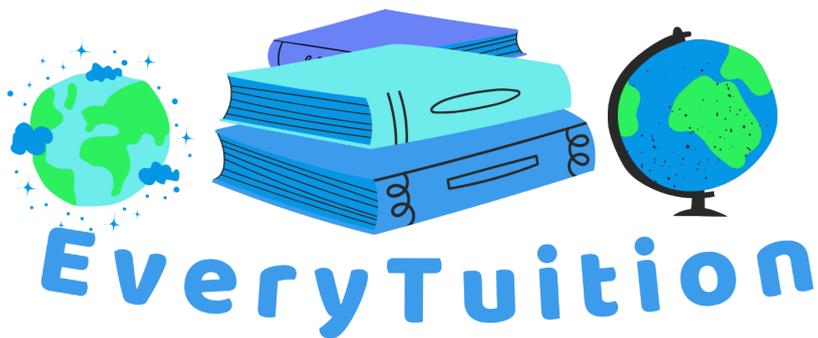


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GCSE Chemistry Topic 9 AQA: Chemistry of the atmosphere

Exam Questions/Mock Exam Questions



Questions For Foundation, Higher, and Triple Science [\(scroll down for questions for higher and triple science only\)](#):

(It would still be recommended to answer the foundation tier questions for triple science and higher tier to ensure you have good understanding).

Q1.

Jack is learning about the composition of the Earth's atmosphere.

(a) State the approximate percentage of nitrogen in the atmosphere.

[1]

(b) State the approximate percentage of oxygen in the atmosphere.

[1]

[Total: 2 marks]

Q2.

Harry is revising gases in the atmosphere.

Name one gas in the atmosphere that makes up less than 1%.

[1]

[Total: 1 mark]

Q3.

Ben is learning about the early atmosphere.

State one gas that was present in large amounts in the early atmosphere.

[1]

[Total: 1 mark]

Q4.

Daniel reads about volcanoes.

Explain how volcanic activity changed the atmosphere in the early Earth.

[2]

[Total: 2 marks]

Q5.

Oliver studies oxygen in the atmosphere.

Explain how oxygen was first produced in the atmosphere.

[2]

[Total: 2 marks]

Q6.

Ethan is revising carbon dioxide.

Give one reason why levels of carbon dioxide in the atmosphere decreased over time.

[1]

[Total: 1 mark]

Q7.

Sam is learning about greenhouse gases.

(a) Name two greenhouse gases.

[2]

(b) Explain how greenhouse gases keep the Earth warm.

[2]

[Total: 4 marks]

Q8.

Charlie is worried about global warming.

Give one effect of global warming.

[1]

[Total: 1 mark]

Q9.

Noah is revising climate change.

Suggest why it is difficult to predict the effects of climate change.

[2]

[Total: 2 marks]

Q10.

Jacob looks at pollutants from burning fuels.

State two harmful substances that can be released when fossil fuels are burned.

[2]

[Total: 2 marks]

Q11.

William reads about carbon monoxide.

(a) State why carbon monoxide is dangerous.

[1]

(b) Explain how carbon monoxide is produced when fuels burn.

[2]

[Total: 3 marks]

Q12.

Alex is revising acid rain.

(a) Name one gas that causes acid rain.

[1]

(b) State one effect of acid rain.

[1]

[Total: 2 marks]

Q13.

Luke is learning about soot.

(a) State how soot is formed.

[1]

(b) Explain why soot is harmful.

[2]

[Total: 3 marks]

Q14.

James is revising carbon footprints.

(a) State what is meant by the term *carbon footprint*.

[2]

(b) Give one action people can take to reduce their carbon footprint.

[1]

[Total: 3 marks]

Q15.

Tom is writing about the atmosphere.

Suggest two differences between the Earth's early atmosphere and the atmosphere today.

[2]

[Total: 2 marks]

Higher Tier

Q16.

Jack is revising the Earth's atmosphere.

(a) State the approximate percentage of nitrogen in the atmosphere.

[1]

(b) State the approximate percentage of oxygen in the atmosphere.

[1]

[Total: 2 marks]

Q17.

Harry is comparing the early atmosphere with today's atmosphere.

Give two differences between the early atmosphere and the atmosphere today.

[2]

[Total: 2 marks]

Q18.

Ben studies volcanic activity.

Explain how volcanic activity contributed to the gases in the early atmosphere.

[3]

[Total: 3 marks]

Q19.

Daniel looks at how oxygen appeared in the atmosphere.

Describe how oxygen was first produced in the Earth's atmosphere.

[2]

[Total: 2 marks]

Q20.

Oliver is learning about carbon dioxide.

(a) State two ways that carbon dioxide levels decreased in the early atmosphere.

[2]

(b) Write the word equation for photosynthesis.

[2]

[Total: 4 marks]

Q21.

Ethan is revising greenhouse gases.

(a) State three greenhouse gases.

[3]

(b) Explain how greenhouse gases cause the greenhouse effect.

[2]

[Total: 5 marks]

Q22.

Sam looks at global warming.

(a) Give two possible effects of global warming.

[2]

(b) Explain why scientists find it difficult to predict the effects of climate change.

[3]

[Total: 5 marks]

Q23.

Charlie is revising pollutants.

(a) State one gas produced by incomplete combustion.

[1]

(b) Explain why incomplete combustion is more dangerous than complete combustion.

[2]

[Total: 3 marks]

Q24.

Noah is studying carbon monoxide.

Explain why carbon monoxide is dangerous to humans.

[2]

[Total: 2 marks]

Q25.

Jacob learns about particulates.

(a) State how particulates are formed when fuels burn.

[1]

(b) Explain why particulates are harmful to health and the environment.

[2]

[Total: 3 marks]

Q26.

William is looking at sulfur dioxide.

(a) State how sulfur dioxide is formed.

[1]

(b) Explain how sulfur dioxide causes acid rain.

[2]

[Total: 3 marks]

Q27.

Alex is investigating nitrogen oxides.

(a) State how nitrogen oxides are formed in car engines.

[1]

(b) Give one harmful effect of nitrogen oxides.

[1]

[Total: 2 marks]

Q28.

Luke is writing about pollution.

Suggest two ways that air pollution from vehicles can be reduced.

[2]

[Total: 2 marks]

Q29.

James is studying carbon footprints.

(a) State what is meant by the term *carbon footprint*.

[2]

(b) Give one way governments could reduce carbon footprints.

[1]

[Total: 3 marks]

Q30.

Tom is analysing climate models.

Explain why predictions about climate change can sometimes be unreliable.

[3]

[Total: 3 marks]

Q31.

Jack is thinking about renewable energy.

Explain why using renewable energy sources can help reduce global warming.

[2]

[Total: 2 marks]

Q32.

Harry is revising atmospheric change.

Explain how the formation of sedimentary rocks reduced levels of carbon dioxide.

[2]

[Total: 2 marks]

Q33.

Ben is studying methane.

Evaluate the impact of increasing levels of methane in the atmosphere.

[4]

[Total: 4 marks]

Q34.

Daniel looks at carbon capture.

Explain how carbon capture and storage can reduce the effects of burning fossil fuels.

[2]

[Total: 2 marks]

Q35.

Oliver is studying scientific evidence.

Explain why peer review of climate change data is important.

[2]

[Total: 2 marks]

Q36.

Ethan looks at fossil fuels.

Describe two reasons why burning fossil fuels increases carbon dioxide levels in the atmosphere.

[2]

[Total: 2 marks]

Q37.

Sam compares complete and incomplete combustion.

Write the balanced symbol equation for the complete combustion of methane.

[2]

[Total: 2 marks]

Q38.

Charlie is revising atmospheric pollution.

Explain one environmental effect of sulfur dioxide and one environmental effect of nitrogen oxides.

[2]

[Total: 2 marks]

Q39.

Noah is revising early life.

Explain how algae and plants changed the composition of the Earth's atmosphere.

[3]

[Total: 3 marks]

Q40.

Jacob is analysing global warming.

Evaluate two possible consequences of global warming for humans and the environment.

[4]

[Total: 4 marks]

TRIPLE SCIENCE

Q41.

William is studying infrared radiation.

Explain how greenhouse gases absorb and re-emit infrared radiation.

[3]

Q42.

Alex looks at data on climate change.

Explain why long-term data is more useful than short-term data when studying climate change.

[2]

Q43.

Luke is analysing uncertainties in climate models.

Give two reasons why climate change models may give different predictions.

[2]

Q44.

James is investigating ice cores.

Explain how ice cores provide evidence for changes in the Earth's atmosphere over time.

[2]

Q45.

Tom studies deforestation.

Explain how deforestation contributes to global warming.

[2]

Q46.

Jack is revising ocean chemistry.

Explain how increasing carbon dioxide levels affect the oceans.

[2]

Q47.

Harry looks at feedback effects.

Explain one positive feedback effect that could make climate change worse.

[2]

Q48.

Ben is learning about water vapour.

Explain why water vapour is described as a greenhouse gas but not a cause of climate change.

[2]

Q49.

Daniel investigates uncertainties.

Evaluate why climate predictions involve uncertainties even with modern technology.

[4]

Q50.

Oliver reads about anthropogenic climate change.

Explain the term *anthropogenic* in the context of global warming.

[2]

Q51.

Ethan is looking at geoengineering.

Suggest one method of geoengineering to reduce global warming and explain how it works.

[2]

Q52.

Sam studies atmospheric pollution.

Explain why particulates can both cause global dimming and affect human health.

[2]

Q53.

Charlie compares greenhouse gases.

Evaluate the relative impacts of carbon dioxide and methane on global warming.

[3]

Q54.

Noah looks at renewable energy.

Explain why switching to renewable energy is not always straightforward.

[2]

Q55.

Jacob is writing a report about climate change.

Explain why actions to reduce climate change often involve political, social, and economic factors as well as science.

[3]