

C12 The Earth's Atmosphere Homework task 1

Q1.

This question is about the atmospheres of Earth and Mars.

- (a) Earth's early atmosphere may have been like the atmosphere of Mars today.

Why are scientists **not** certain about the percentage of gases in the Earth's early atmosphere?

(1)

- (b) What was formed from the water vapour in the Earth's early atmosphere?

Tick (✓) **one** box.

Crude oil

Limestone

Natural gas

Oceans

(1)

The table below shows the percentage of some gases in the atmospheres of Earth and Mars.

Gas	Percentage of gas in atmosphere (%)	
	Earth	Mars
Argon	0.9	1.9
Carbon dioxide	0.04	95
Nitrogen	78	2.6
Oxygen	21	0.2

(c) Why are animals **not** able to live on Mars?

Tick (✓) **one** box.

The atmosphere of Mars does not contain enough argon.

The atmosphere of Mars does not contain enough nitrogen.

The atmosphere of Mars does not contain enough oxygen.

(1)

(d) There is more carbon dioxide on Mars than on Earth.

Which **other** gas is found in larger quantities on Mars than on Earth?

(1)

(e) Calculate how many times more nitrogen than oxygen there is in the atmosphere of Earth.

Use the table above.

Give your answer to 2 significant figures.

Number of times more nitrogen than oxygen (2 significant figures) = _____

(3)

(Total 7 marks)

Q2.

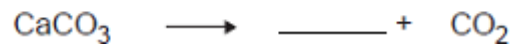
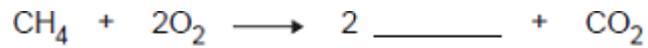
The amount of carbon dioxide in the Earth's atmosphere has changed since the Earth was formed.

The amount of carbon dioxide continues to change because of human activities.

- (a) Cement is produced when a mixture of calcium carbonate and clay is heated in a rotary kiln. The fuel mixture is a hydrocarbon and air.

Hydrocarbons react with oxygen to produce carbon dioxide.
Calcium carbonate decomposes to produce carbon dioxide.

- (i) Complete each chemical equation by writing the formula of the other product.



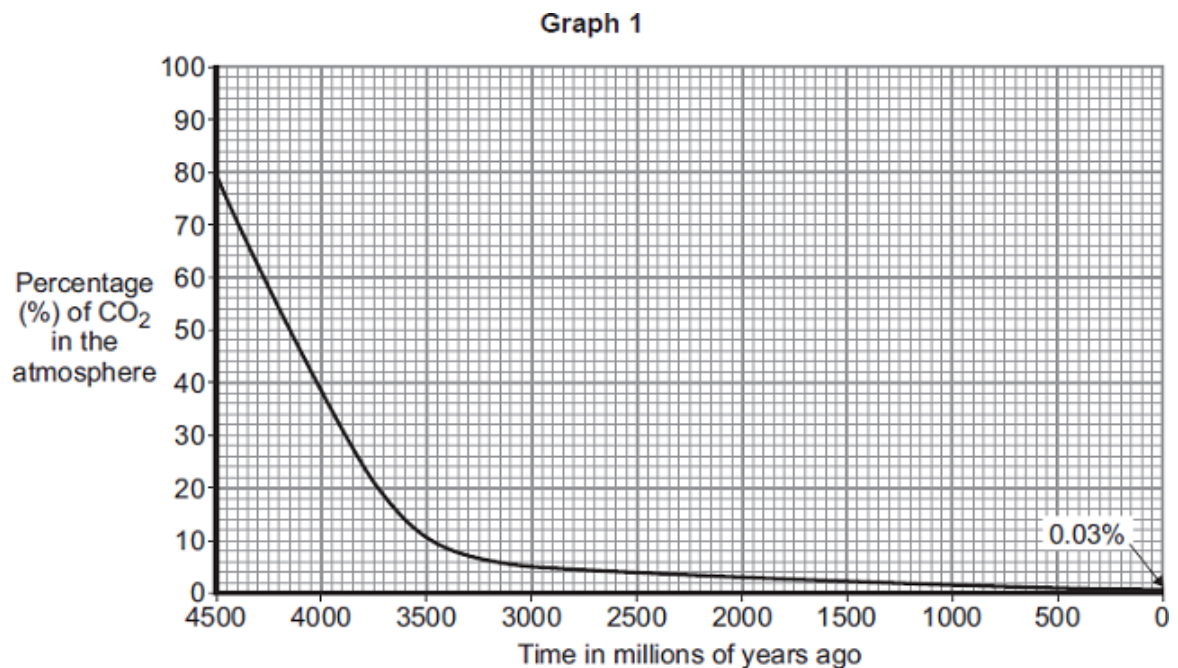
(2)

- (ii) Hydrocarbons and calcium carbonate contain *locked up* carbon dioxide.

What is *locked up* carbon dioxide?

(2)

- (b) **Graph 1** shows how the percentage of carbon dioxide in the atmosphere changed in the last 4500 million years.



Use information from **Graph 1** to answer these questions.

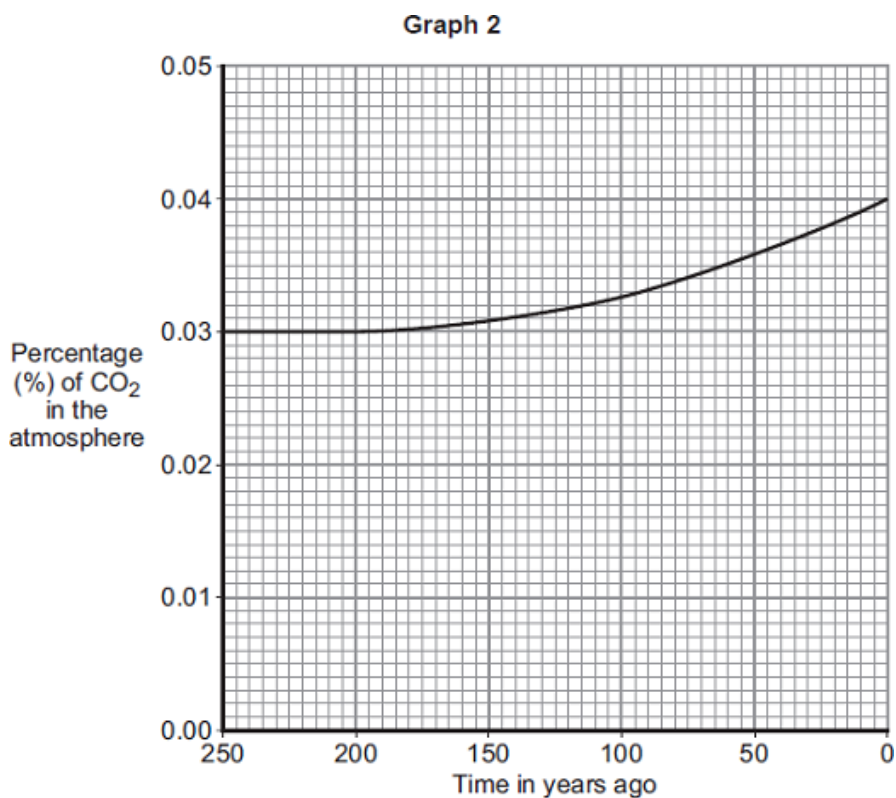
- (i) Describe how the percentage of carbon dioxide has changed in the last 4500 million years.

(2)

- (ii) Give **two** reasons why the percentage of carbon dioxide has changed.

(2)

- (c) **Graph 2** shows how the percentage of carbon dioxide in the atmosphere changed in the last 250 years.



Should we be concerned about this change in the percentage of carbon dioxide?

Explain your answer.

(2)

(Total 10 marks)

HIGHER TIER QUESTIONS

Q3.

This question is about life, the Earth and its atmosphere.

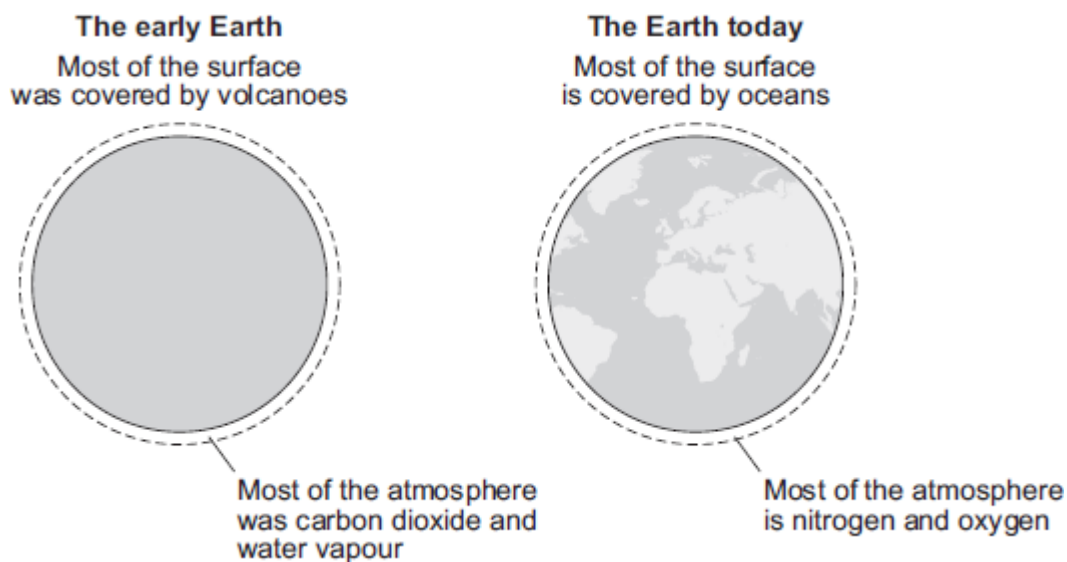
- (a) There are many theories about how life was formed on Earth.

Suggest **one** reason why there are many theories.

(1)

- (b) **In this question you will be assessed on using good English, organising information clearly and using specialist terms where appropriate.**

This Earth and its atmosphere today are not like the early Earth and its atmosphere.



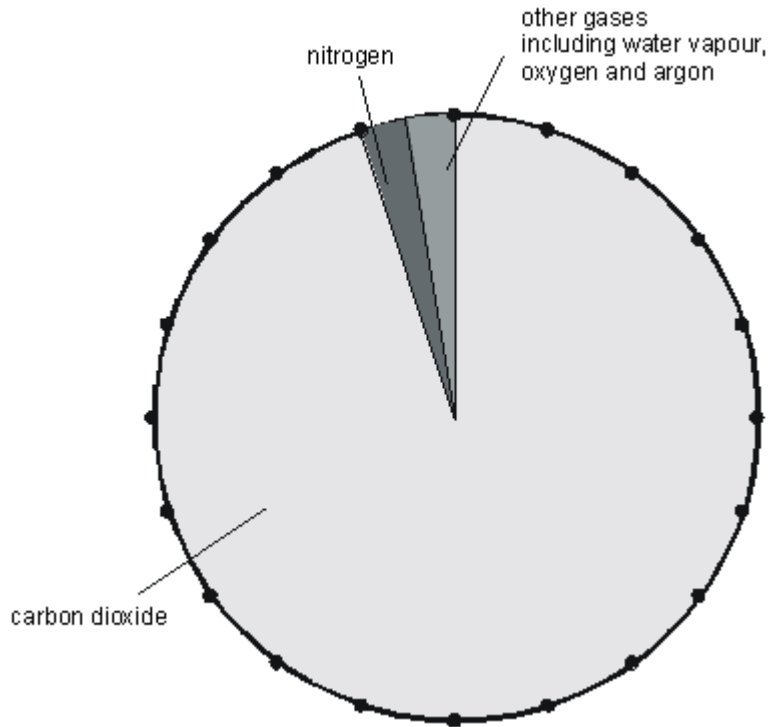
Describe and explain how the surface of the early Earth and its atmosphere have changed to form the surface of the Earth and its atmosphere today.

(6)

(Total 7 marks)

Q4.

The pie chart below shows the composition of the atmosphere on the planet Mars.



- (a) Use the pie chart above to calculate the percentage of carbon dioxide in the atmosphere on Mars.

%

(2)

- (b) The atmosphere on Earth is very different from that on Mars. One important difference is that the Earth's atmosphere contains a large amount of oxygen.

Give **two** other ways in which the Earth's atmosphere is different from the atmosphere on Mars.

1. _____

2. _____

(2)

- (c) When the Earth was formed its atmosphere is thought to have been similar to the atmosphere on Mars. Explain how green plants and other organisms have changed the composition of the Earth's atmosphere.

(4)

(Total 8 marks)