

HE AO ITI NOA

Small World

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rubbish

From landfill to recycling and everything in between
He Parahanga!
Mai i te tāpuke whenua ki te tukuruā me ngā mea katoa o waenganui

- What is rubbish?
- Where does it come from and where in the world will it end up?
- What can you do about it?



Shopping up a waste storm Te hoko i tētahi tūpuhi parahanga

Rubbish is piling up all over the world but what ends up in our bins might not even be rubbish! It is plastic bags from our shopping; left over food scraps; unwanted toys or even mobile phones, hardly used before they're tossed out to make way for the latest model. The more stuff people buy, the more they throw away. We all need to stop and think about

why we're throwing things out and where it might end up.

This first issue of *Small World* looks at these questions: what exactly is rubbish and where is it going? How are people around the world turning trash into treasure? What can we do to change the way we buy and what we throw away?



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A load of rubbish

He utanga parahanga

What is waste? He aha rawa te para?

Waste, litter, rubbish or trash: whatever you call it, it's all the things people don't want or need. Waste is seen as useless and worthless. It's out-of-date, it doesn't fit, is left over from lunch or doesn't work. People decide what rubbish is, and every year, all around the world, they are throwing away 4 billion tonnes of it. That's the same weight as 333 million city buses!

So what are we throwing out? He aha kei te rukea e tātou?

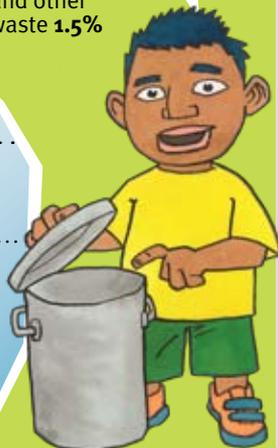
E-waste and other harmful waste **1.5%**

Other stuff **8.3%**

Plastic **13.5%**

Paper **25.5%**

Food and other **organic** waste **51.2%**



Types of waste	What is it?	What's wrong with it?
Food Waste	Nearly half of the average rubbish bag is organic – it's made up of food scraps, fruit and vege peelings and leftovers.	As food waste rots it creates a nasty gas called methane . This gas gets trapped in the atmosphere and slowly heats the planet. (That's global warming).
e -Waste	Out of date, old or broken TVs, computers, mobile phones and other electronics.	E-waste is full of poisonous chemicals. When it breaks down these chemicals seep out. In a rubbish dump they can get into the dirt and ground water .
Plastic	Plastic bags or plastic packaging from things like food, toys or furniture.	Plastic doesn't vanish, it breaks down into tiny but deadly pieces.

Work it out! Tauria!

If every home throws out one bag of rubbish a week, how much rubbish does your class throw out?

Every week: 1 bag x _____ (people in your class) = _____

Every month: 4 bags x _____ (people in your class) = _____

Every year: 52 bags x _____ (people in your class) = _____

Forgotten – but not gone

Kua wareware – engari kāore i ngaro rawa

Rubbish can break down but it doesn't happen overnight. Use the information below to fill in the time line of waste break down. What breaks down first? What will still be around long after we've gone?



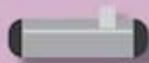
Banana peel,
4 weeks



Plastic jug
1 million years



Thin Plastic bag, 15 yrs



Laser printer cartridge,
450 years



Thick plastic bag, 1000 yrs

TIME

1 month 6 months 1 - 10 years 10 years+ 50 years 100 years+ 1000+

Investigation station

Teihana tūhura



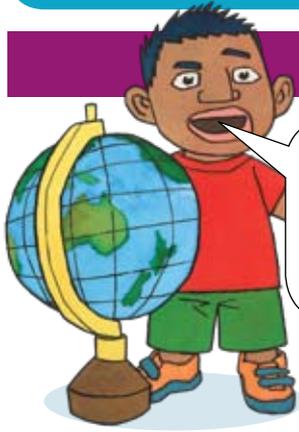
What else are we throwing away? Carry out a survey of what's in rubbish bins at home or at school (be sure to check with your carers or teacher - and wear gloves!)

"Our planet is choking on plastic and plastic bags are a huge part of the problem... [we use] 150 bags a year for every person on earth."
- Leonardo DiCaprio

Key Words Ngā Kupu Matua

Methane	a burnable gas with no smell and no colour
Atmosphere	the gases that surround the earth.
Organic	material that used to be living or that does not have any chemicals
Ground water	water held underground in soil or soft rock

Global impact *Ngā Take O Te Ao*



The big cover-up *Te hunanga nui*

Where in the world does all that rubbish go? *Ka haere ēnā parahanga ki hea rawa?*

We don't often think about what happens to our rubbish after it's collected - it doesn't just disappear.

In fact, most of what the world has thrown away long ago probably still exists in some way today.

Landfills *Ngā tāpuke whenua*

Most waste ends up in a landfill or dump, a large hole in the ground, filled with rubbish then covered with layers of dirt. It keeps most waste out of sight, but as it rots it can leak



poisonous gases and chemicals into



Incinerating *Te tahu parahanga*

Burning rubbish gets rid of it quickly and means it doesn't have to go into a landfill. On the other hand, burning creates gases and ash that go straight into the air that we all breathe. The heat from burning

waste is sometimes used to make steam to warm homes and buildings.

Recycling *Te Tukuruu*

You can make something new out of something old. Plastic, paper, metal or tin can be cleaned and prepared before being turned into other things.

E-waste can be stripped of valuable metals, while plastics can be turned into things like polar fleeces or traffic cones. Recycling can be a pricey job. Without recycling plants, city councils cannot recycle waste at all.

Other countries *Ētahi atu whenua*

Getting rid of waste costs money. Some countries find that sending their waste overseas is cheaper than getting rid of it at home. Often it's a case of out of sight, out of mind: if waste is sent away, another nation has to worry about cleaning it up.

Take Ghana, in West Africa. Second-hand computers arrive there from all over the world with the idea of being reused by local people. However, most of the computers don't work (e-waste). Mike Anane, an environment expert working for the **United Nations**, says "the computers are junk. They just don't work. They go straight to ... dump sites around the country."

History spot *He Kōrero nō Nehe*

Did you know...?

People have been burying rubbish for ages. The earliest known rubbish dump existed 5,000 years ago in Crete! (Want to know where Crete is? Look it up in an atlas or visit www.maps.google.co.nz)



The big idea *Te whakaaro matua*

Use the information and photos to make a PMI chart.

Plus +	Minus -	Interesting
<i>(Good points)</i>	<i>(Challenges)</i>	

Which is the best way to get rid of rubbish?
Why did you choose that method?

Welcome to the world's biggest rubbish dump *Nau mai ki te rukenga parahanga nui rawa o te ao*

In the ocean between Japan and Hawaii is the biggest rubbish dump the world has ever seen. It's the North Pacific **Gyre**, where the ocean's **currents** work like a toilet bowl, sucking everything on the outside (near land) into the centre. Only it won't flush away. It's collecting waste from Asia and North America. The gyre is a floating tip more than three times the size of Aotearoa NZ!

Don't worry! It's not all bad. Find out more about the Gyre and how people can stop it growing by visiting www.greengorilla.com



An e-waste recycling site in Longgang, China, recycling e-waste from Europe, Japan and the USA. Imagine you live near this e-waste disposal site. How would you feel if you had to work there? What would be your biggest worry? Is there anything you could do to change your situation? © Greenpeace/Natalie Behring-Chrisholm.

Key Words *Ngā Kupu Matua*

Current	water moving steadily in one direction
Gyre	a circle or spiral
United Nations	a group of countries working together to create world peace

Global spring cleaning

Te Horoi i te Ao i Te Kōanga

It looks like waste is a global disaster, but we can help. Look at how people all over the world are getting stuck into the big rubbish cleanup.

Food waste? What food waste?

Te parahanga kai? He aha te parahanga kai?

India From food scraps to fuel, people in Maharashtra are turning food waste into a **biogas** that can be used for cooking. This is how it works: food scraps are collected in a tank; as it rots, the methane gas created is held in the tank

to be used later to light gas stoves. Image source: www.arti-india.org



Recycling for the future

Te tukurua mō ngā rā kei te tū mai

Kamikatsu, Japan

This village of 2,000 people is aiming for **zero waste** by the year 2020. There are no landfills, just recycling stations where they sort their rubbish 34 different ways.

Watch a video about Kamikatsu at www.bbc.co.uk, search for 'Kamikatsu'.



Source: www.chrisjordan.com

E-Waste to e-cycling

Te Ī-parahanga ki te i-tukurua

Japan

All Japanese companies making TVs, washing machines, fridges or air conditioners have to take back their goods and recycle them once they're no longer wanted.

Brazil

Rather than throw away the batteries that power personal computers or mobile phones, Brazilians can drop their old batteries off at collection points to be recycled. Sony, a company that makes many battery-powered products, runs the sites and recycles batteries, keeping them safely out of landfills and incinerators.

Did you know...? *I mohio rānei koe?*

Cow power *Te kaha o te kau*

Farm waste can be put to good use – even cow pats! The methane from one cow's poo could light two 100 watt light bulbs, 24 hours a day, during the cow's lifetime.



Action matters

Now you've read about the rubbish fight in different parts of the world, choose the action step you think is the best. Why do you think so? How is it helping to reduce rubbish? Which action would you like to see in your community?

Egypt

In Cairo, Egypt, locals can go to recycling school where they are taught how to transform plastic bottles into other products.



Banning the bag

Te whakakāhore i te pēke

India

During the wet season in 2005, there were so many plastic bags being used in Maharashtra that they clogged drains and caused flooding. To solve the problem plastic bags have been banned. Now it is illegal to make, sell or use a plastic bag anywhere in that region. Meanwhile in Goa, another part of India, people are turning old newspapers into paper bags to be used instead of plastic. Image source: <http://creativecommons.org>

Collingwood, Aotearoa New Zealand

Kiwis use over a billion plastic bags a year. To make a difference, Collingwood, found at the top of the South Island, became the first town in Aotearoa NZ to ban them, saving 1 million plastic bags every year. (Want to know what other countries are banning the bag? Visit www.bringyourbag.com/enviro)

Key Words *Ngā Kupu Matua*

Zero waste	creating no rubbish at all
Biogas	a gas made by rotting food or plant scraps that can be used as fuel

Sources *Ngā Rauemi*: www.bringyourbag.com/enviro.php <http://in.rediff.com/news/2005/aug/24plastic.htm> <http://plasticshoppingbagfree.org.nz/collingwood> www.cvps.com/cowpower/How%lt%Works.html www.independent.co.uk/environment/green-living/britain-declares-war-on-food-waste-861250.html www.greendaily.com/2008/04/28/egypts-poor-revolutionize-recycling/ www.csmonitor.com/2003/0106/p07s02-woaf.html www.youthxchange.net/main/plasticfreegoa.asp

Local action

Hei Mahi i Tō Rohe



Zero Waste Marae Movement *Te Kaupapa Marae Parahanga Kore* Nā Hīria McRae, Te Kura Māori, College of Education, Victoria University of Wellington

The Zero Waste New Zealand Trust is a group working on a rubbish free, 'green' Aotearoa New Zealand. Zero Waste say that many **marae** and **iwi**

are teaching each other how to reduce, recycle and re-use resources. Zero Waste rules followed on marae are:

-  use less
-  compost
-  reduce pollution
-  rely on each other

Marae have always followed **sustainable** customs. At my marae, Tunohopu in Rotorua, we're lucky to have the use of the thermal springs to heat our water and fuel our large steam ovens. This reduces our use of electricity and is a very healthy way of cooking our food. Food shopping for

marae occasions is always done in large amounts and a lot of **kai** is donated from local pig hunters, fishermen and farmers. Any left over food from functions at the marae, is given to **whānau**, or whānau pets such as dogs, pigs and chickens.

We never use paper plates, plastic cups and utensils, no matter how big the function. For any dishes there is a large dishwasher, which is set on a fast and really hot cycle, to ensure we cut down on water use. All recyclable products from the kitchen such as paper, boxes, and plastic bottles are taken to the recycling centre.

As well as whānau functions like birthdays, weddings and **tangihanga**, our marae is hired out for all sorts of groups to use. We have a group of whānau that welcome visitors to our marae. They have a fantastic reputation as being great cooks and hosts.

The marae is about caring for both our resources and our whānau.

Community action: Trash Palace

Te Kāinga Parahanga Whakapaipai

Trash Palace is a waste recovery centre in Porirua, Wellington. Instead of taking rubbish to the landfill, locals drop it off at Trash Palace where it is sorted then recycled or sold. All money made is used to create jobs in the community.

Trash Palace manager, Jaime Campbell, says it's amazing what people throw out. "Take a section of Trash Palace, you would find pretty much anything you can imagine here, from books to cutlery to old barbecues ..."

Someone even threw out a painting worth nearly \$3000!

How does Trash Palace sort out e-waste?

We have an e-waste recycling operation, which means that when electricians come into Trash Palace, an electrician checks it so that we can either fix and sell it or recycle it.

What do you think is the biggest rubbish problem in Aotearoa NZ?

How we think about waste is a problem. We think that to survive and be happy, we need to buy, buy, buy. That creates waste while making the product, and waste when it reaches the "end of its life". We don't see the problems rubbish makes as something we cause. If we can't see our part in the waste game, we can't make positive changes.

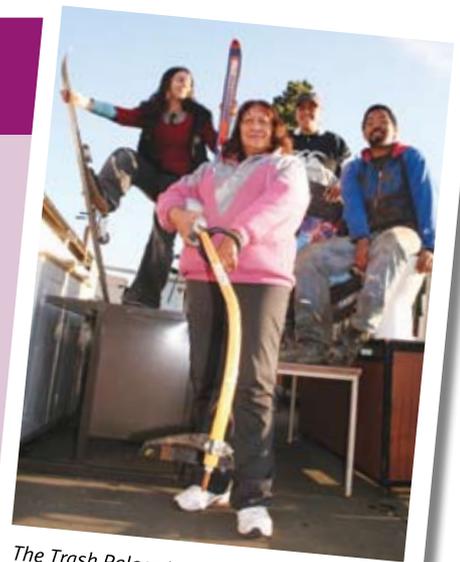
What is the easiest thing people can do to reduce their waste?

Shop with the environment in mind; less is always best and means less packaging and spending less money. Compost your food scraps or feed them to the worms.

Get things fixed rather than replacing them. There are so many little things we can do – and it's the little things that make a big difference.

*Manaaki Whenua • Manaaki Tangata • Haere Whakamua
Care for the land • Care for the people • Go forward.*

For recycling in your area, visit www.reducerubbish.govt.nz/regional-pages.



The Trash Palace team with some of their "trash". From left Jaime Campbell (with ski's) Irene Matthews (weed eater) Annette Brown and Rana Simon

What do you think?

He Aha Ōu Whakaaro?

NAME: Sarah Tallon

AGE: 9

Where does your family's rubbish go when it is thrown away?

It goes to the rubbish dump near where I live. If it's plastic, worms can't eat it, it just stays there. That makes a lot of litter in the world.

What do you think is the biggest rubbish problem in the world?

It might be pollution, because it causes global warming and melts the polar places. That causes flooding.

What do you think is the easiest way for people to solve the problem of rubbish?

They could make a worm farm, it's easy. We do it at school and we have two gardens. You can try growing your own food instead of buying it. Like tomatoes, they come in those plastic containers, don't they? If you grow your own tomatoes you don't need containers, and then you'll have fresh tomatoes.



NAME: Jalen Solomon

AGE: 7

Where does your family's rubbish go when it is thrown away?

It goes into the garbage dump or it can be used for something else – that's the recycling trash.

Do all countries get rid of rubbish the same way?

No, not exactly. It must be different because some countries just stick them in the ground but that's not a garbage dump. Or put it in the fire, which means it turns into powerful toxics – that's poisonous products.

What do you think is the biggest rubbish problem in the world?

If you don't recycle much you keep destroying nature. So you need to recycle rubbish.



So, what do you think?

Nā reira he aha ōu whakaaro?

You've read what Sarah and Jalen have to say. Now try answering these questions yourself. Do you have the same ideas? How are your answers different? How do you think people can solve the rubbish problem?

History spot

He Kōrero nō Nehe

Did you know...?

Before the toilet came to Scotland, human waste was thrown straight out the window to a warning cry of "Gardy Loo!"



What's waste got to do with us?

He aha te panga o te parahanga ki a tatou?

It might seem as though rubbish is building up everywhere except Aotearoa NZ, but think about this – people here make more than 3 million tonnes of rubbish every year, (that's 400,000 of those city buses). We send it overseas, bury it in landfills or send it to recycling plants, just like everyone else.

Take e-waste – in 2006 there were 250,000 desktop computers and 210,000 TVs not being used, right here! To solve this e-waste problem, Aotearoa NZ has signed the Basel Agreement, a promise not to send e-waste to other countries for dumping. We are also passing a new law, the Waste **Minimisation Bill**, so that the people making electronic products have to recycle them once they no longer work.

How else are we sorting waste, for good? www.reducerubbish.govt.nz will give you information on Kiwis making a difference.



Key Words Ngā Kupu Matua

Marae	meeting house
Iwi	tribe or clan
Sustainable	only taking what you need from nature so it isn't harmed
Kai	food
Whānau	family
Tangihanga	the way that Māori grieve for people who have died
Minimisation Minimise	reduce or make less of something
Bill	a written plan for making a new law

Taking positive action *Te Mahi Pai*



What can I do? *Me aha ahau?*

“Unless someone like you cares a whole awful lot, nothing is going to get better. It’s not.” – Dr Seuss, *The Lorax*.

Think globally, act locally

Thinking globally by acting locally is all about changing the world by starting in our own backyards. That’s because what we do at home or at school can make a big difference to how much rubbish is actually in the world. Here are some ideas for local action.



- Reduce, reuse and recycle
Buy less stuff – the less you buy, the less you’ll have to throw away. Reuse whatever you can and if that doesn’t work, find the nearest waste recovery centre and recycle.



These symbols on plastic mean they can be collected for recycling.

- Challenge yourself or your classmates to a wrapper free lunch, in a reusable lunch box. Do it once a week and keep rubbish out of landfills.
- Talk to your teacher or principal about forming an environmental action group. Organise recycling days, a school ‘Zero-waste’ day, or put pen to paper and tell your local member of parliament about your waste concerns!
- Waste can be beautiful. Create ‘waste art’ and hold a showcase of collages or sculptures made from rubbish. Invite your parents and friends along and spread the word on reducing and reusing waste.
- For more crafty ideas for reusing your waste, visit www.makingfriends.com/recycle

Websites *Te Ipurangi*

Ecokids Visit this website to complete missions and save the planet from pollution. www.ecokids.co.nz

Environment agency This is a fun and interactive site on rubbish, complete with games, animations and activities. www.environment-agency.gov.uk/fun

Ollie recycles An Australian based website with information and activities on waste reduction, reuse and recycling. www.olliesworld.com/aus

Kiwi Conservation Club This site has a page full of ideas on how to reduce waste. Go to www.kcc.org.nz and click on ‘How can I help?’

Planet science Use this site to find more information about rubbish. www.planet-science.com

Gorilla in the Greenhouse Has short films on big waste issues and lots of clever ways to reuse plastic bags. www.greengorilla.com

AnyQuestions.co.nz If you have any questions about waste, this website is great. You can email your question and librarians will help you find the answer. www.anyquestions.co.nz

Sources *Ngā Rauemi*: www.grinningplanet.com/environmental-quotes/funny-environmental-quotes.htm www.lyricsmode.com/lyrics/m/miley_cyrus/wake_up_america.html http://capita.wustl.edu/me567_informatics/concepts/global.html <http://creativecommons.org/licenses/by-nd/2-0/deed.en>

Miley Cyrus (Hannah Montana)

Taken from 'Wake up America'

Oh, the Earth is calling out
I wanna learn
what it’s all about...

We’re all in this together
It’s our home
so let’s take care of it ...

Tomorrow
Becomes a new day
and everything you do
Matters, yeah
Everything you do
Matters in some way.



Change for a just world

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