Wai Water

Water is fundamental to the New Zealand way of life.
Are we looking after this resource?

Focus

This set of resources will support ākonga to explore society's impact on the quality of water used for drinking, domestic use, industry, and irrigation of the land.

Students can explore how water is used and make informed recommendations on how this can be improved and sustainable for future generations.

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	

Horopaki Learning contexts

Choose a learning context:

Caring for wai

Swimming in a clean river or lake is a great kiwi experience. This recreational opportunity is lost to billions of people in the world due to pollution. Are we truly looking after our water?

Purifying wai

Overseas communities struggle without access to clean water and sanitation. Children are often too sick to go to school. Safe drinking water must be a priority for all New Zealanders as it is a fundamental public health requirement.

Use of wai

Water used for irrigation is more than three times that used for drinking, according to figures from the Ministry for the Environment. How can we use water better?

Promotional t-shirt

Clean green Aotearoa New Zealand, or is it? We need to promote to 'Team 5 Million' how we can preserve our water ways to ensure that New Zealanders continue to have access to clean water environments.

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.

#growreallearning
#growcollaboration

Caring for our water 37

The Context/Horopaki: Swimming in a clean river or lake is a great kiwi experience. It is different to having a dip in a pool or at the beach. It is a recreational opportunity that has been lost to billions of people around the world due to pollution. New Zealand Aotearoa is blessed with so much fresh water that most of our rivers and lakes remain suitable for swimming and recreation.

The Brief 1: *You are to research a local river to determine how suitable it is for swimming, fishing, and other sports. You are to create a T-shirt slogan to promote how best to keep this river clean for future communities.*

The Brief 2: *You are to design and create a flotation device made from recycled products that can support the weight of a teenaged person.*

(WALT) We are learning to:

- identify and promote what can be done to encourage the care and safe use of our waterways, rivers, and lakes.
- **design** a stable flotation waka platform.

Activity 1 Promoting water use

1. Research how your local community is caring for your local river water. See a list of rivers below.
2. Identify what can be done better to improve the quality of the water?
3. Sketch a couple of designs that could be printed on a tee shirt to promote better use of the water ways—maximum size 200 x 200 mm.
4. Finalise your concept and present your outcome using colour for impact.
5. Special note: It would be nice to include kowhaiwhai that are specific to water in your T-shirt design. For example:
   - puhoro—swiftness and agility, especially across water
   - mangopare—strength/hammerhead shark.

   These designs are mentioned in earlier contexts. See digital rauemi #1 below.
6. **Take** a picture and send it to your teacher.

Activity 2 Water raft

1. Research rafts made from recycled products on the internet. Use these designs as inspiration for your raft design.
2. Sketch a range of ideas to show how your raft meets the attributes:
   - made from recycled products
   - has a stable floating platform
   - is able to carry a teenage person
   - has a place for dry storage of goods.
3. Finalise your concept and present your outcome using colour for impact.
4. Take a picture and send it to your teacher.

Digital resources/Rauemi

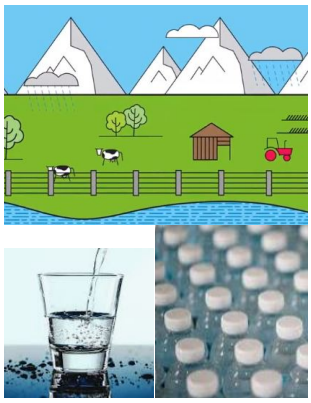
1. Maori Design—**Kowhaiwhai patterns**
https://bit.ly/kowhaiwhai

Resources/Rauemi

List of rivers in Otautahi

Puharakekenui/Styx River
Hororata River
Huritini/Halswell River
Kaiapoi River
Ōpāwaho/Heathcote River
Ōtākaro/Avon River
Rakaia River
Waikirikiri/Selwyn River
Waimakariri River

The Context/Horopaki: Some overseas communities struggle without access to clean water and sanitation and, as a result, children are often too sick to go to school. Safe drinking water must be a priority for all New Zealanders as it is a fundamental requirement for public health and cannot be taken for granted.



The Brief 1: *During disasters, communities can lose access to clean water. You are to research and create a device that can be used to purify dirty river water.*

The Brief 2: *You are to design a flow diagram for people to use during an emergency.*

(WALT) We are learning to:

- **purify** dirty water.
- design, plan and **present information**.

Activity 1 Purifying water

1. During disasters water might need to be treated before drinking. Watch the following two video clips that show how to remove solid waste from water.

   Method one—create a water filter
   https://www.youtube.com/watch?v=elPJbVv56wA

   Method two—use a shoelace to purify water
   https://www.youtube.com/watch?v=QpgEpu4-hU0

2. Try method two. Take several pictures to show the process you follow.
3. Paste your pictures into Microsoft Word or Google docs and write a brief description of what is happening at each stage.
4. Save the file on your computer and send it to your teacher for assessment.
5. Watch video #1 in the digital rauemi with people at home and discuss the advantages of this tech advancement.

Activity 2 Information sheet

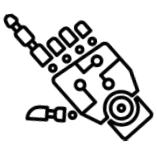
1. Read digital rauemi #2—'Get Prepared'—and use this information as the basis of an information sheet.
2. Design a new presentation for the youth of Aotearoa, using the same facts but making it more appealing to younger people.
3. Plan the layout. Sketch ideas that could be used as the icons for the different steps.
4. Use Word, Google docs or a flow chart app such as Gliffy (gliffy.com/diagrams) to create a flowchart that displays all the important information.
5. Use a range of cool icons/graphics that can easily be read.
6. Show others at home and get their feedback. Based on the feedback, make changes to improve your design.
7. Save the file on your computer and send it to your teacher for assessment.

Attributes:

Easy to read	Easy to follow
Colourful	Eye catching
Informative	Cites source of data

Digital resources/Rauemi

1. Michael Pritchard: How to make filthy water drinkable
https://www.youtube.com/watch?v=rXepkIWPhFQ
2. Wellington council 'Get Prepared' flow chart
https://getprepared.nz/assets/Get-Prepared-website/Households/Water-emergency-flowchart.pdf
3. Making your water safe
https://getprepared.nz/assets/Get-Prepared-website/Households/Water-Treatment.PDF
4. An introduction to Gliffy flowchart maker
https://www.youtube.com/watch?v=FVQk-sQLl60



The Context/Horopaki: More than three times as much water is used for irrigation than is used for drinking water according to figures from the Ministry for the Environment. In one year more than 5 billion cubic metres of fresh water are taken from ground and surface water for irrigation compared to 1.5 billion cubic metres for drinking water. How can we use water better?

The Brief 1: *How much water do you use in your house per day/per week?* Can we use water better? *You are to make a 1.5 minute video that makes recommendations about how we can use water better at home.*

The Brief 2: *You are to investigate the big users of water and present a three-slide presentation to answer the question: What can be done to make sure that we don't run out of water?*

(WALT) We are learning to:

- **record data** to make an informed decision.
- **present data** that can be used to support improvements in the use of water.

Activity 1 Video production

1. Watch the video #1 rauemi about uses of river water.
2. How much water do you personally use in a day? In New Zealand, the average person uses 227 litres of water per day made up of: toilet—86 litres, bathing and hygiene—68 litres, laundry—36 litres.
3. Experiment 1—cleaning teeth. Have a selection of pots next to the bathroom sink. While you brush your teeth, leave the tap running and filling the pots. Exchange the pots as they fill up. Turn the tap off when you are ready to rinse the toothbrush again. Using a measuring jug from the kitchen or a plastic bucket with a litre scale, measure the litres you have in the pots. Do this for the next three days to calculate the average amount of water you use to clean your teeth.
4. How can we use water better? Use the video #2 rauemi as an example and create your own video of how we could use water better around the home.
5. Plan out what you want to say and then have a family member or a friend film you. Review and re-record if necessary.
6. Send the video to your teacher.

Activity 2 Three-slide presentation

1. You are to research the use of water in New Zealand. What can be done to make sure we don't run out of water?
2. Create a three-slide presentation using MS PowerPoint or Google Slides to present your findings. Provide examples of text, pictures, audio, and video to support the focus of the slide.
3. Watch #3 rauemi about water use at home and #4 rauemi for water used in industry.
4. The three slide titles are:
    - Wai/water—Who are the users?
    - Wai/water—How is it used?
    - Wai/water—What can be done better?
5. Be creative. Think of the viewer and getting them involved with information graphics.
6. Send the file to your teacher.

Digital resources/Rauemi

1. Video—Balancing water uses and values
https://www.youtube.com/watch?v=MG4Dxz7m8Jw
2. Video What's the truth about water
https://www.youtube.com/watch?v=92o_ARPNsWI
3. What's the truth about water usage at home
http://www.learnz.org.nz/water172/bg-standard-f/water-use
4. What's the truth about water usage in industry
https://figure.nz/chart/SCLKsnnRdhEYfMZR

Promotion T-shirt 40

The Context/Horopaki: Clean green Aotearoa New Zealand, or is it? Like every developed nation we have challenges maintaining standards related to clean water supplies, clean waterways, and efficient usage of water. We need to promote to 'Team 5 Million' ways we can preserve our waterways to ensure the peoples of New Zealand continue to have access to clean water environments.

The Brief 1: *You are to design a slogan for T-shirt that promotes how we can keep our waterways, rivers and lakes clean.*

The Brief 2: *You are to organise a couple of friends to join you and together collect rubbish that is contaminating our waterways.*

(WALT) We are learning to:

- **design** simple effective messaging to promote an issue.
- **make a difference** to our physical environment.

Activity 1 Design a T-shirt slogan

Clear messaging is the best way to promote better use of our waterways. Has your community said anything about the use of the waterways? What do others in your home say about this issue?

1. Use digital rauemi #1 for inspiration. You are to consider what messaging is needed to improve the quality of our waterways, rivers and lakes.
2. Research a simple T-shirt slogan that promotes better use of waterways.
3. Sketch several ideas, keep the messages simple, e.g.

   It would be nice to include kowhaiwhai that are specific to water e.g. puhoro—swiftness and agility, especially across water; mangopare—strength/hammerhead shark.
4. Show the sketches to others in your home and have them give you feedback.
5. Use the feedback to select and produce a final A4-sized version of the T-shirt design. Use colour to enhance it.
6. Photograph it and send it to your teacher.

Activity 2 Do a waterways clean up

1. Organise a couple of friends to join you and a large compostable bag or a plastic bag each. We suggest that you wear gloves if you think you might be touching unsanitary items.
2. Set a time frame for the collection, e.g. 30 minutes. Visit your local waterway, river, or lake.
3. Walk the banks of the waterway looking and collecting items/rubbish that should not be in the water or on the water edge.
4. Be on the lookout for smaller plastics and take the time to grab them—they are more easily ingested by small animals like birds and fish.
5. When finished, congratulate yourselves for making a difference. Take your bags home.
6. When you get home, lay a tarp or similar material in your driveway. Tip the contents of your bags out, sort the materials into plastics, paper, metal, etc. Take a picture.
7. Dispose of the contents into your red and yellow bins.
8. Send the pictures of what you collected to your teacher.

Digital resources/Rauemi

1. Pinterest water conservation
https://bit.ly/3cjEM9n