Atmosphere Climate

GCSE Chemistry · Written to the shared content for AQA, Edexcel and OCR

Name _____ Class _____ Date _____

1. Worked example

Describe the composition of the Earth's atmosphere today. (3 marks)

Step 1 · Nitrogen

About four-fifths (approximately 80%) nitrogen.

Step 2 · Oxygen

About one-fifth (approximately 20%) oxygen.

Step 3 · Others

Small proportions of other gases, including carbon dioxide, water vapour and noble gases (mainly argon).

Answer: ~80% N_2, ~20% O_2, small amounts of CO_2, H_2O and noble gases

Check: This composition has been roughly the same for the last 200 million years.

2. Now try one with the steps

Explain how the oceans formed. (2 marks)

Step 1 · Source

Step 2 · Condensing

Answer:

3. Practice

Show your working. The marks tell you how much is expected.

1. State the approximate proportions of nitrogen and oxygen in the atmosphere today. [2]

2. Name two other gases found in small proportions in the atmosphere. [2]

3. State the source of most of the carbon dioxide in the Earth's early atmosphere. [1]

4. Explain how the oceans formed. [1]

5. Name the process that increased the amount of oxygen in the atmosphere, and the organisms responsible. [2]

6. Write the balanced symbol equation for photosynthesis. [2]

7. Give two ways in which carbon dioxide was removed from the early atmosphere. [2]

8. Describe how limestone formed from carbon dioxide. [2]

9. Name the two planets whose atmospheres are thought to be similar to Earth's early atmosphere. [1]

10. 100 cm^3 of air is passed over hot copper and the volume falls to 79 cm^3. Calculate the percentage of oxygen. [2]

11. Air contains about 0.04% carbon dioxide. Convert this to parts per million (ppm). [1]

12. Air is about 21% oxygen. Calculate the volume of oxygen, in dm^3, in 5.0 dm^3 of air. [1]

13. Explain why scientists cannot be certain about the composition of the early atmosphere. [2]

14. Explain how the evolution of algae and plants changed the atmosphere. [2]

4. Before you hand it in

Quoting exact percentages for the early atmosphere
Say it was mainly carbon dioxide with little or no oxygen, like Mars and Venus today.

"Plants removed all the carbon dioxide."
Also dissolving in oceans, sedimentary rocks and fossil fuels.

"The air is mostly oxygen."

About 80% nitrogen, 20% oxygen.