

| Half Term | Unit Title | Key knowledge/ content to learn and retain | Essential skills to acquire (subject and generic) | Link to subject intent and ethos | Anticipated misconceptions | Link to previous KS | Opportunity to stretch higher attainers | SMSC & British Values | Cultural Capital | Career Link |
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| 1. | Pollution | <p>What are the properties of pollutants?</p> <p>What is the difference between carcinogenic and teratogenic?</p> <p>What is critical pathway analysis?</p> <p>What is critical group monitoring?</p> <p>How can we control different types of pollution?</p> <p>What is the difference between organic and inorganic pollution?</p> <p>How should we monitor water pollution?</p> <p>What is heavy metal pollution?</p> <p>How is noise pollution unique?</p> <p>Can we control ionizing radiation?</p> | <p>Using flow diagrams to demonstrate the formation of PANs.</p> <p>Using atmospheric graphs to explain temperature inversions.</p> <p>Collecting and analyzing noise pollution data.</p> <p>KEY WORDS: Specificity Synergism Mutagenic Gonadic Somatic Carcinogenic Teratogenic Smog Photochemical Tropospheric ozone Persistence Bioaccumulation Biomagnification Pyrethroids Neonicotinoids</p> | Challenging and inspiring students to consider global pollution. | <p>Green energy does not pollute the environment.</p> <p>Pollution is localized depending on where it is created.</p> <p>Pollution is only found in ACs.</p> | <p>Sustaining Eco-systems</p> <p>Distinctive landscapes</p> <p>Resource reliance</p> | <p>Combining information about Critical Pathway Analysis and Critical Group monitoring to better predict the effects of named pollutants in named regions of the world.</p> <p>Reviewing past disasters such as the Exxon Valdesse to make informed decisions regarding the movement of dangerous products.</p> <p>Using information about nuclear energy to recognize its significance in the creation of safer power.</p> | <p>Developing personal values and beliefs.</p> <p>Developing and expressing personal views and opinions.</p> | <p>The challenges caused by pollution—especially with regard to industrial revolutions across the globe.</p> <p>The importance and responsibility of supporting different groups across the globe that have been affected by pollution.</p> | <p>Data analyst</p> <p>Water board operative</p> <p>Field officer</p> <p>Pollution control</p> <p>Environment impact assessor</p> |

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| 2. | Agriculture | <p>What are the principles of agriculture?</p> <p>Which factors affect agriculture?</p> <p>How can we control biotic factors?</p> <p>How can we manipulate food species?</p> <p>How is genetic engineering changing agricultural practice?</p> <p>What is agricultural energetics?</p> <p>What are the environmental impacts of agriculture?</p> <p>Which social factors affect agriculture?</p> <p>Is technology the answer?</p> <p>Which strategies can be used to increase agricultural sustainability?</p> | <p>Using laboratory techniques to compare growing mediums.</p> <p>Comparing field techniques in order to monitor pesticides.</p> <p>Using trophic diagrams to compare sustainability.</p> <p>KEY WORDS:</p> <p>Thermoregulation</p> <p>Salinity</p> <p>Aeration</p> <p>Topography</p> <p>Companion crop</p> <p>Pheromone trap</p> <p>Transgenics</p> <p>Intensive</p> <p>Extensive</p> <p>Energy subsidy</p> <p>Autotrophic</p> <p>Heterotrophic</p> <p>Conversion ratio</p> <p>Quota</p> | <p>Challenging learners to consider agricultural practice across the globe.</p> <p>Considering how sustainability can be incorporated into future agricultural practice.</p> | <p>The UK is self sufficient in all food.</p> <p>Agricultural practice no longer damages the environment.</p> <p>Genetically modified crops are extremely dangerous.</p> | <p>Sustaining Ecosystems</p> <p>Resource Reliance</p> | <p>How can technology be used to promote sustainable practice.</p> <p>Can we plan and deliver farming that is both productive and sustainable.</p> | <p>Developing personal values and beliefs</p> <p>Developing and expressing personal views and opinions.</p> | <p>The opportunities and challenges of intensive and extensive agricultural practice.</p> <p>The importance and responsibility of supporting products that are created sustainably.</p> | <p>Farming</p> <p>Agronomy</p> <p>Soil technician</p> <p>Genetic scientist</p> <p>Veterinary</p> |

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| 3. | Aquatic resources | <p>What is marine productivity?</p> <p>What are the environmental impacts of fishing?</p> <p>How can we reduce the environmental impacts of fishing?</p> <p>What is the maximum sustainable yield and how is this linked to the total allowable catch?</p> <p>What is the tragedy of the commons?</p> <p>What is aquaculture and how is it replacing traditional farming?</p> | <p>Using choropleth maps to look at agricultural patterns across the globe.</p> <p>Comparing abiotic factors using line graphs.</p> <p>Visiting local fisheries in order to enhance learning.</p> <p>Using Punnett squares to show how all female fish are bred.</p> <p>KEY WORDS: Pelagic Demersal Bycatch Acoustic No take zone Gender control Limiting factor</p> | <p>Encouraging students to explore Asia and explore their approaches to aquaculture.</p> <p>Encouraging students to consider more sustainable fishing in the local North Sea fisheries.</p> | <p>Fishing practices have become sustainable.</p> <p>The UK fishes sustainably.</p> <p>Maximum Sustainable yield is the same as Total allowable catch.</p> | <p>Resource Reliance</p> <p>Sustainable ecosystems.</p> | <p>Consider the implications of polyculture within the UK.</p> <p>Use data to suggest sustainable TACs.</p> <p>Consider links with the pollution topic.</p> <p>Suggest accurate means of gathering data in the field.</p> | <p>Developing personal values and beliefs.</p> <p>Developing and expressing personal views and opinions—particularly with regard to different fishing methods used across the globe.</p> | <p>The opportunities and challenges of the UK's fishing policy following BREXIT in January 2021.</p> <p>The importance and responsibility of suggesting sustainable fishing methods in LIDCs and EDCs.</p> | <p>Fishing</p> <p>Fishing Control Officer</p> <p>Water pollution monitoring</p> <p>GM scientist.</p> <p>Field officer</p> <p>Reporter</p> <p>Ship engineer</p> <p>Merchant navy</p> |

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| 4 | Forest Resources | <p>Why are forests so important?</p> <p>How do forests provide a range of ecosystem services?</p> <p>How is the exploitation of forests managed?</p> <p>What is modern commercial forestry?</p> <p>How is deforestation linked to unsustainable exploitation?</p> <p>What are the features of sustainably managed forests?</p> | <p>Using cycles to demonstrate the importance of forests in nature.</p> <p>Comparing data for forests in different biomes across the globe.</p> <p>KEY WORDS: Fuelwood Humidity Coppicing Pollarding Close planting Indigenous Selective logging Afforestation Harvesting rate</p> | <p>Particular emphasis on Tropical forests with the hope that students may one day explore these fragile environments.</p> | <p>Forestry in the UK is sustainably managed.</p> <p>Forests are only important as a source of wood.</p> <p>Wood is no longer burned as a fuel.</p> | <p>Resource Reliance</p> <p>Sustainable ecosystems</p> | <p>Consider how remaining tropical rainforests may be saved and protected.</p> <p>Give suggested means of increasing the number of trees in the UK.</p> <p>Use data analysis to assess sustainability of forest management techniques across the globe.</p> | <p>Develop and expressing personal views—particularly with regard to the destruction of tropical rainforests across the globe.</p> | <p>The disparity between resource availability and consumption.</p> <p>Understanding that in some areas of the globe wood is the only source of fuel for warmth and energy.</p> | <p>Forestry Ranger</p> <p>Sustainable timber technician</p> <p>Field officer</p> <p>Extreme sports</p> <p>Arborist</p> <p>GM scientist</p> |

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| 5. | Sustainability | <p>What are the principles of Earth's ecological support systems?</p> <p>How do tipping points lead to new equilibria?</p> <p>What is the circular economy?</p> <p>How can we apply the circular economy to more sustainable lifestyles?</p> <p>How is biocapacity linked to ecological footprints?</p> <p>How can we use case studies to assess sustainable development?</p> | <p>Using material cycles to understand more sustainable approaches.</p> <p>Using flow diagrams to better understand the principles of a circular economy.</p> <p>Using data to assess ecological footprints.</p> <p>KEY WORDS: Positive feedback Tipping point Circular economy Optimum Biocapacity Ecological footprint Living planet index</p> | Sustainable working environments is something every country should aspire to. | <p>Sustainability is possible in all contexts.</p> <p>All AC countries are moving towards sustainability.</p> <p>Tipping points can easily be rectified.</p> | Urban Futures Sustaining eco-systems | <p>Pull together information from ALL topics studied and assess the global likelihood of future sustainability.</p> <p>Link work to Cradle to cradle design in engineering.</p> <p>Use data to assess ecological footprints.</p> | <p>Developing personal values and beliefs</p> <p>Developing and expressing personal views and opinions.</p> | <p>The opportunities and challenges of sustainable economies.</p> <p>The importance and responsibility to lead and promote sustainable lifestyles.</p> | <p>Environment assessment</p> <p>Data analyst</p> <p>Green designer</p> |