

2.1 – Fuels & Combustion	
Fuel	Substance that can be burnt to transfer energy by heating . E.g. fossil fuels, wood, hydrogen .
Combustion	Burning . Requires fuel, heat and oxygen . Releases energy – exothermic reaction. Oxidation reaction.
Complete Combustion	Occurs when plenty of oxygen available. Produces carbon dioxide and water only. fuel + oxygen -> carbon dioxide + water
Incomplete Combustion	Occurs when not enough oxygen available. Produces carbon dioxide, water, carbon monoxide and carbon particles (soot).
Carbon Dioxide	Causes global warming . Turns limewater cloudy .
Carbon Monoxide	Toxic gas which reduces the amount of oxygen that red blood cells can carry.
Carbon Particles (Soot)	Cause breathing difficulties and global dimming .
2.2 - Global Warming	
Greenhouse Effect	Greenhouse gases (carbon dioxide, methane and water vapour) trap heat in Earth's atmosphere.
Increase in Greenhouse Gases	Carbon dioxide – burning fossil fuels and deforestation . Methane – cows and paddy fields .
Global Warming	Greenhouse gas layer getting thicker . More heat trapped . Increases Earth's temperature . Causes climate change .
Effects	Polar ice caps melt -> loss of habitats and sea levels rise which causes flooding . Storms and droughts .
Prevention	Burn fewer fossil fuels – use alternatives. Less deforestation . Plant more trees .

2.3 – Acid Rain	
Acid Rain	More acidic than normal rain. Caused by sulphur dioxide and nitrogen oxides released when burning fossil fuels .
Sulphur Dioxide	Sulphur impurities in fossil fuels react with oxygen to make sulphur dioxide .
Nitrogen Oxides	Heat from combustion causes nitrogen in air to react with oxygen to form nitrogen oxides .
Clouds	Gases react with water vapour in clouds . Sulphur dioxide forms sulphuric acid . Nitrogen oxides form nitric acid .
Effects	Kills trees , makes lakes acidic , weathers stone buildings , breathing problems, corrosion/rusting of metal.
Prevention	Burn fewer fossil fuels . Use technology to clean polluting gases.
Mitigation	Add alkali to lakes to neutralise the water.
2.4 – Earth's Atmosphere & Carbon Cycle	
Composition	78% nitrogen, 21% oxygen, 1% other gases (argon and carbon dioxide).
Volcanoes	Volcanoes erupt and release carbon dioxide .
Oceans	Carbon dioxide dissolves in the oceans .
Photosynthesis	Plants take in carbon dioxide and release oxygen .
Respiration	All living organisms take in oxygen and release carbon dioxide .
Decomposers	Micro-organisms break down dead organisms. Releases carbon dioxide .
Burning fossil fuels	Releases carbon dioxide .

Y7 Science Cycle 3 - Sheet 3

Environmental Chemistry

