Chemistry of the atmosphere

Chemistry Paper 2 | 5 questions, 6 marks each

GCSE science 6-mark questions

This topic online

Name: _____ **Date:** _____ **Score:** _____ **/ 30**

Plan before you write: jot down the 6 or more ideas you need, then put them in a sensible order. For compare questions give both sides of each point; for evaluate questions use the information and finish with a conclusion.

1 Scientists think that Earth's early atmosphere was very different from the air we breathe today. Today the atmosphere is about four-fifths nitrogen and one-fifth oxygen, with small amounts of argon and carbon dioxide.

Describe how the atmosphere is thought to have changed from Earth's early atmosphere to the atmosphere today.

(6 marks)

Free for classroom and home use: print, photocopy and share. Not for resale or re-hosting.

2 Without any greenhouse gases, the average temperature at Earth's surface would be well below freezing. Carbon dioxide, methane and water vapour are greenhouse gases.

Explain how greenhouse gases keep Earth warm, and explain how human activities are increasing the amounts of carbon dioxide and methane in the atmosphere.

(6 marks)

Free for classroom and home use: print, photocopy and share. Not for resale or re-hosting.

3 A secondary school in Norwich wants to reduce its carbon footprint. The eco-committee, led by Chloe and Hamza, has costed three options.

Option	Cost in £	Carbon dioxide saved per year in tonnes	Notes
solar panels on the sports hall	60 000	18	lasts about 25 years, cuts electricity bills
replace gas boilers with heat pumps	150 000	40	needs better insulation first
walk or cycle to school campaign	2 000	6	depends on pupils and staff taking part

Evaluate the three options and recommend what the school should do. Use the data and your knowledge of carbon footprints.

(6 marks)

Free for classroom and home use: print, photocopy and share. Not for resale or re-hosting.

4 Older diesel buses in city centres release several pollutants, including carbon monoxide, sulfur dioxide, oxides of nitrogen and soot particles.

Compare how carbon monoxide and sulfur dioxide are formed when fuels burn, and compare the problems each one causes.

(6 marks)

Free for classroom and home use: print, photocopy and share. Not for resale or re-hosting.

5 The table shows approximate values for carbon dioxide in the atmosphere and the global average temperature compared with the 1951-1980 average.

Year	Carbon dioxide in parts per million	Temperature difference in °C
1960	317	-0.03
1980	339	+0.26
2000	370	+0.40
2020	414	+1.01

Marcus says: "This proves that carbon dioxide causes global warming."

Use the data and your knowledge to discuss Marcus's statement and describe two possible effects of global climate change.

(6 marks)

End of questions | Total 30 marks

Free for classroom and home use: print, photocopy and share. Not for resale or re-hosting.