Wonder Project

Power Challenge

Activity 4.2: Light up our town

Calling all STEM superstars – your town needs you!

Your town uses electricity to take care of the hapori. They're relying on your STEM smarts to keep the lights on, the schools open and the hospitals running.

You'll need to problem solve and work as a rōpū to light up the entire town using renewable energy solutions. Good luck!

The great turbine test

Let's start by seeing how powerful your turbine is on its own.

Hook up your turbine to your printed circuit board (PCB). Then, set it up in front of a fan.

Colour in the lights that you turned on with your turbine alone.

Light one: Light bulb

Light two: Computer

Light three: Family home

Light four: Marae

Light five: School

Light six: Museum

Light seven: Library

Light eight: Hospital

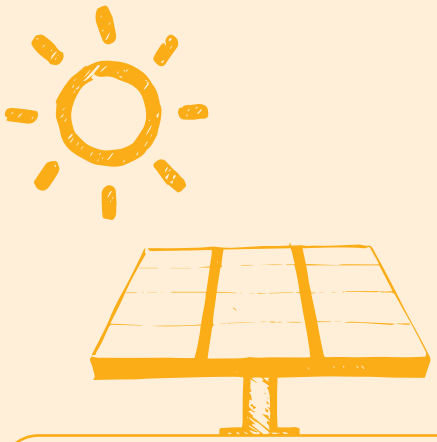
Light nine: The entire town

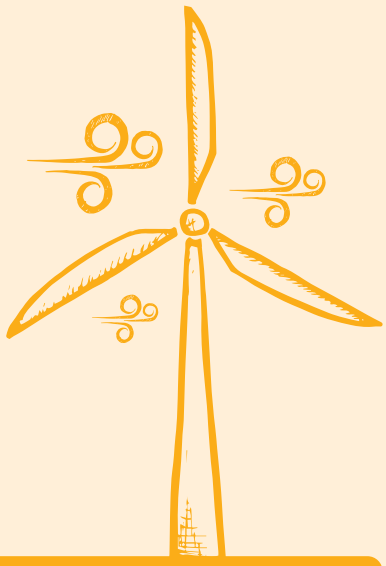
Solar panel solutions

We rely on multiple renewable energy sources to power our hapori. This helps us keep the lights on, whatever the weather!

Add a solar panel to the mix and see if you can light up the entire town.

Make sure every rōpū in your class uses the same light source and distance to keep the results fair.





Ask: How will our design improvements impact our turbine's performance?

Our conjecture:

We think our design improvements will impact our turbine's performance by:

We think this because:

Record your data

Rōpū name	Generator 1: Wind turbine	Generator 2: Solar panel		Total lights
	Blade design	Light distance	Light type	
Turitea	*Shape: Koru Size: 15x3cm Number: 4 Materials: Paper*	*30cm*	*Flashlight*	*7*
	Shape: Size: Number: Materials:			
	Shape: Size: Number: Materials:			
	Shape: Size: Number: Materials:			
	Shape: Size: Number: Materials:			
	Shape: Size: Number: Materials:			
	Shape: Size: Number: Materials:			
	Shape: Size: Number: Materials:			
	Shape: Size: Number: Materials:			

Analysis

The highest number of lights our class achieved was

Rōpū name **'s turbine performed the best because**

Conjecture comparison:

Did your results match your conjecture? Why/why not?

Conclusion

Bright sparks, you've collected heaps of data, learned lots of new things, and powered-up some electrifying turbines. It's now time to use this information to answer our challenge pātai.

I wonder how to power a brighter future?

Because of STEM superheroes like you, the future is bright.