



## Cambridge Lower Secondary Checkpoint

CANDIDATE  
NAME

solved by KhanhEdu.com

CENTRE  
NUMBER

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CANDIDATE  
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### SCIENCE

1113/01

Paper 1

October 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 [ ].

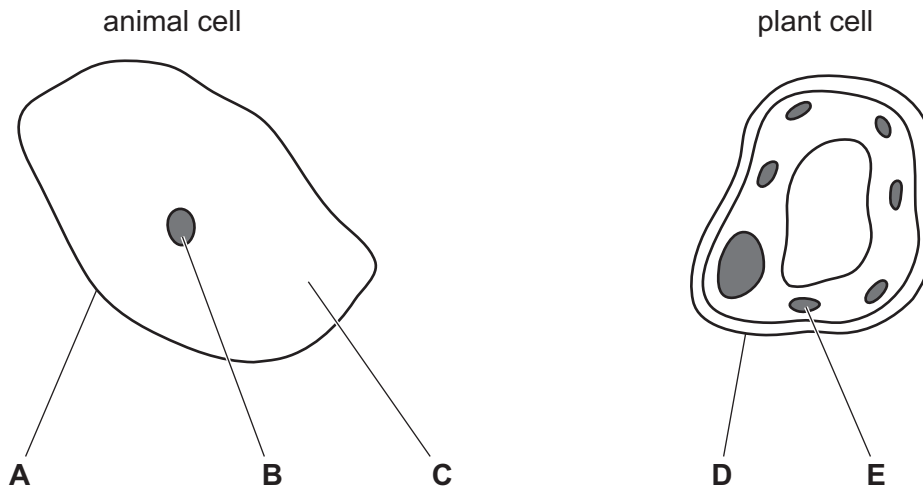
This document has **16** pages. Any blank pages are indicated.



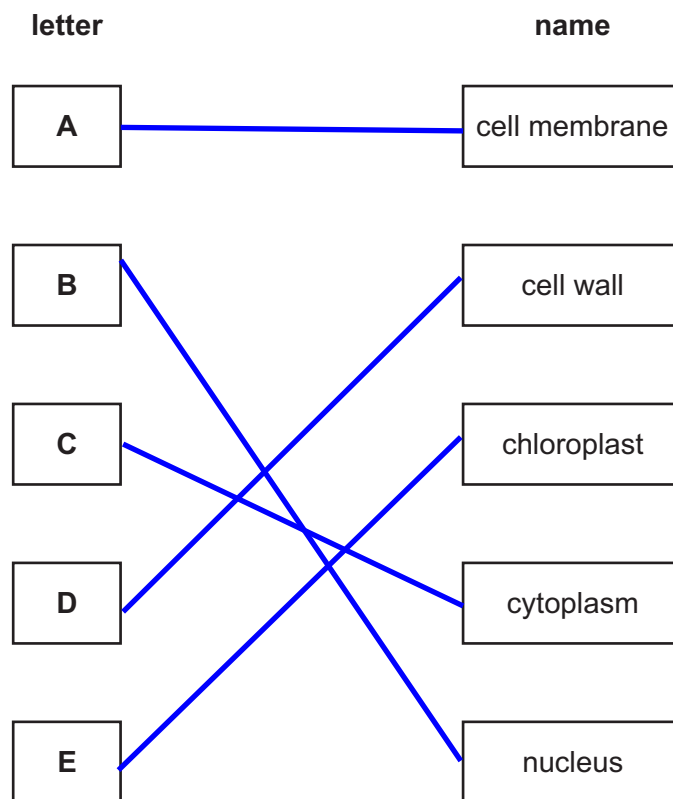
1 The diagram shows an animal cell and a plant cell.



Parts of the cells are labelled with the letters **A**, **B**, **C**, **D** and **E**.

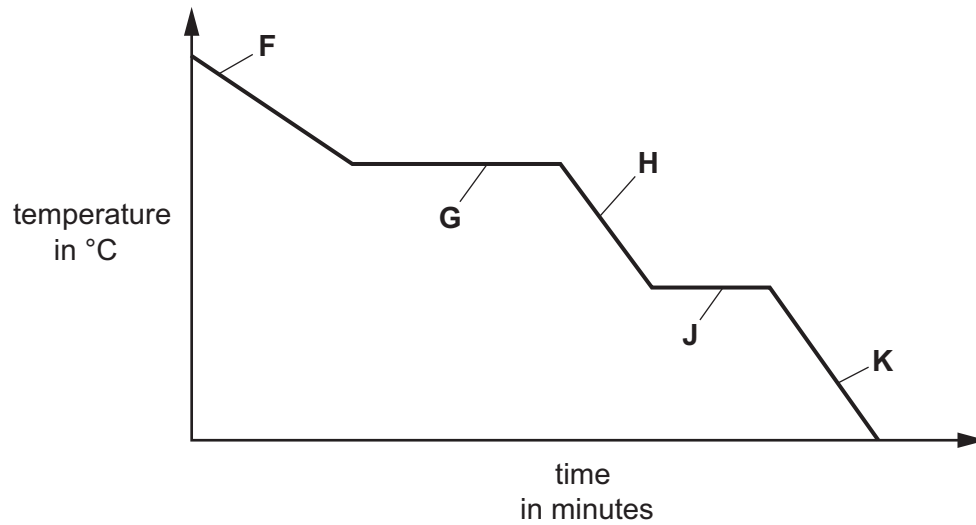


Draw a straight line from each **letter** to the **name** of the part of the cell.



[4]

- 2 The diagram shows a cooling curve for a pure substance.



- (a) The table contains descriptions for each letter in the diagram.

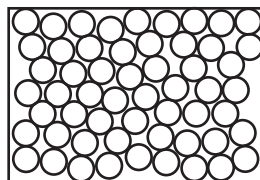
Write the correct letter next to each description.

One has been done for you.

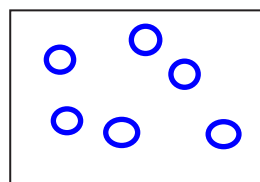
| description | letter |
|-------------|--------|
| gas         | F      |
| solid       | K      |
| condensing  | G      |
| freezing    | J      |
| liquid      | H      |

[2]

- (b) The diagram shows the particles at point H on the cooling curve.

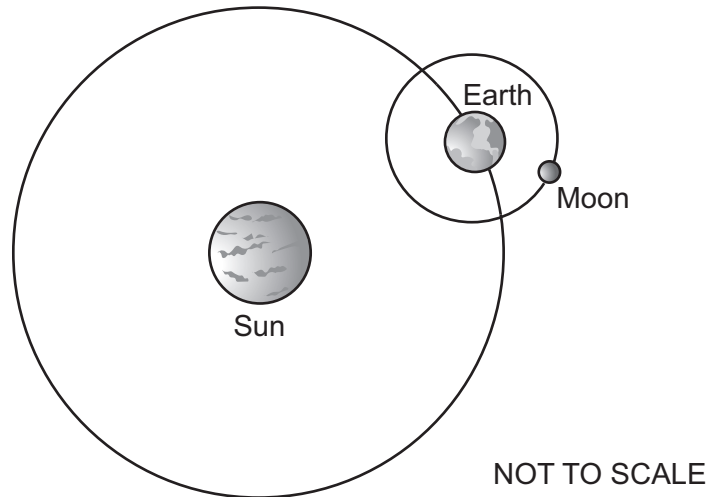


Draw the particles at point F in this box.



[1]

- 3 Look at the diagram of the Sun, the Earth and the Moon.



- (a) We can see both the Sun and the Moon from the Earth.

Complete the sentences.

We can see the Sun because the Sun ..... **emits** ..... light.

We can see the Moon because light from the **Sun** .....

is ..... **reflected** ..... to the Earth.

[2]

- (b) We have both day and night on the Earth.

Explain how both day and night happen.

**The Earth spins around its axis → At a certain time, one half of the Earth faces the Sun (we have day), the other half does not face the Sun (we have night)** .....

[2]

- 4 (a) Look at the five processes that take place during plant reproduction.



They are **not** in the correct order.

**dispersal      fertilisation      seed formation      pollen formation      pollination**

Complete the table to show the correct order of these five processes.

One has been done for you.

|                             |                    |                      |                           |                  |
|-----------------------------|--------------------|----------------------|---------------------------|------------------|
| <b>pollen<br/>formation</b> | <b>pollination</b> | <b>fertilisation</b> | <b>seed<br/>formation</b> | <b>dispersal</b> |
|-----------------------------|--------------------|----------------------|---------------------------|------------------|

[2]

- (b) Suggest with a reason how the seeds of an orange tree are dispersed.

suggestion **Dispersed by animals**

reason **Animals are attracted by orange and they come to eat orange.  
Seeds inside orange will be esgested through the waste and transported  
to other places. Now the seeds have been dispersed**

[3]

- 5 Sulfur is an element.



- (a) Write down the chemical symbol for sulfur. **S** [1]

- (b) Sulfides are compounds that contain sulfur.

- (i) Write down the element that all chlorides contain. **Chlorine** [1]

- (ii) A compound has this chemical formula.

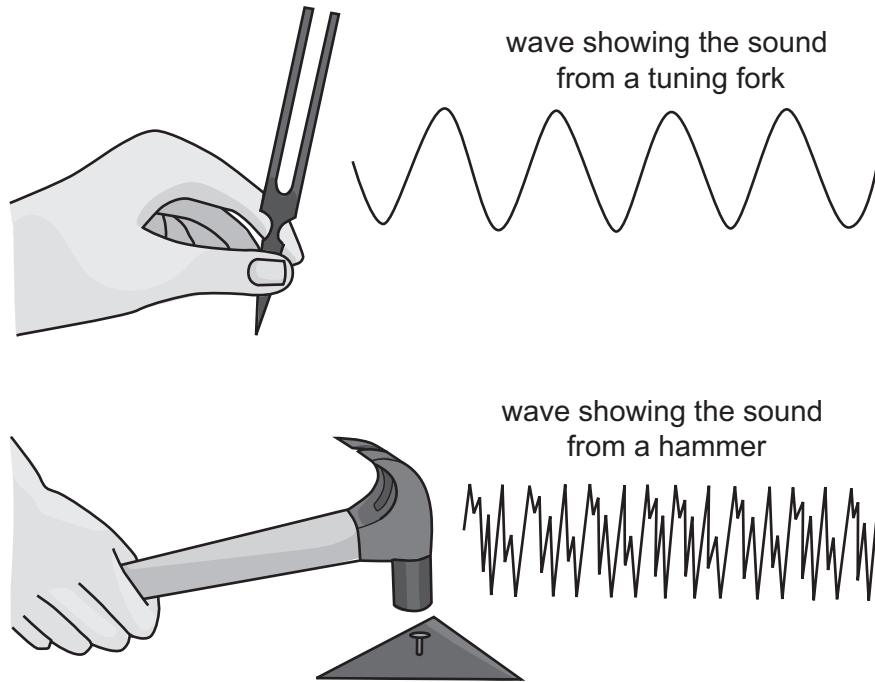


Write down the names of the **three** elements in this compound.

- 1 **Sodium**  
2 **Oxygen**  
3 **Hydrogen**

[2]

- 6 Chen compares sound waves seen on an oscilloscope.



- (a) The loudness of sound from the tuning fork and the hammer are the same.

Describe how the waves show that the sounds are the **same loudness**.

**They share the same amplitude**

[1]

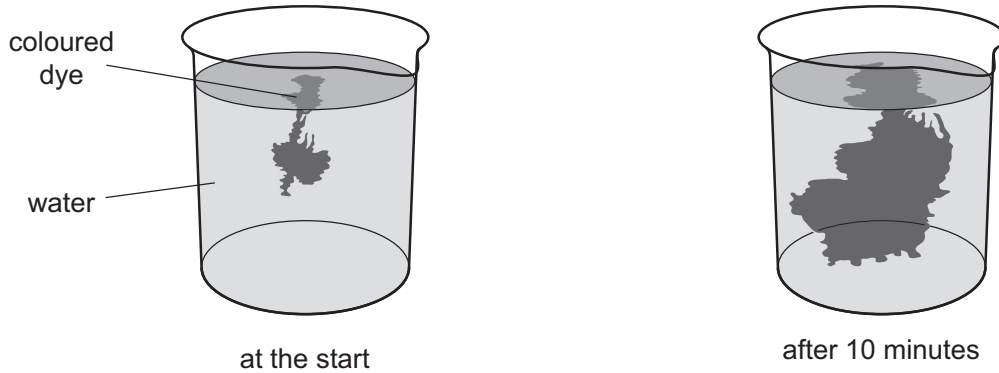
- (b) Describe **two differences** between the sound waves.

1 **The hammer wave has higher frequency than the tuning fork wave**

2 **The wave from a tuning fork is just a simple wave, the wave from the hammer is a mixture of many waves**

[2]

- 7 The diagram shows what happens to a coloured dye after 10 minutes.



Explain the changes seen in the diagram.

Use ideas about particles.

**Dye particles move randomly from a place with higher concentration  
to a place with lower concentration**

[2]

- 8 Hydrogencarbonate indicator is a harmless coloured liquid used to estimate the concentration of carbon dioxide in water.



**colour of hydrogencarbonate indicator**

yellow

orange

red

purple

**concentration of carbon dioxide**

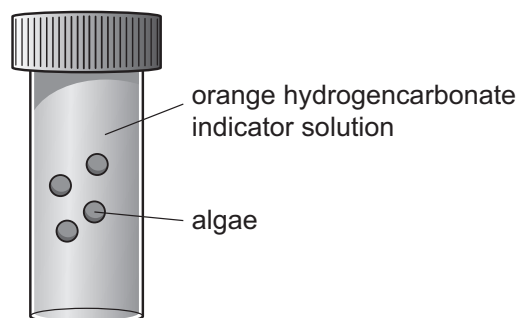
high



low

The diagram shows some algae in a bottle of orange hydrogencarbonate indicator.

Algae are small green plants.



- (a) Why do green plants need carbon dioxide?

**They need carbon dioxide for photosynthesis**

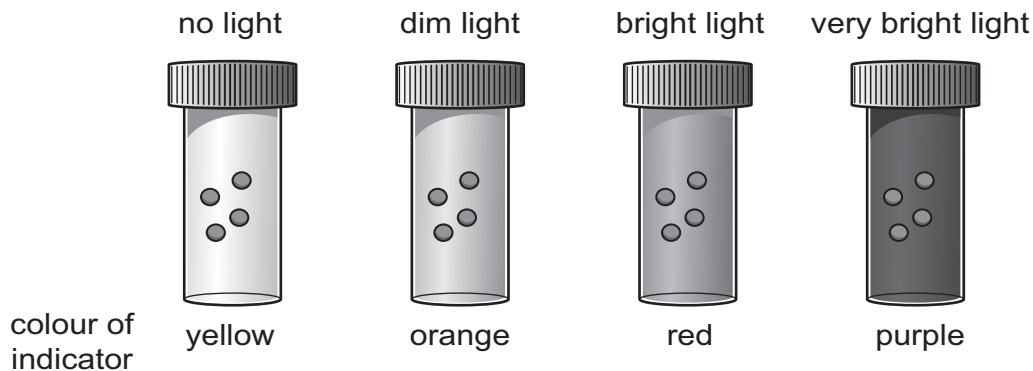
[1]

- (b) Aiko investigates the effect of light intensity on the algae.

She puts bottles of algae and orange hydrogencarbonate indicator in different light intensities.

She leaves the bottles in the light for two hours.

The diagram shows the colours of the hydrogencarbonate indicator after two hours.



As the light intensity increases the concentration of carbon dioxide in the bottles changes.

Describe how the concentration of carbon dioxide changes.

Explain your answer.

description As the light intensity increases, the concentration of carbon dioxide decreases

explanation The more light means more photosynthesis → less carbon dioxide

[2]

- (c) (i) Why is it important to use the same amount of algae in each jar?

To make a fair test [1]

- (ii) State **two other** variables Aiko keeps the same in this investigation.

1 Temperature

2 The kind of algae

[2]

- (d) When a bottle containing algae is kept in the dark the orange hydrogencarbonate indicator changes colour.

Suggest why.

In the dark, there is no photosynthesis. Instead, respiration will take place → more carbon dioxide → the indicator changes colour [1]

9 Carlos investigates the temperature change during some reactions.

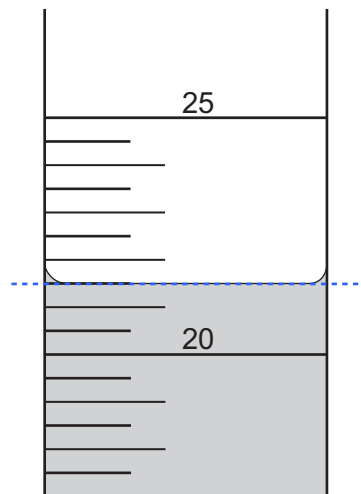


Carlos:

- measures  $20\text{ cm}^3$  of a liquid in a measuring cylinder
- puts the liquid in a plastic cup and measures the temperature of the liquid
- adds a solid to the liquid and stirs
- measures the temperature of the mixture
- repeats this experiment with different solids and different liquids.

(a) Carlos puts too much liquid in the measuring cylinder.

Look at the diagram of the measuring cylinder and the liquid.



How much liquid does Carlos remove to get the  $20\text{ cm}^3$  he needs?

..... **1.5** .....  $\text{cm}^3$  [1]

(b) Here are his results.

| liquid used                  | temperature of liquid at start in °C | solid added      | temperature of mixture at end in °C | change in temperature in °C | is the reaction exothermic or endothermic? |
|------------------------------|--------------------------------------|------------------|-------------------------------------|-----------------------------|--------------------------------------------|
| copper sulfate solution      | 19                                   | magnesium powder | 30                                  | +11<br>.....                | exothermic<br>.....                        |
| dilute ethanoic acid         | 19                                   | sodium carbonate | 12                                  | -7                          | endothermic<br>.....                       |
| potassium carbonate solution | 18                                   | citric acid      | 14                                  | -4<br>.....                 | endothermic<br>.....                       |
| dilute sulfuric acid         | 18                                   | magnesium ribbon | 34                                  | +16<br>.....                | exothermic<br>.....                        |

(i) Calculate the change in temperature for each reaction.

One has been done for you.

Write your answers in the table.

[1]

(ii) Which mixture of liquid and solid releases the **most** energy?

liquid ...dilute sulfuric acid.....

solid ...magnesium ribbon.....

[1]

(iii) Complete the table by writing **endothermic** or **exothermic** in the last column.

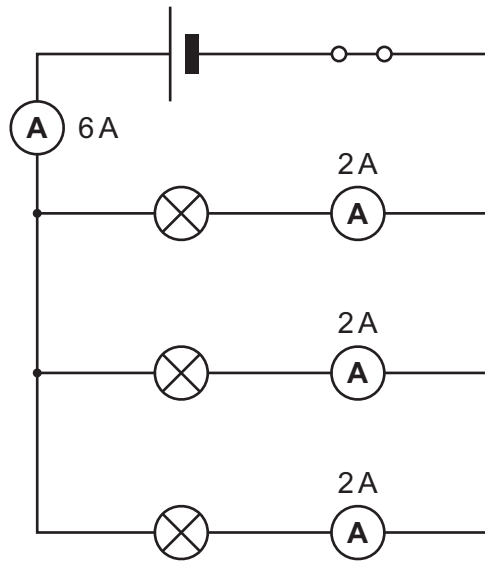
[1]

(c) Carlos is **not** sure all his results are reliable.

What does Carlos do to make his results more reliable?

...Repeat his investigation..... [1]

10 Jamila connects an electrical circuit.



She uses **four** ammeters in the electrical circuit.

There is an ammeter reading next to each ammeter symbol.

(a) (i) What type of electrical circuit is shown in the diagram?

**Parallel**

[1]

(ii) Explain what is happening in the electrical circuit.

Use the readings on the ammeters in your answer.

**The reading of the ammeter near the cell is equal to the sum of readings of the other ammeters ( $6=2+2+2$ ). This shows that the current is shared equally between 3 lamps**

[2]

(b) Write down the name of the equipment that measures **voltage**.

**voltmeter**

[1]

11 Mia feels unwell and visits the doctor.



She complains that she has a lack of energy.

The doctor says this is because there is **not** enough haemoglobin in her blood.

This is caused by her diet.

(a) What term describes the type of disease caused by diet?

Circle the correct answer.

**deficiency disease**

**developmental disease**

**genetic disease**

**infectious disease**

[1]

(b) Explain why **not** having enough haemoglobin in the blood causes a lack of energy.

Haemoglobin deficiency leads to oxygen deficiency. This causes a lack of energy  
because oxygen is one of the reactants in the chemical reaction that releases  
energy [2]

(c) Circle the element needed to make haemoglobin.

**calcium**

**iron**

**potassium**

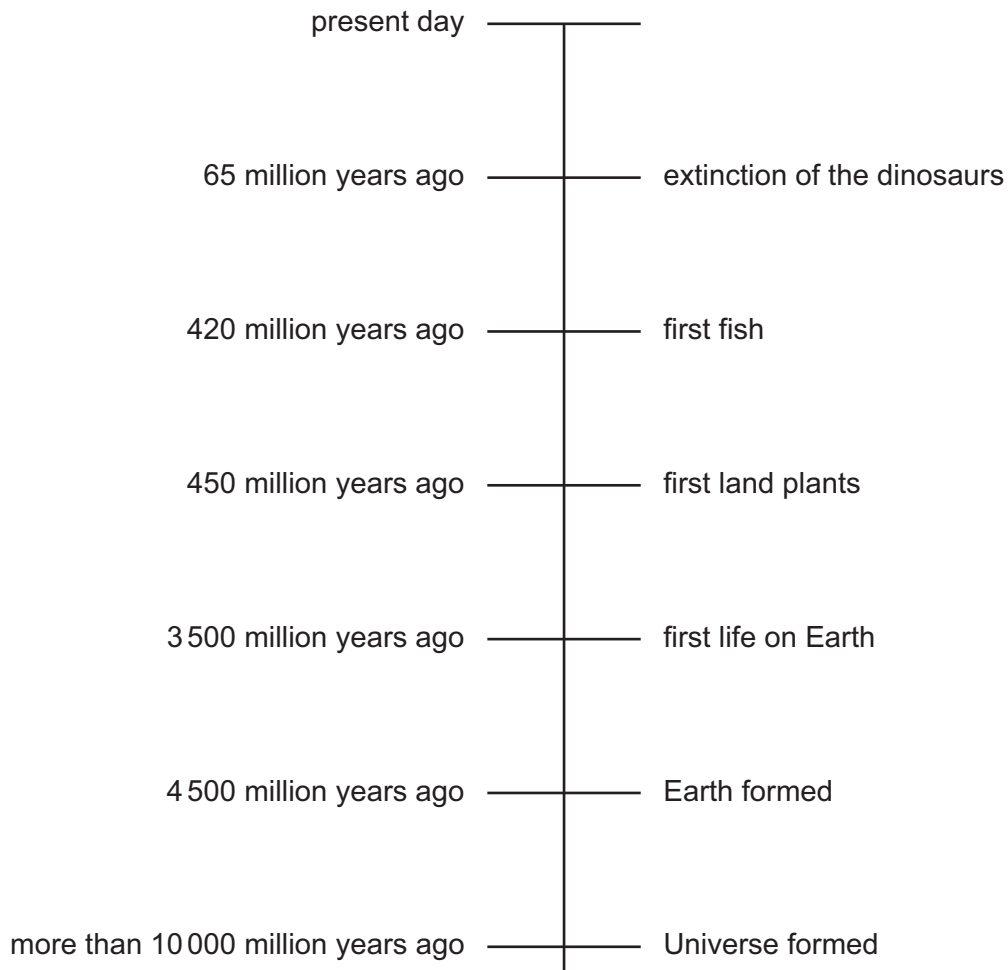
**sodium**

[1]

12 Hassan finds this timeline of life on Earth on the internet.



The timeline is not drawn to scale.



(a) What is the age of the Earth? .....4500..... million years [1]

(b) How long after the Earth was formed did the first land plants appear?

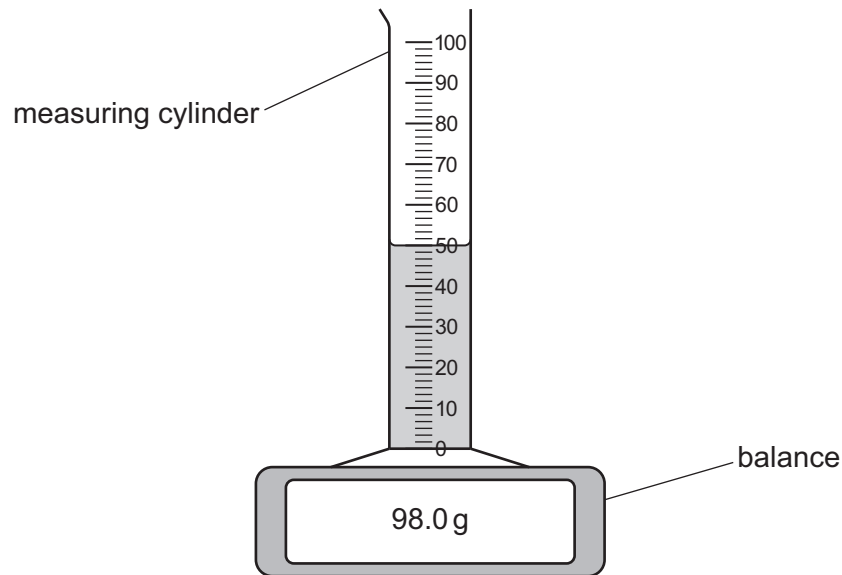
.....4050..... million years [1]

13 Blessy calculates the density of a liquid.



She puts  $50 \text{ cm}^3$  of the liquid in a measuring cylinder.

She puts the measuring cylinder on a balance.



(a) The unit of density is  $\text{g/cm}^3$ .

Write down the equation to calculate density.

density = mass/volume [1]

(b) The mass of the empty measuring cylinder is  $38.0 \text{ g}$ .

The mass of the measuring cylinder and the liquid is  $98.0 \text{ g}$ .

(i) Calculate the **mass** of the liquid.

$$98.0 - 38.0 = 60.0$$

mass of liquid 60.0 g [1]

(ii) The volume of the liquid is  $50 \text{ cm}^3$ .

Calculate the **density** of the liquid.

$$60.0/50 = 1.2$$

density of the liquid 1.2  $\text{g/cm}^3$  [1]