

[Composition and evolution of the atmosphere]

Q1.(2018)

Look at the table.

	Nitrogen	Oxygen	Carbon dioxide
A	21%	78%	0.04%
B	80%	15%	5%
C	70%	20%	10%
D	78%	21%	0.04%

Which row in the table shows the correct percentages of gases in the present day atmosphere?

Your answer

[1]

Q2.(2018)

Complete the sentences about how the Earth's atmosphere has evolved.

Choose words from the list.

argon	condensed
melted	nitrogen
oxygen	sunlight
thunderstorms	volcanoes

The earliest atmosphere was made up of ammonia, carbon dioxide and water vapour.

These gases were released by

The water vapour to form the oceans.

Ammonia was converted by bacteria in the soil to make

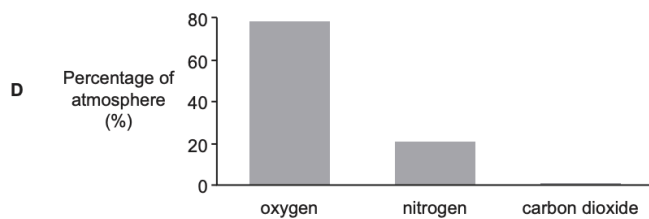
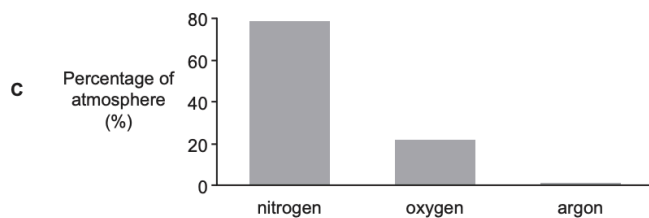
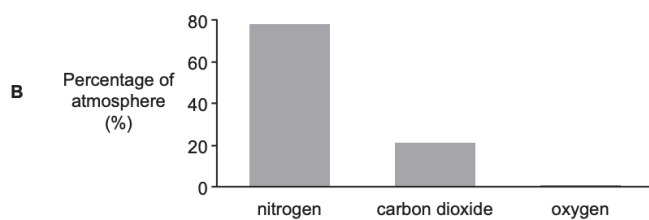
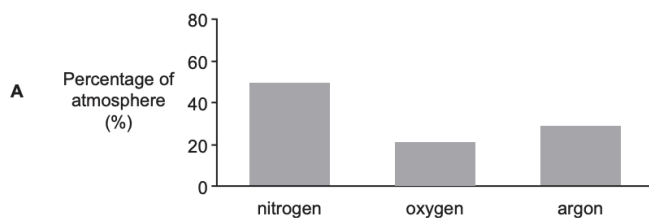
The earliest plants photosynthesised.

They absorbed carbon dioxide and released gas.

[4]

Q3.(2019)

Which graph shows the correct percentages of the three main gases in the atmosphere today?



Your answer

[1]

Q4.(2020)

4.5 billion years ago the Earth's atmosphere was different from the atmosphere today.

The table shows the gases found in the Earth's atmosphere as it is today.

Gas	Nitrogen	Oxygen	Argon	Carbon dioxide	Other gases
Percentage in atmosphere (%)	78	21		0.04	0.06

(a) Calculate the percentage of argon in the atmosphere.

Percentage = ... % [1]

Q5.a(2020)

Look at the list of gases that may have been present in the Earth's atmosphere 4.5 billion years ago.

ammonia	carbon dioxide	carbon monoxide
hydrogen	methane	water vapour

Answer the following questions using words from the list.

Each word may be used once, more than once, or not at all.

(i) Which gas condensed to form the oceans?

..... [1]

Q5.b(2020)

Which gas was turned into oxygen by plants and algae?

..... [1]

Q5.c(2020)

Which gas was turned into nitrogen by bacteria?

..... [1]

Q6.(2021)

The Earth's early atmosphere contained little or no oxygen.

Which process produced the oxygen found in the Earth's atmosphere today?

- A** Burning fossil fuels
- B** Photosynthesis by plants and algae
- C** Respiration by bacteria
- D** Volcanic activity

Your answer

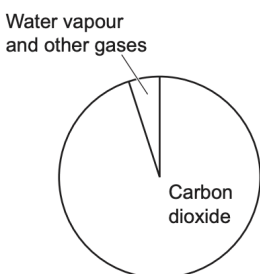
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[1]

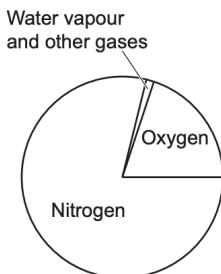
Q7.a(2022)

The diagram shows how the composition of the Earth's atmosphere has changed over time.

Earth's early atmosphere



Earth's atmosphere today



(a) What produced the gases present in the Earth's **early** atmosphere?

Tick (✓) **one** box.

- | | |
|---------------|--------------------------|
| Earthquakes | ☐ |
| Thunderstorms | ☐ |
| Volcanoes | ☐ |

[1]

Q7.b(2022)

What is the percentage of oxygen in the Earth's atmosphere **today**?

..... [1]

Q7.c(2022)

The amounts of carbon dioxide and water vapour in the Earth's early atmosphere decreased over time.

Draw lines to connect each **gas** with the correct description of **how it decreased over time**.

Gas	How it decreased over time
	Condensed to form the oceans
Carbon dioxide	Reacted with bacteria
Water vapour	Reacted with metals in rocks
	Absorbed by plants during photosynthesis

[2]

Q7.d(2022)

OCR [Chemistry] | Foundation
Topic [4]: [Chemistry of the atmosphere]

The Earth's atmosphere today contains gases from Group 0 in the Periodic Table.

- (i) The table shows the amounts of the gases from Group 0 in the Earth's atmosphere today.

Gas	Amount of gas (%)
Helium	0.000524
Neon	0.00182
Argon	0.934
Krypton	

The **total** amount of the gases from Group 0 is 0.938%.

Complete the table by calculating the **exact** amount of krypton in the Earth's atmosphere today.

Write your answer in the box in the table.

[2]

Q7.e(2022)

What is a property of the Group 0 gases?

Tick (✓) **one** box.

They are coloured.

☐

They are unreactive.

☐

They exist as molecules.

☐

[1]

Q8.(2023)

The Earth's atmosphere contains 78% nitrogen and 21% oxygen.
The remaining 1% is listed in the table.

Gas	Percentage (%)
argon	0.94
carbon dioxide	
other gases	0.02
Total	1.00

What is the percentage of carbon dioxide in the Earth's atmosphere?

- A 0.01%
B 0.04%
C 0.06%
D 0.08%

Your answer

[1]

Q9.(2024)

Scientists think the Earth's oxygen-rich atmosphere developed due to photosynthesis by plants.

Which gas in the Earth's early atmosphere did plants absorb during photosynthesis?

- A Ammonia
- B Carbon dioxide
- C Methane
- D Sulfur dioxide

Your answer

[1]

Q10.(2024)

It is thought that the gases in Earth's early atmosphere were released by volcanoes.

The table shows the amounts of different gases released by a volcano.

Which of the gases are carbon dioxide and water vapour?

Gas	Percentage of gas (%)
W	64
X	8
Y	2
Z	26

- A W and Z
- B W and Y
- C X and Y
- D X and Z

Your answer

[1]

Q11.(2024)

OCR [Chemistry] | Foundation
Topic [4]: [Chemistry of the atmosphere]

Nitrogen is a gas found in the Earth's atmosphere.

The table shows the percentages of different gases found in the Earth's atmosphere.

Gas	Percentage in the Earth's atmosphere (%)
Nitrogen	
Oxygen	20.95
Carbon dioxide	0.38
Other gases	0.92

Calculate the percentage of nitrogen in the Earth's atmosphere.

Percentage of nitrogen = ... % [2]