Topic 9

1.What are the proportions of gases in the atmosphere that have been present for the last 200 million years?	4/5th Nitrogen (79%) 1/5th Oxygen (21%) Small proportions of other gases including CO_2, water vapour and noble gases.
2. How was the early atmosphere formed over 4.6 billion years ago?	Intense volcanic activity caused the formation of the early atmosphere.
3. What gases were present in the early atmosphere?	Large amounts of Carbon Dioxide, small amounts of Nitrogen, water vapour, methane and ammonia.
4. How were the oceans formed?	Water vapour condensed to form oceans.
5. How was the amount of Carbon Dioxide in the atmosphere gradually reduced?	As the oceans formed Carbon Dioxide dissolved in the water forming carbonates and producing sediments.
6. What living organisms, helped to increase the amount of oxygen in the atmosphere?	Algae and plants
7. What process takes place in plants which will have increased the amount of Oxygen in the atmosphere?	Photosynthesis
8. Write the word and symbol equation for the process of photosynthesis.	Carbon + Water $\xrightarrow{\text{light}}$ glucose + oxygen Dioxide $6CO_2 + 6H_2O \dashrightarrow C_6H_{12}O_6 + 6O_2$
9. Name the three process that reduced the amount of Carbon Dioxide in the early atmosphere.	1. Algae and plants photosynthesising. 2. Formation of sedimentary rocks through the formation of carbonates e.g limestone (calcium carbonate). 3. Formation of fossil fuels.
10. What is the function of greenhouse gases in the atmosphere?	The greenhouse gases maintain temperatures on the earth high enough to support life e.g. CO_2, water vapour & methane (CH_4)
11. Name the process that increase the levels Carbon Dioxide (CO_2) and Methane (CH_4) into the atmosphere.	The combustion (burning) of fossil fuels releases Carbon Dioxide into the atmosphere. Methane is released into the atmosphere from swamps, rice fields and grazing cattles decomposing waste.

12. What is the main problem with the release of Carbon Dioxide and Methane into the atmosphere?	Many scientists believe that human activities will cause the temperature of the Earth's atmosphere to increase at the surface and this results in global climate change.
13. As the global climate changes, what are the impacts of this change?	• Rising sea levels causing the flooding of low lying land and increased soil erosion. • Extreme weather events e.g. severe storms • Changes in temperature leading to changes in rainfall patterns - leading to impact on how crops will grow in different regions. • Changes to the distribution of wildlife species and the possibility of extinction.
14. What is the definition of carbon footprint?	The total amount of CO_2 and other greenhouse gases emitted over the full cycle of a product, service or event.
15. What steps can be taken to reduce the carbon footprint?	*Reduce the amount of fossil fuels being burnt, use alternative energy resources e.g. solar power, wind power, biofuels. *Use carbon capture, this involves pumping CO_2 down into the ground to be absorbed by porous rocks. *Reduce the amount of beef cattle and encourage a plant-based diet. *Efficient home insulation
16. The combustion of fossil fuels produces a significant amount of air pollution, name the polluting gases.	Carbon Dioxide, Water Vapour, Carbon Monoxide, Sulfur Dioxide, Oxides of Nitrogen, particulates of Carbon (soot).
17. What is incomplete combustion and name the products formed?	Incomplete combustion is the process where there is insufficient Oxygen for a fuel to burn. The products are Carbon Monoxide and particulates of soot.
18. Why is Carbon Monoxide a dangerous gas?	Carbon Monoxide is a toxic, colourless and odourless gas and cannot be easily detected.
19. What damage can oxides of Sulfur and Nitrogen cause?	SO_2 and NO_x cause respiratory problems and acid rain.
20. What problems do particulates cause?	Particulates cause global dimming and health problems e.g. respiratory problems.