What is paper circuit art?
Using copper tape and surface-mount LEDs you can make a fully functional circuit on a flat surface, like a piece of paper. You can make light-up greeting cards, make origami animals come to life, or create three-dimensional pop-up paper sculpture that have working lights in them.

What you’ll need to get started:
- Paper
- Art supplies
- Copper Tape
- Surface-mount LEDs
- Coin Cell batteries
- Scissors

Making a simple paper circuit:

**Step 1:** Fold over the corner of the paper. This is your on off switch.

**Step 2:** Trace battery outline on both sides of fold.

**Step 3:** Use copper tape to create a square starting at one circle and ending at the other (leaving one edge open).

**Step 4:** Set an LED on top of the copper tape and secure it with scotch tape.

Go to the next page to see the exciting conclusion!
Making a simple paper circuit (continued):

Almost there, all we need to do now is complete the circuit.

**Step 5:** Place the battery negative side down on top of the copper tape.

**Step 6:** Use a binder clip (or something similar) to fold over the edge of the paper, connecting the copper tape to the top side of the battery.

**Step 7:** Marvel at the power of electricity as your LED lights up the paper.

That's great! But, uh, what did I just do?

You made a circuit! A circuit directs the flow of electricity. It goes from the battery, along the copper tape, to the LED, and then returns back to the battery. Circuits need to be made of material that will conduct electricity (like copper tape), and they need to start and stop at the same place!

1. Electricity flows from the positive terminal of a battery...

2. Along this conductive pathway (the copper tape)...

3. To this light, which uses the electricity to power on...

4. Then the electricity returns along this conductive pathway...

5. Back to the negative terminal of the battery.

Every electrical device you will ever have uses circuits to conduct electricity. Your remote control, your watch, your computer, everything. Circuits make modern life possible!
Making your circuit into art!
It’s not enough just to make a circuit, we need to make it part of something more awesome.

Here’s an example of some circuit art!

Lots of LEDs are on this Christmas tree to represent the lights.

Keep in mind, the more LEDs you have, the more energy is required. You may need a larger battery to power a lot of lights.

Copper tape connects all the LEDs and then returns back to the battery (not pictured).

Here’s some other cool stuff you can do!

The backside of the door has aluminum foil on it. So when you close the door it completes the circuit and the window lights up.

Is that origami art that lights up? Of course it is! If only I knew how to do origami...

YOU’RE DONE! HERE’S SOME NEXT STEPS YOU COULD TAKE:

Google.com: Do a Google search for paper circuit art and wait to be amazed!

Check out Exploratorium.edu If you go to tinkering.exploratorium.edu/paper-circuits# you can find all kinds of information on how to make paper circuits.

Expand your paper circuits: You can take your Paper circuits to the next level by programming the lights to blink at different intervals or by attaching motors. There’s a handy tutorial at highlowtech.org.