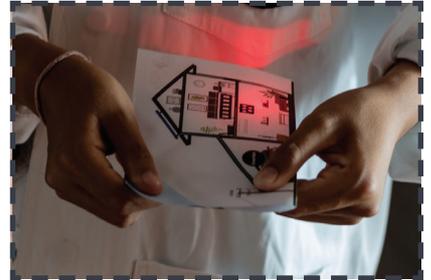# How to make
a paper circuit house

1. Before you start

Watch the How to make a paper circuit house video on schoolgen.co.nz

2. What you'll need

Ask an adult to help you buy these items at mindkits.co.nz or jaycar.co.nz

- The printed paper circuit house template from Schoolgen.co.nz
- Copper strip tape (5mm with standard non-conductive adhesive)
- Copper strip tape (with conductive adhesive)
- Resistor (47 ohm)
- LED (red, yellow or green are good)
- A coin-type battery (CR2032 works well)
- Scissors
- Optional: Blu-tack, wire cutter, a bulldog or paperclip

3. Get started

Step 1:

Using Side A of your printed circuit house template as a guide, measure and cut strips of your standard non-conductive copper tape to stick on where you see the numbers 1, 2, 3, 4 and 5.

Did you know metals like copper are very good conductors of electricity?

Step 2:

Very carefully peel the backing off the tape and stick it firmly on the paper over the template.

Step 3:

Cut around the outer green rectangle of your paper circuit house.

Step 4:

Fold it in half along the green dotted line in the middle.

Did you know electrons are negatively charged bits of matter that occupy the outer space of atoms.

Step 5:

Fold the top left 'Day' triangle down to reveal the night triangle.

Step 6:

Open the template back up.

Did you know an electrical current in circuits is due to a the flow of electrons.

Step 7:

Now, using your copper strip tape with conductive adhesive, tape the ends of the resistor wire ends onto your template over the copper tape you stuck down earlier.

Did you know resistors restrict the amount of current that can flow in the circuit.

Step 8:

Still using your copper strip tape with conductive adhesive, tape down the LED light wire ends onto the copper. Notice how one wire is longer than the other on your LED? That's the positive side, make sure this is pointing down towards your battery.

Step 9:

Place your battery on to your template, using a small piece of blue-tack to hold it in place. Make sure the positive side is face down on your template.

Step 10:

Now it's time to test it. Fold your template in half and if you want you can grab a bull dog clip to hold your battery in place (or just use your finger!).

Step 11:

Fold the sun back at the corner and watch your light turn on!

**4.
Finished? What's next**

Visit Schoolgen.co.nz to check out other projects you can do.

We've also pulled together some cool challenges to get you thinking and innovating! The easiest ones are at the top of each list, the harder ones at the end are for budding scientists and engineers.

More minds are better than one, so get a team together and start throwing some ideas around and come up with a plan of attack.

✳ Modify the School-gen template to make your own paper circuit that will switch between two or more LEDs.

✳ Use a small solar panel and crocodile clips to power a paper circuit.

✳ Make your own battery to power the circuit.