AQA – Chemistry of the atmosphere – GCSE 2022 CS Chemistry

1. June/2022/Paper_8464/C/2F/No.1

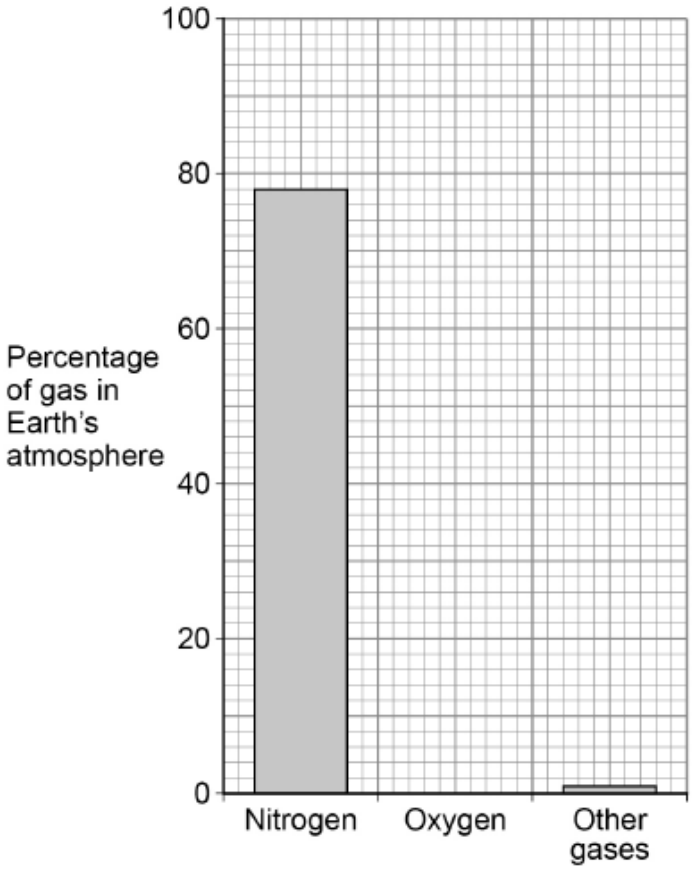
0 1 This question is about the Earth's atmosphere.

0 1 . 1 The Earth's atmosphere contains 21% oxygen.

Draw the bar for oxygen on **Figure 1**.

[1 mark]

Figure 1



0 1 . 2 What is used to test for oxygen gas?

[1 mark]

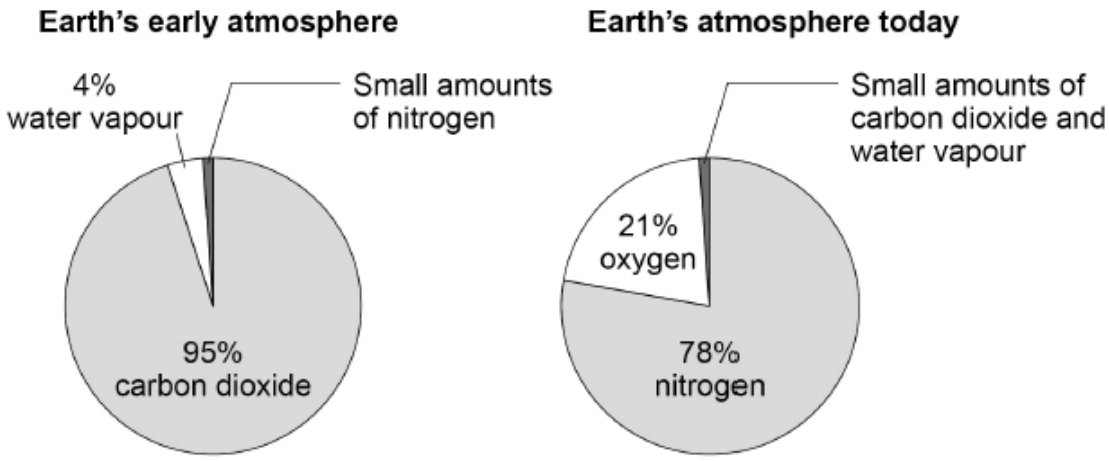
Tick (✓) **one** box.

- A burning splint ☐
- A glowing splint ☐
- Damp litmus paper ☐
- Limewater ☐

The Earth's early atmosphere was very different from the Earth's atmosphere today.

Figure 2 shows the composition of the Earth's early atmosphere and of the Earth's atmosphere today.

Figure 2



0 1 . 3 The percentages of nitrogen and oxygen in the Earth's atmosphere today are different from the Earth's early atmosphere.

Complete the sentences.

Choose answers from the box.

Use **Figure 2**.

Each answer can be used once, more than once or not at all.

[2 marks]

decreased	**increased**	**stayed the same**

Since the Earth's early atmosphere, the percentage of nitrogen in the Earth's atmosphere has _____ .

Since the Earth's early atmosphere, the percentage of oxygen in the Earth's atmosphere has _____ .

0 1 . 4 The Earth's atmosphere today contains a small amount of carbon dioxide.

Why has the percentage of carbon dioxide decreased since the Earth's early atmosphere?

[2 marks]

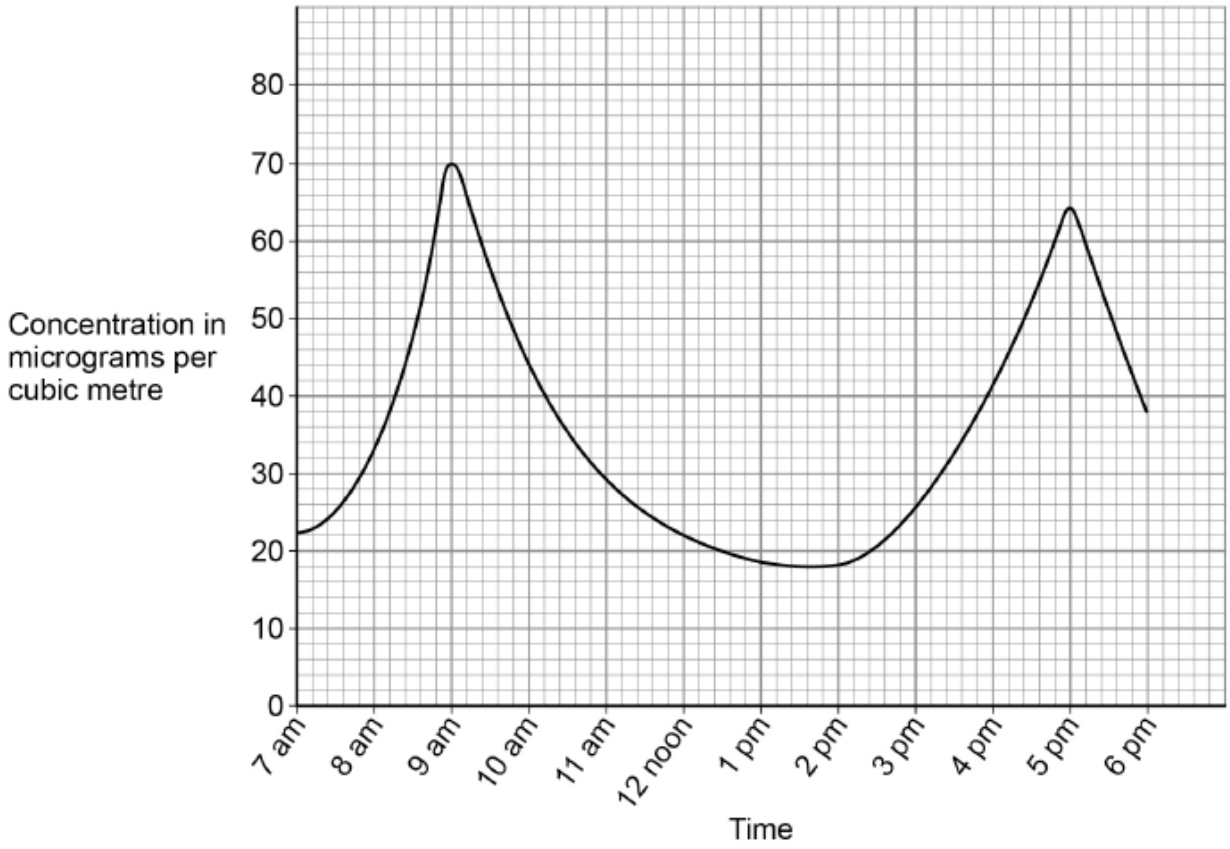
Tick (✓) **two** boxes.

- Dissolved in oceans ☐
- Formation of sedimentary rocks ☐
- Industrialisation ☐
- Respiration ☐
- Volcanic activity ☐

Oxides of nitrogen are produced when nitrogen reacts with oxygen in car engines.

Figure 3 shows the concentration of oxides of nitrogen in the atmosphere during one day in a city.

Figure 3



0 1 . 5 Which **two times** have the highest concentrations of oxides of nitrogen in the atmosphere?

[2 marks]

1 _____

2 _____

0 1 . 6 Suggest why there are the highest concentrations of oxides of nitrogen at these times.

[1 mark]

_____

_____

2. June/2022/Paper_8464/C/2H/No.5

0 5 This question is about the Earth's atmosphere and the Earth's resources.

0 5 . 1 After the formation of the Earth's early atmosphere, the amounts of nitrogen and oxygen in the atmosphere changed.

Explain the main changes in the amounts of nitrogen and oxygen in the Earth's atmosphere.

[4 marks]

Nitrogen _____

_____

_____

Oxygen _____

_____

_____

0 5 . 2 Describe how coal was formed from the carbon dioxide present in the Earth's early atmosphere.

[4 marks]

_____

_____

_____

_____

_____

_____

0 5 . 3 The combustion of 1.0 kg of coal produces more carbon dioxide than the combustion of 1.0 kg of natural gas.

Suggest why.

[1 mark]

_____

_____

Metals are extracted from metal ores found in the Earth.

0 5 . 4 Describe how bioleaching is used to extract copper from low grade ores.

[3 marks]

0 5 . 5 Phytomining uses plants to extract nickel from low grade ores.

The plants contain 0.792% nickel by mass.

The plants are burned to produce ash.

The ash from these plants contains 4.80% nickel by mass.

Calculate the mass of ash produced from burning 1000 kg of plants.

Give your answer in grams in standard form.

[4 marks]

Mass of ash (in standard form) = _____ g