recycle for Scotland
ath-chuairtich airson Alba

The Highland Council
Comhairle na Gàidhealtachd

Waste and Recycling Education Pack 2012

Don't let a good thing go to waste
Na leig rud math a dhìth

Contents

About this pack

This pack is especially designed for teachers and educators in the Highland Council area who wish to cover the topic of waste and recycling. There is specific information about what recycling can be done in the Highlands and where our waste goes. This pack covers the problems we have with rubbish and why we need to Reduce Reuse and Recycle (The Three Rs). The issues are explained in a manner suitable as a background for staff or for working with pupils (upper primary – lower secondary).

Activities are suggested throughout this pack relating to the Three Rs, composting and disposal. There is also a comprehensive resources section, which references web pages with further information, online games, quizzes and downloadable activity packs from various organisations.

The Highland Council Waste Management Team also has a resource library from which you can borrow craft materials, books and samples of recycled products.

To arrange a visit at your school, borrow from the resource library, or for further information, please contact us:

The Waste Management Team, TECS, Ross House, High Street, Dingwall, IV15 9RY
e-mail: recycle@highland.gov.uk Tel: 01349 886603

February 2012

Curriculum Links

Geography	Location of services, distribution of resources globally and transport.
History	Change in waste and packaging over time and lifestyle changes.
Science	Materials, manufacturing processes, composting/decay and habitats.
Maths	School waste audits, calculations and graphs.
Music	Lyrics, songs, musical instruments made from recycled materials.
English	Poetry, drama, story-telling, writing and debating.
Art and Design	Posters, recycled fashion, recycled craft.
Technology	Product design, properties of materials and treatment & reprocessing technologies.
Religious & Moral Education	Poverty and exploitation.
Personal & Social Education	Lifestyles and environmental effects.
Eco Schools	Waste minimisation and litter are key topics in the Eco schools scheme.

National Priority 4:

Values & Citizenship	Global and local aspects of waste, recycling and resources can be looked at in terms of social and environmental issues.
Health Promoting Schools	Link waste prevention to healthy eating through a waste free lunches programme and integrate composting in the school grounds as part of the healthy school environment.
Enterprise Projects	There are plenty of opportunities for young entrepreneurs to tackle the issue of waste, ranging from raising awareness, recycled products, services and storage solutions.

Part 1: Background

What is Waste?

Waste is anything that is no longer of use to us. We throw things away that are empty, broken, used or just not wanted any more. Virtually everything we do creates waste, which means that we will always need to have ways of dealing with it. A well-known law of physics tells us that matter cannot be created or destroyed. We can change its physical form (solid, liquid or gas) or chemical form, but we cannot make it disappear. This is true when we throw something away - it does not disappear. In the Highlands we send our waste to landfill sites, where our rubbish is buried under the ground. In a landfill some items will decompose, which leaves behind rotted materials and gases. Other items will stay the same for hundreds of years. Another option is to use our waste to produce energy (e.g. by burning), but this still leaves us with ash, heat and gases.

There are different ways of dealing with waste which include recycling or finding other uses for some of it, but we will always have some waste which we need to dispose of.

The History of Rubbish

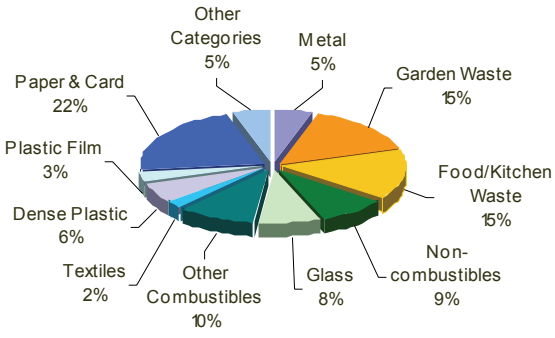
It is through waste that archaeologists have be enable to learn about early peoples and their way of life. In the Stone Age, people disposed of their waste by digging it into the land. In those days, waste was mainly bones, ash and vegetable remains. In other words the waste was made up mostly of biodegradable materials. By digging these materials into the soil, people not only got rid of their waste, but improved the quality of the soil for growing crops. Later, during the Iron and Bronze ages when metals were first being used, there was little change in what was regarded as rubbish. Metals were so valuable that they were rarely wasted. However some metal items may have been buried with important people.

This means that the waste from people of this time was rather similar to that of the Stone Age people, in that it was made up of a similar bits and pieces of biodegradable materials that rot down. Later in time, in the 19th Century, the first dustbin was introduced in the UK. In the year 1875 a law was made insisting that householders kept rubbish in a movable container. The same law also made the local authorities responsible for emptying these containers. Before this everything was thrown into the street!

Our Waste Today

About one quarter of the waste generated in the Highlands comes from households. Most of the rest of Highland waste is from building and demolition (57%) with the remainder coming from businesses. From studying the waste from households, we know about what sorts of materials people throw away. The pie chart shows the breakdown of what goes into the average household bin and the waste which is taken to the landfill skips at Recycling Centres by householders. As you can see, much of this could be recycled or composted such as the paper, card, textiles, cans, glass and garden waste.

Chart 1. Average composition of Highland household waste from refuse collections and items deposited in landfill skips at Recycling Centres (based on two analyses in April and September, 2009)



FACT BITE

In the Highland Council area nearly 102 thousand tonnes of municipal waste was sent to landfill in the year 2010/11 - this is enough for each household to fill one refuse sack every day!

The problem with waste

In Highland most of the rubbish that we put in the general refuse bin is sent to landfill sites. Landfill sites are holes in the ground into which rubbish is tipped and then crushed into layers. The waste is then covered with soil.

There are several problems with the way we currently deal with rubbish, not just here in the Highlands, or in the rest of the UK, but around the world.

Some of the main problems are listed below:

It is an unnecessary waste of the Earth's resources!

Everyday materials that are used to make items such as cans and paper will have either been mined on the other side of the world (bauxite for aluminium), or taken years to grow (trees for paper). All of which involves the use of energy, water and labour. In addition, these processes also create their own waste, which is known as pre-consumer waste. Instead of wasting these resources, we can reduce the amount of waste that we landfill by recycling more. This way we will reduce the demand for raw materials. Making products from recycled materials also saves energy. It generally takes less energy to transport and prepare them for production than using raw materials.

We are running out of space in our current landfills!

Landfill capacity within the Highlands has significantly reduced over the past numbers of years with the closure of the landfill sites at Inverness (2003) and Skye (2006). The rubbish which would previously have gone to these sites is now transported for landfill disposal out-with the Highlands. There are two operational municipal landfill sites in the Highland Council area - at Seater by Wick and Granish by Aviemore. Most of the waste from Lochaber goes to a privately run landfill at Duisky. In order to meet the Scottish Government's Zero Waste targets (to increase recycling to 50% by 2013 and 70% by 2025), The Highland Council's current Waste Management Strategy sets out a range of recycling services and new waste treatment options. A new recycling and refuse service is being introduced throughout the area, including ti the Council's commercial customers. Waste treatment options being considered for the remaining residual waste include anaerobic digestion (AD) and Energy from Waste (EfW).

The cost of landfilling is increasing each year!

The cost of landfilling our waste comes from taxes so ordinary people are paying for this. Landfill Tax is rising by £8 a year. In April 2012 it will rise from £56 to £64 per tonne. Much of what is in the bins doesn't need to be there, as it could be recycled or composted.

Pollution!

There are two main types of pollution associated with landfilling our waste.

Methane – which is a greenhouse gas. This is produced as organic material rots down without air. Methane and other greenhouse gases trap heat from the sun maintaining the Earth's temperature. An increase in the greenhouse gases in the atmosphere could mean warmer wetter winters, less snowfall and more flooding in Scotland. Methane is not produced when organic material is composted, as there is plenty of air present during the composting process. Instead carbon dioxide CO_2 is created, which is also a greenhouse gas but not as potent as methane.

Leachate – this is the liquid that is formed as rainfalls on the landfill and seeps down through the rubbish. As it drains down it can pick up substances from the waste. Modern landfills are better engineered to reduce pollution because leachate is collected and treated and gas is either flared or used to create electricity.

DISCUSSION POINT

What we do with our waste today is very similar to what we did thousands of years ago – i.e. digging it into the ground. However, now we have much bigger towns and cities, and we are producing much more waste, and much more of it is non-biodegradable. Think of the archaeologists of the future - what treasures will they find from our time?

The future

Scotland's Zero Waste Plan

The Scottish Government's Zero Waste Plan sets out a vision of a zero waste society in which all waste is seen as a resource, where waste is minimised, valuable resources are not disposed of in landfill and most waste is sorted, leaving only small amounts to be treated for landfill. The plans include a Waste Prevention Programme for all waste, ensuring prevention and reuse are thought about first. Organic material that will produce greenhouse gas emissions, will be banned from landfill and instead treated to give valuable resources such as compost and methane to be used for heating and electricity generation. Within The Highland Council we may see the introduction of a food waste collection service in some areas.

Current Recycling facilities with the Highland Council region: Kerbside Recycling Collection

The Highland Council first introduced a kerbside recycling collection service in 2003. In September 2010 a programme began to introduce a mixed kerbside recycling collection to all households in The Highland Council area. Paper, cardboard, plastic bottles and food tins & drink cans are collected fortnightly from blue wheelie bins, alternating with a fortnightly collection of general refuse. The change from weekly to fortnightly refuse collection means that most people will have to think more carefully about what they are throwing away - can they recycle or compost it Instead, for example? Areas which already had garden waste collections from brown wheelie bins will continue to receive these. The materials collected in the blue recycling bins are taken to a special plant called a Materials Recovery Facility (MRF) where they are separated out, compacted into bales and sent away to factories to be made into new products. The new alternate weekly collection (AWC) will be introduced to all areas of Highland by July 2012.

Recycling Centres

A Recycling Centre has members of staff to help you recycle many types of household waste. There are 21 Recycling Centres across Highland. Some of them have been re-vamped recently with new signage to make it clearer what can be recycled. The range of materials collected is continually being increased. There has recently been a big increase in the range of waste electronic and electrical equipment (WEEE) collected. This now includes small electrical goods (anything that has a plug or uses batteries, from a lawnmower to a watch). Domestic batteries can also now be recycled as can low energy light bulbs and fluorescent tubes.

How many different items can you think of?

Recycling Points

A Recycling Point is an unmanned site, where you can recycle a range of materials, such as paper, textiles, cans, glass bottles and jars. Recycling Points are found in places like supermarket car parks and community centre car parks. The Council has over 200 Recycling Points spread throughout the Highlands, and continues to improve the range of materials recycled at each Recycling Point. Some Recycling Points now have containers for books and DVDs.

These recycling schemes have successfully resulted in a significant increase in the recycling rate from less than 2% in 2001/2 to 40% in 2011.

The Highland Council Waste Awareness Team

In addition to these improvements to the recycling services, the Waste Awareness Team aims to encourage everybody not only to recycle their waste, but to cut down on waste in other ways too, such as home composting. The Waste Awareness Team carry out various tasks including monitoring kerbside collections, conducting doorstep campaigns, attending road show events and participating in community events. The team is also on hand to visit schools to deliver talks and workshops, including helping to conduct waste audits.