

C6.3.1 Forming the Atmosphere

Answer the quiz questions

Learning Objectives

- Recall the composition of the current atmosphere
- Describe how our atmosphere evolved

Our current atmosphere:

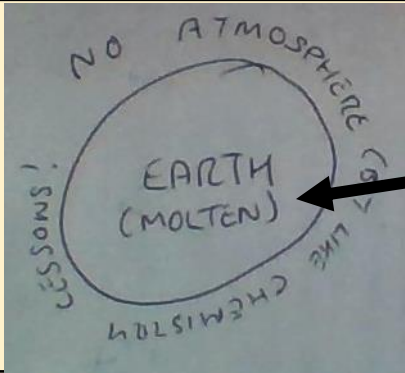
- Nitrogen 78%
- Oxygen 21%
- Argon 0.9%

Remainder other gases and water vapour.
(Carbon dioxide 0.035%)

How did our current atmosphere form?

- The original earth was a ball of molten rock with no atmosphere
- Once it cooled, volcanoes formed on the surface
- The volcanoes releases carbon dioxide and water vapour
- At this point the atmosphere was mainly carbon dioxide (CO_2), water vapour (H_2O), methane (CH_4) and ammonia (NH_3)
- When the earth cooled further, the water vapour condensed to form the oceans
- Algae in the oceans started photosynthesising which reduced the amount of carbon dioxide and produced oxygen
- Once oxygen levels got higher, it reacted to make ozone (O_3)
- The ozone provided a protective barrier which allowed more complex life to form.
- Respiration increases (O_2 is converted into CO_2)

TASK 1: Copy this out and turn it into a comic strip by drawing diagrams in the empty boxes



Example drawing

<p>Earth is created as a molten ball of rock and minerals</p>	<p>Volcanoes release Carbon dioxide and water vapour</p>	<p>Atmosphere is mainly water vapour, carbon dioxide, ammonia and methane</p>	<p>Earth cools enough for water vapour to condense and form oceans. CO₂ dissolves.</p>
<p>Carbon dioxide reacts to give metal carbonates in sedimentary rocks.</p>	<p>Algae in the oceans photosynthesise</p>	<p>Enough oxygen forms that ozone (O₃) starts being produced from O₂</p>	<p>Ozone layer protects from UV radiation so complex life evolves. Respiration happens.</p>

Task 2: Watch the modelled exam question

- Copy down the modelled answer
- Use the same techniques to answer the second question

Want to look into this further?

Extension Task:

- Find out what evidence scientists have for how the atmosphere has changed over time
- Compare the atmospheres of Mars and Venus with the original Earth's atmosphere
- What could be done to make the atmosphere on Mars habitable for humans?

Answer the quiz questions