

AQA – Chemistry of the atmosphere – GCSE 2022 Chemistry

1. June/2022/Paper_8462/2F/No.3

0 3

This question is about the Earth's atmosphere.

Table 5 shows:

- the estimated percentages of gases in the Earth's early atmosphere
- the percentages of gases in the Earth's atmosphere today.

Table 5

Gas	Estimated percentage (%) in the Earth's early atmosphere	Percentage (%) in the Earth's atmosphere today
Nitrogen	1.8	X
Oxygen	0.2	20.95
Carbon dioxide	96.0	0.04
Other gases	2.0	0.92

0 3 . 1

Calculate value X in Table 5.

[1 mark]

X = _____ %

0 3 . 2

Which **two** other gases may have been in the Earth's early atmosphere?

[2 marks]

Tick (✓) **two** boxes.

Ammonia

Coal

Limestone

Methane

Poly(ethene)

Algae and plants increased the percentage of oxygen in the Earth's atmosphere.

The same process in algae and plants decreased the percentage of carbon dioxide in the Earth's atmosphere.

0 3 . 3

Which process in algae and plants increased the percentage of oxygen in the Earth's atmosphere?

[1 mark]

Tick (✓) **one** box.

Fermentation

Photosynthesis

Rusting

Sedimentation

0 3 . 4

Which **two** other processes decreased the percentage of carbon dioxide in the Earth's atmosphere?

[2 marks]

Tick (✓) **two** boxes.

Burning fossil fuels

Dissolving carbon dioxide in oceans

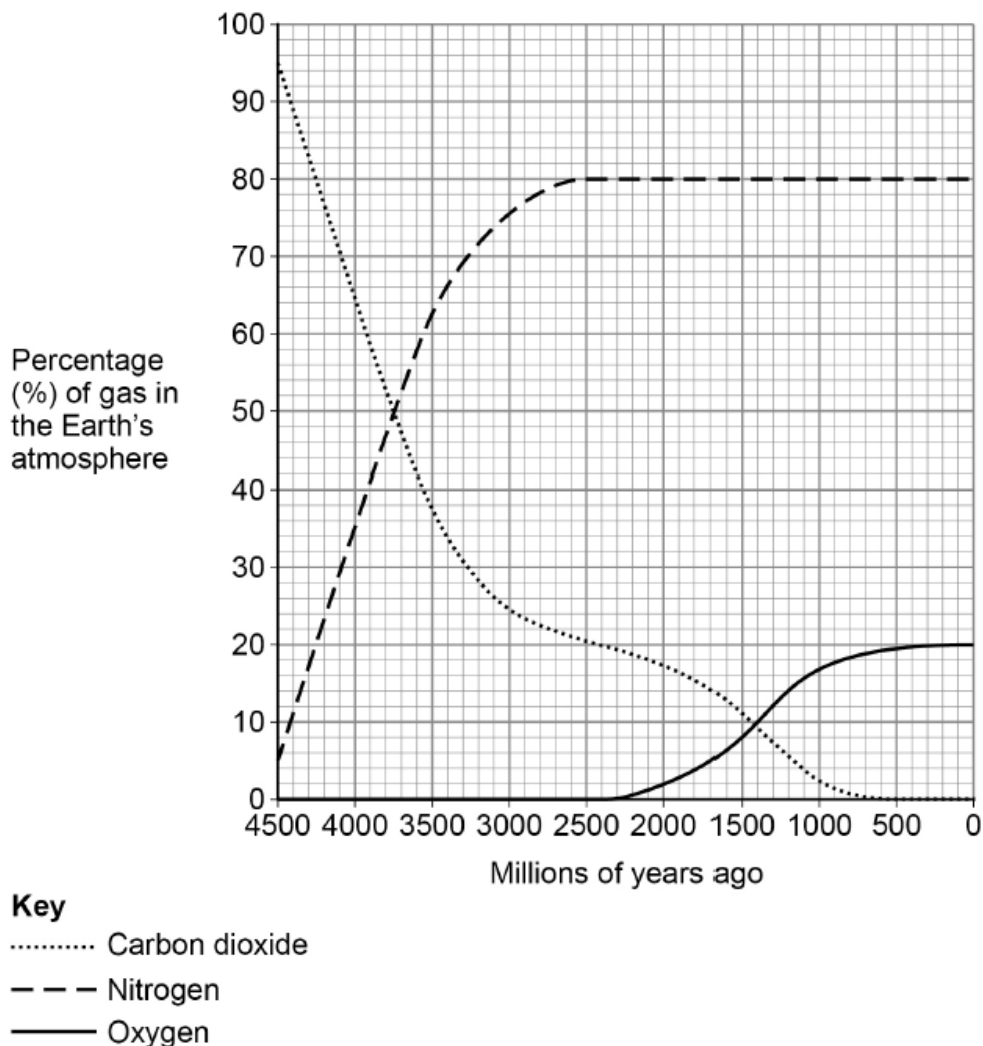
Eruption of volcanoes

Evolution of animals

Formation of sedimentary rocks

Figure 3 shows how the percentages of gases in the Earth's atmosphere may have changed since the atmosphere was formed.

Figure 3



0 3 . 5 When was the percentage of oxygen in the Earth's atmosphere 8%?

Use Figure 3.

[1 mark]

_____ millions of years ago

0 3 . 6 When did the percentage of nitrogen in the Earth's atmosphere become constant?

Use Figure 3.

[1 mark]

_____ millions of years ago

0 3 . 7 Crude oil was formed from an ancient biomass as the Earth's atmosphere evolved.

What did this ancient biomass mainly consist of?

[1 mark]

Tick (✓) **one** box.

Limestone

Plankton

Sand

0 3 . 8 Most of the percentages of the gases in **Figure 3** are estimated values.

Why have scientists used estimated values for the percentages of the gases in **Figure 3**?

[1 mark]

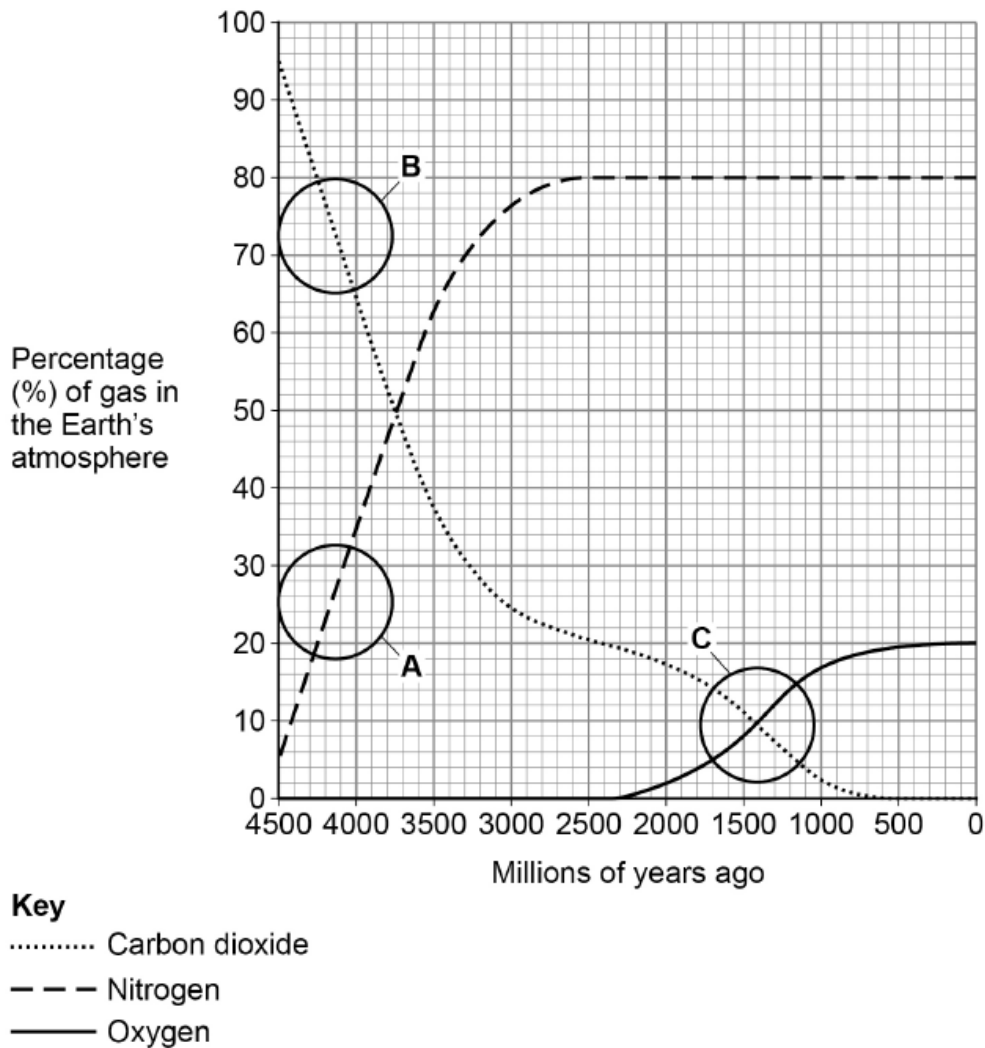
2. June/2022/Paper_8462/2H/No.6

0 6

This question is about the chemistry of the Earth's atmosphere.

Figure 3 shows how the percentages of gases in the Earth's atmosphere may have changed since the atmosphere was formed.

Figure 3



0 6 . 1

Explain the change in the percentage of gas in the region labelled A on Figure 3.

[2 marks]

0 6 . 2

Explain the change in the percentage of gas in the region labelled **B** on **Figure 3**.

[2 marks]

0 6 . 3

Compare the changes in the percentages of gases in the region labelled **C** on **Figure 3**.

[2 marks]

0 6 . 4

What process caused the changes in the percentages of gases in the region labelled **C** on **Figure 3**?

[1 mark]

0 6 . 5

Natural gas is a fossil fuel.

Describe how deposits of natural gas were formed.

[3 marks]
