

CANDIDATE  
NAME

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CENTRE  
NUMBER

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CANDIDATE  
NUMBER

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**1113/01**

**April 2020**

**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. Blank pages are indicated.



- 1 The list contains the names of different parts of a cell.

cell membrane

cell wall

chloroplast

Complete the table by placing ticks (✓) in the correct boxes.

part of a cell	where the part of the cell is found		
	only in animal cells	only in plant cells	in both animal and plant cells
cell membrane			
cell wall			
chloroplast			

[2]

- 2 This question is about the properties of metals.

- (a) Draw straight lines to match the **property of a metal** with its correct **use** linked to that property.

property of a metal

sonorous

strong

ductile

hard

use

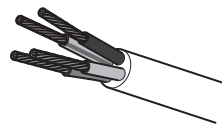
drill bit



bridge across a river



electrical wires

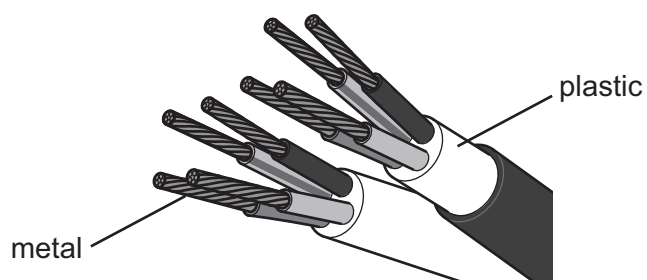


bell



[2]

(b) Metals are used to make electrical wires because they conduct electricity.



Write down **two** reasons why plastic is put around electrical wires.

- 1 .....
- 2 .....

[2]

(c) Read the sentences about the physical properties of metals.

Tick (✓) the box next to the correct sentence.

All metals have low melting points.

☐

Some metals are gases at room temperature.

☐

All metals conduct heat.

☐

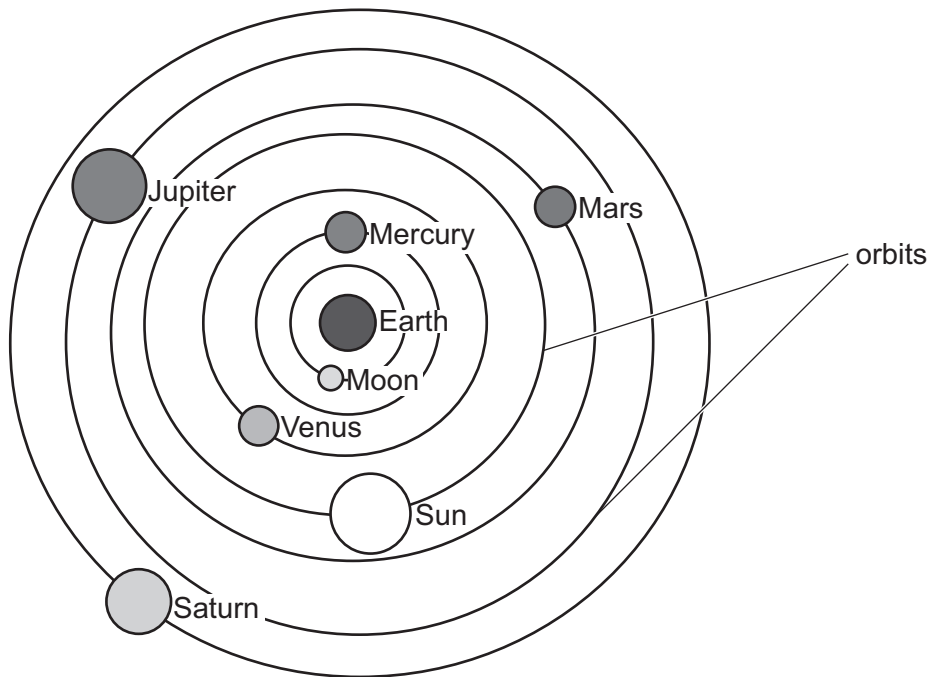
All metals are brittle.

☐

[1]

- 3 Blessy uses the internet to find out about our Solar System.

She finds a very old model of our Solar System.



Scientists thought that the Earth was at the centre.

The orbits in the old model show the other objects moving around the Earth.

- (a) Scientists today know that the Earth is **not** at the centre of our Solar System.

What is at the centre of our Solar System?

..... [1]

- (b) Write down **two other** things that are **incorrect** in the old model.

1 .....

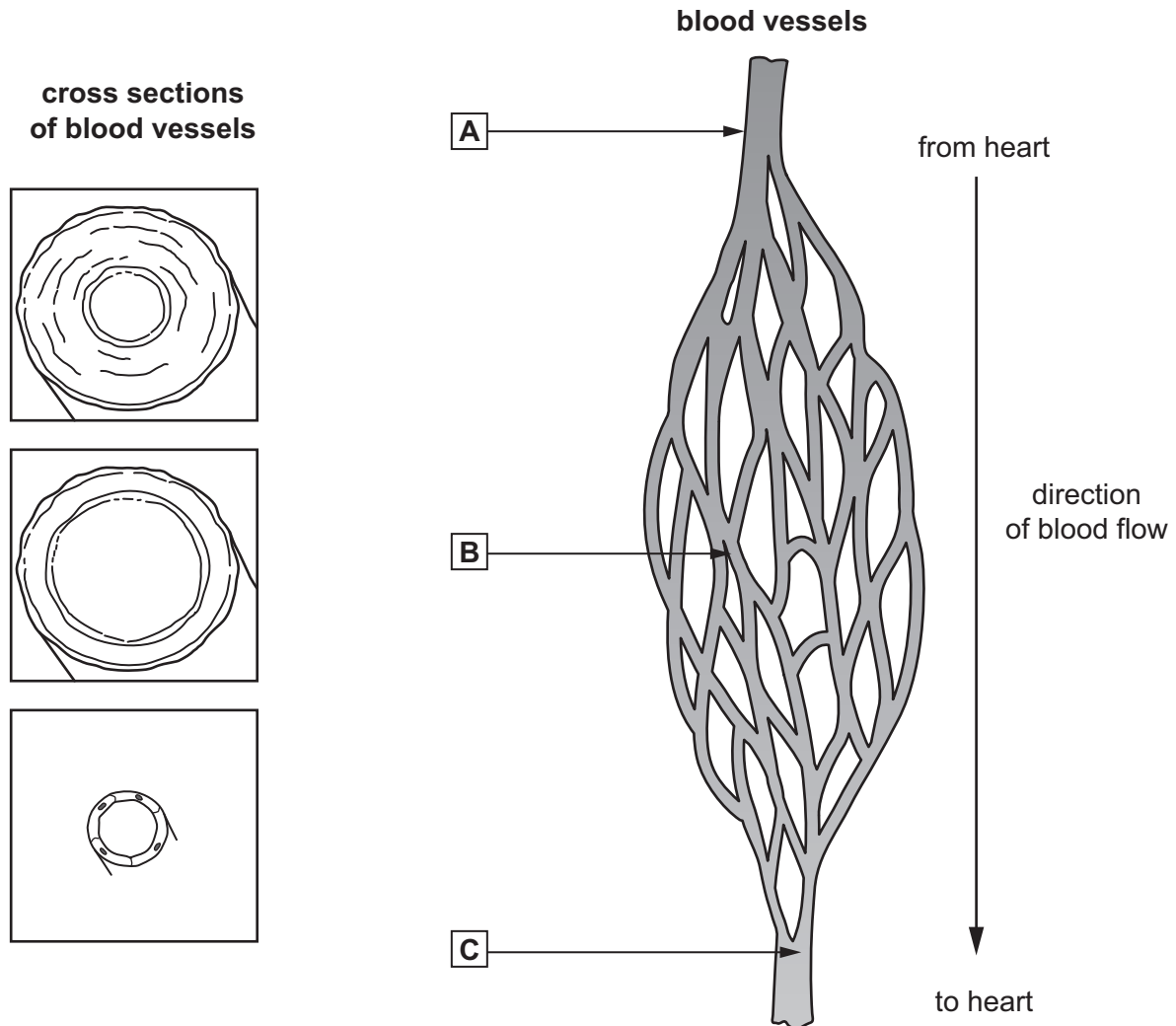
2 ..... [2]

- (c) Write down **one** thing that is **correct** in the old model.

..... [1]

4 This question is about blood vessels.

- (a) Draw a straight line from each **cross section of a blood vessel** to the correct **letter** showing where the blood vessel is found.



[2]

- (b) Name the types of blood vessel labelled **A** and **C**.

**A** .....

**C** .....

[2]

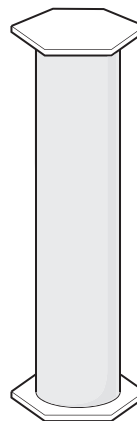
- 5 The picture shows three different elements and their state at room temperature.



solid iodine



liquid bromine



chlorine gas

- (a) Which **two** of these elements flow easily at room temperature?

..... [1]

- (b) What is the chemical symbol for chlorine?

..... [1]

- (c) Chlorine gas fills the jar.

Explain why a gas fills a jar.

Tick (✓) the box next to the correct explanation.

Forces between the particles push them apart.

☐

The particles are free to move.

☐

The particles can easily be squashed into a small space.

☐

The particles increase in size to fill the space.

☐

[1]

(d) Liquid bromine easily evaporates.

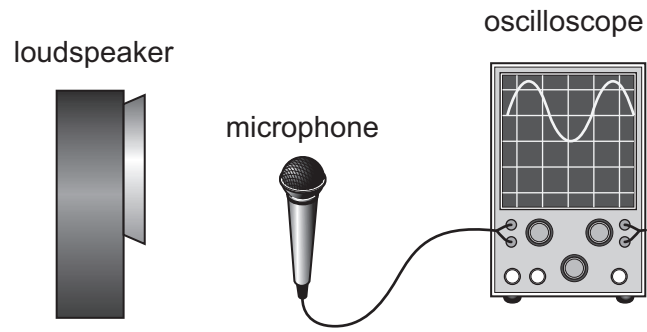
Explain what happens to the particles (molecules) when a liquid evaporates.

.....

.....

.....

..... [2]

**6** Mia investigates sound.

She makes a sound using a loudspeaker.

The sound is detected by the microphone.

**(a)** Describe how the sound travels from the loudspeaker to the microphone.

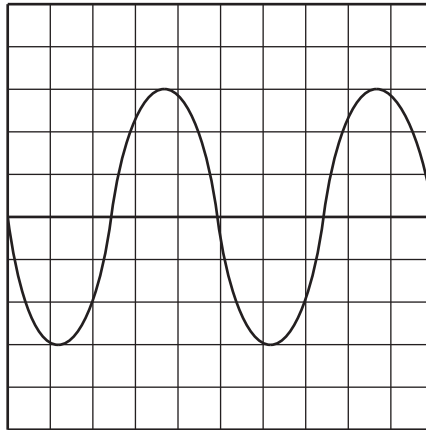
.....

.....

..... [2]

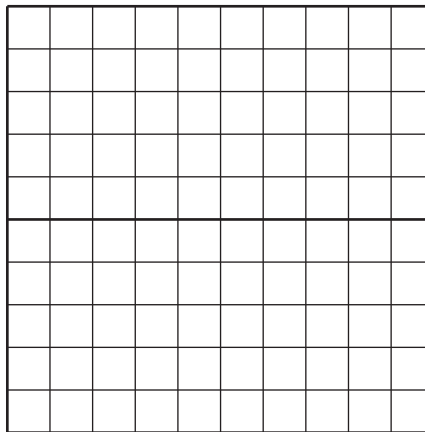


(b) Mia draws the wave she sees on the oscilloscope.



(i) She makes the sound **louder**.

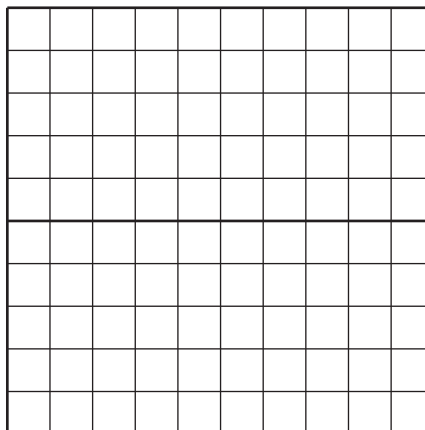
Draw this wave on the oscilloscope.



[1]

(ii) She makes the sound a **higher pitch**.

Draw this wave on the oscilloscope.



[1]

7 This question is about the life cycle of a plant.

(a) These processes take place in the life cycle of a plant.

**fertilisation**

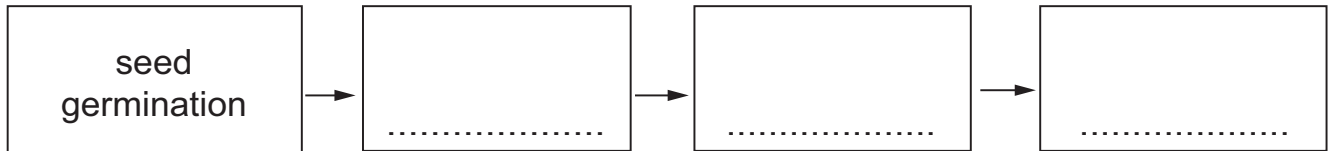
**pollination**

**seed formation**

**seed germination**

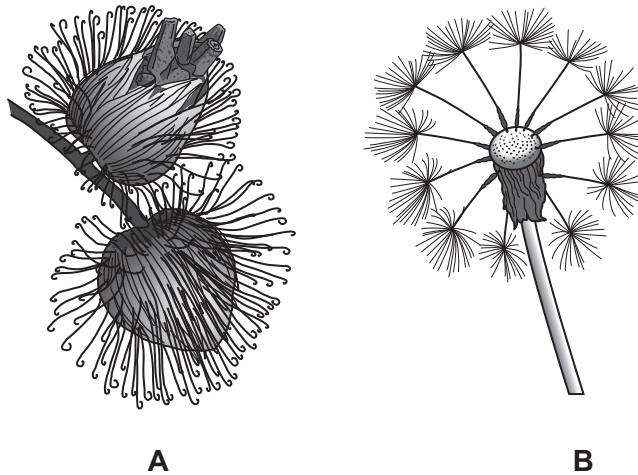
Put the processes in the order in which they occur in the life cycle of a plant.

One has been done for you.



[1]

(b) The diagrams **A** and **B** show two different types of seed.



**A**

**B**

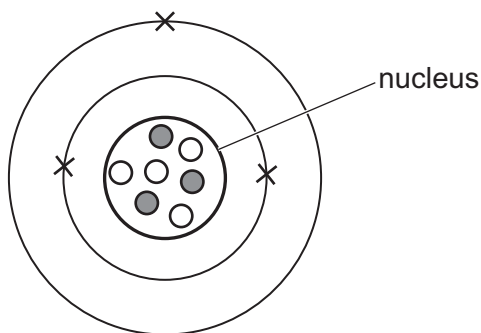
Suggest the method of dispersal for each type of seed.

Give a reason for each answer.

	method of seed dispersal	reason
<b>A</b>		
<b>B</b>		

[2]

- 8 Look at the diagram of the structure of a lithium atom.



- (a) There are three electrons in a lithium atom.

- (i) How many protons are there in a lithium atom?

..... [1]

- (ii) How many neutrons are there in a lithium atom?

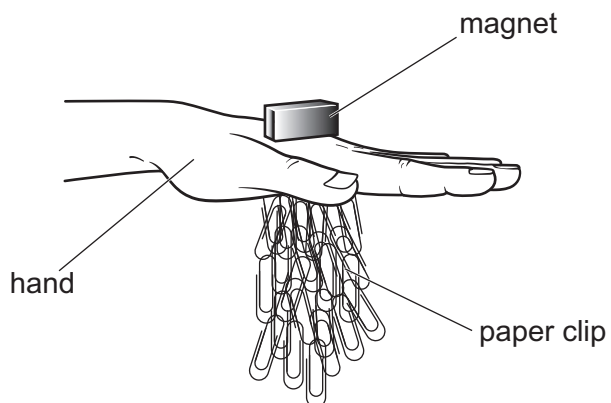
..... [1]

- (b) A sodium atom contains 11 protons.

Draw the structure of a sodium atom.

[2]

9 Mike investigates the strength of magnets.



Mike

- puts the magnet on top of his hand
- puts the bottom of his hand onto 24 paper clips
- lifts his hand up
- counts how many paper clips have been attracted
- repeats with different magnets.

Here are his results.

magnet	number of paper clips
A	24
B	24
C	7
D	19
E	12

- (a) Mike concludes that magnet **A** and magnet **B** are both strong.

He **cannot** conclude which of these two magnets is stronger.

- (i) Explain why he **cannot** conclude which magnet, **A** or **B**, is stronger.

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

- (ii) Describe what he could do to find out which magnet, **A** or **B**, is stronger.

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

- (b) Pierre repeats Mike's investigation.

Here are Pierre's results.

magnet	number of paper clips
<b>A</b>	18
<b>B</b>	22
<b>C</b>	1
<b>D</b>	13
<b>E</b>	6

Pierre uses the same magnets as Mike.

Pierre uses the same paper clips as Mike.

The results are different.

- (i) Describe **one** difference between the results.

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

- (ii) Suggest why the results are different.

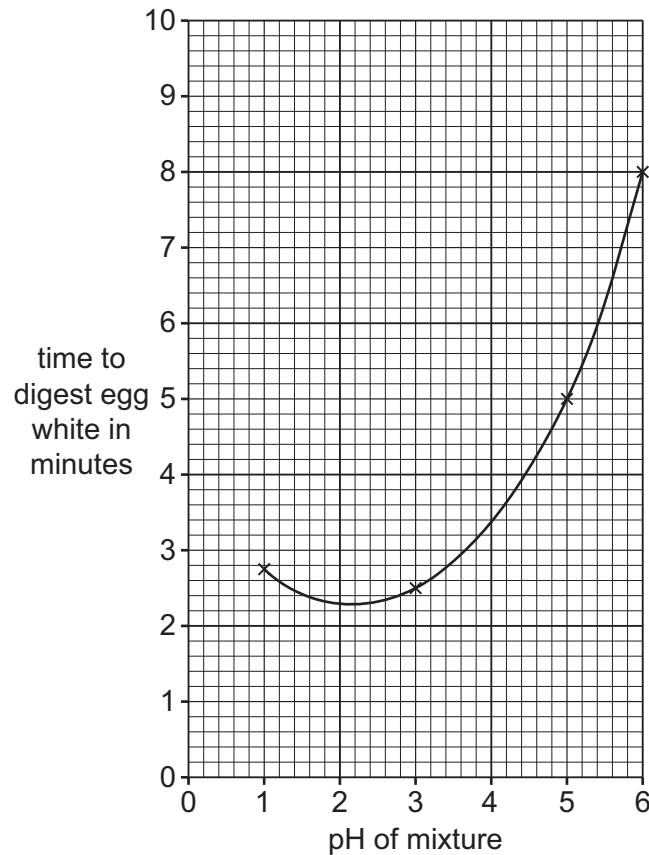
.....  
 ..... [1]

**10** Egg white contains a protein.

An enzyme digests protein in the stomach.

Class 9 investigate how changing the pH affects the time it takes for the enzyme to digest egg white.

The graph shows the results of their investigation.



**(a) (i)** Which pH has the **shortest** time of digestion?

pH .....

[1]

**(ii)** The class want to be certain that they have found the shortest time.

Describe **two** things the class does to be certain.

1 .....

.....

2 .....

.....

[2]

(b) (i) State **one** safety risk of using liquids with a very low pH.

..... [1]

(ii) Describe **one** way of reducing this safety risk.

..... [1]

(c) State one variable the students must **control** in this investigation.

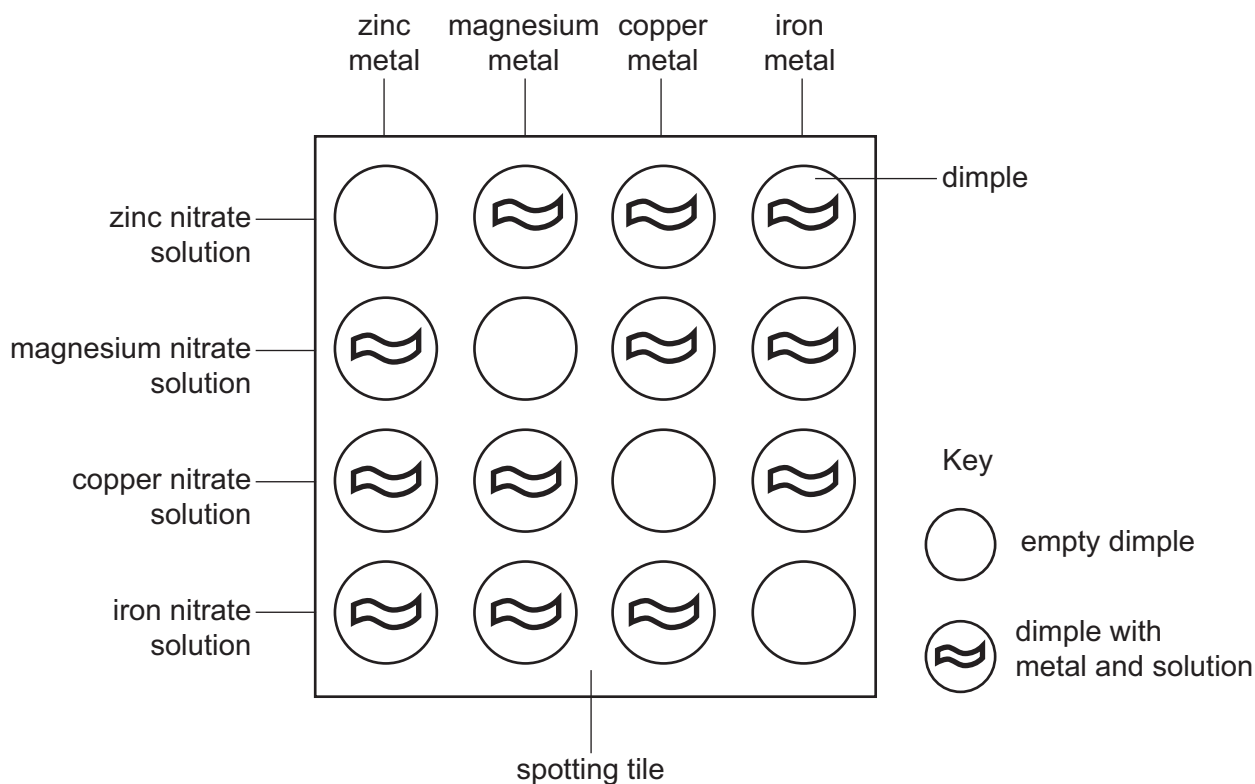
..... [1]

**11** Jamila and Ahmed investigate displacement reactions.

They put drops of different solutions into the dimples of a spotting tile.

They then add metals to each solution.

The diagram shows their experiment.



**(a)** Jamila and Ahmed look to see if a reaction takes place.

Suggest what they might see if a reaction takes place.

..... [1]



(b) They record their results in a table.

They put a

- tick (✓) if there is a reaction
- cross (x) if there is no reaction.

Here are some of their results.

solution	metal			
	zinc	magnesium	copper	iron
zinc nitrate		✓	x	x
magnesium nitrate				
copper nitrate	✓	✓		✓
iron nitrate	✓	✓	x	

(i) Complete the table to predict the results for magnesium nitrate.

[1]

(ii) The reactivity series shows the metals in order of reactivity.

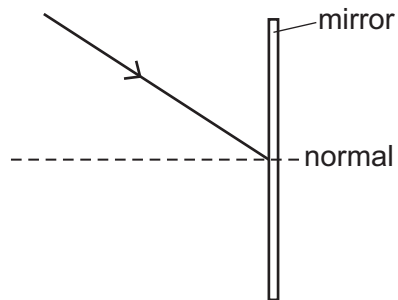
Which of the four metals is the **lowest** in the reactivity series?

..... [1]

12 Complete the light rays in the **three** diagrams.

(a)

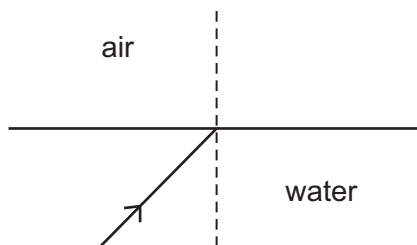
**reflection**



[1]

(b)

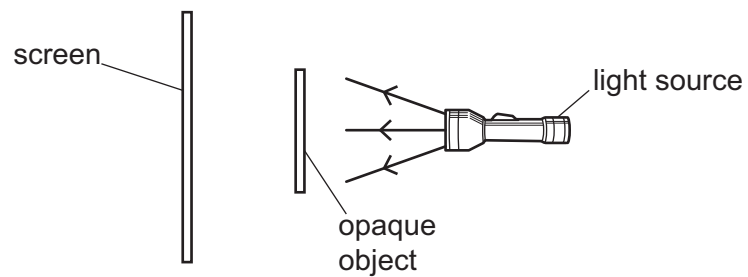
**refraction**



[1]

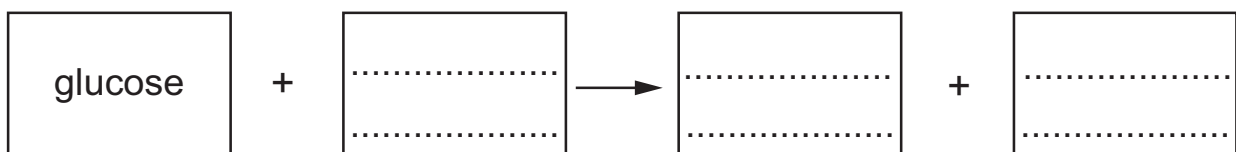
(c)

**shadow formation**



[2]

13 Complete the word equation for aerobic respiration.



[2]

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