



Science

Stage 9

Paper 1

2026

Cambridge Lower Secondary Progression Test

Name

Class

Date

45 minutes

No additional materials are needed.

INSTRUCTIONS

- Answer **all** questions.
- Write your answers to each question in the space provided.
- You should show all your working on the question paper.

INFORMATION

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

1 Complete the sentences about the pathway of water in flowering plants.



Water is absorbed from the soil in to cells.

Water is transported through within the stems of plants.

Water is lost from the surface of a plant leaf.

The process of water loss from the surface of a leaf is called

[4]

2 Look at the Periodic Table on page 20.



(a) The electronic structure of sodium, Na, is 2.8.1.

Write down the electronic structure of silicon, Si.

..... [1]

(b) Write down the chemical symbol for an element in the same **group** as nitrogen, N.

..... [1]

(c) Write down the chemical symbol for an element in the same **period** as lithium, Li.

..... [1]

(d) Write down the number of electrons in the outer shell (orbit) of barium, Ba.

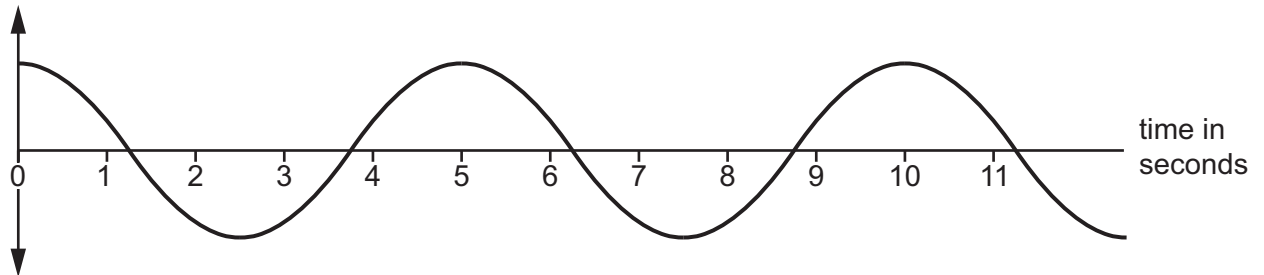
..... [1]

3 This question is about sound waves.



(a) Look at the diagram of the waveform of sound wave **A**.

The diagram shows several waves.



(i) How many **complete** waves are there in 10 seconds?

number of complete waves = [1]

(ii) The frequency of a wave is the number of waves that pass a point in one second.

Frequency is measured in Hz.

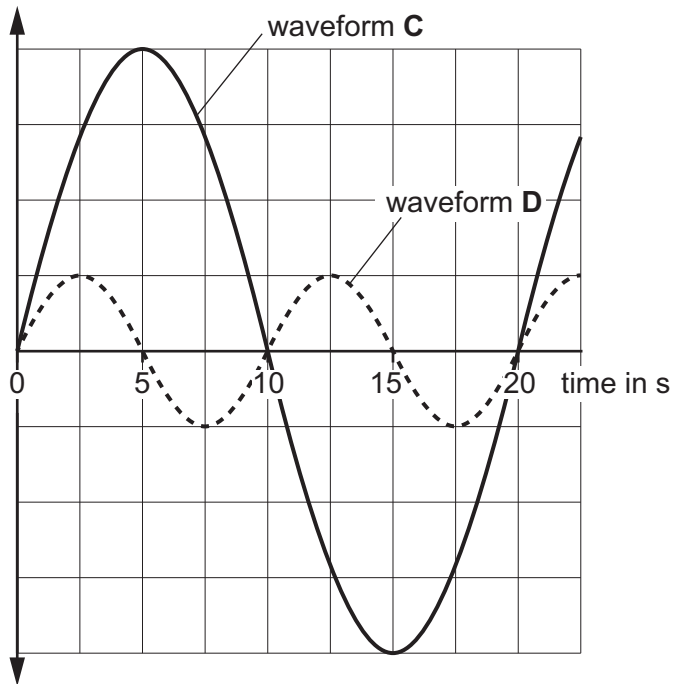
For sound wave **B**, there are 20 complete waves in 10 seconds.

What is the frequency of sound wave **B**?

frequency of sound wave **B** = Hz [1]

(b) Look at the diagram of the waveforms of two sound waves, **C** and **D**.

Waveforms **C** and **D** have different frequencies and different amplitudes.



Complete the sentences to compare the waveforms of sound wave **C** and of sound wave **D**.

Choose words from the list.

one quarter

one half

two times

four times

louder

quieter

higher pitched

lower pitched

The amplitude of waveform **C** is the amplitude of waveform **D**.

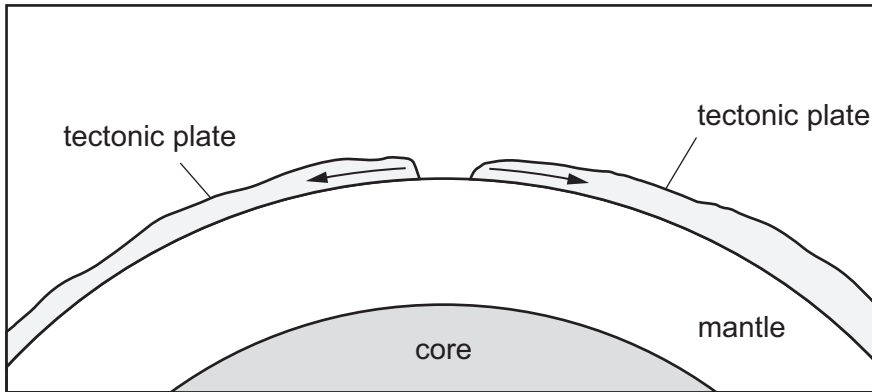
This difference in amplitude means that sound wave **C** is than sound wave **D**.

The frequency of waveform **C** is the frequency of waveform **D**.

This difference in frequency means that sound wave **C** is than sound wave **D**.

[2]

4 The diagram shows part of the structure of the Earth.



The arrows show the direction of movement of the tectonic plates.

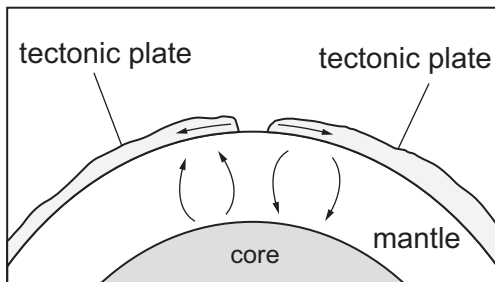
(a) The mantle contains moving magma.

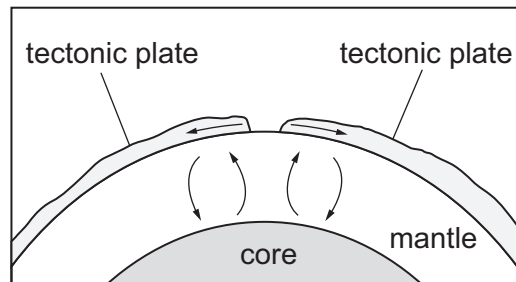
What is the name of the thermal energy transfer process that makes magma move?

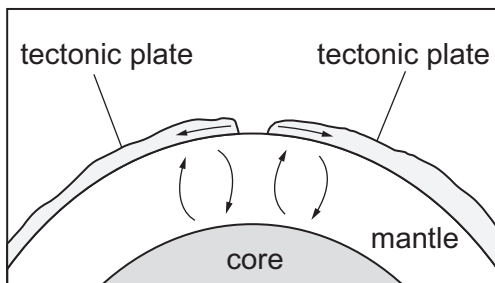
..... [1]

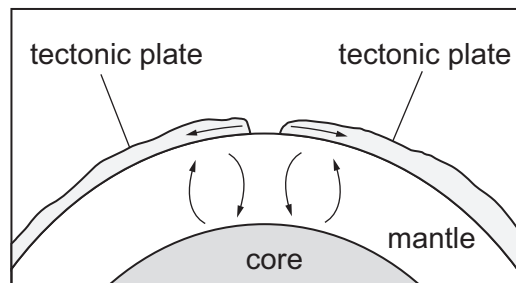
(b) The tectonic plates in the diagram are moving apart.

Tick (✓) the box that shows the correct direction of movement of the magma in the mantle.



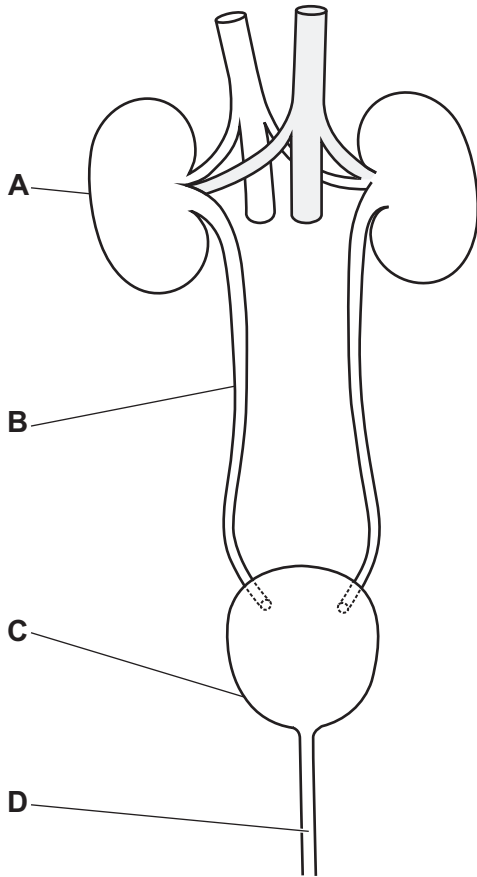






[1]

5 Look at the diagram of the human excretory system.



Name parts **A**, **B**, **C** and **D**.

- A**
- B**
- C**
- D**

[4]

6 Look at the table that shows some of the properties of elements in Group 1 of the Periodic Table.



element	melting point in °C	boiling point in °C	density in g/cm ³	electronic structure
lithium	181	1342	0.53	2.1
sodium	98	883	0.97	2.8.1
potassium	64	759	0.89	2.8.8.1
rubidium	39	688	1.53	2.8.18.8.1
caesium	29	669	1.88	2.8.18.18.8.1
francium	21	650	> 1.88	2.8.18.32.18.8.1

(a) Explain why all the elements in the table are in Group 1.

Use ideas about the electronic structures of the elements.

.....
 [1]

(b) Describe the trend in boiling points down Group 1.

..... [1]

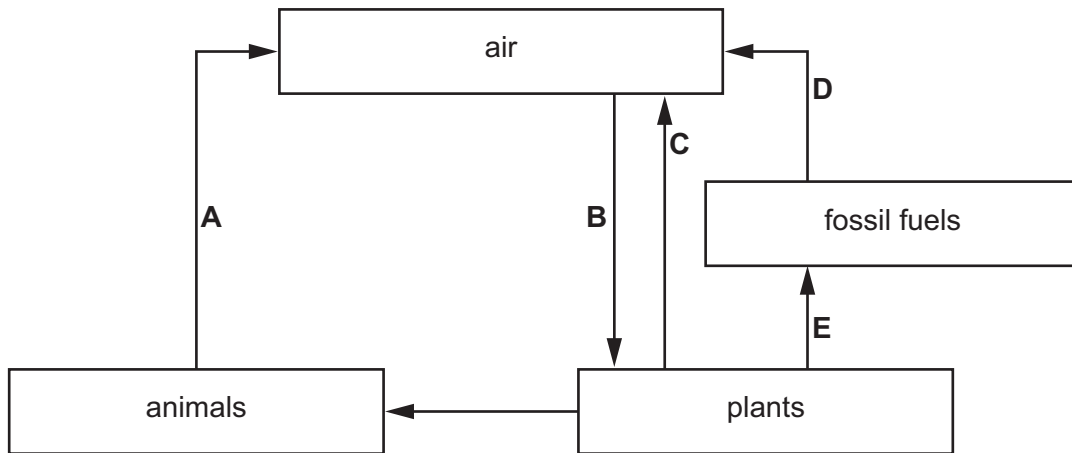
(c) Which property does **not** show a clear trend down Group 1?

..... [1]

7 This question is about the carbon cycle.



(a) Look at the diagram of part of the carbon cycle.



Complete the table.

Use information from the diagram.

process	letter from diagram
combustion
photosynthesis
respiration and

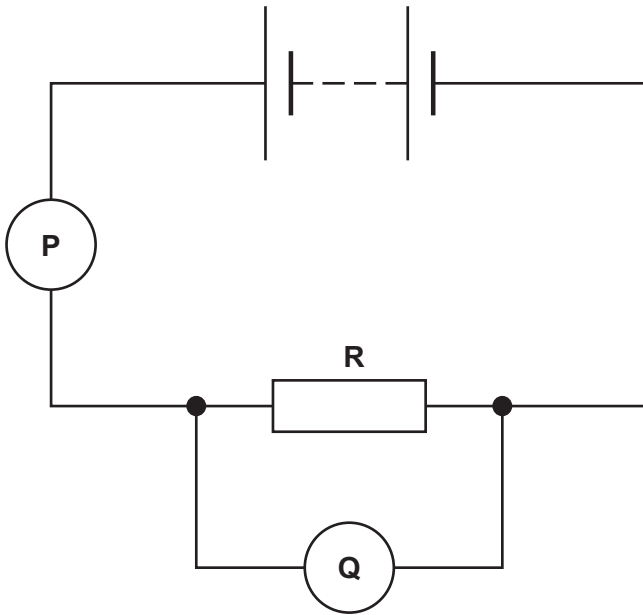
[4]

(b) When animals and plants die, they decompose.

Name the gas released into the air when this happens.

..... [1]

8 Lily makes this electrical circuit.



The circuit has:

- a battery of cells
- a resistor, **R**
- two meters, **P** and **Q**.

(a) One meter measures the current in resistor **R**.

The other meter measures the voltage across resistor **R**.

Complete the table to:

- name each meter
- describe how each meter is connected in the circuit.

measurement	name of meter	how the meter is connected
current in resistor R
voltage across resistor R

[2]

(b) Lily investigates the effect of adding more identical resistors to her circuit.

Each time she calculates the total resistance across the resistors.

Look at her table of results.

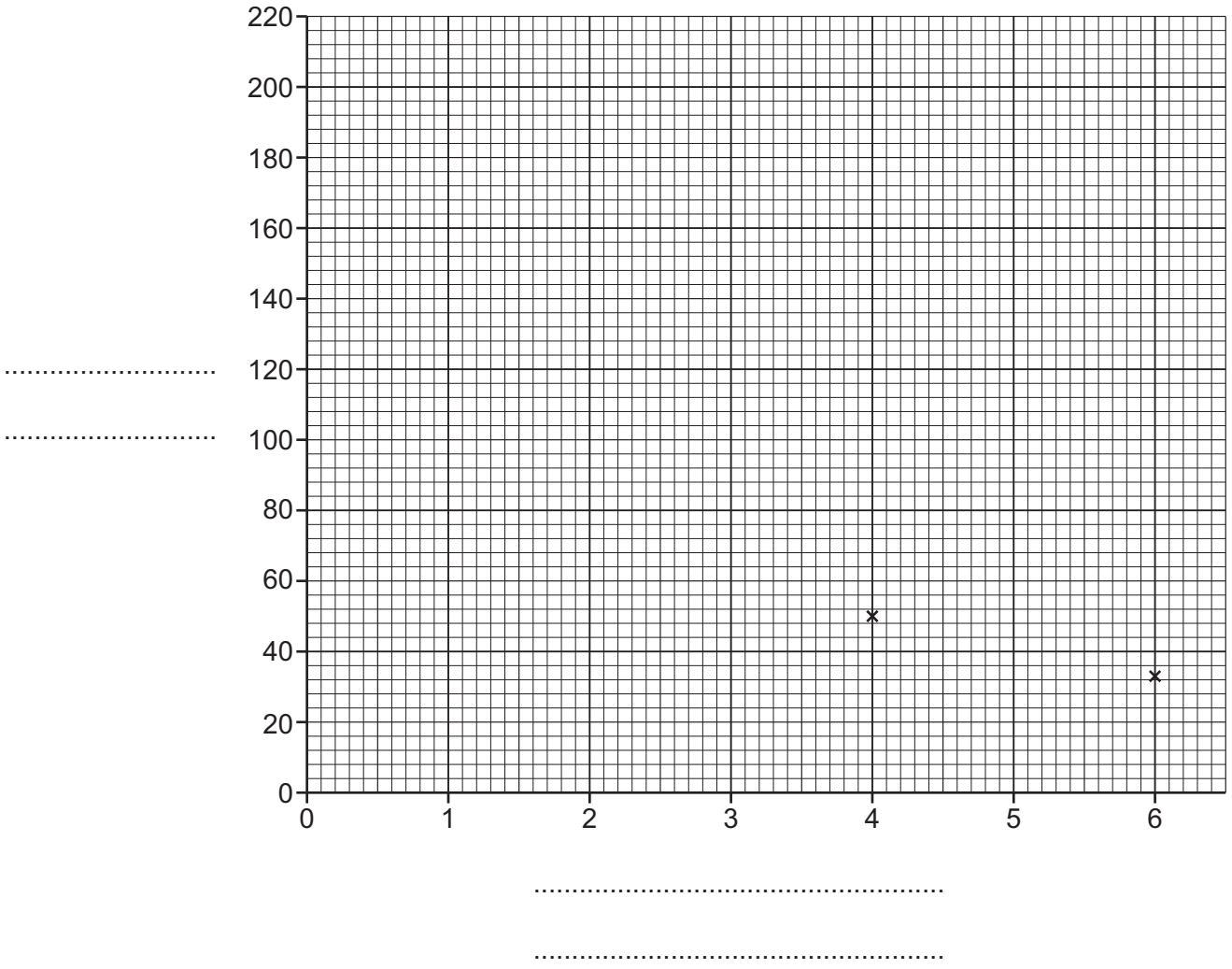
number of resistors	resistance in Ω
1	200
2	103
3	67
4	50
6	33

Look at the graph of her results.

Two results have been plotted on the graph.

Complete the graph by:

- labelling the axes
- plotting the missing results
- drawing a curve of best fit.



[3]

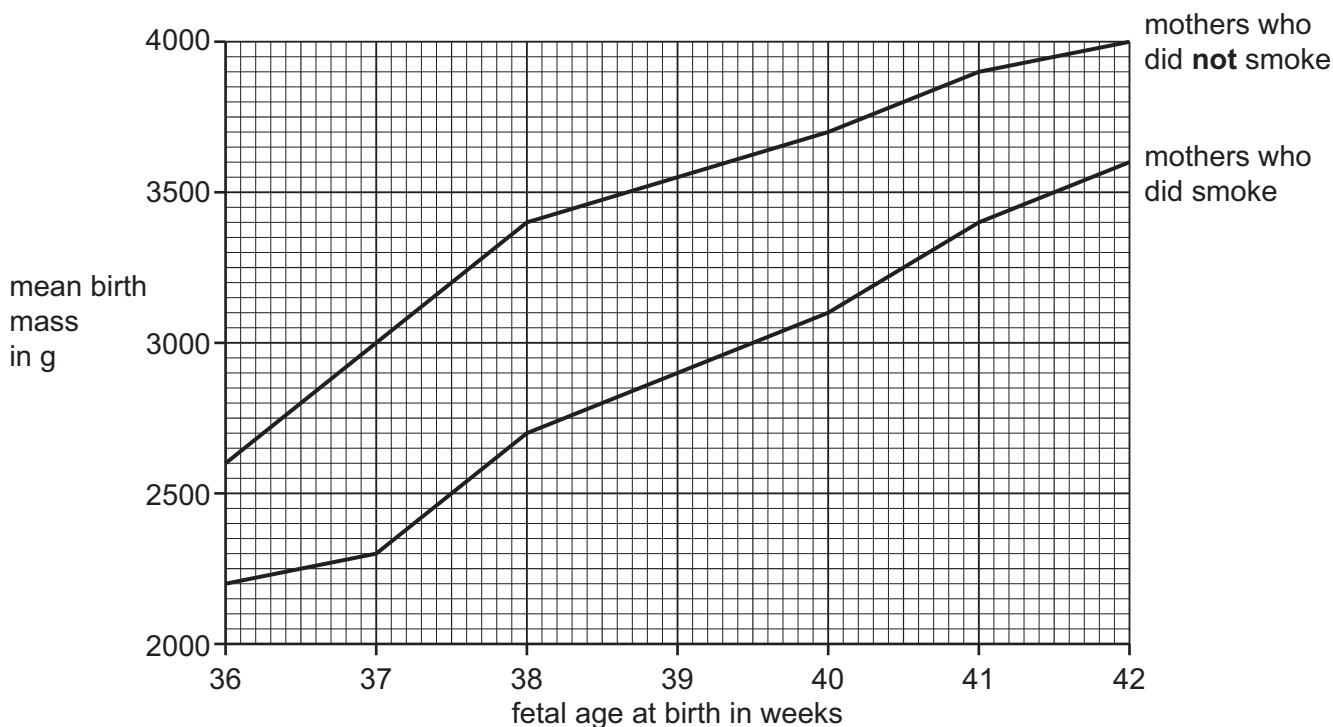
(c) Use the graph to predict the resistance of the circuit with 5 resistors.

resistance = Ω [1]

9 Yuri investigates the mean birth mass of children from mothers who:



- did **not** smoke
- did smoke.



(a) Describe the relationship between fetal age at birth and mean birth mass.

..... [1]

(b) Write down **one** way the results show that smoking affects fetal development.

.....
 [1]

10 Aiko investigates how changing variables affects the rate of reaction.



She reacts magnesium metal with dilute hydrochloric acid.

Aiko predicts that increasing the temperature of the acid will increase the rate of reaction.

(a) Explain why Aiko's prediction is correct.

Use ideas about the reacting particle model.

.....
 [2]

(b) Suggest **one** other variable Aiko changes to increase the rate of this reaction.

..... [1]

11 This question is about energy.



Draw **one** straight line from each **term** to its correct **description**.

term	description
conservation of energy	a measure of the energy in an object
evaporation	when the most energetic particles escape from the surface of a liquid
heat	energy cannot be created or destroyed
heat dissipation	a measure of how hot an object is
temperature	thermal energy is transferred from hotter objects to colder objects

[3]

12 About 66 million years ago, a giant asteroid hit the coast of Mexico.

R Suggest **two** consequences of this asteroid collision.

1

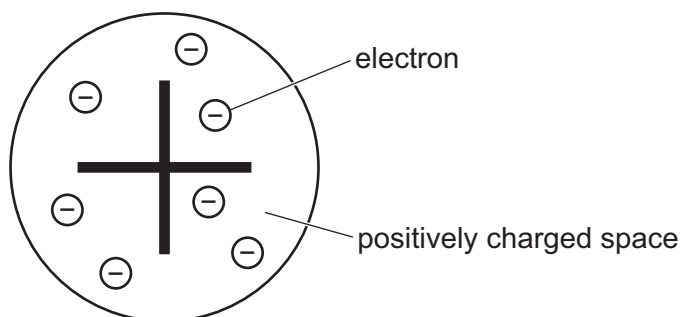
2

[2]

13 In 1904, J. J. Thomson suggested a model of the structure of atoms.

R This was called the plum pudding model.

Look at a diagram of the plum pudding model.



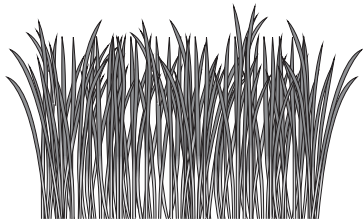
(a) Write down **one** way that the plum pudding model is **similar** to the atomic model we use today.

..... [1]

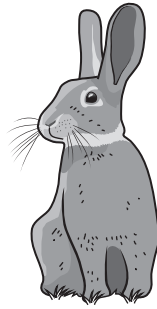
(b) Write down **one** way that the plum pudding model is **different** to the atomic model we use today.

..... [1]

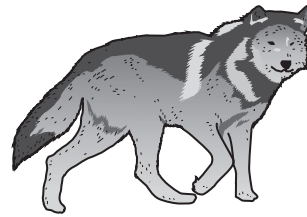
14 The diagram shows some organisms in a forest.



grass



rabbit



wolf

not to scale

The rabbit eats grass.

The wolf eats rabbits.

(a) What happens to the wolf population if all of the rabbits die from a disease?

Give a reason for your answer.

population

reason

.....

[1]

(b) Suggest **two** reasons why climate change may decrease the wolf population.

1


.....

2

.....

[2]

15 Chen writes statements about nebulae.

 Tick (✓) **all** the statements that are correct about nebulae.

they are asteroids

they are giant clouds


they can act as stellar nurseries

they contain dust

they contain gas

[1]

16 Look at the information about the chemical formula of nitric acid, HNO_3 .

 The chemical formula of nitric acid contains 1 atom of hydrogen, 1 atom of nitrogen and 3 atoms of oxygen.

Look at the information about some other chemical formulas.

The chemical formula of:

- sodium oxide contains 2 atoms of sodium and 1 atom of oxygen.
- potassium sulfate contains 2 atoms of potassium, 1 atom of sulfur and 4 atoms of oxygen.

Write down the chemical formula of sodium oxide and the chemical formula of potassium sulfate.

sodium oxide

potassium sulfate

[2]