

**ABOUT THE UNIT**

In the last unit of this term's Today and Yesterday series, we look at environmental issues. Waste is becoming a major threat to our environment. In the programmes, businesses and schools take steps towards managing their waste in a more sustainable way.

**BROADCAST DATES**

Programmes are broadcast on Radio Ulster, medium wave, every Tuesday morning from 11.20 - 11.40.

<i>Programme</i>	<i>Title</i>	<i>Broadcast Date</i>
<b>8</b>	<b>The Waste Exchange Bureau (1)</b>	<b>12 November 2002</b>
<b>9</b>	<b>The Waste Exchange Bureau (2)</b>	<b>19 November 2002</b>
<b>10</b>	<b>Eco-School</b>	<b>26 November 2002</b>

**PROGRAMME 8 – 'THE WASTE EXCHANGE BUREAU (1)'****LEARNING OUTCOMES**

By the end of the programme pupils should be able to:

- know that industrial activities create a variety of waste products.
- understand the environmental threats and their underlying economic and social causes.
- identify properties of materials.
- understand the benefits of reusing and recycling.

**ABOUT THE PROGRAMME**

The idea of waste exchange is not new. Our grandparents and great-grandparents would remember the rag and bone man's cart arriving in the street, and scrap-yards which would buy scrap metals. In our modern consumer society we generate colossal amounts of waste. Northern Ireland companies are being directed by government to reduce the amount of waste they produce, and find ways of reprocessing and recycling a proportion of their waste. To help them in this task the Industrial Research and Technology Unit have set up the Waste Exchange Bureau to help companies find potential users or recyclers of waste, which would usually be disposed of in the environment.

We begin our first programme in this unit by visiting the Industrial Research and Technology Unit in Lisburn. Trevor Knipe from the Centre explains why the Waste Exchange Bureau (WEB) was set up and how it works. The WEB has a library listing categories of waste and companies who are potential recyclers/reprocessors.

The programme looks at three categories of waste:

**OILS** - visiting a company called 'Capitol Oils' in Drumaness, we hear how they collect waste oil from garages all over Northern Ireland and reprocess it into fuel oil.

**PLASTICS** - tonnes of plastic packaging are generated by our supermarket chains each year. We visit Tesco to hear how they organise the collection and reprocessing of their polythene packaging. Then travelling to Annacloy, we pay a visit to 'bpf Recycling Plastics' to hear how the reprocessed plastic is made into garden furniture.

**METALS** - Paul Stewart of Clearway Disposals talks us through how all the different metals in a car can be separated out and recycled.

**Key words used during the programme:**

Waste disposal; exchange; environment; landfill site; recycling; reprocessing; segregate; scrap-yard; pulverise; granules.

**CLASSROOM ACTIVITIES - Before the Programme**

<b>Activity</b>	<b>Tasks</b>	<b>Worksheets</b>	<b>Relevance To NI Curriculum</b>
<b>WHOLE CLASS</b>			
<b>Debate</b>	Ask pupils to think about waste by getting them to list their weekly household waste. - Discuss where household waste goes. Talk about landfill sites. - Widen discussion by asking the class to think about different kinds of waste which might be produced by large companies. - Have pupils any ideas on how some materials might be recycled?		<b>Science and Technology</b> - The pupils gain an understanding about waste materials and how some waste can be used for recycling.

**CLASSROOM ACTIVITIES - After the Programme**

<b>Activity</b>	<b>Tasks</b>	<b>Worksheets</b>	<b>Relevance To NI Curriculum</b>
<b>WHOLE CLASS</b>			
<b>Listening</b>	Before plastic packaging can be recycled, paper labels which were stuck to the plastic have to be removed. Can the children come up with any solutions to this problem? <b>Answer:</b> Tesco have come up with two ingenious ways of getting round this problem. They use labels made of rice paper which simply dissolve in water. They have also experimented with stamping information onto packaging using vegetable dye which, again, dissolves in water when the plastic waste is washed.	<b>PAIRS/GROUP Worksheet 1 - Waste and recycling.</b> Ask the children to listen carefully to the programme and then working in pairs or groups complete the questionnaire.	
<b>Debate</b>	The key to successful recycling is sorting, that is, separating waste into different categories. Using the example of the car, discuss the difficulties of segregating the different materials used in car manufacturing.	<b>INDIVIDUAL - Worksheet 2 Linking waste with recycled products.</b> Use Worksheet 2 to reinforce some of the teaching points in the programme.	<b>Geography</b> - Respect for the environment: pupils learn about environmental issues, both locally and globally, for example, pollution.
<b>Quiz</b>	<b>ENVIRONMENTAL TABLE QUIZ</b> Divide children into six groups and nominate a Quizmaster for each group. Allow children time to complete quiz and then read questions out to class, getting the Quizmaster of each group to read the answers out.	<b>Worksheet 3 - Table Quiz</b>	

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**PROGRAMME 9 - 'THE WASTE EXCHANGE BUREAU (2)'****LEARNING OUTCOMES**

By the end of the programme pupils should:

- know about the 'water cycle' and where water waste ends up.
- realise that being wasteful and disposing of waste costs money.
- know that recycling resources saves money and energy.
- know that some waste is hazardous and can cause serious pollution.

**ABOUT THE PROGRAMME**

We open the second programme about the Waste Exchange Bureau with Trevor Knipe of the Industrial Research and Technology Unit. Trevor tells us about a waste product, sulphuric acid. This posed a problem for Seagate and the Waste Exchange Bureau (WEB). We visit the Seagate plant in Londonderry where computer parts are made. After a simple explanation of the manufacturing process at Seagate, the plant's Environmental Health and Safety Manager explains how they found themselves with a large quantity of sulphuric acid to dispose of and how the WEB linked them up with another company which was able to use the chemical. Before leaving Seagate we hear about a range of other waste materials which Seagate has to dispose of; plastic boxes, cardboard, drinks cans, glass, heavy metals and chemicals.

We then turn to the textile industry and visit Ulster Carpet Mills in Portadown. We hear how the company found a way of being less wasteful with the latex compound with which they use to back their carpets.

We return to the subject of waste plastics and meet the man responsible for collecting all the off-cuts from PVC window frames and ensuring they are re-processed into useful items such as road-cones or conduits for electrical wiring.

We round off the programme with a workshop with a Primary 7 class from Greystone Primary School in Antrim. The session is led by Maurice Cairnduff of EMC2 who is a mine of ingenious ideas for making things out of waste cardboard and plastics. The pupils have fun attempting some of Maurice's designs and they play some instruments made from waste cardboard and plastic.

<b>Key words used during programme:</b>	Hazardous waste; product; corrosive; concentrated; dilute; acidic; data technology market; particles
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**CLASSROOM ACTIVITIES - After the Programme**

<b>Activity</b>	<b>Tasks</b>	<b>Worksheets</b>	<b>Relevance to NI Curriculum</b>
<b>WHOLE CLASS</b>			
<b>Debate</b>	<p>Discuss the difficulties posed by hazardous waste like sulphuric acid. Ask the class to think about the reasons why you can't simply pour hazardous chemicals down the drain.</p> <p>Discuss where our water and sewage waste ends up.</p> <p><b>Note:</b> <u>Latex</u> is used to coat the back of carpets to retain the tuft. It is applied by passing the carpet through a dipping trough containing a constant level of foamed latex mix. Therefore, at the end of each working day, a full trough of the mix remains. Previously this mix was disposed of until an employee suggested a system which now enables the company to store the latex mix overnight so that it can be used the next day.</p>		<p><b>Science and Technology</b> Pupils gain an understanding of hazardous chemicals and how they can damage the environment.</p> <p><b>Geography</b> The following issues are covered: - conservation of the environment. - manufacturing industries in Northern Ireland.</p>
<b>Group work</b>		<b>Worksheet 1</b> Working in small groups, ask pupils to match the items to the correct waste products.	
<b>INDIVIDUAL</b>			
<b>Maths</b>	Ask the children to complete the maths task on WORKSHEET 2 to find out how much Ulster Carpet Mills saved by installing the new equipment.	<b>Worksheet 2 Maths</b>	<b>Mathematics</b> Pupils are given the opportunity to calculate: total costs, total savings /net costs.

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**PROGRAMME 10 – 'ECO-SCHOOL'****LEARNING OUTCOMES**

By the end of the programme pupils should be able to:

- co-operate and agree on a definite action plan.
- take responsibility for tasks.
- use a computer.
- be aware of the actions that can be taken to improve the environment.
- write letters to acquire information.

**ABOUT THE PROGRAMME**

In our last programme of this Unit, we hear the story of how Carnaghts Primary in County Antrim became an Eco-School, and visit Mitchel House Special School in Belfast where the children raise money for charity through recycling aluminium cans.

Eco-Schools is a Europe-wide project designed to encourage and acknowledge whole-school action for the environment and make environmental awareness and action an intrinsic part of the life and ethos of a school for all its pupils.

Carnaghts Primary School near Ballymena decided to undertake the Eco-Schools programme. In this broadcast the children themselves explain how they went through the process of forming an Eco-Schools committee, carried out an environmental review of their school and set out an action plan to tackle problems like litter and waste.

The children drafted their own Eco-Code and it is now displayed in every class room in the school. They set out their action plan and time scale using their computer and recorded their work and achievements in words and digital pictures. The children of Carnaghts Primary have achieved their Eco-Schools Award and are immensely proud of the green Eco-flag which flies in front of their school. They are the first school in the United Kingdom to be on the Eco-Schools Website.

Since 1993 the children of Mitchel House Special School have been collecting aluminium cans for recycling and raising considerable amounts of money for charity. They have involved the community around the school, collecting cans from parents and businesses in the locality. The children explain how they co-ordinate the whole enterprise, arranging for the cans to be collected, paying their care-taker mileage to take his van around local pubs and clubs collecting cans and lodging cheques into a bank account.

<b>Key words used during programme:</b>	Ecological; environment; environmental; habitat; eco-code; review; timescale; recycling; appropriate; compost.
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**CLASSROOM ACTIVITIES - After the Programme**

Activity	Tasks	Worksheets	Relevance to NI Curriculum
<b>WHOLE CLASS</b>			
<b>Debate</b>	<p>Discuss what the children in the programme achieved.</p> <p>Discuss the way your class could become an Eco-class.</p> <ul style="list-style-type: none"> <li>- Ask the children for suggestions and write them in their notebooks. For example are the classroom lights on all the time? Is that necessary?</li> <li>- Do children bring cans of drink to school for lunch? What about recycling them?</li> <li>- What about a bird table outside your window? Why not build a few nesting boxes for birds.</li> <li>- Plant some bulbs.</li> </ul> <p>Get pupils to read out their suggestions out and draw up an action plan setting out your goals and when they are to be achieved. Identify individuals to do certain jobs, for example turn off lights, collect litter.</p>	<p><b>Worksheet 1</b></p> <ul style="list-style-type: none"> <li>- Carnaghts Primary School's 'Eco-Code'</li> </ul>	
<b>Writing</b>	<p>Divide children into groups and ask them to write their own Eco song and perform it in front of the class.</p>	<p><b>Worksheet2</b></p> <ul style="list-style-type: none"> <li>- Carnaghts Primary School's Eco-School Song</li> </ul>	<p>Art and Design</p> <ul style="list-style-type: none"> <li>- Creative use of waste materials.</li> </ul>
<b>Improvisation</b>	<p>Ask children to collect waste materials and make some musical instruments.</p>		
<b>Gardening</b>	<p>Order some bulbs and ask the pupils to plant them in the school grounds</p>		
<b>Research/ Communication</b>	<ul style="list-style-type: none"> <li>- Ask children to telephone their local council to find out where they can bring waste paper or aluminium cans for recycling.</li> <li>- Write to Eco-Schools asking for information on how to become an Eco-School. They provide an excellent work folder. Details supplied in our resource section.</li> </ul>		<p><b>English</b></p> <p>Research skills - retrieving information.</p> <ul style="list-style-type: none"> <li>- Pupils will have opportunities to develop their writing, talking, and listening skills – through debate, letter writing and songs.</li> </ul>
<b>IT</b>	<p>Divide pupils into small groups and ask them to use their computer to present their environmental action plan and Eco-code which can be displayed outside and inside the classroom.</p>		

**Resources****Useful Contacts:**

- Carnaghts Primary School  
Email: [carnaght@neelbarc.demon.co.uk](mailto:carnaght@neelbarc.demon.co.uk)  
Website:  
[www.atschool.eduweb.co.uk/neelbetc/schools/carnaght/projects/eco\\_page/1ecosite.html](http://www.atschool.eduweb.co.uk/neelbetc/schools/carnaght/projects/eco_page/1ecosite.html)
- The Eco-Schools Award is administered locally by Tidy Northern Ireland. Further information may be obtained from Peter McGaffin,  
Tidy Northern Ireland, 123 York Road, Belfast BT15 1AB.
- Council for Environmental Education: the national body for the co-ordination and promotion of environmental education in England, Wales and Northern Ireland. They provide information on a wide range of environmental topics.  
Address: Faculty of Education and Community Studies, University of Reading, London Road, Reading, RG1 5AQ.

**Books:**

- *'Rescue Mission: Planet Earth'* a children's edition of Agenda 21; Kingfisher Books.
- Agenda 21 is at the heart of Eco-Schools. This book, written and illustrated by hundreds of children from around the world, is a lively, accessible overview of the range of issues and potential solutions.
- *'Towards a School Policy for Environmental Education: An Environmental Audit'*. This publication, written by Krysia Baczala and published by the National Association for Environmental Education, offers many ideas on using the audit process to identify opportunities for making changes and developing school policy. It is available from NAFEE, The National Association for Environmental Education, University of Wolverhampton, Walsall Campus, Gorway, Walsall, WS1 3BD.