



SUSTAINABILITY

AWARENESS AND ACTION

Throughout Earth's history its development has been dictated by natural occurrences, even where these events have been destructive. However, particularly since the Industrial Revolution Humanity's negative impact on the environment such as through the release of greenhouse gases has been steadily increasing. With the worldwide population now having exceeded 7 billion, it is estimated that on average each person worldwide uses the equivalent resources of 3.5 Earths whilst every person in the UK uses the equivalent of 1.5 Earths. With the population worldwide set to increase over the next few decades the current situation is unsustainable and must be addressed. This unit aims to introduce sustainability over the course of a total of 12 lessons and assumes that participants have little knowledge of climate change. The awareness of climate change and its associated issues will be built-up throughout the unit leading to the opportunity for pupils to present their findings, etc. Elements of Science, Technology, Engineering and Mathematics are present to varying degrees throughout the proposed lessons and are designed to be flexible should new content be introduced. The tasks also have a multitude of learning opportunities, including: group work, communication development via presentations & discussions, guided research tasks and practical activities. Transferable skills are also developed with links made to engineering and the chance to plan a conservation project offered. The Curriculum for Excellence encourages outdoor learning, the promotion of sustainability and multidisciplinary learning and this unit aims to meet these criteria (i.e. HWB 3-19a, LIT 3-23a, MNU 3-20a, SCN 3-05b, SOC 3-08a, SOC 3-10a, et al).

Task 1 – Research (2-3 Lessons)

The first sequence of lessons aim to set the context of the whole unit by allowing pupils to gain an understanding of the environmental issues facing Humanity and the depletion/exploitation of the planet's resources. Being teacher-led, pupils will undertake a research task primarily using online resources such as NASA, BBC Bitesize, the IPCC, etc to discover what global warming is and the differences between natural and anthropogenic climate change. The impacts and potential mitigation of man-made climate change will then be investigated and the finite limit of the Earth's resources emphasised. Either within class or as homework, posters can be produced by assigned pairs/groups to share their findings on varying aspects of the research.

Task 3 – Participate (2-3 Lessons)

This third task combines elements of the STEM agenda and opportunities offered by other organisations to allow pupils to work together and participate in various multidisciplinary activities. Initially working in a circus format, the class can use interactive software and games provided by the Smallpeice Trust to forward the impact of engineering, such as with the 'Bio-dome' game requiring users to build a sustainable habitat (linking with Task 2) and 'Bridge Builder' using teamwork and problem solving to build structurally sound bridges. By utilising the 'STEM-in-a-box' kits or 'STEM Days' sessions, pupils can learn to budget, think creatively, cooperate, etc when tasked to build a renewable and sustainable energy source, such as Windmills. Dynamic Earth school visits would also be an excellent way for pupils to learn more about sustainability, such as with the S1-S3 Climate Change workshop looking 50 years into the future and discussing climate control ideas.

Task 5 – Present and Create (2 Lessons)

After the varied nature of the four tasks pupils have had the opportunity to learn about climate change, sustainability and some ways in which they can make a difference to their local community. This set of lessons provides a chance for the class to communicate their findings, thoughts and ideas on the unit. By reflecting together through discussions, analysis and presentations a forum is created allowing for the topic to be moved forward. Once the key points have been summarised it may be useful to consider how the unit could be modified in the future, using techniques such as Assessment is for Learning to further involve the pupils in the learning process.

Task 2 – Design (2 Lessons)

With a framework provided by guiding documentation and advice from the teacher, this student-led activity aims to give pupils ownership and an associated sense of responsibility over an isolated island. Each group is initially tasked with designing an island either through terrain software or by hand, after which differing circumstances are introduced which changes the natural balance of the island (such as it becoming inhabited, resource use to build a society, natural disasters, etc). The final goal is to see which groups have successfully produced a sustainable environment – this can be determined by their peers via various means such as through class voting or a judging panel. By appealing to real-life island examples including Easter Island and Tuvalu, pupils can be made aware of the importance of sustainability and its link to the continued longevity of our environment.

Task 4 – Discover (2 Lessons)

Though there is much to be learnt from within the classroom, it is through practical application that the concept of sustainability can be truly appreciated. The John Muir Award is an education initiative from the John Muir Trust which allows individuals or groups to achieve a recognised award through discovering, exploring, conserving and sharing the story of a wild place. For pupils this place could be within school grounds, allowing the class to make a positive impact within their local community. It also encourages independent learning and thinking as potential projects are proposed before final approval. By introducing differing subject applications; from using Quadrats to sample plant and animal life to Pollution Surveys, the John Muir Award can help pupils relate to what impact their actions and lifestyle have on the environment.

