

CANDIDATE
NAME

CENTRE
NUMBER

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CANDIDATE
NUMBER

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SCIENCE

1113/02

Paper 2

April 2019

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 **15** printed pages and **1** blank page.

1 Yeast is a living organism.

(a) Write down **three** life processes.

- 1
- 2
- 3

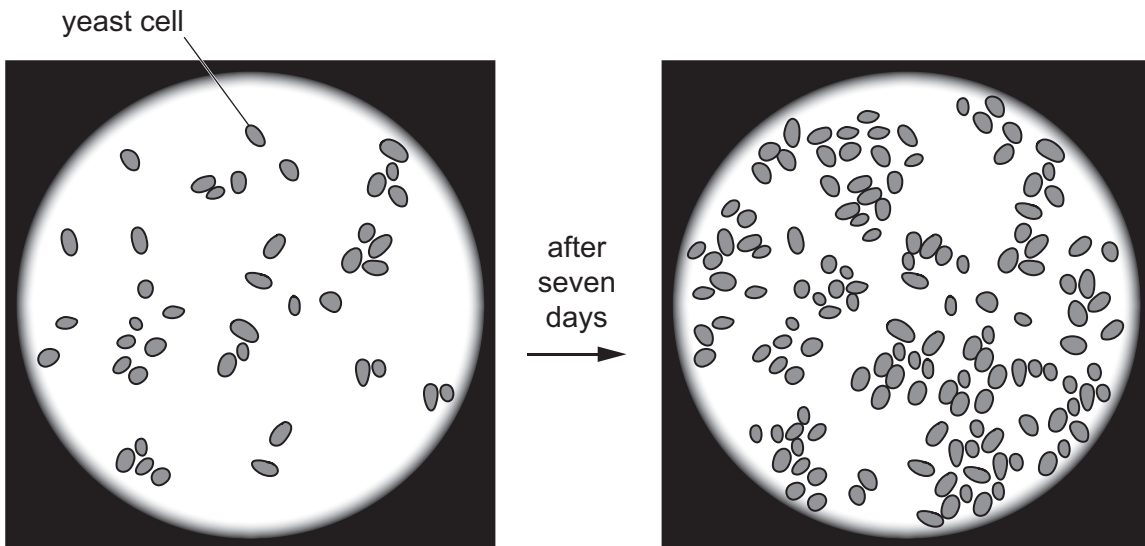
[1]

(b) Louis Pasteur investigated the effect of yeast on grape juice.

He mixed yeast cells with grape juice.

He looked at a slide of this mixture using a microscope.

He looked at a new slide of the mixture after seven days.



(i) Describe **one** way the appearance of the slide has changed.

..... [1]

(ii) Explain the cause of this change in appearance.

..... [1]

2 Lily is in a lesson just before lunch.

She is hungry and can smell the food cooking in the school kitchen.



(a) We smell food because particles of gas travel from the food.

Which sentence is true about gases?

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

- Forces between the particles are weak.
- The particles are only able to vibrate.
- The particles form a fixed shape.
- The particles have very little energy.

[1]

(b) What word describes how the smell reaches Lily?

Circle the correct answer.

- absorption** **diffusion** **dissolving** **mixing**

[1]

(c) The smell from hot food reaches Lily before the smell from cold food.

Explain why.

Use ideas about particles.

.....

.....

.....

.....

[2]

3 Label the diagram showing the reflection of light by a mirror.

Choose words from

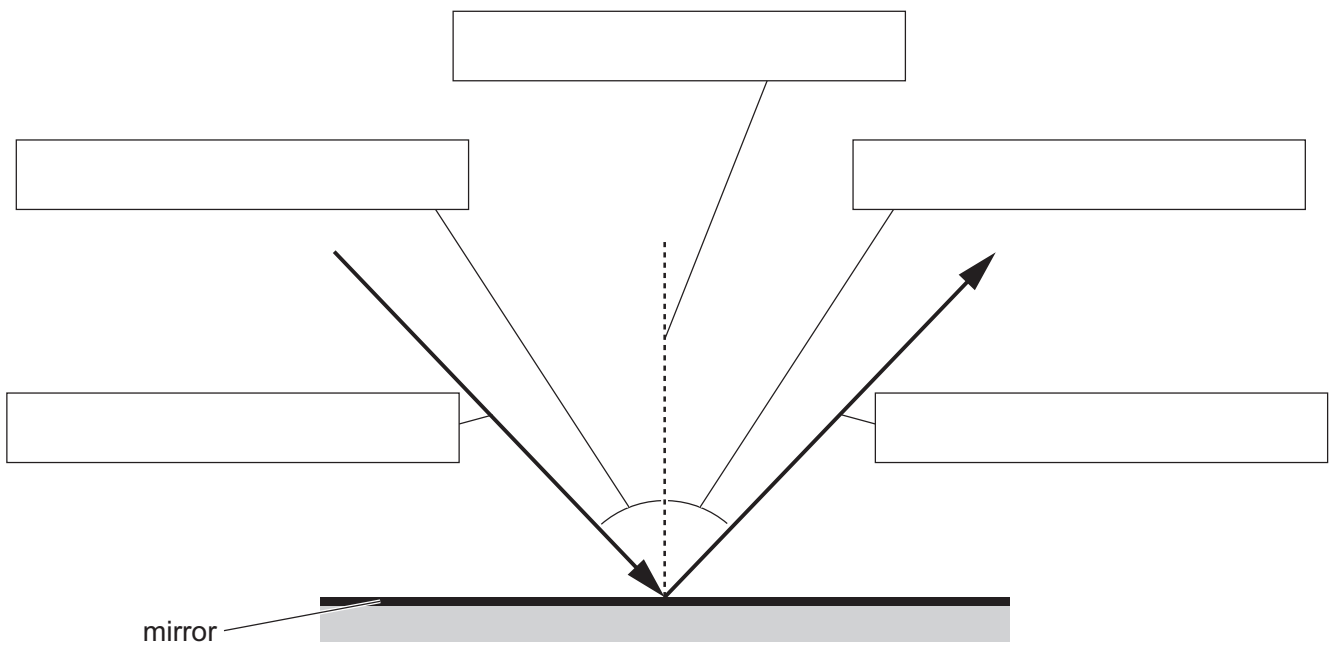
angle of incidence

angle of reflection

normal

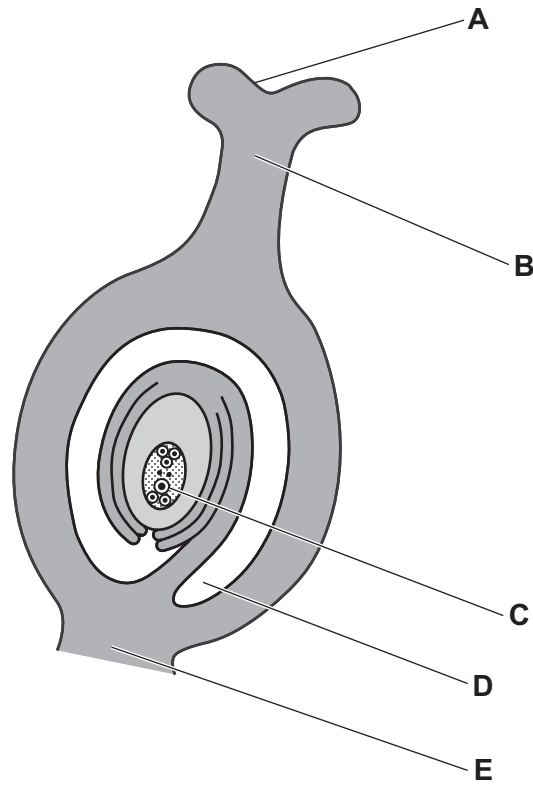
incident ray

reflected ray



[3]

4 The diagram shows the female parts of a flower.



(a) Where does **pollination** take place in the flower?

Circle the correct answer.

- A B C D E [1]

(b) What happens during **pollination** in the flower?

.....
 [1]

(c) Where does **fertilisation** take place in the flower?

Circle the correct answer.

- A B C D E [1]

(d) Describe what happens during **fertilisation** in the flower.

.....
 [1]

5 Rajiv investigates the water content of some soils.

Here is his method.

Rajiv

- measures the mass of an evaporating dish
- adds 20g of soil into the evaporating dish
- puts the dish of soil into a drying oven for 24 hours
- measures the new mass of the dish and the soil
- does this with four more different soils.

(a) What apparatus does Rajiv use to measure the mass of the soil and dish?

..... [1]

(b) Here are his results.

soil sample	mass of soil and dish before drying in g	mass of soil and dish after drying in g	change in mass of soil in g
A	126	125	1
B	128	124	4
C	132	127	5
D	136	130	6
E	131	128	3

Which soil sample contains the most water?

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

..... [1]

(c) Write down one **safety** hazard in Rajiv's investigation and describe how he should avoid it.

safety hazard

To avoid the hazard Rajiv should

.....

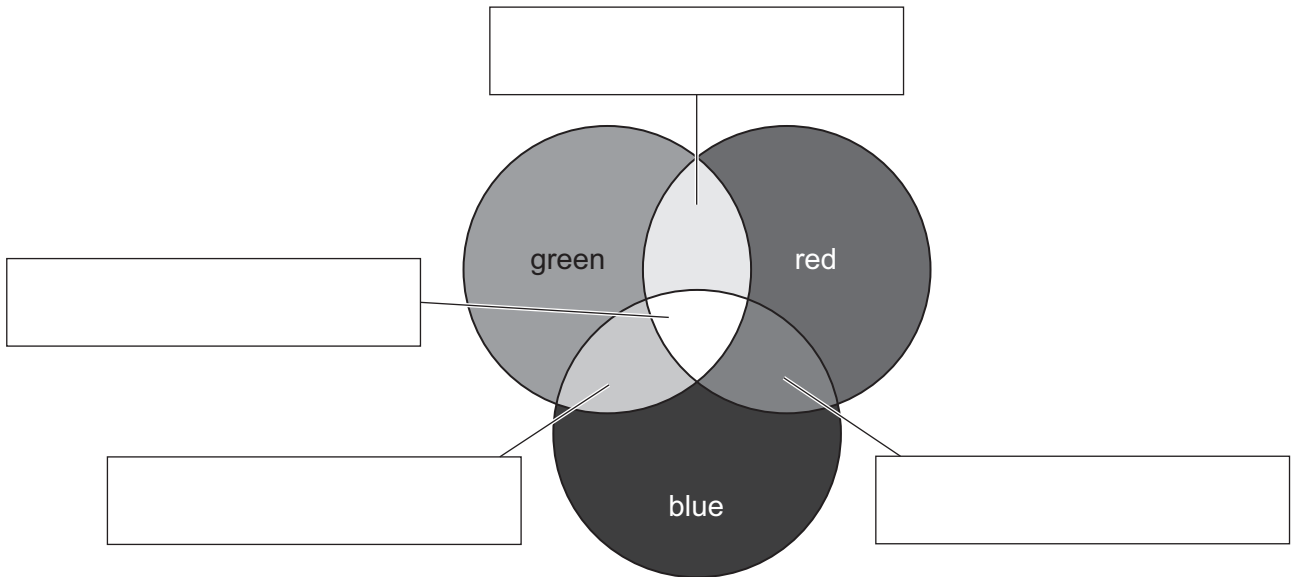
[2]

6 Class 9 learn about coloured light.

Their teacher tells them about colour addition.

She gives them a diagram showing equal amounts of the primary colours of light overlapping.

Label the diagram with the correct colours.



[2]

7 Complete these sentences about making salts.

Salts can be made by reacting metals or metal carbonates with acid.

When metals react with acid, the products are a salt and

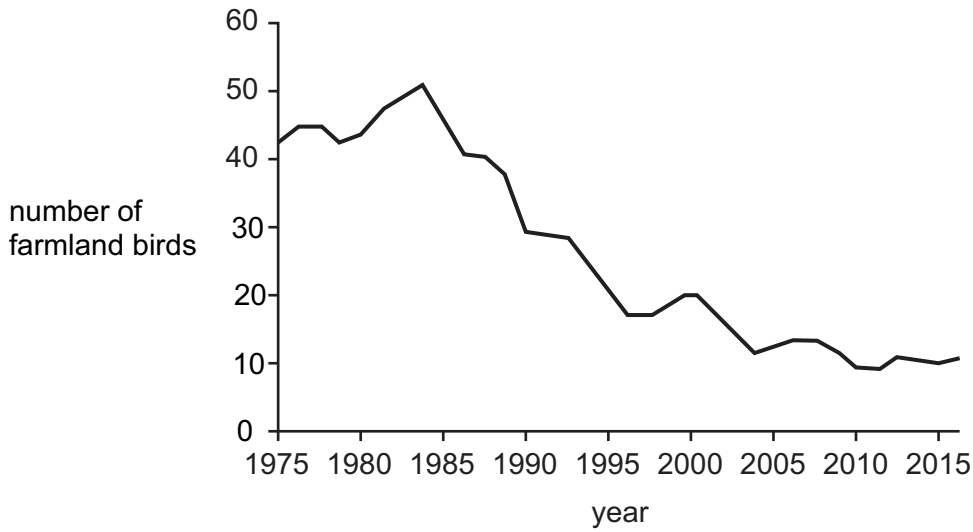
When metal carbonates react with acid, the products are a salt,

and

[3]

- 8 A group of birdwatchers collect data to show how the numbers of farmland birds change over time.

The graph shows the change in number of farmland birds between 1975 and 2015.



- (a) The data for each year was obtained from a large number of observations.

Explain why it is a good idea to make a large number of observations.

..... [1]

- (b) The results shown in the graph are estimates.

Explain why it is **not** possible to find the exact number of farmland birds.

..... [1]

- (c) The birdwatchers measured the change in numbers of farmland birds.

Write down two **factors** that affect the number of farmland birds.

1

2

[2]

- 9 (a) Atoms are made up of three different particles.

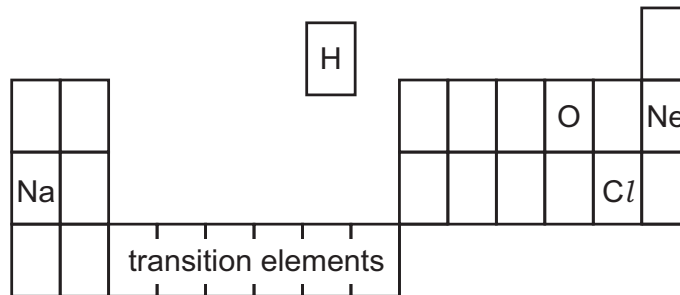
Complete the sentences about the different particles in an atom.

The nucleus of an atom contains and

The nucleus is surrounded by particles called

[3]

- (b) The diagram shows part of the Periodic Table.



- (i) What is the chemical symbol for the **smallest** atom?

Choose from **H, O, Ne, Na** or **Cl**.

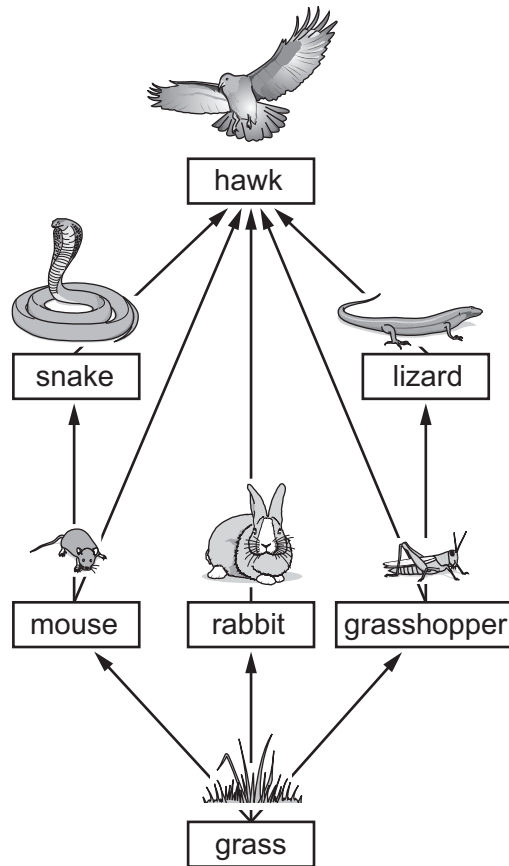
..... [1]

- (ii) Which chemical symbol shows a **metal**?

Choose from **H, O, Ne, Na** or **Cl**.

..... [1]

10 The diagram shows a food web in a field.



(a) Explain what is shown by the arrows in a food web.

.....
 [1]

(b) Name three **primary** consumers in this food web.

..... [1]

(c) Why is it difficult to classify the hawk as a secondary consumer?

.....
 [1]

(d) Name an organism that competes with the lizard for food.

..... [1]

(e) The rabbits are all killed by a disease.

What effect does this have on the number of mice?

Give a reason for your answer.

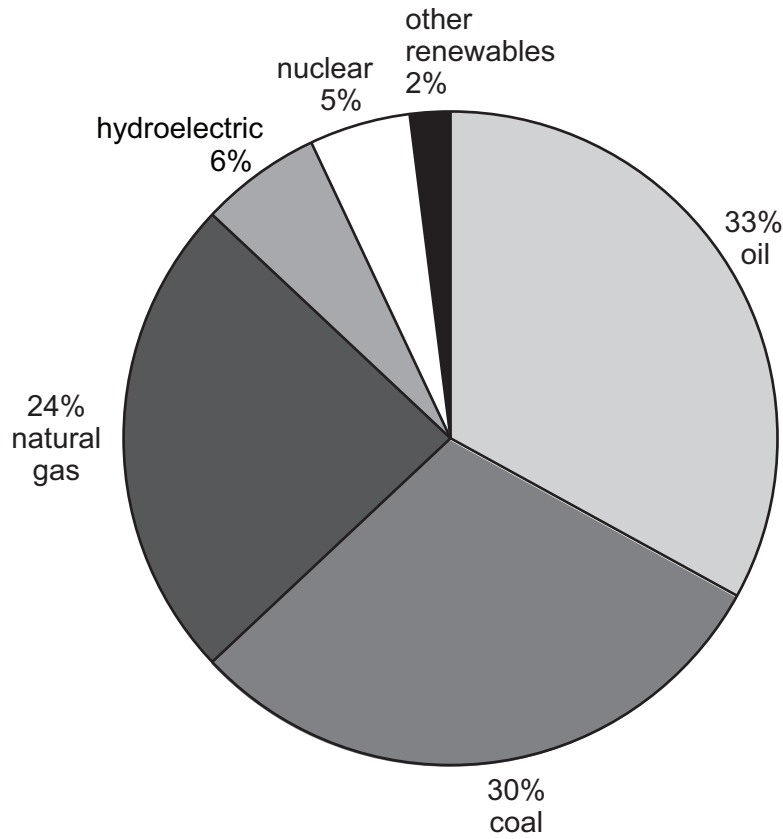
effect on number of mice

reason

.....

[1]

11 Carlos uses the internet to collect information about the use of world energy resources in 2016.



(a) Hydroelectric is a renewable resource.

Write down the names of **two other** types of renewable resources.

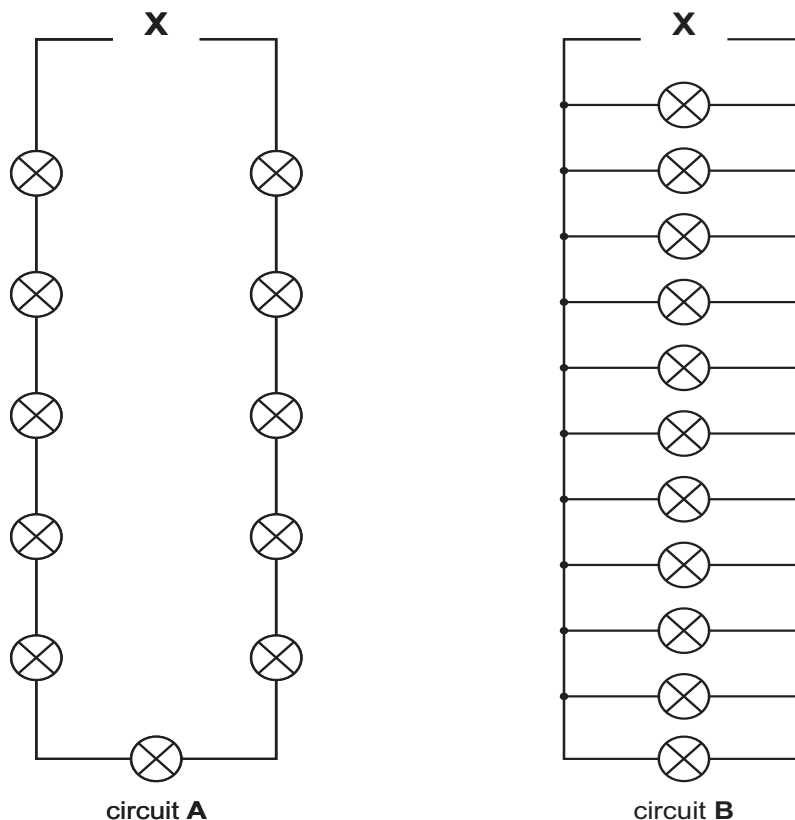
..... and [1]

(b) The pie chart will be different in the year 2050 compared to 2016.

Suggest **three** differences.

.....
.....
.....
..... [3]

12 Blessy compares **two** electrical circuits.



(a) Which electrical component must be in position **X** to make the lamps work?

The name of this electrical component is

Draw the electrical circuit symbol for this component.

[2]

(b) All of the lamps are working in both circuits.

Blessy removes **one** lamp from circuit **A** and **one** lamp from circuit **B**.

Explain what happens to the **other** lamps in the circuits.

In circuit **A** the other lamps

This is because

In circuit **B** the other lamps

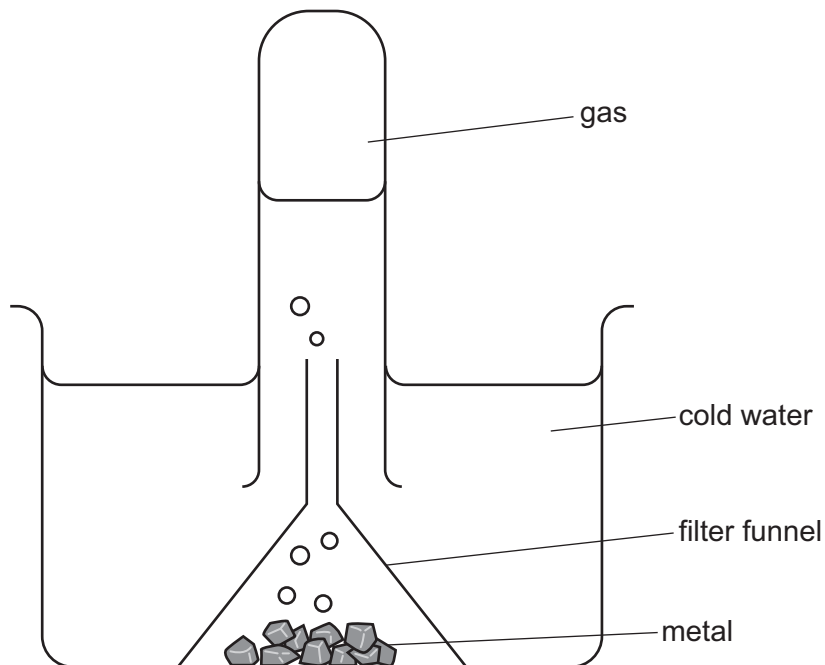
This is because

[2]

13 Mia investigates the reaction of metals with water.

She adds a metal to water and collects the gas produced.

The diagram shows her apparatus.



(a) Write down the name of the gas produced in the reaction.

..... [1]

(b) Mia uses the metal calcium in her first experiment.

The calcium reacts with the water to form a compound.

What is the name of this compound?

Circle the correct answer.

calcium carbonate

calcium chloride

calcium hydrate

calcium hydroxide

calcium oxide

[1]

(c) Mia wants to repeat her experiment with potassium.

Her teacher tells her that she cannot use potassium.

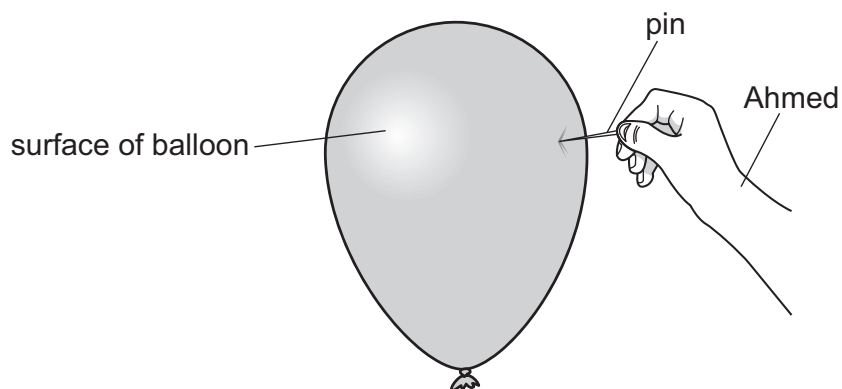
Why should Mia **not** use potassium?

.....

..... [1]

14 Ahmed is learning about pressure.

He pushes a pin on the surface of a balloon.

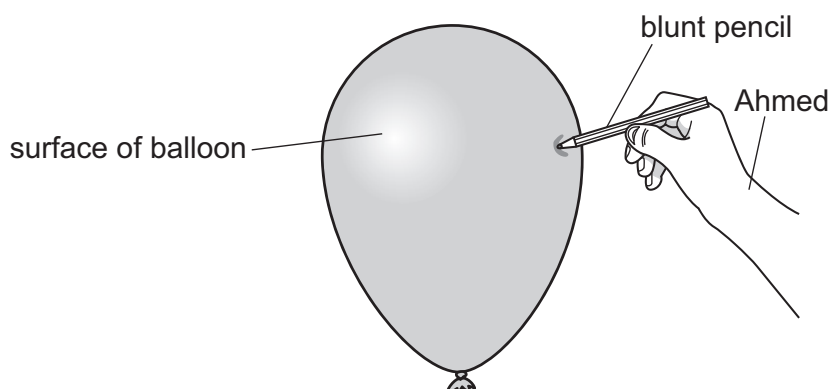


The balloon bursts (pops).

Ahmed repeats the investigation with an identical balloon.

He does **not** use a pin.

He pushes a blunt pencil with the same force.



The balloon does **not** burst.

Explain why the balloon does **not** burst.

.....

.....

..... [2]

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