

WJEC (Wales) Chemistry GCSE

1.4 - The Ever-Changing Earth Flashcards

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What are the four main layers of the Earth?



What are the four main layers of the Earth?

- Solid iron inner core
- Molten iron outer core
- Mantle
- Crust



What is the theory of plate tectonics?



What is the theory of plate tectonics?

- The idea that the Earth's lithosphere is divided into separate parts known as tectonic plates
- These plates move over the mantle at a rate of a couple of cm/year and the process is called continental drift



What was Alfred Wegener's early theory of continental drift?



What was Alfred Wegener's early theory of continental drift?

The continents all used to be joined together in a supercontinent called Pangea. The Earth's crust and upper mantle are made up of sections which drifted apart over millions of years.



What occurs at a conservative plate boundary?



What occurs at a conservative plate boundary?

- Two plates slide past each other
- If the movement is sudden and large enough then there is an earthquake
- No volcanoes are found at these boundaries



What occurs at a destructive plate boundary?



What occurs at a destructive plate boundary?

- Two plates move towards each other
- The denser plate is pushed beneath the other and melted
- This forms magma, which rises up and leads to the formation of a volcano or an earthquake
- The magma then cools forming igneous rock



What occurs at a constructive plate boundary?



What occurs at a constructive plate boundary?

- Two plates move away from each other
- Magma from the mantle rises up and forms new rock to fill the gap created
- If the pressure is high enough, a volcanic eruption may occur



How was the early atmosphere formed?



How was the early atmosphere formed?

The intense volcanic activity released gases such as CO_2 and water vapour



What is the present composition of the atmosphere?



What is the present composition of the atmosphere?

- 78% Nitrogen
- 21% Oxygen
- ~0.9% Argon
- ~0.04% Carbon dioxide
- ~0.04% Water vapour



What are the causes which lead to the increase of atmospheric concentration of oxygen?



What are the causes which lead to the increase of atmospheric concentration of oxygen?

- Algae and plants release O_2 into the atmosphere during photosynthesis
- As plants evolve, concentration of oxygen gradually increases, enabling animals to evolve and exist



How has carbon dioxide concentration changed in the atmosphere?



How has carbon dioxide concentration changed in the atmosphere?

- Algae and plants decrease the concentration of CO_2 in the atmosphere by using CO_2 for photosynthesis
- Formation of sedimentary rocks and fossil fuel which contain carbon decreases atmospheric CO_2
- Atmospheric CO_2 decreases when it dissolves in the ocean



How has the concentration of ammonia and methane in the atmosphere changed?



How has the concentration of ammonia and methane in the atmosphere changed?

As oxygen level increases:

- Ammonia reacts with oxygen to form nitrogen and water
- Methane reacts with oxygen to form carbon dioxide and water



Which three processes maintain oxygen and carbon dioxide levels in the atmosphere?



Which three processes maintain oxygen and carbon dioxide levels in the atmosphere?

- Respiration
- Combustion
- Photosynthesis



Why has the concentration of CO_2 increased considerably in the last 100 years?



Why has the concentration of CO₂ increased considerably in the last 100 years?

- Deforestation
- Increased burning of fossil fuels
- Population growth



What is the major cause of climate change?



What is the major cause of climate change?

Global warming that results from the increase in carbon dioxide and greenhouse gases levels



What are the potential effects of global climate change?



What are the potential effects of global climate change?

- Destruction of animal habitats that may cause extinction of species
- Rising sea level due to the melting of polar ice caps
- Increased risk of skin cancer due to more exposure to UV rays
- More extreme weather conditions (such as droughts)



What is another byproduct of burning fuels other than CO_2 ?



What is another byproduct of burning fuels other than CO_2 ?

Sulfur dioxide



How is acid rain formed?



How is acid rain formed?

Sulfur dioxide released from the burning of fuels dissolves in rainwater forming sulfuric acid (also known as acid rain)



What are the effects of acid rain?



What are the effects of acid rain?

- Damages buildings and statues made of limestone
- Causes corrosion of metal
- Reduces the growth of or kills trees and crops
- Lowers pH of water in lakes, killing aquatic organisms



What measures are used to address the problems of global warming?



What measures are used to address the problems of global warming?

- Reduce fossil fuel usage and use renewable sources instead
- Encourage eco-friendly travel, recycling and reusing
- Reforestation and creation of more green areas
- International deals and targets for emissions between countries



What measure is used to address acid rain?



What measure is used to address acid rain?

Sulfur scrubbing - this technique removes 95% of sulfur dioxide from gases released by burning fuels

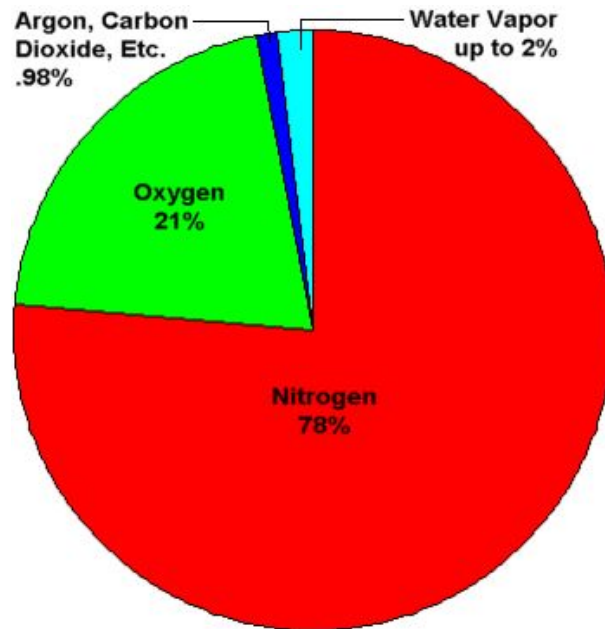


Which elements can be found in air?



Which elements can be found in air?

- Nitrogen
- Oxygen
- Argon
- Neon



What is the chemical test to identify oxygen gas?



What is the chemical test to identify oxygen gas?

A glowing splint will relight if placed into a test tube containing oxygen gas



What is the chemical test to identify carbon dioxide?



What is the chemical test to identify carbon dioxide?

When bubbled through limewater, carbon dioxide turns limewater cloudy due to the formation of calcium carbonate precipitate.

