Cambridge Assessment International Education

Cambridge Lower Secondary Checkpoint

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

9255537452

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

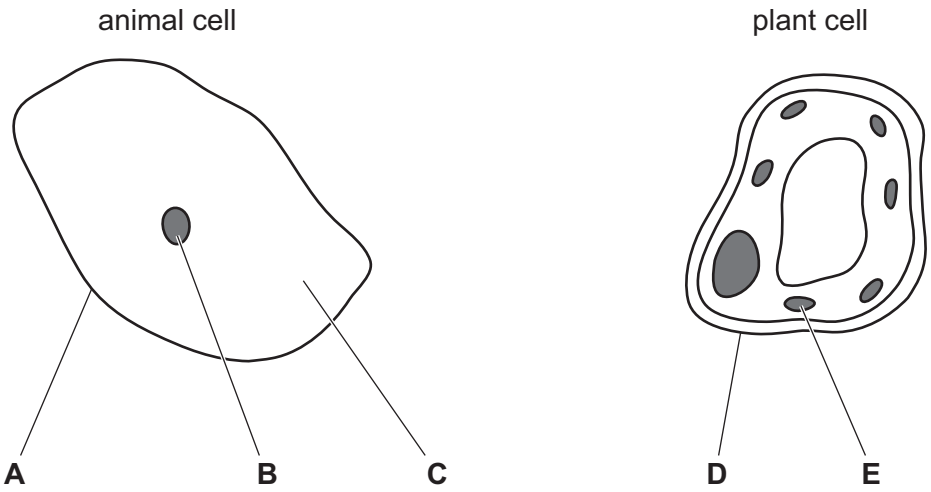
- The total mark for this paper is 50.
- The number of marks for each question or part question is shown in brackets [ ].

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

B22 10_1113_01/7RP

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**.

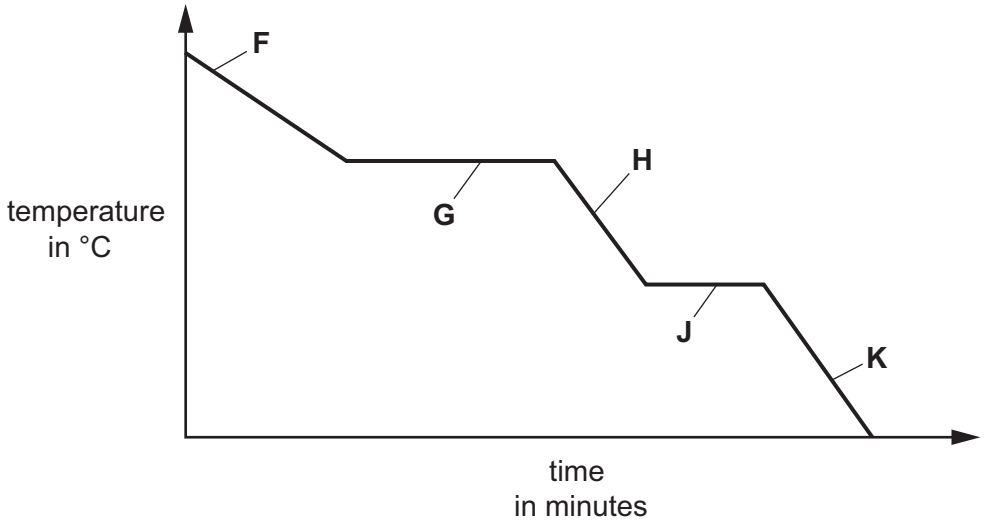


Draw a straight line from each **letter** to the **name** of the part of the cell.

letter	name
A	cell membrane
B	cell wall
C	chloroplast
D	cytoplasm
E	nucleus

[4]

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



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

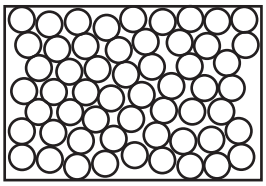
Write the correct letter next to each description.

One has been done for you.

description	letter
gas	**F**
solid	.....
condensing	.....
freezing	.....
liquid	.....

[2]

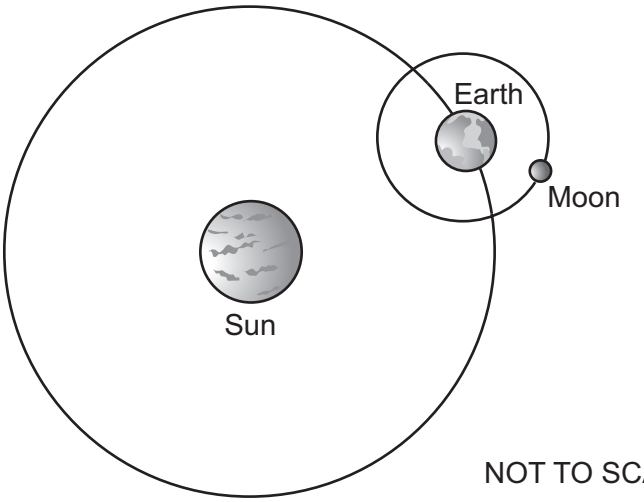
(b) The diagram shows the particles at point **H** on the cooling curve.



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 ..... light.

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

is ..... to the Earth.

[2]

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

Explain how both day and night happen.

.....

.....

..... [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.

		fertilisation		

[2]

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

suggestion .....

.....

reason .....

.....

.....

[3]

5 Sulfur is an element.

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

(b) Sulfides are compounds that contain sulfur.

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

(ii) A compound has this chemical formula.

NaOH

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

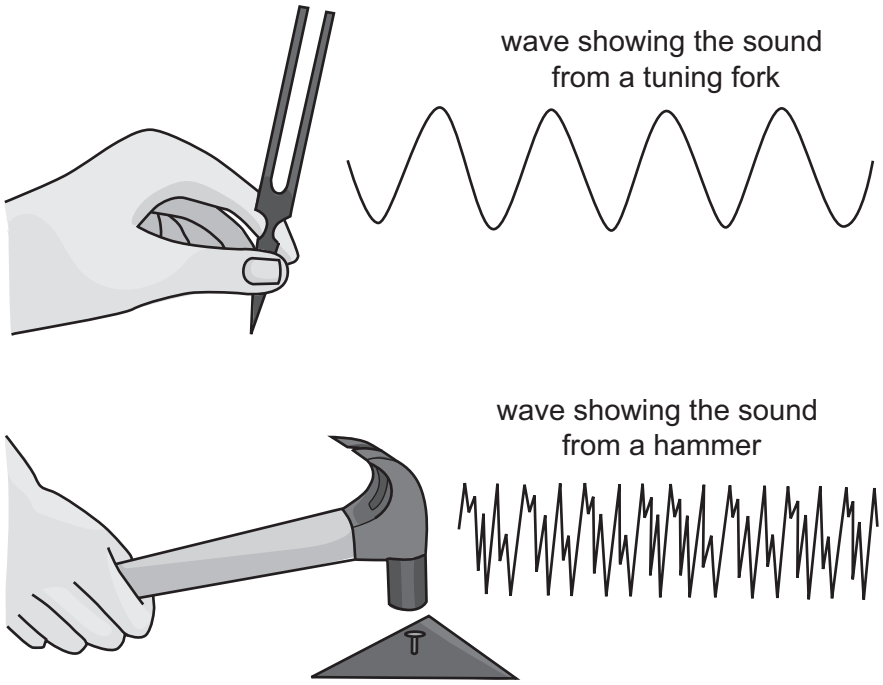
1 .....

2 .....

3 .....

[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**.

.....

..... [1]

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

1 .....

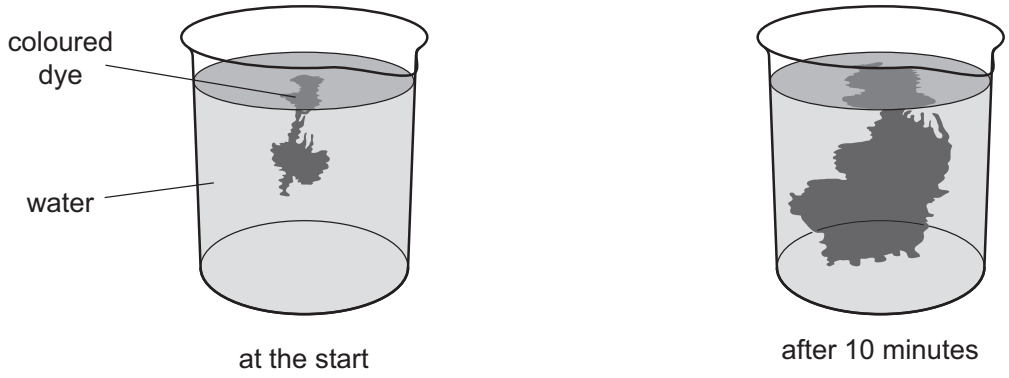
.....

2 .....

.....

[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.

.....

.....

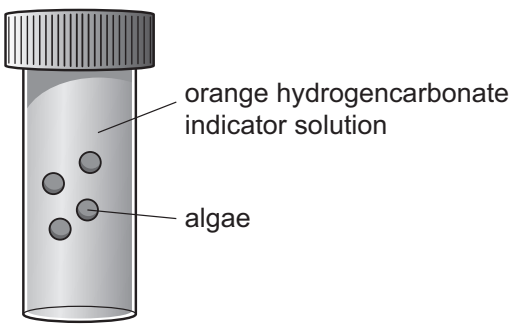
..... [2]

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

colour of hydrogencarbonate indicator	concentration of carbon dioxide
yellow	high ↓
orange	
red	
purple	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?

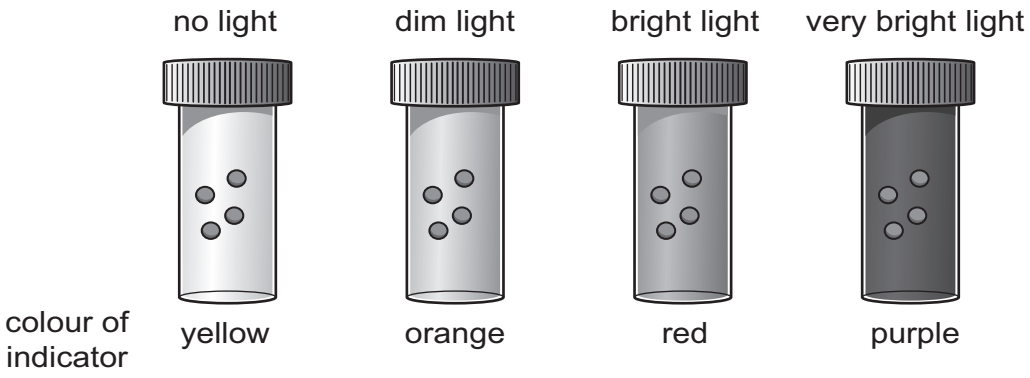
..... [1]

(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 .....

.....

explanation .....

.....

[2]

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

..... [1]

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

1 .....

2 .....

[2]

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

Suggest why.

.....

..... [1]

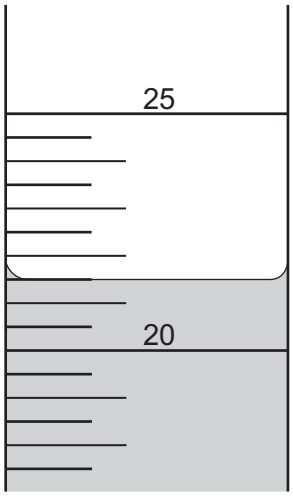
9 Carlos investigates the temperature change during some reactions.

Carlos:

- measures 20 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 cm^3 he needs?

..... 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	.....	.....
dilute ethanoic acid	19	sodium carbonate	12	–7	.....
potassium carbonate solution	18	citric acid	14	.....	.....
dilute sulfuric acid	18	magnesium ribbon	34	.....	.....

(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 .....

solid .....

[1]

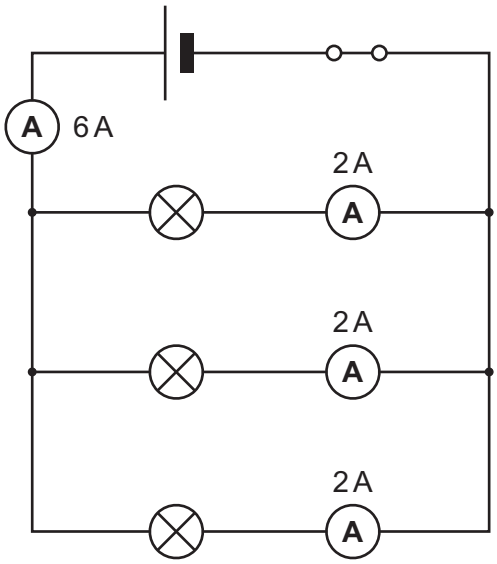
(iii) Complete the table by writing **endothermic** or **exothermic** in the last column. [1]

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

What does Carlos do to make his results more reliable?

..... [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?

.....

[1]

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

Use the readings on the ammeters in your answer.

.....

.....

.....

.....

[2]

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

.....

[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.

.....

.....

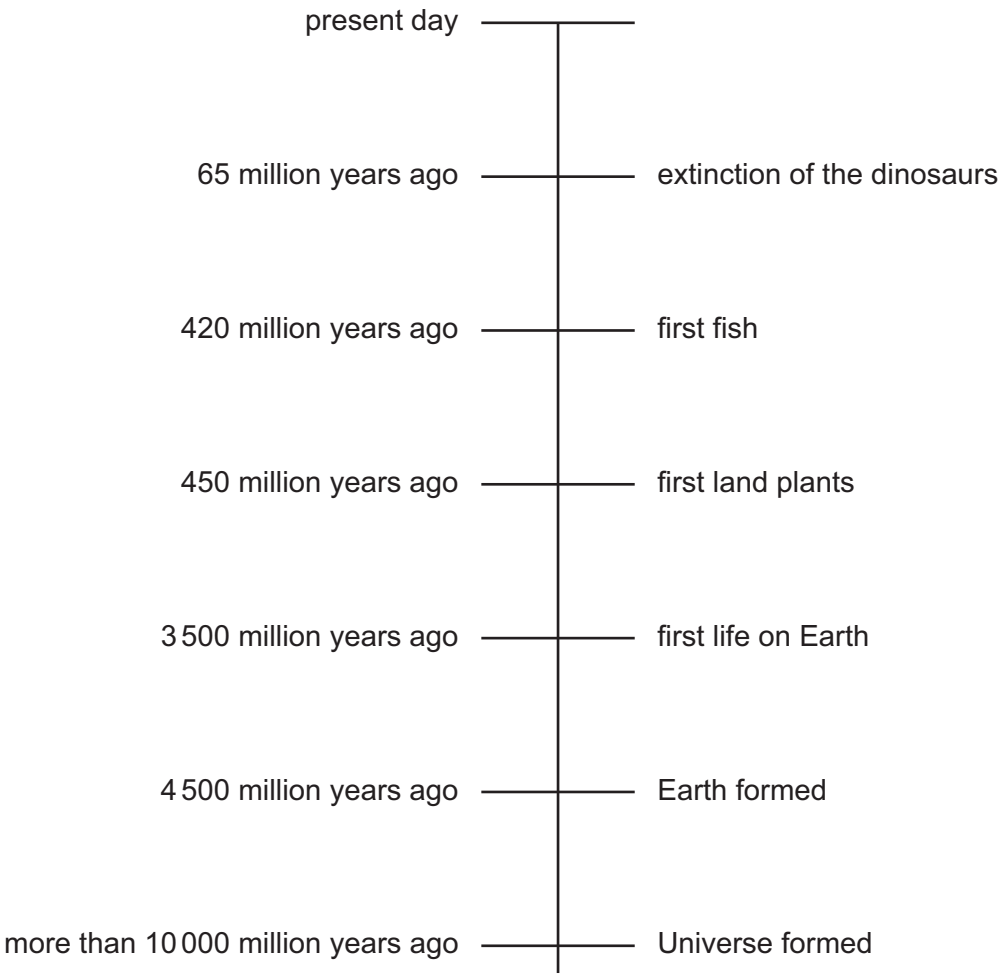
..... [2]

(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? ..... million years [1]

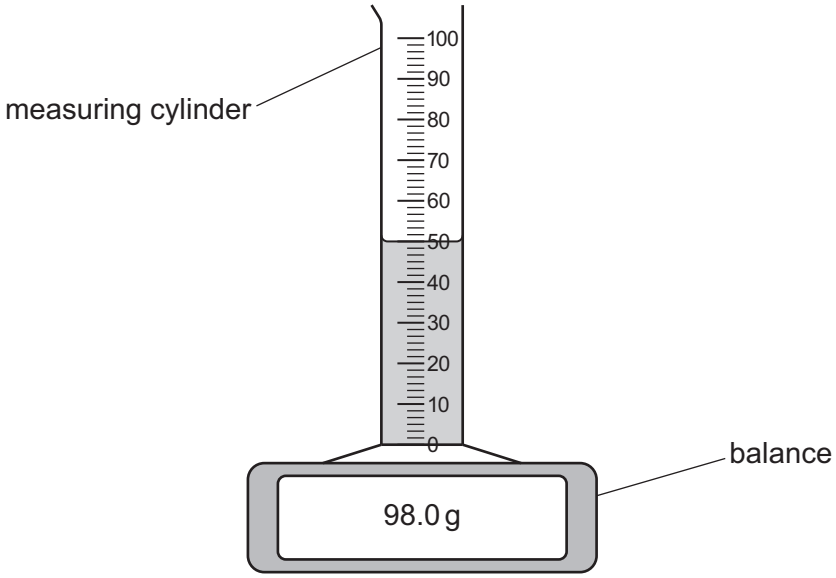
(b) How long after the Earth was formed did the first land plants appear?

..... million years [1]

13 Blessy calculates the density of a liquid.

She puts 50 cm^3 of the liquid in a measuring cylinder.

She puts the measuring cylinder on a balance.



(a) The unit of density is g / cm^3.

Write down the equation to calculate density.

density = ... [1]

(b) The mass of the empty measuring cylinder is 38.0 g.

The mass of the measuring cylinder and the liquid is 98.0 g.

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

mass of liquid ..... g [1]

(ii) The volume of the liquid is 50 cm^3.

Calculate the **density** of the liquid.

density of the liquid ..... g / cm^3 [1]