

KS2 Switch On! Workshop

Somerset Waste Action Programme

<p><i>Please Note: The activities included in a Switch on! workshop may vary depending on your School's specific circumstances, the Waste Action Officer attending and weather conditions on the day.</i></p> <p style="text-align: center;"><i>We will discuss your needs and options with you when you make your booking.</i></p>	
<p>Duration: 1- 1.5 hours</p>	
<p>National Curriculum Links: Science- Sc4 Physical Processes Geography- Knowledge and understanding of environmental change and sustainable development: 5 a + b English- En1 Speaking and listening Citizenship: Preparing to play an active role as citizens 2 j Design and technology- Knowledge and understanding of materials and components: 4 c+d</p>	
<p>Links to DSCF/QCA Schemes of work: Science 4F Circuits and conductors Literacy Strands: Speaking, Listening and Responding.</p>	
<p>Objectives of the Workshop:</p> <ul style="list-style-type: none"> • To understand what energy is. • To identify what we use electricity for and how it is made. • To understand the environmental impacts of using fossil fuels to produce electricity. • To think about how we can save energy. • To identify sustainable alternatives to fossil fuels and discuss the advantages and disadvantages of these. 	
<p>Common Difficulties, errors and misconceptions:</p> <ul style="list-style-type: none"> • That there is an inexhaustible supply of fuel to generate electricity. • That their energy use has no impact on the environment. • That there are no drawbacks to the use of sustainable energy sources in the UK. 	
<p>Assessment Criteria: What have we learnt from today's workshop? Why is it important that we use less electricity? How can we use less electricity?</p>	
<p>Vocabulary: Energy, electricity, fuel, coal, oil, gas, solar power, wind power, sustainable, renewable, power station, generator, pollution, smog, global warming, climate change.</p>	
<p>Resources to be provided by school: For solar boats: Outside area to site paddling pool, close to water source, sellotape. For energy survey: Clipboards, pencils. Teacher to organise which rooms the children will be able to go in to do their energy audit prior to SWAP visit.</p>	<p>Resources to be provided by SWAP: PowerPoint presentation, renewable energy gadgets and toys, resources for building renewable energy circuits, clean plastic 'rubbish' for building solar boats, paddling pool, energy saving light bulb, incandescent light bulb, energy survey forms, model house and examples of insulating materials.</p>
<p>Strategies: Introduction: Using a power-point presentation as a visual aid: Start by asking what is energy? (force, activity, source of power, fuel). Discuss different types of energy the difference between the energy in our bodies and the energy used by gadgets and appliances at home and school- what is this energy called? Where does it come from? How is it made? What are the environmental impacts of generating electricity from fossil fuels? How can we ensure supplies of fossil fuels last longer? How can we use</p>	

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less electricity? Introduce the idea of using the sun, wind, rivers and sea as more sustainable sources of energy. Discuss the pros and cons of relying on these sources of energy in the UK.

Development:

This may involve one or more of the following options, depending on timings and weather conditions:

School energy survey

As a class we identify the different areas of the school where energy is used: Office, ICT room, classroom, staff room, hall etc. Divide class into small groups and assign each group an area of the school to survey. Give each group a survey form to complete, identifying which items use energy, how many there are and whether they are in use, switched off or have been left on unnecessarily. Following the survey we collate results as a class and discuss ways that the school could use less energy, with the aim of creating an action plan e.g. having pupils who are school energy monitors, establishing a green action group, investing in alternative energies etc. Time permitting children design information signs and posters to remind others to save energy e.g. by turning off appliances, turning down heating and closing doors and windows.

Investigating solar and wind power

Weather permitting, children examine and try out a variety of toys and gadgets that use renewable energy sources. We may also make our own solar and/ or wind circuits to power a fan, buzzer or bulb.

Building solar-powered boats

Weather and time permitting, children work in small groups to build a boat from clean plastic 'rubbish' and then power it using a motor connected to a solar panel. We then test these out in the SWAP paddling pool!

What is an energy efficient house like?

Children investigate how to save energy by insulating their homes. We use a model house to put the insulating properties of different materials to the test.

Plenary:

Quick re-cap: How is most of our electricity generated? Why is important to use less energy? How can we do this at home and at School?