

The Earth's Atmosphere

Worksheet

Combined Science - Chemistry - Key Stage 4

C9 - Chemistry of the Atmosphere

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Carbon dioxide - 0.04 %

Early atmosphere

Both

Modern atmosphere



Other gases - trace

Early atmosphere

Both

Modern atmosphere



Oxygen - 21 %

Early atmosphere

Both

Modern atmosphere



Carbon dioxide - 90 %

Early atmosphere

Both

Modern atmosphere



Independent Practice

Fill in the table using the values at the bottom of the screen.

Gas	Early Atmosphere	Modern Atmosphere
Carbon Dioxide		
Oxygen		
Nitrogen		
Other gases		

Trace

1 %

21 %

Trace

78%

Trace

90 %

0.04 %



Self- assess

Gas	Early Atmosphere	Modern Atmosphere
Carbon Dioxide	90 %	0.04 %
Oxygen	1 %	21 %
Nitrogen	Trace	78%
Other gases	Trace	Trace



Which 2 gases did the early volcanic activity produce lots of?

Carbon dioxide and water vapour



When plants developed and started photosynthesising, which gas increased in the atmosphere?

Oxygen



When plants developed and started photosynthesising, which gas decreased in the atmosphere?

Carbon dioxide



Which gas condensed to form the oceans?

Water vapour



Which gas further decreased in the atmosphere when it dissolved in the oceans?

Carbon dioxide



Independent Practice

Write a paragraph to explain the changes in the composition of gases between the early atmosphere and the modern atmosphere.

You should include information on the following gases

- Oxygen
- Carbon dioxide
- Water vapour

(5 marks)



Support Sheet

There was lots of carbon dioxide in the early atmosphere because...

There was a very low percentage of oxygen in the early atmosphere because...

The percentage of oxygen increased and carbon dioxide decreased in the atmosphere when...

The oceans were formed by...

The percentage of carbon dioxide in the atmosphere further decreased when the gas...



Self-asses

There was lots of carbon dioxide in the early atmosphere because **there was lots of volcanic activity which released the gas.**

There was a very low percentage of oxygen in the early atmosphere because **there was no life, so no photosynthesis was occurring to produce the gas.**

The percentage of oxygen increased and carbon dioxide decreased in the atmosphere when **green algae and plants developed and began photosynthesising.**

The oceans were formed by **the Earth cooling, causing water vapour to condense.**

The percentage of carbon dioxide in the atmosphere further decreased when the gas... **dissolved in the oceans.**



True or False

Oil is made from dead sea organisms

TRUE



True or False

There is a finite supply of fossil fuels

TRUE



True or False

Fossil fuels are a renewable form of energy

FALSE



True or False

Limestone only takes around 10 years to make

FALSE



Independent Practice

1. Describe how fossil fuels are made.
2. Give a use of fossil fuels.
3. Describe how limestone is made.
4. Explain why limestone and fossil fuels are finite and non-renewable.
5. Challenge: what gas do you think could be given off when fossil fuels are burnt?
Think about the process that takes place when a substance is burnt.



Self-assess

1. Fossil fuels are made when **marine organisms die and are compacted and pressurised over millions of years.**
2. Fossil fuels are used as **petrol to power cars, to burn when we cook and to generate electricity.**
3. Limestone is made when **dead marine organisms, sand and silt are compacted and pressurised over millions of years.**
4. Limestone and fossil fuels are finite and non-renewable because **they take so long to be made. They will eventually run out.**
5. Challenge: **carbon dioxide gas** is given off when fossil fuels are burnt. The carbon in the organisms reacts with oxygen in the air to form the gas.



See you next time.

