

Tūwhiti Rāpihi Rubbish overload

Are we creating too much waste?
How can we reduce?

Focus

The focus of this context is to help students explore how they can reduce waste.

This set of resources will enable ākonga to consider better solutions for packaging, processing, and disposing of products.

Students can research how the local councils collect and process rubbish waste at the Kate Valley land fill site. They are asked to consider the short and long term impact on the environment.

Links

[Technology in the New Zealand curriculum](#)
[Glossary of technological terms](#)

Elderly Kaumātua	Electric vehicles Waka hiko	Feed the team Whangāia
Health Hauora	Identity Tuakiri	Plastic Kirihou
Rubbish overload Tūwhiti rāpihi	Shelter Tāwharau	Transportation Waka
	Water Wai	

Keen to find more resources?
Go to the authentic curriculum resources on the Grow Waitaha website and select the Year 7/8 technology resources filter.

Horopaki Learning contexts

Choose a learning context:

Why so much waste?

Aotearoa is known to be clean and green. Yes, we are recycling, yet we are also sending huge amounts of non-recyclable waste to our landfill sites. What can we do differently?

Reduce

New Zealand is known by other countries as environmentally “green”. Yet we also produce a huge amount of rubbish that is not being recycled and is dumped into landfill sites. What can we do differently?

Product design

New Zealand is known by other countries to be environmentally “green”, yet we produce and use huge amounts of single use packaging that is dumped in our landfill sites.

Single use packaging

Fast food chains in Aotearoa provide food products in separate packaging to ensure that they meet health and safety guidelines. However, every box, bag, cup, straw, cardboard package, or wrapper that is collected together in one general bin cannot be recycled and becomes landfill.

#growrealllearning
#growcollaboration

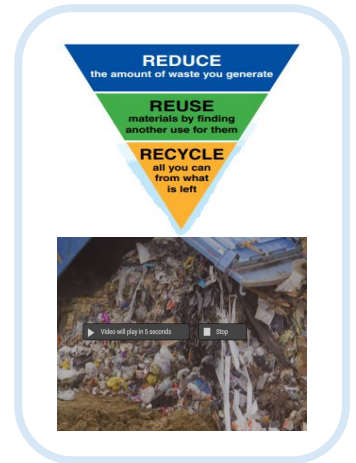
The Context/Horopaki: New Zealand Aotearoa is known to be clean and green. Yes, we are recycling, yet we are also sending huge amounts of non-recyclable waste to our landfill sites. What can we do differently?

The Brief 1: You are to research how waste from Canterbury homes is disposed of at the Kate Valley landfill and create a quiz for students who take field trips to the site.

The Brief 2: You are to design a simple process that your family could use to reduce the amount of waste you send to the landfill. This may start with buying less pre-packaged food.

(WALT) We are learning to:

- use a digital tool to create a quiz.
- use a planning tool to create a waste management plan.



Activity 1 Reducing waste

1. Click on Digital resource/rauemi #1 to get an idea of the size and layout of the Kate Valley operation. Please note: there is no sound.
2. Click on digital resource 2. Listen or read about Kate Valley and answer the following questions:
 - How many District Councils use the site?
 - When was the first cell built?
 - How many homes can it provide electricity to?
3. Students who take field trips to Kate Valley need a quiz to test their understanding. Create a quiz with at least eight questions.
4. Use Google Forms, [Kahoot](#) or a word processing or presentation tool you like using. Your questions are to be multi-choice. You can use the three questions above to begin with. For example:

How many District Councils use the site?

- a) 3 b) 5 ✓ c) 8 d) 10

5. The words below relate to the Kate Valley operation. Write questions about at least three of them.

- | | |
|-------------------------|--------------------|
| • whakapaparanga—layers | • tāoke—toxic |
| • wainuku—groundwater | • paerongo—sensor |
| • kāmera—camera | • mīhini—machinery |
| • mewaro—methane | • haumarū—safety |
| • whakapai—improvement | |

6. Add more questions until you have at least eight.
7. Add the correct answers.
8. Proofread your quiz carefully and correct any errors.
9. Give your quiz an appropriate title.
10. Share a copy of your quiz with your teacher.



Activity 2 Family challenge

In the Canterbury region, we have the opportunity to reduce waste by rethinking what we buy and how it is packaged.

1. Get the family involved.
2. Take all the food out from your pantry and put it on the kitchen bench.
3. Sort the items into those packaged in:
 - Plastics
 - Glass
 - Cardboard
 - Metal
4. Have a talk about what you as a family could do differently to reduce waste that goes to our landfills.
5. Share the outcome from this discussion with your teacher in a creative way, for example:
 - make a video
 - take a photo and add notes
 - create a Dos and Don'ts checklist
 - interview and film someone in the family.

Digital resources/Rauemi

1 Kate Valley landfill site videos
<https://www.stuff.co.nz/environment/1178943/31/inside-the-south-islands-biggest-dump>

2 Kate Valley site information sheet
<http://www.learnz.org.nz/katevalley194/bg-standard-f/innovation-at-kate-valley>

The Context/Horopaki: New Zealand Aotearoa is known by other countries as environmentally “green”. Yet we also produce a huge amount of rubbish that is not being recycled and is dumped into landfill sites. What can we do differently?

The Brief 1: Design a poster that informs and encourages whānau/family to reduce the amount of waste they generate. The focus is on how we manage the green/recycling/refuse waste here in Christchurch/Ōtautahi.

The Brief 2: Minimising waste? Make a visual display of rubbish to encourage your family/whanau to reduce the negative impact your waste has on the environment.

(WALT) We are learning to:

- use information to inform product design.
- evaluate in real time the impact of rubbish on our environment.



Activity 1 Poster design

How do we as a community dispose of our rubbish?

1. Watch videos 1, 2, and 3. Write down the key points to use in your poster.
2. Sketch two concepts for a poster to encourage your family/whānau to manage their household waste. You should think about:
 - what information from #1 to include
 - what images you will need
 - where to place the text, headings and images
 - what colours you will use
 - the KISS principle—keep it simple!
3. Show your two concepts to people in your bubble and ask them for some feedback.
4. Select one of your designs and create it as an A3-size poster. It can be drawn, sketched or computer generated and must have clear messaging. You could try [canva.com](https://www.canva.com).
5. Show your family and ask them for feedback.
6. Take a picture and send it to your teacher.

Digital resources/Rauemi

1 Video—yellow bins

<https://www.youtube.com/watch?v=RkXRC4uq544>

2 Video—red bins

<https://www.youtube.com/watch?v=mpVkJTSuWITQ>

3 Video—green bins

<https://ccc.govt.nz/services/rubbish-and-recycling/greenbin/>

Activity 2 Minimise yellow bin waste

1. Select a 3-day period, e.g. Mon–Wed, Tues–Thurs.
2. Put several layers of paper into your yellow recycling bin to form a division between what was already in there and what you will collect.
3. Three days later—lay down a tarp/old sheet next to the bin. Use sticks, tape or a rope to divide the tarp into four.
4. Empty the contents of the bin onto the tarp. Remember, just for the 3-day period.
5. Divide the contents into plastic, paper/cardboard, glass and metal. Count up the number of items in each group.
6. Do some simple maths. Multiply each group by 120 to calculate items per year. For example:
 $7 \text{ plastic items} \times 120 = 840 \text{ plastic items per year.}$
7. Show the display of rubbish to your family and ask the question: *How can we as a family reduce the waste and lessen the impact on the environment?*
8. Take a picture of the items lying on the tarp.
9. Return items to the yellow bin and wash your hands thoroughly.
10. Send a picture and some ideas to reduce waste to your teacher.

Material resources/Rauemi

Paper, pencils, pens

Tarp or large sheet of plastic

Rope, sticks, or tape





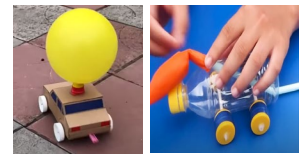
The Context/Horopaki: New Zealand Aotearoa is known by other countries to be environmentally “green”, yet we produce and use huge amounts of single use packaging that is dumped in our landfill sites.

The Brief 1: You are to develop a prototype of a new product made from everyday packaging waste at home.

The Brief 2: You are to make a 60-second video that showcases your prototype and encourages other students to reuse and upcycle waste packaging materials. Have fun!

(WALT) We are learning to:

- develop a prototype of a product from recycled materials
- create a video that captures the key attributes of your outcome.

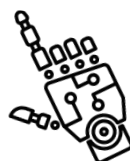


Activity 1 Recycling/upcycling waste

1. Watch the video clips below and select one product that you wish to create. You could combine some of the techniques from different videos to create a product.
2. Before you begin making your product, check with others in the house that it is OK to use the resources you need.
3. Create and test your product. The video clips are just ideas to get you started. Be creative, adapt and modify the ideas to create something special.
4. Colour, paint or decorate your prototype.
5. Think of a ‘catchy’ name for your design.

Digital resources/Rauemi

1. Build a balloon car
<https://www.youtube.com/watch?v=5gYF5azO6jl>
<https://www.youtube.com/watch?v=dR2C1GGJ-9o>
<https://www.youtube.com/watch?v=BD353qP2i78>
2. Make a toilet roll dispenser
<https://www.youtube.com/watch?v=uUI8d-y1vR4>
<https://www.youtube.com/watch?v=qd8RMX8nTI4>
3. Make a marble run
<https://www.youtube.com/watch?v=KXhw-b51lcE>
<https://www.youtube.com/watch?v=liFpLbN3UDQ>
4. Build a bird feeder
<https://www.youtube.com/watch?v=wduCroN-kS8>



Activity 2 Product video

1. Plan and record a 60-second video to show off your prototype to others.
2. Write a script for your video and include these key attributes.
 - Identify the product—what is it and what is it made of?
 - Clearly name it.
 - Describe the product’s function—what does it do?
 - Explain how it operates.
3. Shoot a video that is no more than 60 seconds.
4. Get some feedback and re-record if necessary.
5. Send the video clip to your teacher.

Material resources/Rauemi

Resources to make the outcome you choose, such as: plastic bottles, scissors, knives, straws, food skewers, glue, tape, cardboard, paper, balloons





The Context/Horopaki: Fast food chains in New Zealand Aotearoa provide their food products in separate packaging to ensure that they meet food health and safety practice guidelines. However, every box, bag, cup, straw, cardboard package or wrapper that is collected together in one general bin—not separated—cannot be recycled and becomes landfill.

The Brief 1: You are to create a paper slide that would encourage fast food outlets to better manage instore food packaging waste.

The Brief 2: You are to design a bumper sticker with a catchy slogan to encourage fast food outlets to reduce packaging and waste.

(WALT) We are learning to:

- create a paper slide using the five main components of effective poster design.
- design a persuasive bumper sticker message.



Activity 1 Paper slide 'Instore recycling'

The focus is around recycling packaging, reducing unnecessary packaging, reducing waste and litter. Your paper slide is aimed at encouraging the fast food industry to provide instore separate waste and recycle bins, and raise awareness of how the waste impacts on the environment.

1. Watch the 2 digital rauemi below about designing a paper slide.
2. Research fast food packaging, use this information to inform the main message of your paper slide.
3. Survey 4-5 of your friends and whānau /family to gather data that you can use to backup the messaging of your paper slide.
Possible questions to ask.
 - Do they eat fast food?
 - If so, do they eat in store or takeaway?
 - How often do they buy fast food? Daily, weekly, monthly. The total number of visits - 12 times a week.
 - Each item is individually wrapped, ask them what they eat, burger, chicken pieces, fries, drinks, other. Record number of each. i.e. 4 eat burgers, 2 chicken meals etc.
4. Create your paper slide that encourages better instore recycling
5. Your paper slide needs a send clear messaging to both the fast food owners and customers, must be simple and easy to read
6. Create your paper slide and send to your teacher.

Activity 2 Bumper sticker

You can use the same message from activity 1 for your bumper sticker however you will need to arrange it differently.

Key attributes:

- Bumper stickers are generally. 250mm length x 90mm height (these can be smaller).
 - These are cut into vinyl and can be one or two colours.
 - Message must be simple.
 - Big font and/or big graphic.
1. Sketch your ideas on a page from your maths book. (maybe 2-3 concepts/ideas)
 2. Keep to the sizes mentioned above 250mm x 90mm.
 3. Show others your designs and together select one.
 4. Create a final drawing.
 5. Take a pic of the outcomes and send to your teacher.

Digital resources/Rauemi

1 Poster simple 5 steps.

<https://www.youtube.com/watch?v=wNS2RXqFlrl>

2. Have you heard of [paper slide videos](#)



NB The New Zealand Packaging Accord, which is a voluntary agreement was developed in 2004 to help reduce wasteful packaging.

