



MARLBOROUGH
DISTRICT COUNCIL



Only Marlborough



THE WASTE KIT

This programme has been adapted from the Auckland Regional Council's Waste Kit and we appreciate them allowing us to use their resources.

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Introduction

Waste is an issue. About 93% of the 'raw materials' we use are thrown away during the production process, and about 80% of the stuff we buy is often thrown away after one use.

New Zealanders throw away more rubbish per person than people in most developed countries. The wealthier we have become the more we seem to waste.

The 'solid waste' deposited in New Zealand landfills, from industrial and domestic sources combined, is over 3 million tonnes a year. Landfill is the principal means of disposal of rubbish in New Zealand.

Marlborough's Waste

In Marlborough we produce approximately 50,000 tonnes of waste annually.

That's enough waste each year to fill one rugby field 15 storeys high!

The Marlborough District Council has an active waste minimisation programme to encourage residents to reduce, re-use, recycle and compost waste

As well as the Recycling Centre, we run a Re-use shop at the Blenheim Resource Recovery site, an E-Waste facility and a Hazardous Waste drop-off centre.

We operate recycling at all of our transfer stations with the larger ones having more comprehensive facilities.

Kerbside recycling is in operation in Blenheim and Picton.

Council supports a green waste drop-off facility at the Blenheim Transfer Station, and offers discount vouchers on EM Bokashi systems for household kitchen waste.

There are transfer stations that collect and then transport residual waste to the Marlborough Regional Landfill on Taylor Pass Road.

This landfill is a modern, engineered landfill that meets national standards for disposal of residual waste.

Landfills though are really holding zones as little will break down in them.

So getting to know what's in our waste and how to reduce, recycle and re-use it will help us to increase the life of our landfill and also encourage us to think about what we are buying so we use our resources carefully.

For more information on Marlborough's waste go to www.marlborough.govt.nz/services/refuse

A World History



Natural resources are naturally occurring materials that form our earth. These materials include air, water, soils, rocks, timber and plants. The earth is the foundation of all life, so taking care of the earth and its resources should be a responsibility shared by all. All resources are interconnected, so a deficiency in one area puts pressure on all others.

Our basic needs of air, water, food and shelter are supplied by these resources. The environment is fragile. If just one of these four basic needs is removed from a habitat, humans, animals and plants suffer. As earth's population is increasing, demand on these resources increases and thus their quantity is diminishing.

Some resources, like the sun, are renewable but many such as petroleum, upon which we rely heavily for energy, are non-renewable or finite. Once these finite resources are consumed, there will no more supplies. Most of this resource use stems from people and industries in developed countries like New Zealand, Australia, the United States and Europe.

With resource use comes waste. Excess food, packaging, products and unwanted materials end up as waste in our landfills. In order to sustain our quality of life, we must conserve our resources through waste reduction, re-use and recycling.

Activities

A World in a Jar

Students can create a natural ecosystem in the classroom that will provide a model of a balanced environment and compare their own environment with the balanced ecosystem.

To make the jar ecosystem, you will need:

- 2 litre glass jar (old preserving jar etc.).
- Clean sand (if you are using beach sand, it is best to wash it about five times to ensure it is salt free).
- Bunch of oxygen weed (available at pet shops).
- Several (five) small aquatic snails (try pet shops).
- Pair of goldfish (available at most pet shops).

An ecosystem consists of all living things and their environment in an area of any size. All living things are linked together by energy and nutrient flow. All living things are interconnected.

The self-contained ecosystem is designed to simply display all the elements necessary for life: food, shelter, air and water.

The *sand* anchors the plants, and stores nutrients and bacteria.

The *aquatic snails* graze on the oxygen weed. They will also eat any dead material, breaking down matter in the system. The snail waste products fertilise the plants.

The *goldfish* are the consumers; they eat both animal and vegetable food. Good plant growth gives each goldfish a place to hide (shelter).

The *oxygen weed* plants provide food, absorb carbon dioxide, and give off oxygen when there is sufficient light. When the plants were taken from the aquarium tank, they also had tiny single-cell plants and animals living on them. These become part of the food web in the jar.

If a goldfish dies, do not take it out of the jar. Bacteria, snails, and other fish will soon strip the flesh from the bone and the dead goldfish becomes part of the jar ecosystem. If both goldfish die, add new ones.

The sun is what makes the system work. It drives photosynthesis, the food-making operation for the plants, and it affects the temperature and rate of gas exchange.

Steps

- Introduce materials.
- Discuss with students what makes the ecosystem work - balance in the community among plants, animals, bacteria, and the inter-related physical and chemical environment.
- In constructing the jar ecosystem, leave enough air at the top of the jar for the proper gas mixture - about 5 cm. PUT JAR IN BRIGHT AREA BUT NOT IN DIRECT SUNLIGHT.
- Compare the similarities between the goldfish ecosystem and a human ecosystem.

Waste



WASTE is any solid or liquid material that is discarded, unwanted or “thrown away”. Waste is referred to by a number of different names such as rubbish, trash, junk, refuse and garbage. Humans have always produced some sort of waste. Each person in New Zealand produces an estimated 2.5 kg of waste each day!

One hundred years ago, waste was not a significant problem. Our great grandparents maximised the life of everything they used from food to clothing and wood. Frugal use of resources was necessary since goods were difficult to manufacture and transport. Such efficient resource use created very little waste.

Since then, great advances and improvements have been made in manufacturing, so goods became more readily available and affordable. Inexpensive disposable products were developed to replace old durable goods. This trend towards a consumer oriented society has created a number of conveniences as well as problems, namely an enormous amount of waste which has to be disposed of. Our waste problems have also intensified with the continual increase in the world’s population.

As the availability of natural resources and landfill space dwindles, society has had to change the way it deals with waste. More efficient and environmentally sensible ways of handling waste such as reduction, re-use, recycling and composting will help to sustain our resources and our planet.

Key Questions

Before starting the activities, review these questions:

- *What is waste?*
- *What are some other names we have for waste (such as garbage, trash, junk, rubbish)?*
- *Where do we put our classroom waste?*
- *Who empties the class rubbish bin?*
- *Where does it go?*

Activities



Collect waste from the grounds and decide how much of what has been collected is rubbish and how much can be used again. Find ways to make use of these items, where possible.

- Talk to an older person that you know.
 - *What waste did they have when they were young?*
 - *What happened to their household/farm/shop waste?*
 - *Was it burned?*
 - *Buried?*
 - *What things do we have now (eg; plastics, aluminium cans, milk cartons...) that they did not have in the "olden days"?*
- Our present towns and cities have a variety of services: power, telephone, water, gas and sewerage, which are delivered or collected through a variety of pipes and wires. But what about waste collection and recycling? What services are available in your area for reducing, reusing, recycling and composting. For more information go to www.marlborough.govt.nz/services/recycling-and-resource-recovery
- Investigate and make comparisons of different cultures and the communities within them with respect to waste generation. For example, comparing a modern industrial city and a rural village or community in a third world country. What are the differences in resource use and waste generated?
- In our community we produce, distribute and use a tremendous range of goods and services. What are some of the by-products of manufacturing these goods? Where and why is waste generated? What would we change if we could?
- Waste, resource, infinite, renewable, consume, conserve. Start a class dictionary or wall list of waste management terms and abbreviations Can you get 100 words?
- Develop a class survey to investigate an aspect of waste management. The survey could be carried out by students with other classes in the school or with family and friends. Set a reasonable limit of five surveys per student and keep the list of questions short so that they can use the telephone to ring relatives and family friends.

Results could be graphed in maths books or as part of a wall display. A comprehensive survey could form the basis of an item in your school newsletter.

Possible questions for such a survey include:

- (a) *Do you have a compost bin at home?*
- (b) *Do you know where your nearest recycling drop off facility is?*
- (c) *Do you buy recycled or recyclable products at the supermarket?*
- (d) *Do you re-use jars and plastic containers?*

- Try some creative writing stories with topics like
 - A day in the life of an aluminium can...
 - I was a plastic milk container...
 - Conversation in a rubbish bag.....
 - The day my _____ was thrown in the rubbish.....
 - The world of waste in the year 2100.

- Collect all rubbish discarded by the class for several days. Pre-sort the rubbish, removing any sharp or harmful objects. Lay a sheet on the floor, dump the rubbish on it, and have students sort it (using rubber gloves) according to category, ie; paper, plastic, metal. For items that can fit into more than one category, decide which one is predominant. If many items are equally mixed, you might want to create a mixed materials category. Working in groups, weigh a category of rubbish and graph.
- Create a bar chart bulletin board display which compares the various components of the classroom waste stream by type and weight.

Activity can be reported for seasonal/daily/weekly changes.

Landfills



New Zealanders produce an estimated 2.5 kg of waste per day. Landfilling is the primary method of handling this waste. As little as 30 years ago landfills were dug wherever cheap unwanted land was available, in old quarries, abandoned mines, gravel pits, and marshlands.

Modern waste disposal facilities are known as sanitary landfills. A sanitary landfill is a designated piece of land where rubbish is tipped, compacted, and covered daily. Clay, soil, or sawdust is often used to cover rubbish. This cover reduces smell, vermin and litter and controls incoming water. The water that leaks through a landfill, known as leachate, trickles down to the bottom of the landfill where it is collected and pumped out for treatment.

As waste very slowly decomposes under layers of dirt and clay, it emits or discharges methane gases. These gases are carefully monitored and extracted from the landfill. In larger landfill sites, the methane gas collected is converted to energy.

Landfills in New Zealand are filling up quickly. The process of siting a new landfill is long and difficult. Public opinion of landfills affects this process.

Few people want to have a landfill in their community. This feeling is commonly referred to as the NIMBY or 'Not In My Backyard' syndrome.

Incineration is another waste disposal method. A number of incinerators are located in Europe, Asia, and the USA. Currently, a handful of incinerators are used in New Zealand for quarantine and hospital waste. In an incinerator, rubbish is burned in a furnace and reduced to ash. There are no purpose-built incinerators for households or toxic waste.

Incinerators reduce waste volumes, but the residual ash still needs to be disposed of. Burning waste can also cause air pollution. Modern pollution control devices can help minimise this.

Transfer stations are not a disposal method in themselves, but rather a facility to assist in the disposal of refuse. Refuse is brought to the station and transferred to bulk haulage vehicles which take it to the disposal facility. Transfer stations reduce operation costs of both commercial and domestic refuse collection by providing a central disposal facility. It also reduces the pressure on access roadways.



Key questions:

- *Would you like to have a landfill near you? Where is your nearest landfill?*
- *What are the differences between landfills and transfer stations? What are the benefits of each? What are the disadvantages?*
- *How much rubbish do we make a day? Bring a 2.5 kilo bag of pre-sorted rubbish to class or bring in a school rubbish bin. Based on the figure of 2.5 kilos per day, calculate how much rubbish the class produces as individuals and as a class each day, each week, each year.*
- *Where does all this rubbish go? What happens when landfills fill up? What can you and I do to help solve this problem of too much rubbish?*

Activities

- Brainstorm alternatives to landfilling or incinerating waste. Discuss waste reduction, recycling, re-use, and composting as safer, more efficient methods of handling our waste. Emphasise that waste reduction is the most important part of the reduce, re-use, recycle process.
- Students make a poster or brochure about what happens to our waste and what can be done to reduce, re-use, and recycle. Display the poster or brochure where other students and teachers may view it.
- Visit a local transfer station. (Contact us to arrange a guided visit).
- Try an experiment in your lawn. Bury some food scraps side-by-side with other materials such as paper, plastic, and aluminium. Mark the materials with yoghurt cups, pieces of plastic, etc. Dig them up a month later. Which materials are beginning to decompose and rot? Which aren't? Graph the results.
- Conduct a mock landfill siting hearing. Each student takes a role as either a householder, town planner, solicitor, local council member, recycler, waste collector, environmentalist, etc. The aim of the meeting is to site a new landfill in your community. Where is a safe place to have a landfill? Is there room? What would the environmental effects be on wildlife and people? What sort of permits are required to operate a landfill? Who will look after the site? What alternatives are there to landfills? Should a recycling centre be opened near the landfill?

Make a Landfill

- Line a shoe box or aquarium with a plastic bag and fill it half full of earth. (Do not use potting soil).

Bury two identical rows of rubbish such as food scraps, newspaper, glass, cloth, aluminium, foil, etc marking the location of each item with a cardboard label.

Use the Worksheet given for each landfill project to monitor the experiment. Note the items placed in each landfill, with the date. Add water to moisten the soil and place the mini-landfill in a sunny spot. The landfills should be watered regularly (to simulate rain).

After 7-10 days, carefully remove the waste items from one row of the landfill and examine them and continue to complete the worksheet.

What were the results? Which items in the landfill decomposed the most? Were the decomposed items natural or human-made? What characteristic are shared by the items which decomposed the quickest?

Some items will show no signs of decomposition. Will they remain unchanged for a long time and why? If the landfill had been made of sterilised soil, would the waste have decomposed as quickly?

My own Landfill Worksheet

List the items placed in the landfill and the date you buried them:

The items which decomposed the most were:

Week 1: Week 2: Week 3: Week 4:

The items which only decomposed a little were:

Week 1: Week 2: Week 3: Week 4:

The items which did not change at all:

Week 1: Week 2: Week 3: Week 4:

1. Why do you think some items decomposed more rapidly than others?
2. Were there any significant changes you noticed between Week 2 and Week 4?
3. Graph the results of your study on a bar graph.
4. What does this study tell you about the types of items we put in landfills?
5. Are there items that should never go into a landfill?

Reduce



Waste REDUCTION is a method of minimising waste so we do not produce as much. Waste is not necessarily rubbish - waste is a re-usable resource. We dispose of material as waste only when we think it is no longer useful or if we believe it cannot be reprocessed ecologically. If a sustainable future is to be assured, we need to conserve all our resources, especially non-renewable resources and energy.

Reduction is the most important part of the 3 Rs of solid waste management: Reduce, Re-use, Recycle. Reduction keeps materials out of the waste stream. Waste minimisation aims at eliminating waste before it is produced and reducing its quantity and toxicity. Reducing the quantities of waste we produce lessens some of the resources and money spent on waste collection and disposal.

To achieve a genuine reduction in the waste stream it may be necessary to reject excess packaging. Recyclable packaging or a reduction in the volumes and types of packaging should be encouraged. Our purchasing patterns need to change. It is better to buy durable rather than disposable and not buy as much.

Key Questions

How does reducing waste before we create it help preserve resources and landfill space?

How could the items in the rubbish bin could be eliminated?

Activities

- Develop an overall plan for the school to reduce waste (including energy, paper, food, wrappers, litter), by introducing separation and recycling schemes, checking litter, composting garden and food wastes and incorporating environmental education into all areas of the curriculum.
- In these and other ways the whole school community becomes involved from the Board of Trustees, school management, teachers, students, parents, neighbours, PTA and class leaders.
- Do some research on your mail. Compare the amount of unrequested “junk mail” with the number of letters and business mail (bills, for example) that your family receives each day. Junk mail can include advertising fliers, coupons, catalogues and requests for contributions. Weigh the amount of “junk mail” your family receives during one week. Ask your parents if they want to receive this “junk mail”. If not, why not make a sign for the letterbox? Something like “No Circulars” or “Junk Mail Free Letterbox”.
- Promote a waste reduction campaign around the school with posters, logos, slogans, displays, songs etc.
- For thousands of years, we survived without aluminium foil, plastic wrap, lunch paper, etc. to keep food fresh. Next time you pack a lunch think about the effect of each packaging item you use. What happens to foil, plastic, or paper when you throw it out? Is it biodegradable? Can it be recycled? What resources does it use? Could you use a re-usable container instead? Ask your friends to look closely at what is in their lunch boxes.

Re-use



The concept of RE-USE is a simple and important one: to use something again and again. If we re-used things like plastic and glass containers and recycled all that we could, our rubbish wouldn't be such a problem.

There are several things we can re-use ourselves or pass on to friends, relatives or neighbours. Used toasters, televisions, radios, dolls, toys, books, and clothing are just a few times that can be donated to community groups or schools, or sold to second-hand shops or at garage sales.

Instead of throwing that old bike away, why not repair it? Before you buy something new, why not check a second-hand shop?

Simple things like re-using plastic shopping bags at the supermarket can help conserve resources and reduce our rubbish. Buying durable goods instead of disposable makes re-use easier. We can re-use items for a similar purpose, such as a used glass jar for holding food, or for a different purpose, such as a decoration.

Key Questions

What does re-using mean?

What could we re-use and how?

Activities

- Bring in a pile of pre-sorted rubbish for students, perhaps even taking another classroom's rubbish bin. Be sure to include recyclables, as well as things which may be re-used in their original state. Do not include food scraps, sharp metal, glass objects or any other harmful materials.

Removing the recyclables and re-usables will help students understand that they reduced the amount of rubbish they threw away. Go through the items individually, asking whether some of these are found in the rubbish at home.

Discuss how they can reduce their family's rubbish by taking recyclable and re-usable things out of the rubbish.

- All sorts of waste can be used to make a kite - experiment with different designs and sizes. Try some waste plastic sheeting, cord, string, stick, paper and bread bags.
- Collect waste materials over a week, at school and at home. Divide the items into re-usable and non-re-usable. Discuss in groups or as a class the following questions:

How are the items that can be re-used different from those that can't be?

Of those items that can be used again, can they be used many times?

Do we tend to throw away re-usable items before their life is over?

Why should we make more use of re-usable items?

- Before throwing letter-size paper into the garbage, check the backs of sheets to see if they are blank. If so, use them for drawing or cut them into squares and use them as notepaper beside the phone. Re-use big envelopes that arrive in the mail. Just put a new address label on and send them out again!
- Using a variety of waste materials (including aluminium foil and a dish-shaped object to serve as a reflector) suspend a can of waste at the point where the sun's rays converge. See how long it takes to boil the waste or turn this into a class group competition.

Recycle



RECYCLING is the process of recovering materials used in industry or in the home for further uses. Recycling is one of the 3 Rs of solid waste management: reduce, re-use and recycle. These methods reduce the quantities of waste that need to be landfilled. Strictly speaking, recycling occurs when a product goes back into the original production process; or is re-used in another product.

When we recycle, we reduce our demand for the resources of our fragile environment. Making products from recycled material often lowers the amount of energy required in processing. When we use less energy we reduce our output of harmful greenhouse gases from fossil fuel burning.

Finally, when we recycle goods, they are used productively and do not enter the waste stream. We reduce unsightly pollution and ease the impact on waste disposal and fast-filling landfill sites.

Drop-off facilities make recycling easy for the majority of the Marlborough region. Drop-off facilities are located beside the Blenheim transfer station, at The Resource Recovery centre and most other transfer stations. Check our website for a list of what can be recycled and where www.marlborough.govt.nz/services/recycling-and-resource-recovery

Key Questions

- *What does recycling mean?*
- *What can be recycled in New Zealand?*
- *What is sent away for recycling?*
- *How much difference does recycling make?*

Activities

- Visit a recycling centre and find out what can be recycled. (Contact us for a guided tour).
- Create paper mache sculptures with used paper. Display in the library or in classrooms. Design and/or decorate boxes for paper recycling at your school.
- Using soft drink bottles or plastic milk containers as floats, design and build a “yacht” which will sail across the swimming pool faster (and more accurately) than those of other teams within the class. As much as possible, use waste materials in the construction of these vessels.
- Design a “monster” or machine that would “eat” all our recyclable rubbish. Having designed this on paper, try making such a monster out of junk materials. How would this look at the gate of the school?
- This may be just a simple mobile constructed from waste plastics as a stimulus or focal point for other displays, or can be far more involved showing transition from raw materials to recycled items, or carrying words describing the procedure and processes involved in effective waste management in your community.

- Have students make a collection of similar sized glass bottles or jars. These should then be filled with differing amounts of water - none, quarter full, half full, etc. By tapping the side of each bottle or jar or by blowing across the top of each, children can arrange the bottles in order of pitch. Simple drums can be made by stretching lunch paper across the mouth of a jar and securing with a rubber band.

Background Information on Recycling

Paper

Carbon paper	Packaging
Cardboard	Paperchase
Consumer	Photocopier
Fibres	Pulp
Forestry	Recycled
Junk mail	Renewable resource
Kerbside collection	Re-using
Newspapers	Waste reduction
Office paper recycling	



PAPER is made from the pulped, pressed and dried out fibres of wood. In New Zealand pulp trees are a renewable resource; from planting to maturity our pulp trees take 20 years to grow. Waste paper suitable for recycling must be easily collected, similar in type, clean, and uncontaminated by wire, plastic and food. Most waste paper recycled in New Zealand is used to make paperboard. Small quantities are used in making printing and writing paper, tissues, toilet paper and other minor applications such as plasterboard backing. Making paper from waste instead of virgin pulp uses up to 64% less energy, reduces air and water pollution by almost 60%, requires only half the water and saves about 17 trees for every tonne of paper recycled.

In New Zealand we can now purchase paper with a recycled content. This recycled content often contains up to 70% scrap from paper mills or misprints, mixed with post-consumer waste. Post-consumer means that the material has been used by the consumer.

Plastics

Biodegradable	PP
Celluloid	PS
Extrusion moulding	Plastic coding system
Foaming	PVC
Fottle	Resin
HDPE	Re-usable
LDPE	Synthetic
Packaging	
PET	
Polymers	



PLASTIC, first made from plant cellulose in the 1860s as a substitute for ivory, now comes in more than 60 synthetic versions. Petroleum is the most important raw material for plastic. New uses and compounds are being developed constantly.

To be recycled, plastics need to be retrieved from the waste stream, collected, sorted and reprocessed into another product. In 1989, the Plastics Institute of New Zealand initiated a voluntary plastics coding system. This is part of an international system to assist in identifying plastic containers for recycling. The coding system assigns a number to each of the primary types of plastic resins, 1 (PET), 2 (HDPE), 3 (LDPE), 4 (PVC), 5 (PP), 6 (PS) and 7 (other). The coding system can be misleading. The general public sometimes perceives the code (the resin number surrounded by a recycling symbol) to mean the product is recyclable in New Zealand. However, most plastic collection programmes can only recycle plastics 1 and 2 in New Zealand.

Each year the average New Zealander throws away nearly 15 kg of plastic packaging. Burning of plastics in household incinerators is not recommended, as plastic releases gaseous pollutants when combusted.

Plastics are an inert material that do not break down in landfill. We can reduce the amount of plastic waste we create by buying groceries in bulk, avoiding single use plastic containers, using less plastic wrap, taking cloth bags to the supermarket and by encouraging manufacturers to produce more re-usable plastic packaging. Re-using plastic packaging ie; bread bags and plastic bottles can also reduce the amount of plastic that is discarded.

Glass

Multi-fill bottle	Pyrex
Blown glass	Raw material
Containers	Returnable
Cullet	Re-usable
Flint	Silica
Furnace	Soda Ash
Glass	
Limestone	



Each year, we throw away thousands of tonnes of GLASS. Glass is in demand with manufacturers as it is both re-usable and 100% recyclable. New Zealand's recovery rate of used glass is one of the highest among developed countries.

Household bottles and jars are made from a melted mixture of silica (sand), soda ash and limestone. Old glass or 'cullet' is a very valuable raw material in the production of new glass. It helps the batch melt quickly and reduces the required energy output of the furnaces by 20 to 25%. In recycling glass, we reduce the pressure of extracting silica sand from New Zealand beaches and reduce by 40% the amount of imported soda ash required for glass production. As well as saving space at tips, glass recycling benefits the environment by reducing sand and limestone mining and reduces litter and pollution from soda ash production.

Window glass, mirror glass, crystal glass and light bulbs are not recyclable due to their high lead content. There are four types of manufacturing glass: containers, flat glass, pressed glass and blown glass. Glass colours are clear, or flint, green and brown.

Metal

Alloy	Landfill
Aluminium	Magnetic
Bauxite	Metal
Brass	Non-ferrous
'Cash for Cans'	Raw material
Chromium	Renewable resource
Copper	Salvage
Corrosion	Scrap dealer
Ferrous	Smelting
Furnace	Steel cans
Ingot	Tin
Iron	



Metal recycling makes economic and environmental sense as pure metals and many alloys need far less energy to recycle than to mine, extract and smelt. The two most common metals found in household waste are aluminium and steel.

Aluminium is one of the most abundant metals in nature. Made from bauxite, aluminium accounts for 8% of the earth's crust. From one tonne of bauxite 500 kgs of aluminium and 500 kgs of waste are produced. Large amounts of energy are needed to produce primary aluminium from bauxite. Once aluminium is in metal form, it can be re-melted over and over again with very little metal loss in the process. Recycling aluminium cans uses a mere 5% of the energy needed to produce new aluminium. Aluminium is used extensively in beverage containers, roofing, window and door frames, boats, aeroplanes and Kitchen equipment. Of all packages, aluminium cans are probably the simplest and most efficient to recycle.

Steel cans, commonly known as tin cans, are made of steel and coated with a thin layer of tin. The tin layer stops the steel can from corroding. Steel has been used for many years in New Zealand both as a food and beverage container. Once washed thoroughly, steel cans can be recycled at some recycling centres and scrap metal dealers.

Scrap metal recycling is another economically viable activity. Steel and iron are reclaimed from cars, railway lines, appliances and building materials. Brass is recovered from household fittings and ammunition cases. Copper can be taken from electrical wiring, radiators and car batteries are recycled for lead.

Composting



An estimated 25-30% of what we throw away is food scraps and garden waste. This material can easily be made into an organic substance called compost.

Compost, or humus, results from the natural breakdown of organic matter. Compost is an excellent fertiliser as it is high in carbon and nitrogen, both of which are important food for plants and vegetables.

Composting reduces the amount of waste we create. Then, the finished compost recycles nutrients back into soil and plant life.

Key Questions

- *What is composting?*
- *What happens to scraps once they go in the compost bin?*
- *Are there other ways to recycle food waste?*

Activities

Plan a visit to:

- A keen gardener nearby who has a well established system of compost bins; can compost as much garden and household waste as possible; is able to describe the biological and physical processes involved; uses compost around the garden and can explain the benefits of this; can encourage students to start their own compost heap at home.
- An organic garden or orchard where no use is made of artificial fertilisers or sprays and where organic mulching, composting, “no dig” methods are used. Biological control of pests and diseases and other techniques can be demonstrated.
- Visit Greenfingers commercial compost site.
- Check with the class and then get each student to survey five other families (ask neighbours, relatives, or friends) to determine:
 1. Who has a compost bin or heap at home?
 2. Who uses a compost pile just for - Kitchen scraps, lawn clippings, garden wastes

3. How do people get rid of organic matter; by using the weekly rubbish collection, or composting?
 4. Who has a garden at home?
 5. Do they add their own compost? Buy compost? Never use compost?
- Make a small worm farm.
 - Get each student to fill a jar about $\frac{3}{4}$ full with layers of sand and garden soil. First add layers of sand then and then soil then more sand and then more soil. Moisten the layers so they are damp but not soaking wet. (Too much water kills the worms).

Add worm food - leafy vegetable scraps, grass cuttings, vegetable peelings etc.

Add three or four earthworms.

Stretch a piece of panty-hose over the top of the jar and hold it in place with a rubber band.

Tape black paper around the jar and place the jar in a cool, dimly lit place (worms don't like light).

Every day, take away any food that is decomposing and put fresh food bits on top of the soil.

What kind of food do the worms like the best?

Packaging



PACKAGING is part of our modern lifestyle. It makes up about 40% of the household waste we throw away. We rely on packaging to preserve, protect, identify, store, move and sell goods. Apart from the consumer demand and convenience issue, packaging has meant an increase in production efficiency.

Packaging has many benefits including preserving food, efficient transportation of goods, providing instruction and information about contents and their uses, increasing food shelf-life, and reducing shop theft.

But packaging also creates a waste problem. Modern society relies heavily on packaging, especially plastic, for our convenience-oriented lifestyle. In our grandparents' days, packaging served only to protect or temporarily preserve a product so only minimal packaging was used. Today's problems with packaging have arisen because single-use and throw-away packaging have often replaced re-usable, refillable containers.

Over-packing wastes resources. A product is over-packaged when it is small in comparison to the packaging; the package contains unused space or thick wall to overstate the size or amount of content; or the package costs more than the contents. An example of an over packaged product is perfume that is contained in a glass bottle then wrapping paper tissue and put into a paper box which is then wrapped in plastic. Only the glass bottle is necessary to contain and protect the perfume. All the other packaging is used for decoration, appearance and to sell the product. Companies use the package as an advertising medium to help sell the product.

Key Questions

- *Why do we have packaging?*
- *How is packaging different now than from our grandparents' days?*
- *Which packages create less waste?*
- *What are possible ways to re-use or recycle each of the packages discussed?*
- *Are there any that can't be re-used or recycled? Why?*
- *What makes the natural packaging better than the synthetic packaging?*
- *What are the functions of today's packages?*

Activities

- Ask the oldest person you know what it was like to go shopping when he or she was a child. Were there supermarket trolleys? How many kinds of breakfast cereal were available? What came in

cans? How were groceries brought home from the shop? Was any packaging material saved and re-used? What happened to food scraps? How was life different without the convenience foods we have today?

- Invite some senior citizens along to the school – to talk about how difficult shopping was for them.

Ask questions like:

- What did they use to package food before cans? What used to be sold in cans or tins (eg; cocoa, biscuits, baking powder) which is now packaged in cartons, plastic, foil. What was a supermarket like fifty years ago? Why has packaging changed since then?
- Design your own product in a package that is completely recyclable or in a container which could be re-used for another purpose or could be refilled to save packaging. Discuss ideas, plan and drawings and complete a PMI chart for these (ie; Plus/Minus/Interesting) and then encourage production of the prototype packaging. Could we have edible food wrappers?
- Among all the waste produced in the course of a week or month concentrate on packaging. How much of the household waste is made up of discarded packaging? Some claim the figure is about one-third of all household waste - what figures for waste packaging volumes does your class have?
- Ask each student to take a trip with their family to a local supermarket. Assign each student a type of product (eg; meat, bread, milk, lolly, cheese, bananas, fizzy drink etc.) and ask that they notice how it is packaged.

A closer look a packaging - choose a product and find out

- Is there a choice of packaging for the product eg; fizzy drink in glass bottle, aluminium can or plastic bottle?
- What is the packaging used for? (Protection, identifying product, etc.)
- Can it be recycled? Re-used?
- Could the product be wrapped with less packaging?
- Create a new product that is fully recyclable and “environmentally friendly” Now design a full page newspaper or magazine advertisement to ‘sell your product’ stressing these advantages. Follow this with an advertisement or TV campaign encouraging people to carry out the correct waste disposal procedures.
- Investigate the effects of advertising eg; are people encouraged to buy environmentally friendly products? Has advertising increased the volume of recycled packaging?

Hazardous Waste



Many of the products found in and around your home, work or classroom such as cleaners, paint, and pesticides can be HAZARDOUS WASTE. Hazardous means that there is a chance of being injured or harmed when the product is being used, stored or disposed. Hazardous products can cause harm to people, animals and the environment. The characteristics of hazardous materials are flammable, reactive, corrosive and toxic.

A few examples of household hazardous products include:

batteries	flea powder	nail polish
bleach	furniture polish	oven cleaner
mothballs	disinfectants	paint

Hazardous products must be handled and disposed of carefully. Improper disposal of hazardous waste can cause harm to the environment by polluting in rivers, lakes and the sea. Always store hazardous chemical products in their original containers so that handling and disposal instructions on labels can be followed. Store in properly closed containers and in well ventilated places where children and pets cannot reach. Take unwanted hazardous waste to a transfer station so qualified staff can dispose of it safely.

Remember also that rubbish contractors can be injured by household hazardous waste when they collect rubbish. Products such as pool chemicals can splash in their eyes and cause burning or blindness. Workers at landfills can also be harmed if hazardous waste is improperly contained and then disposed of.

Burying household hazardous waste can cause both soil and groundwater to be contaminated.

Burning waste can often cause air pollution. Many household hazardous products are explosive and can cause serious injury.

Storing products indefinitely can be an invitation to an accident. Small children are at risk where these items are stored improperly.

Pouring household hazardous waste down a sink or toilet can cause damage to sewage treatment plants by killing the organisms that help to decompose sewage waste. Also, these chemicals can readily contaminate groundwater and waterways.

Always try using the products completely or see if other people can use your surplus hazardous household products.

The activities in this section require close supervision. Please read instructions and notes carefully.

Key Questions

What do these words mean? Flammable, Reactive, Corrosive, Toxic?

Discuss the different characteristics of household hazardous products.

Flammable: can easily catch on fire eg; paint, hairspray, nail polish.

Reactive: can catch on fire, explode or give off dangerous fumes when exposed to water or air eg; oven cleaner, ammonia mixed with bleach.

Corrosive: can burn the eyes and skin or eat away containers eg; toilet cleaner, bleach, radiator cleaner.

Toxic: can make you sick immediately or over a period of time eg; floor cleaner, window cleaner, antifreeze.

What are common household hazardous products? Why are they dangerous?

Activities

- Design a poster to educate your school or community about the dangers of household hazardous products.
- Using the list of household hazardous products listed below, do a survey of how many students have these items in their homes.
- Have the students make a list of all the products they answered yes to in the survey. Ask them to create a sticker for each of these products warning that they are hazardous and need to be used and disposed of carefully.
- Common Household Hazardous Waste:
 - Pet flea collars
 - Toilet bowl cleaners
 - Slug bait
 - Laundry detergent
 - Weed killer
 - Oil
 - Antifreeze
 - Brake fluid
 - Paint
 - Batteries
 - Room deodorisers
 - Oven cleaners
 - Ant and roach killers
 - Glass cleaners
 - Furniture polish
 - Medicines
 - Pool cleaners
 - Floor polish
 - Pesticides

We all need to be responsible citizens when disposing of our household wastes. What should we do with broken glass? Unused medicines? Old garden sprays? Lubricating oil? Paint brush cleanings? Old car batteries? Old roofing iron? Building materials? Who do we contact for advice? Ask one or two students to check the Marlborough District Council website to find out what is done with hazardous waste.

Safe Substitutes

Aerosol Sprays

Use non-aerosol, pump-type sprays.

Ant Control

Sprinkle tartaric acid in the ants' path. Ants will not cross over the tartaric acid.

Bug Spray

Place screens on windows and doors. Try a fly swatter.

Chemical Fertilisers

Compost.

Mulch.

Detergents

For dishes, use baking soda and liquid soap.

For laundry, use borax, washing soda or liquid soap.

Drain Openers

Pour boiling water down the drain.

Flea Repellent

Feed pets brewer's yeast, Vitamin B or garlic tablets (not a lot).

Furniture Polish

Mix lemon juice and vegetable oil.

Mix vegetable oil and white vinegar.

Glass and Window Cleaners

Use corn starch and water.

Use lemon juice and dry with a soft cloth.

Rug Cleaner

For spills, clean with sparkling soda and clean cloth.

Scouring Powders

Use baking soda with a damp cloth.

Snail/Slug Bait

Place a layer of broken egg shells around plants. Snails and slugs will not cross this path.

Litter



Litter is refuse or rubbish which is discharged in public places. Plastic, paper, glass and metal packaging make up a large proportion of litter. Litter results from the improper disposal of household and commercial rubbish from construction and demolition sites, loading and delivery areas, boats and shops, uncovered trucks and trailers, and from careless motorists and pedestrians. In cities, litter is usually collected and transported to waste disposal facilities. However, in rural areas litter is seldom collected, leaving an unattractive sight.

Litter affects not only the quality of our surroundings it can also seriously harm wildlife. Litter in our waterways, called marine debris, can choke and strangle sea life. Animals can easily mistake pieces of littered plastic for food. This litter in the water comes not only from careless beach goers, boaties, and fishermen, but also from people tipping rubbish down stormwater drains. These drains are meant to carry water but often carry waste like used oil, plastic containers and food scraps to the sea.

Key Questions

- *What is litter?*
- *Who causes litter?*
- *How and where do waste materials escape to become litter?*
- *Where might you find litter?*
- *How can litter be prevented?*
- *Have the students save their lunch bags or bring a grocery bag from home.*

Activities

Students walk around the school yard and the neighbourhood, picking up human-made litter. Record items and where they were found. On return to the classroom, have the students empty their litter collection onto pieces of newspaper. Students discuss where each piece was found. Are more bins necessary for these areas?

What might have caused litter in that place? Who may have left it there? Why? How?

How can we prevent litter? At home ? At school? Along the road?

Organise a "Litter Awareness" week for the school. Assign students to make posters, leaflets, write poems, or newspaper articles, or arrange a special book display in the library.

Activities

Materials: Paper bags for each student; clue list.

Hand out the attached scavenger hunt lists and bags to students and take them outside. Give them 15 - 20 minutes for the hunt. Return to the classroom. Read the items on the list one at a time and have the students hold up what they found. Extend the list if other categories are found.

Scavenger Hunt List

Chip packets
Juice boxes
Cling film
Plastic bottles
Aluminium cans
Paper
Clothing
Pens/pencils
Sweet wrappers

- Have the students make a litter collage from the items they found. This could be displayed in a central location in the school.
- Start up a system of litter collection at school (how about setting a roster system to involve the whole class or other classes). Each collector (or team) is responsible for a set area - lunch spots, car parks, school entrance and boundaries, sports grounds, street frontage, etc. Each group keeps a tally of litter collected - graph results, provide incentives for groups with the most decreased (to the point of having no litter at all) week's collection. Encourage groups to run their own campaign to reduce litter, or ensure efficient collection by better placement of bins, in their particular area. Promote a "Tidy School" campaign. Bring bags of litter collected to a school assembly. Challenge everyone to keep the school litter free!
- Have the class/students make mobiles or sculptures from the litter they collect. Hang the mobiles in the school library.
- Make "Stop Litter" posters, brochures, and flyers for display.
- Draw a picture of part of the school showing litter (or glue samples onto your picture) and then ask the class to complete the picture without litter. Show the before and after effect.
- Use the litter topic to develop stories, poems, short plays, etc with such themes as "So no-one picked up the rubbish...", "I was a newspaper...", "Blowing in the - breeze", "The untidiest kid in the school..." and "Litter, litter everywhere".

Marine Debris



MARINE DEBRIS is a world-wide problem. Bits of plastic, metal and glass are carelessly dropped onto our beaches and into our oceans each day. Plastic marine debris poses the worst problem because it takes hundreds of years to break down. Plastic debris causes problems for wildlife and humans alike. Sea turtles die from ingesting free floating plastic bags, mistaking them for jellyfish. Birds can easily become entangled in plastic bags, fishing line, six pack strapping or they can mistake plastic pellets, toys and bottles for food. Each year thousands of whales, seals, shore and seabirds, sea turtles, dolphins and fish die as a result of marine debris.

Marine debris comes from a number of sources including recreational boating, fishing and beach goers, commercial fishing shipping and transport, sewage treatment plants and plastics manufacturing processes. Land litter can become marine debris. For example, litter on streets, footpaths and gullies often ends up in stormwater drains, which eventually empty into the sea.

Plastic and metal marine debris can create hazards to human health by entangling skin and scuba divers, disabling boats and ships, and threatening public health if it contains materials such as medical wastes.

Only through education and effort on the part of people will we reduce marine debris.

Key Questions

Ask the students

- *What is marine debris?*
- *What sort of waste do you think ends up in our oceans?*
- *Where do you think it comes from?*

Discuss common activities that occur in the water (eg; boating, swimming, recreational and commercial fishing, shipping, off-shore oil drilling etc.). Do people create rubbish while doing these activities? Watch the three – minute clip www.midwayfilm.com.

Activities

Ask students to bring a few cleaned pieces of rubbish from home.

- Clear an area of the floor in a front corner of the room. “Imagine that you are at the beach on a very nice day. Waves are pounding on the front of the room. The beach is very clean and tidy. Today, the students will pretend to be litterbugs. Each student will carry pieces of rubbish and throw them onto the pretend beach area.
- Ask: *Is it right to throw rubbish on a real beach? How would you feel if you went to the beach and you kept seeing rubbish like this? Have any of you run into rubbish on the beach? What did you think of it?*

- Some animals and people make their homes on or near the beach. *How would you feel if people came to your home and dumped their rubbish?*
- Ask: *How would you feel if you got tangled in a piece of rubbish that someone else threw on the beach? What if you were so tangled you couldn't walk? Or couldn't eat? If you are having a picnic on the beach, what should you do with your soda bottles, plastic containers, and other rubbish?*
- If you are walking along the beach and see some litter, what should you do? (Note: Ask a parent or older friend to take the rubbish to a bin.) Younger students should not be encouraged to handle things on the beach as they may have sharp edges or contain toxic materials.)
- Ask students to imagine once more that they are at the beach. It's time to go on a beach clean-up. Each student will pick up a couple of items and take them back to his or her desk.
- Do you think it is fair that people have to go out on beaches and pick up other people's litter? What would be a better way to keep beaches clean?
- Take a trip to a local waterway. *Are there pieces of rubbish in it? Does it smell? What colour is the water? How can we take care of our waterways? Are there any fish or birds in the water?*
- Ask the Department of Conservation, Ministry of Fisheries, the Forest and Bird Society or other environmental organisations to set up displays or give talks to educate students about the effect of marine debris.
- Students could create a collage or a mural with the used plastic materials to show how they affect marine wildlife. Discuss the message of the mural/collage.

Everything comes from the Earth

All things come from the earth - they are all connected. What happens to one resource may affect some or all of the other resources.

Soft drink can

Aluminium is made from a clay called bauxite, which is a non-renewable resource. Bauxite ore is mined in Australia and Brazil and shipped at great expense to its primary consumers, the United States and the Soviet Union.

Thousands of kilowatt hours of electricity are expended in this extraction, and the process creates a significant amount of waste materials. For each tonne of aluminium, four or five tonnes of water and rock are left over. One factory produces sheet aluminium, which is then shipped to another factory where soft drink cans are cut from the sheets.

Plastic Bag

Most modern plastics have petroleum, a non-renewable resource, as their primary raw material, but plastic are made from innumerable other materials as well. The earliest plastics were made from cellulose, a plant fibre, which is still the basis for film, audio and videotape. Plastic bags and playing records are derived from a mixture of petroleum and chlorine.

Hamburger

The meat is beef, which comes from beef cattle. The bun is made from grains that grow in the ground. Cattle feed on grass from the earth. The cattle, grains and grass are renewable resources.

Flax Basket

These are made from the fibres of flax plants, a renewable resource.

Everything comes from the earth....but where?

Try to trace each of the following items back to their original source - the earth. (The sun's energy, of course, is important to all of these).

For example:

Newspaper is made from paper, which is made from wood. Wood comes from trees and the trees come from the earth.

NEWSPAPER-PAPER-WOOD-TREE-EARTH

ALUMINIUM CAN	BREAD
PLASTIC BAG	FLAX BASKET
BUTTER	WOOL JUMPER
LEATHER SHOES	TYRE
GLASS BOTTLE	CLAY POT
WOODEN CHAIR	CRAYON
COTTON JEANS	HAMBURGER
STEEL SCISSORS	

Everything comes from the Earth...but where?

Answer Page

ALUMINIUM CAN
can-sheet-aluminium-bauxite-earth

BREAD
grain-earth, water-earth, salt-earth

PLASTIC BAG
plastic-petroleum-earth

FLAX BASKET
flax fibres-flax plant-earth

BUTTER
cream-milk-cow-grass-earth

WOOL JUMPER
wool yarn-sheep/goat hair-grass-earth

LEATHER SHOES
shoes-leather-cow/pig-grass-earth

TYRE
rubber-rubber plant-earth

GLASS BOTTLE
glass-silica-sand-earth

CLAY POT
clay-earth

WOODEN CHAIR
chair-timber-tree-earth

CRAYON
wax/chalk-earth

COTTON JEANS
jeans-thread-cotton plant-earth

HAMBURGER
bun-grains-earth, meat-cow-grass-earth

STEEL SCISSORS
scissors-steel-iron ore-earth

Final Project Ideas

Organise a Waste Fair

- Trade and exchange fair, etc.
- Recycling games.
- School clean-up.

Research a Topic

Students will thoroughly investigate a particular area of interest. This may be through library research, interviews, questionnaire surveys, visits, telephone enquiries or using a database.

The facts, figures, photographs, maps, drawings, illustrative material, samples, brochures, etc. obtained could be presented as a foyer display, a talk and demonstration, part of a seminar on waste management, a school library display, a kitset for future or other classes, a public display, etc.

Topics could include: glass, recycling aluminium, paper, recycling and waste reduction in our community, plastic recycling, household waste, or composting.

School Assembly

- Presentations by students on waste.
- Organise a "waste" play or wearable waste parade.

Create a Waste Newsletter

- Articles on waste reduction, re-use, recycling and composting.
- Distribute one to each class, post on the notice board, send home to parents and whanau.

Organise an Environmental Club

- Come up with a name and theme for the club.
- Co-ordinate meetings and set goals (clean-ups, school recycling, field trips, collect paper from classrooms).

Visit

Your local community waste management sites - recycling depot, landfill, baling station, glass/can/plastic recycling plant, manufacturing plant (observe how they reduce waste), shops/offices/fast food outlet/garage/ builders' yard . . . what do they do with waste? Do they reduce, re-use, recycle? Do they use recycled products? Incorporate what you've learned from your visit into a play, poster, story or art project.

Waste in the Future



What will waste in the future be like? Try one of these activities to find out more about the future of waste.

Design a Wasteless World

Can you imagine a world without waste?

Where does it go?

Design your own "wasteless world" of the future on a poster.

Or why not create a life-like model?

In the Year 2010

Brainstorm possible ways to reduce, re-use and recycle in the year 2010 and beyond!

A Futuristic Package

Design a package of the future.

What materials will be used?

Can they be re-used or recycled?

Ask the Experts

Interview:

- A plastics company to see what kinds of products are being designed for the future.
- A glass company to find out how glass might be used in the future.
- A steel manufacturer to see what new developments are being made in steel production and use.

Recycling at School

Recycling at school is a great way to reduce waste, help our environment and educate our young people on the importance of waste minimisation. Here are some suggestions for starting a recycling programme at school.

1. Organise a recycling group to make the programme a success. Involve your friends, students from other classes and some interested teachers and parents.
2. Organise a meeting to decide:
 - a) What you will call the group.
 - b) What you will recycle (see "SCHOOL RECYCLING" list).
 - c) How you will collect things for recycling.
 - d) Where you will place your recycling bins.
3. Promote your recycling scheme. Create fun and colourful posters and flyers telling students, teachers and administration staff where, what and how to recycle. Put notices in your school newsletter for parents to encourage their involvement in the programme. Contact your local newspaper to see about advertising your programme.
4. Start recycling!
5. Keep students, teachers and parents involved. Tell them how the programme is going. Ask your recycling companies how much glass, aluminium, paper and plastic your school is recycling.
6. Hold regular meetings. To keep everyone interested in recycling, you have to make it fun. Try to organise special events at school - like environment days and recycling team excursions. Other ideas include planting trees, organising a school composting programme and guest speakers.

Holiday Waste Ideas

Christmas is a time of giving and receiving. Why not make a difference this year and make "wasteless" gifts of used or recycled items?

Here are just a few ideas for home-made holiday gifts:

- *Advent Calendar* - The top sheet of paper is painted (or crayoned) like a house, tree or Christmas scene, with a number of flaps that open in the shape of windows, ornaments, doors, etc. The underlying layer is decorated so that when a flap opens, a holiday scene appears.
- *Bird House* - Build your own from scrap wood.
- *Calendar* - Enlarge your favourite photos, make a collage, include a variety of artwork, colours, shapes, etc.
- *Nativity Scene* - Recreate the manger scene using modelling clay and paint.
- *Plants* – grow some plants from seeds.
- *Hand decorate pots*.
- *Gift Coupons* - One of the best gifts doesn't cost a cent! Why not give your time as a gift to a parent, grandparent, neighbour or friend? How about a coupon for a day of house cleaning, baby sitting, etc? Or what about a coupon for dish washing, vacuuming or window cleaning?

- *Home Made Wrapping* –
 - A tea towel
 - Scarves.
 - Newspaper.
 - Magazine pages.
 - Plain drawing paper . . . paint it with old sponges
 - Clothing
 - Replace bows with berries, dried flowers or leaves.
 - Make cards from scrap paper, crayons, etc.
- *Make Your Own Ornaments* - Decorate old toys, bits and pieces and art supplies to make creative tree ornaments . . . why not give them as gifts?

After the Holidays . . .

- * Compost your food scraps.
- * Recycle your wrapping paper and boxes. Re-use them next year!
- * Re-use holiday cards!

Designing a Home Recycling Pamphlet

Students discuss sorting and separating recyclables. What materials are recyclable? How do we prepare glass, paper, aluminium, tin, plastic and other items for recycling?

Materials:

- Seven A4 sheets of cardboard or gummed coloured paper sheet or plain A4 white sheets.
- A piece of used foil and used ribbon or twine.
- Magazines for each student.
- Marking pens.
- Glue.
- Scissors.
- Hole punch.
- Variety of coloured construction paper.
- A number of clean cardboard boxes to set up a recycling station at home.

Pamphlet Construction:

- A. Glue different coloured sheets of paper or white A4 sheets onto the cardboard.
- B. Have students label the top of each piece of construction paper with the following headings - Glass, Paper, Aluminium, Steel, Plastic and Other Recyclables.
- C. Using the Recycle section information, transfer the material onto each card for each recyclable item.
- D. Using the magazines, cut out pictures of the different categories of waste. Paste these pictures below the label and above the directions on the corresponding card to form collages. In making the aluminium card, use aluminium foil brought from home. Get the students to label the last sheet 'Other Recyclables'.
- E. Have students punch two holes on the right hand side of the "recycle" sheet; two holes on both sides of the "Paper", "Glass", "Aluminium", "Steel cans" and "Plastics" sheets; and two holes on the left side of "Other Recyclable" sheet. Connect the sheets with ribbon or wire.
- F. Students discuss setting up a recycling centre in their homes.
- G. Each student draws a floor plan of his or her house, marking places where the home recycling centre could be set up. Paste this plan on the back side of the recycle sheet.
- H. Public information is necessary for recycling to be successful. Students practise presenting the pamphlet to fellow classmates; their own families and the community.
- I. A special certificate can be given to those students who have successfully started recycling at home.
- J. Students make a monthly report of home recycling centres.

Here are some basic steps for establishing a home recycling centre:

1. Find a convenient place in your home or flat for the centre. It does not take much room. The storage of glass, cans and newspapers for a month usually takes a 1 metre area. A garage, laundry or kitchen corner or under the sink are good places.
2. Find sturdy containers to store materials. Three plastic buckets or paper boxes can be used: one for paper, one for cans and one for glass.

Tips:

Newspaper/Cardboard

1. Stack newspaper and cardboard in a fire-safe area.
2. Tie with string to secure.
3. Flatten boxes.

Paper

1. Recycle clean paper only. Sort into white and colour. Flatten for easy storage and transportation. Store in fire-safe area.

Glass

To prepare glass for recycling, do the following:

1. Wash glass - no need to remove labels.
2. Remove any metal caps and rings.

Aluminium Cans

Check to make certain the cans are:

1. All aluminium.
2. Rinsed.
3. Separate aluminium cans from other aluminium products such as foil.

Steel Cans

1. Wash them out and remove labels.
2. Remove both ends and flatten.

Plastic

1. Rinse out bottles.
2. Remove lids and caps.
3. Check for the plastic identification code on bottom of the container.

Match this number to those on the plastic recycling bins at the recycling centre. Number 1 and 2 can currently be recycled in New Zealand.

Consume/Conserve Worksheet

You are a CONSUMER! Consume is a verb that means “to do away with completely”. When you consume something you use it up, eat it, clear it out or finish it. In your lifetime, you have consumed hundreds of marmite sandwiches or peanut butter sandwiches, and dozens of socks.

List some things that you personally consume in only one use (eg; your box of juice at lunch or piece of paper you’ve drawn a picture on).

List some things that are used many times before they are consumed (such as your shoes, or a colouring book).

You can CONSERVE. Conserve means to preserve, keep safe, or use wisely. You are a conserver when you are not wasteful. List some things that are made to be used only once and then thrown away.

Look at your list. Suggest some other products that might do the same job while conserving resources.

Are there some changes that you could make in your daily life that would conserve our resources? List them!
