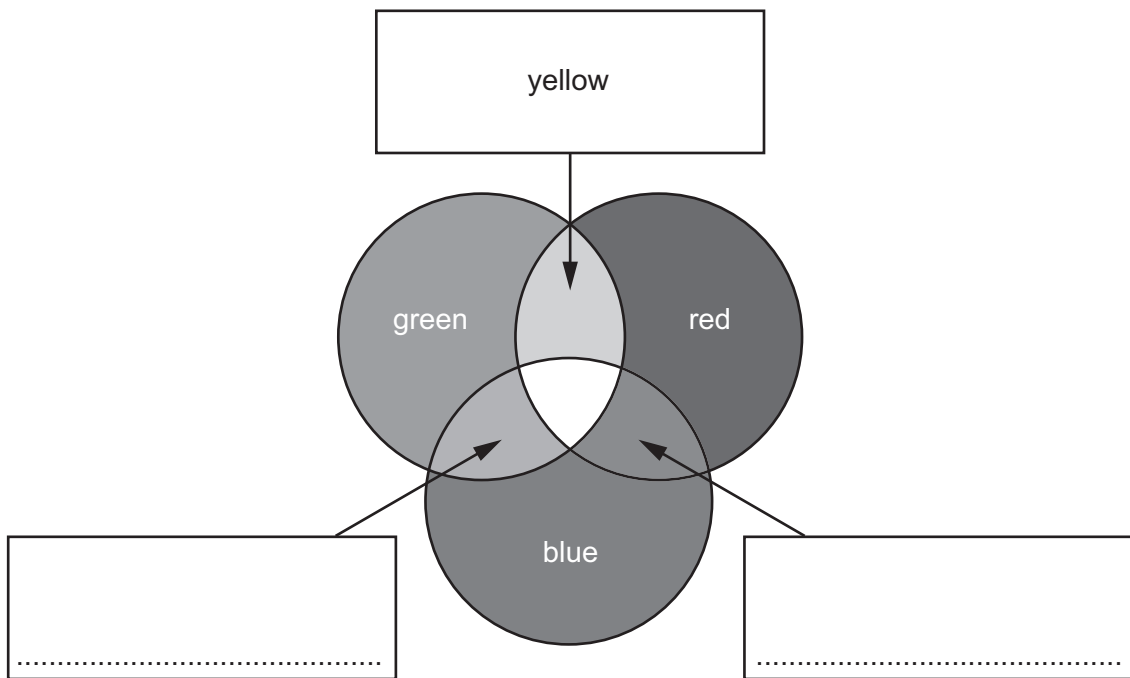
Use information from the diagram.

..... [1]

(c) What happens to the size of atoms as you move down Group 4?

..... [1]

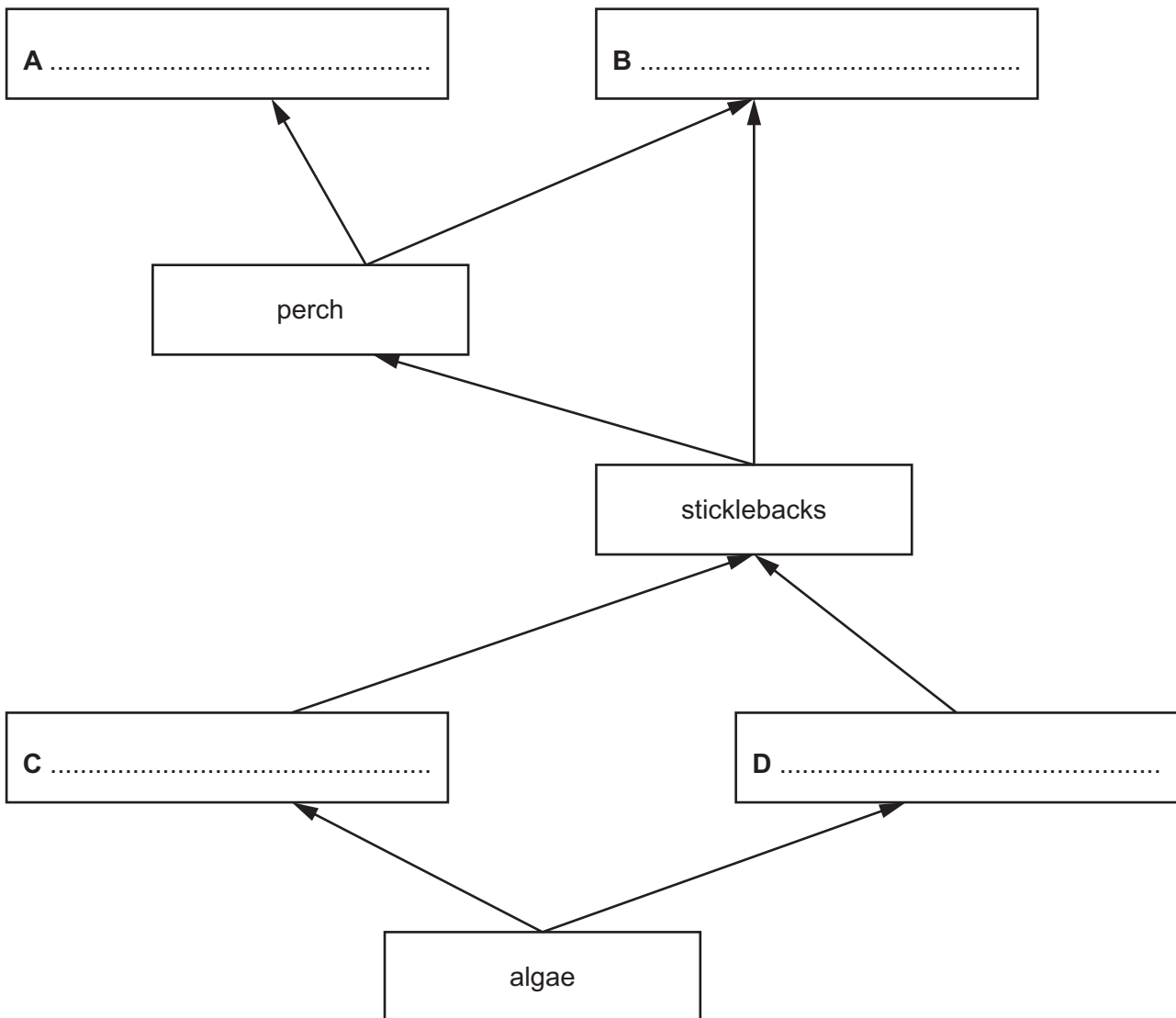
12 The diagram shows the **addition** of different colours of light.



Complete the diagram by writing the correct colour in each box.

[2]

13 (a) The diagram shows part of a food web in a large lake.



Some organisms are missing from the food web and are shown by the boxes **A**, **B**, **C** and **D**.

Identify the four organisms using the information.

**Algae** are small green plants that are eaten by **mosquito larvae**.

**Water fleas** also feed on **algae**.

**Sticklebacks** are small fish that eat **water fleas** and **mosquito larvae**.

Fish such as **perch** and **pike** eat **sticklebacks**.

**Pike** and **otters** are predators that compete with each other for **perch**.

Write the names of each of the organisms in the boxes **A**, **B**, **C** and **D**.

[3]



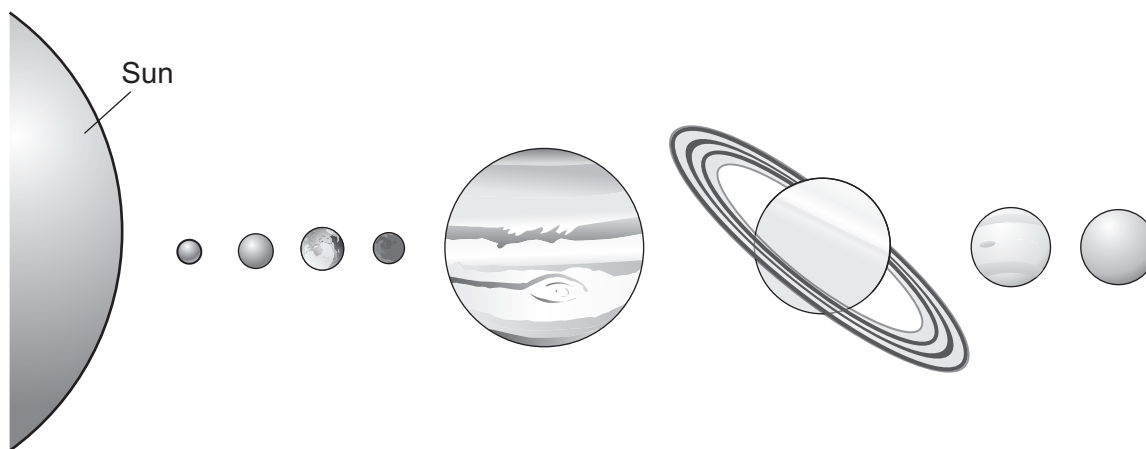
(b) In some areas, otters have been introduced into lakes and rivers.

Fishermen claim that this has affected the food web and spoiled their fishing.

Explain how and why introducing otters could affect the number of fish in the lake.

.....  
.....  
..... [2]

14 Jamila draws a picture of the Sun and the planets in the solar system.



She has labelled the Sun.

(a) Write down the names of the two planets **nearest** to the Sun.

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

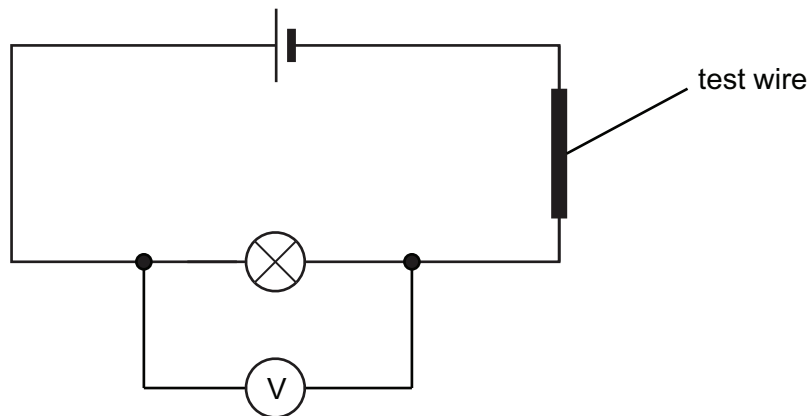
(b) We see the Sun because it is a source of light.

Explain why we see the planets.

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

15 Safia investigates electrical circuits.

She measures the voltage across a lamp.

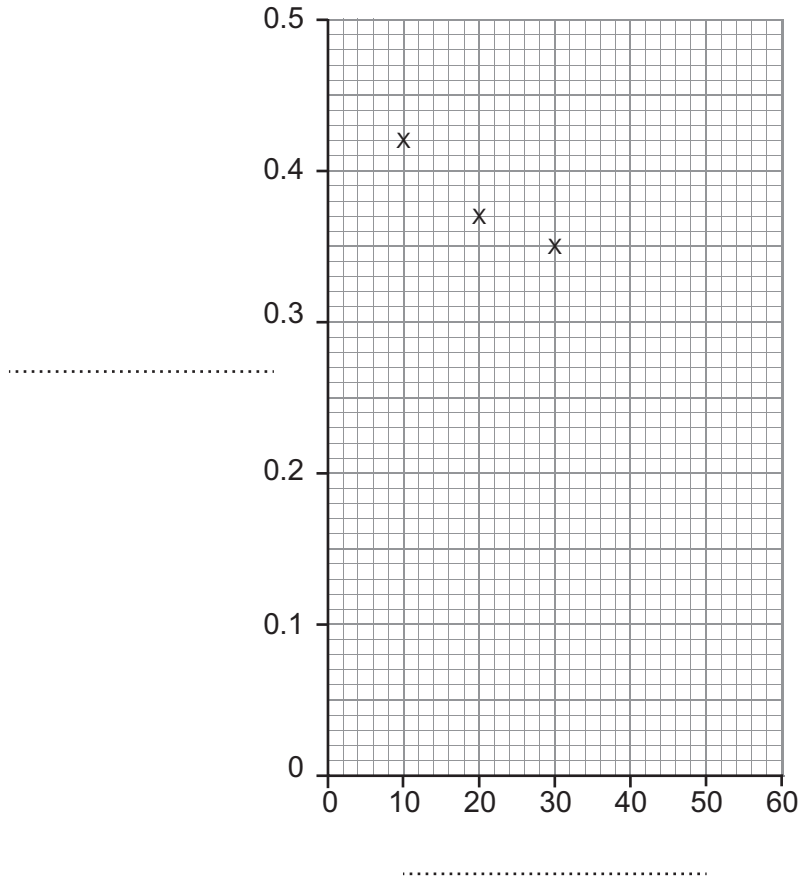


Safia writes her results in a table.

length of test wire in cm	voltage in V
10	0.42
20	0.37
30	0.35
40	0.28
50	0.22

(a) Complete the graph of Safia's results by

- adding labels to both of the axes
- plotting the points (the first three have been done for you).



[2]

(b) One of the results does not fit the pattern.

Which result is anomalous and what should Safia do to check this result?

anomalous result .....

she should .....

[2]

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