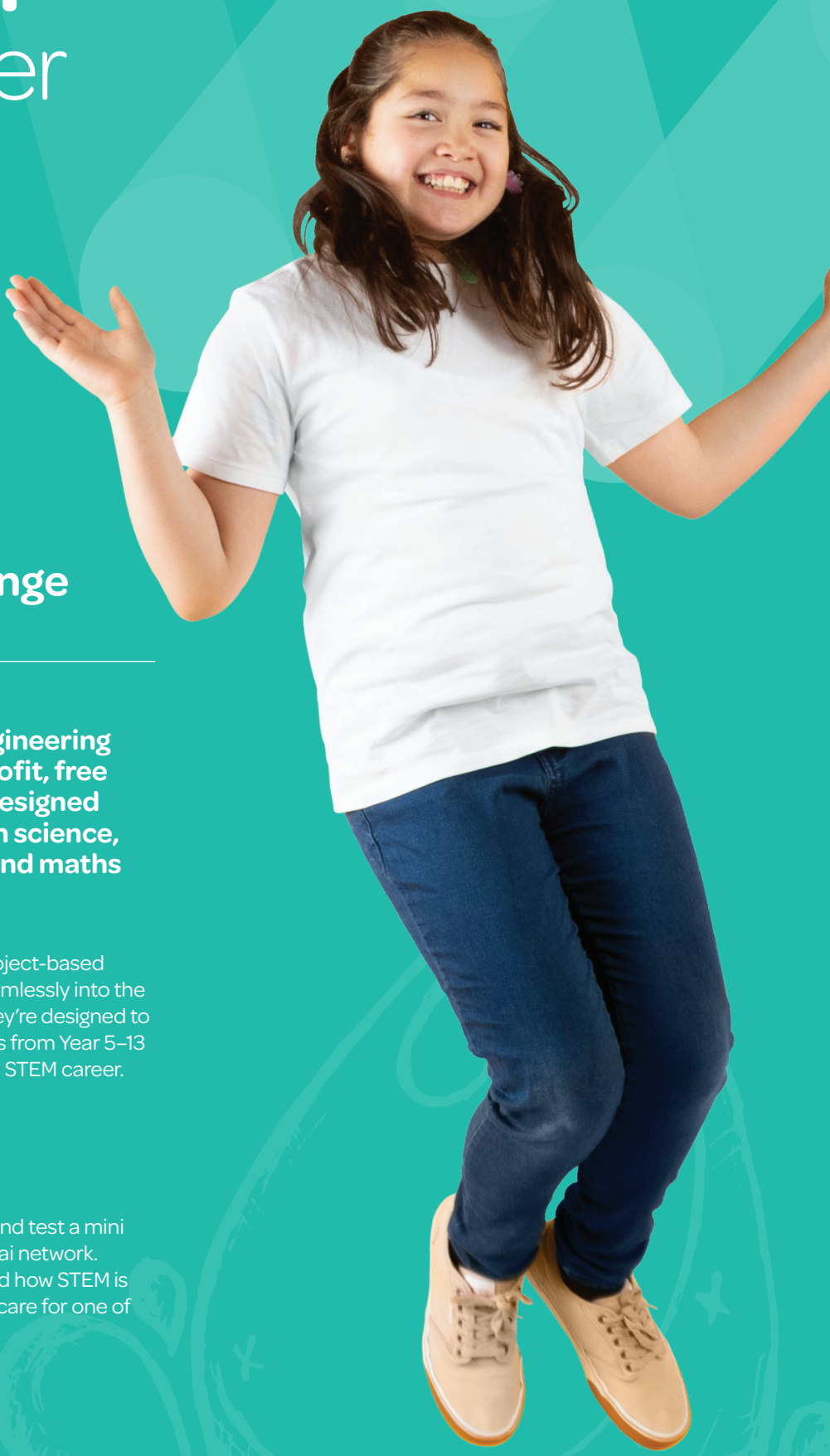
I wonder how water reaches us?



Wonder Project

Water Challenge

The Wonder Project is Engineering New Zealand's not-for-profit, free programme for schools, designed to inspire young Kiwis with science, technology, engineering and maths (STEM).

The Wonder Project is a series of project-based hands-on programmes that knit seamlessly into the New Zealand school curriculum. They're designed to spark wonder and awe in young Kiwis from Year 5–13 and get them excited about a future STEM career.

Water Challenge

Level 4 | Phase 3, Year 7–8
Term 3

Ready, set, flow! Ākonga construct and test a mini model of Aotearoa New Zealand's wai network. They'll explore the journey of wai and how STEM is used to collect, clean, connect and care for one of Earth's most precious taonga.

engineering new zealand
te ao rangahau

SUPPORTED BY Beca Fulton Hogan GHD Foundation

Water Challenge

Starting any time in Term 3 each year, the Water Challenge provides scaffolded learning aligned to Level 4 or Phase 3 of the New Zealand school curriculum. The challenge takes around 12–16 hours to complete across 6–8 weeks, or longer if required. It's also possible to complete the challenge in a more condensed timeframe.

Water cycle

Wai network

Mauri compass

STEM design process

Sustainability

What we offer schools

- Online training on core STEM principles
- Ākonga learning material and activities
- Detailed challenge guide with lesson plans and support notes
- Where possible, support from a volunteer STEM professional (online support available)
- Free water kit with all the gear
- Online hapori of kaiako and ambassadors
- Resources to assess ākonga on their challenge learning

Our impact

Here's what participants said about the 2024 Challenges:

- 96% of kaiako increased their confidence teaching STEM
- 98% of kaiako and 75% of ākonga said they would do it again
- 50% of ākonga were more interested in STEM jobs after their challenge
- 92% of kaiako said ākonga were engaged with the programme

Become a wonder school today at
wonderproject.nz

@WonderProjectNZ

Water Challenge modules

Module 1

Get ready for the Water Challenge, explore the mauri of wai, and find out how the STEM design process can help build a wai network.

Module 2

Explore Te Hurihanga Wai (the water cycle) and water's journey through our wai network. Then imagine and plan a wai network to solve your challenge scenario.

Module 3

Learn about ngā momo wai (water types), and how wai paru (dirty water) is cleaned at a treatment plant. Then, create and test a treatment plant.

Module 4

Explore how Aotearoa New Zealand's wai network connects wai to hapori through pipes and the power of gravity. Then create and test a pipe prototype!

Module 5

Learn about Manning's equation and use its principles to improve your pipe prototype. Then, join your wai network together to solve your challenge scenario.

Module 6

Understand how wai can be sustainably returned to Ranginui once it reaches us. Then, team up with another rōpū to hydrate the entire hapori.

Achievement objectives

Kaiako can also make wider curriculum links to other achievement objectives depending on ākonga level and individual learning programmes.

Strand	Ākonga will	Curriculum level/phase	Year level
Science: Planet Earth and Beyond Earth systems	Develop an understanding that water, air, rocks and soil, and life forms make up our planet and recognise that these are also Earth's resources.	Level 4	7–8
Science: Planet Earth and Beyond Interacting systems	Investigate the water cycle and its effect on climate, landforms, and life.	Level 4	7–8
Technology: Technological Knowledge Technological modelling	Understand how different forms of functional modelling are used to explore possibilities and to justify decision making and how prototyping can be used to justify refinement of technological outcomes.	Level 4	7–8
Technology: Nature of Technology Characteristics of technology	Understand how technological development expands human possibilities and how technology draws on knowledge from a wide range of disciplines.	Level 4	7–8
Mathematics and Statistics: Mathematics and Statistics Statistical investigation	Plan and conduct investigations using the statistical enquiry cycle: Gathering, sorting, and displaying multivariate category, measurement, and time-series data to detect patterns, variations, relationships, and trends.	Phase 3	7–8

I wonder how we get rangatahi excited about STEM?

Engage your ākonga in the wonders of STEM by registering for one of our hands-on, project-based challenges.

Rocket Challenge

Level 3 | Phase 2, Year 5–6
Term 2

Houston, we have lift off! Ākonga blast off into STEM by designing, building and launching their own water rocket. They'll learn about Newton's laws, the engineering design process, and working as a rōpū.

Power Challenge

Level 4 | Phase 3, Year 7–8
Term 2

Power up! Ākonga design and build a wind turbine and light up a mini town. They'll discover the amazing phenomenon of electricity and renewable energy, and learn how teamwork can keep the lights on.

Ice Cream Challenge

Level 3 | Phase 2, Year 5–6
Term 3

Let's chill! Ākonga experiment with flavour, texture, and techniques, using dairy or alternative ingredients to create their own sweet treat. They'll explore states of matter, food composition and nutrition and discover the science behind ice cream innovation.

Water Challenge

Level 4 | Phase 3, Year 7–8
Term 3

Ready, set, flow! Ākonga construct and test a mini model of Aotearoa New Zealand's wai network. They'll explore the journey of wai and how STEM is used to collect, clean, connect and care for one of Earth's most precious taonga.

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