Chemistry of the atmosphere

Answers

GCSE science knowledge recall

This topic online

Q	Answer	Remember
1	nitrogen	Nitrogen is unreactive, so it has built up and stayed in the air for billions of years.
2	20	Four-fifths nitrogen, one-fifth oxygen, and a tiny bit of everything else.
3	carbon dioxide	A tiny share, but enough to have a big effect on the temperature of the Earth.
4	noble gases	Argon alone is almost 1% of the air, far more than carbon dioxide.
5	volcanic activity	Evidence is limited because the early atmosphere formed over 4 billion years ago.
6	carbon dioxide	Much like the atmospheres of Mars and Venus today, which are mostly carbon dioxide.
7	oceans	Once the oceans formed, carbon dioxide began to dissolve in them.
8	methane	Methane, ammonia and nitrogen may all have been there; nitrogen then built up over time.
9	no	Oxygen only appeared once living things started to photosynthesise.
10	photosynthesis	Carbon dioxide + water → glucose + oxygen: one process took gas out and put another in.
11	2.7	Over the next billion years or so, oxygen built up enough for animals to evolve.
12	carbonates	These carbonates later became rocks such as limestone.
13	limestone	Chalk is a form of limestone built from the shells of tiny sea creatures.
14	coal	Burning fossil fuels now puts that ancient carbon back into the air.
15	It was taken in by algae and plants for photosynthesis, and it dissolved in the oceans to form carbonate sediments (later rocks and fossil fuels).	Two sinks: living things and the oceans.
16	methane	Methane traps far more heat per molecule than carbon dioxide does.
17	water vapour	Water vapour is the most common greenhouse gas, but human activity changes it least directly.
18	infrared	The ground re-emits energy at longer wavelengths, and those are the ones that get trapped.

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19	They absorb long-wavelength (infrared) radiation given off by the Earth's surface and re-emit it, so less energy escapes to space.	Without any greenhouse effect the Earth would be frozen; the problem is the extra amount.
20	increase	Deforestation means fewer trees to take carbon dioxide in, and burning them releases more.
21	rise	Melting land ice and warmer water expanding both push sea levels up.
22	The climate is a very complex system with many factors, so models have to be simplified and give a range of possible outcomes.	Uncertainty about details does not mean doubt about the overall trend.
23	carbon footprint	It counts making, transporting, using and getting rid of the thing.
24	carbon capture and storage	Old oil and gas fields can be used as the underground stores.
25	carbon monoxide	It binds to haemoglobin so the blood carries less oxygen; that is why homes have detectors.
26	incomplete combustion	Incomplete combustion gives carbon monoxide and soot instead of only carbon dioxide and water.
27	sulfur dioxide	Sulfur dioxide dissolves in rain to make it acidic.
28	acid rain	Acid rain damages buildings, statues, trees and life in lakes; the gases also cause breathing problems.
29	oxygen	The high temperature in the engine is what makes these normally unreactive gases react.
30	global dimming	Particulates also damage the lungs when they are breathed in.

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