

Do some tests to see whether your turbine's powerful enough to light up your town.

Perform two tests on your turbine. During each test, observe what is happening, and record the results. This will help you improve your turbine in the next module.

**Test 1:
Prototype
functionality**

Engineers carry out functional tests to see if everything is working as it should – it helps detect early bugs!

Give it a whirl!

Give the blades a gentle push.

What do you see?

Are the blades balanced? Do they spin? Wobble?



Nope, it's not spinning yet.

Change one thing at a time and try again. Write the results below.

Yes, it spins.

Ka rawe! Time to power up your prototype.

**Test 2:
Power up
your prototype**

Your second test will help you determine how blade designs affect your turbine's performance.

For this test, you'll need:

- A printed circuit board (PCB)
- A fan (a 40cm desk fan will work best)

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

Our conjecture:

We think our turbine will light up lights.

Connect each turbine to the PCB by plugging the connector cable from the turbine motor, into the wind input on the PCB.

Keep the fan speed and distance the same for each test so you're only observing the effect of one variable – blade design.

We think this because:



Record your results

Test Tracker

Rōpū name	Blade design	Pre-test conjecture	Post-test observation
Turitea	Shape: Koru Size: 15x3cm Number: 4 Materials: Paper	Number of lights: 2 Why: Blade material is too flimsy.	Number of lights: 0 Why: Paper flopped in the wind. The turbine did not spin.
		Number of lights: Why:	Number of lights: Why:
		Number of lights: Why:	Number of lights: Why:
		Number of lights: Why:	Number of lights: Why:
		Number of lights: Why:	Number of lights: Why:
		Number of lights: Why:	Number of lights: Why:

Analysis

What worked well in your tests?

What didn't work well? How could you improve your design?

Does this result match with your conjecture? Why/why not?