

| 2.1 – Fuels & Combustion | |
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| 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 | |
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| 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 . |

Y8 Science Cycle 3 - Sheet 2

Environmental Chemistry

