I wonder how to power a brighter future?

Wonder Project

Power Challenge

The Wonder Project is Engineering New Zealand's free programme for schools, designed to get rangatahi excited about science, technology, engineering and maths (STEM).

The Wonder Project offers 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.

Power Challenge

Level 4, Year 7–8
Term 3

Power up! Ākonga design and build a wind turbine and work as a rōpū to light up a mini town using renewable energy. Along the way they discover the phenomenon of electricity and how it's generated, moved and used in Aotearoa.

engineering new zealand
te ao rangahau

ENERGISED BY TRANSPOWER SUPPORTED BY Downer
Relationships creating success

Power Challenge

Operating in Term 3 each year, the Power Challenge provides scaffolded learning aligned to Level 4 of the New Zealand school curriculum. You can choose one of two ways to complete the challenge – spend 1–2 hours per week on each module across a period of 4–6 weeks, or, complete the challenge in two full days.

Electricity

National power grid

Teamwork

Renewable energy

Engineering design process

What we offer schools

- Online training on core STEM principles
- Ākonga learning material and activities
- Detailed challenge guide
- Free power kit with all the challenge gear
- Where possible, support from a volunteer STEM professional
- Online hapori of kaiako and ambassadors

Our impact

Here's what participants said about the 2023 Power Challenge:

- 98% of kaiako increased their confidence in teaching STEM
- 93% of kaiako and 67% of ākonga said they would do it again
- 43% of ākonga were more interested in STEM jobs after the challenge
- 91% of kaiako said ākonga were engaged with the programme

Become a wonder school today at
wonderproject.nz

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Power Challenge modules

Module 1

Get ready for the Power Challenge, meet your Wonder Project Ambassador, and find out what it takes to power a town of the future, before discovering the phenomenon of electricity.

Module 2

Explore renewable and non-renewable energy sources, and how energy is generated across Aotearoa. Then, follow the engineering design process to design a wind turbine.

Module 3

Learn about electricity's journey through Aotearoa New Zealand's power system, the National Grid, before creating and testing a wind turbine – using observation and analysis to record results.

Module 4

Analyse turbine performance data to improve its design. Then, compete in rōpū, using the optimised turbines to light up all of the buildings in a mini town.

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	Year level
Science: Nature of science	Ask pātai, explore simple models, and carry out appropriate investigations to develop simple explanations around how energy is generated and used.	4	7–9
Science: Physical world	Explore different sources of energy, forms of energy and energy transformations including the transformation of different energy sources into electrical energy.	4	7–9
Technology: Technological knowledge	Use functional modelling to create a wind turbine prototype that converts wind energy into electrical energy and explore the relationship between aerodynamic features and energy efficiency through blade design.	4	7–9
Mathematics and Statistics: Geometry and measurement; statistics	Explore modelling with three dimensional geometric shapes and gather, analyse and draw conclusions from their wind turbine performance data.	4	7–9

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, Year 5–6
Term 2

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

Power Challenge

Level 4, Year 7–8
Term 3

Power up! Ākonga design and build a wind turbine and work as a rōpū to light up their own mini town. Along the way they discover the amazing phenomenon of electricity and renewable energy.

Showcase the immense possibilities of a future in STEM to rangatahi.

STEM Careers

Year 7–13
Year round

The future is bright! Ākonga are inspired to keep taking STEM subjects, and given a taste of the real world with industry visits and motivating career talks from STEM professionals.

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