

# Task: Te Pūaho — Shining Light

Approach: One to one

Focus: Electricity

Resources: Torch bulb, battery (cell) in holder, red and green wires with alligator clips

Kupu: pūaho = bulb rama = torch whakamau pūhiko = battery holder rawhi = alligator clip

## Questions / instructions:

Ko tāu mahi i konei, he whakakā i tētahi pūaho rama.

### Whakaaturia ngā rauemi ki te ākongā.

In this activity you're going to try to make a torch bulb shine.

Show students the equipment.



1. Anei ngā rauemi hei whakamahi māu. Honoa ngā rauemi hei whakakā i te pūaho.

Ki te kore e taea e koe te whakakā i te pūaho, māku e āwhina.

**Tukuna te ākongā kia mahi i tōna kotahi.**

**Mehemea ka hiahia āwhina te ākongā, anei ētahi kōrero i raro nei.**

HE ĀWHINA: Whakamahia ia pito o te whakamau pūhiko.

Honoa ngā rawhi ki ēnei wāhanga o te whakamau pūhiko.  
(Tohua ngā wāhanga e kōrerohia nei.)

Whakapāngia ngā waea ki te pūaho.

Here is the equipment for you to use.  
Try to connect it so the bulb shines.

If you can't manage to make the bulb shine I'll help you.

**Allow time for the student to attempt the task independently.**

**Only use the following prompts if the student needs help.**

PROMPTS: Use each end of the battery holder.

Put the alligator clips on these bits of the battery holder.

(Point to the appropriate bits.)

Touch the bulb with both wires.

working independently,  
student got bulb to shine

% responses

20

### Mehemea ka raruraru tonu te ākongā māu e āwhina ki te whakakā i te pūaho.

If necessary assist the student to make bulb shine.

2. Titiro ki ngā rauemi, ka whakamārama mai ai he aha i kā ai te pūaho?

HE ĀWHINA: He aha te take i kā ai te pūaho?

Look at your equipment and try to explain to me what made the bulb work?

PROMPT: What makes the light shine?

complete path/circuit for electricity to flow

12

the battery pumps electricity/power/energy around the circuit

6

the battery has energy/power in it

56

the electricity goes through a thin wire (filament) and makes it hot and it glows

0

3. Titiro ki te waea whero me te waea kākāriki.

He ōrite te rahi o te hiko e rere ana i ngā waea e rua nei, he rahi ake rānei te hiko e rere ana i tētahi?

Look at the red wire and the green wire.  
Is the same amount of electricity flowing through both wires, or does one wire have more electricity flowing through it than the other wire?

same

39

4. Whakamāramahia mai tō whakautu. He aha i pēnā ai ō whakaaro?

Why do you say that?

good explanation for "same"  
(same amount has to go out as comes in, current electrons flow all around circuit)

6

incorrect explanation for "different"  
(electricity used up in bulb)

0

5. Ka roa haere te wā, ka pau haere te kaha o tētahi pūhiko. He aha ai?

Why do batteries usually go flat after they have been used for a while?

not marked

**Total score:**

5-8

0

3-4

19

2

21

1

43

0

17

## Commentary:

Only 20 percent of students could get the bulb to shine by themselves, and a similarly small percentage could explain about how electricity behaves in a simple electrical circuit.