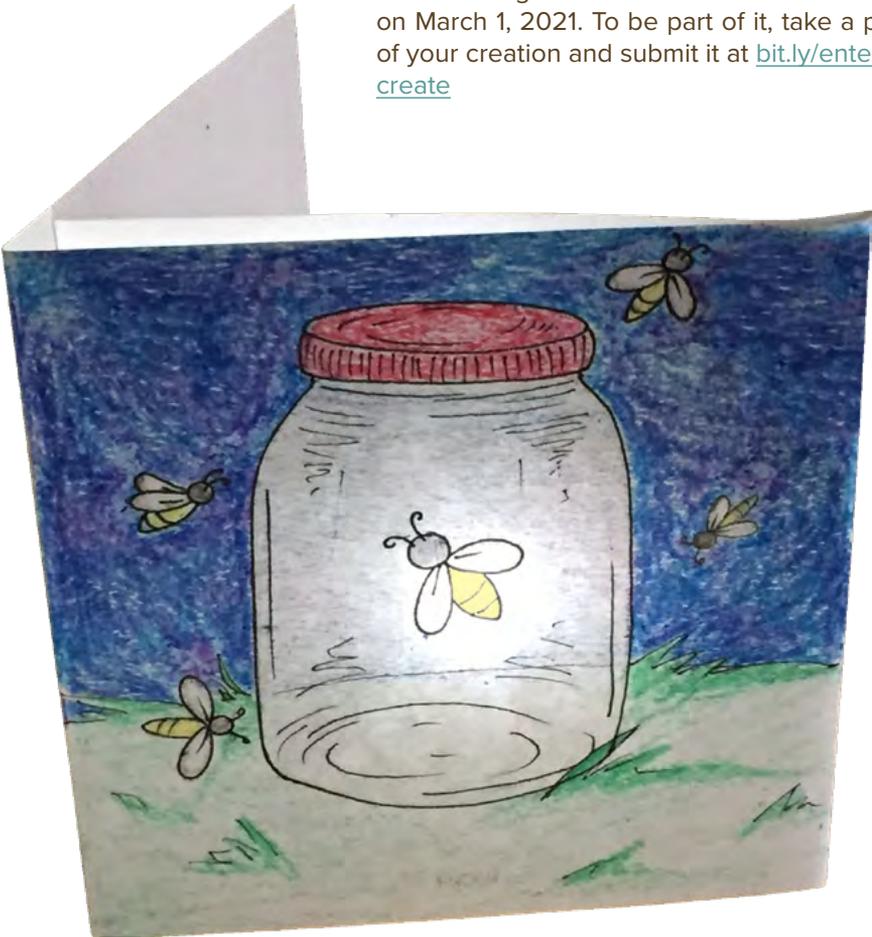




Light-up Cards

Family Art Day Project

This winter, PenArt is having an online exhibition of work inspired by Family Art Day projects! *Kids Create* will go live on PeninsulaSchoolofArt.org on March 1, 2021. To be part of it, take a picture of your creation and submit it at bit.ly/enter-kids-create



Peninsula School of Art

3900 County Rd. F, Fish Creek, WI 54212 | 920.868.3455 | www.PeninsulaSchoolofArt.org

Artist Spotlight

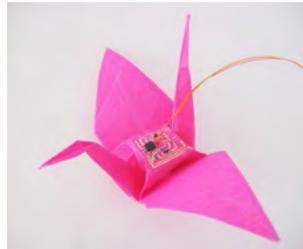
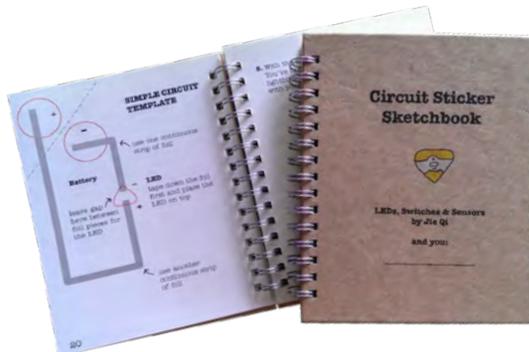
Jie Qi

Jie Qi is an artist, inventor, and entrepreneur who combines her love of paper craft with technology. She created stick-on LEDs (light-emitting diodes) that can be used with copper tape and batteries to add light to drawings. Jie used these along with sound sensors to make *Cross Pollination*, a drawing of dandelions with lights like seeds that scatter when you blow on them.



This picture shows Jie working on *Cross Pollination*. She used the copper tape that carries electricity through the LEDs to make the outlines of the flowers, petals, and stems.

Jie has combined art and technology in many different ways. She made origami paper cranes that flap their wings and butterflies that move and glow in response to light. She even made a book to teach others how to use circuits, switches, and sensors. You can download it from chibitronics.com/circuit-sketchbook/



Let's get started . . .

Supplies

Inside the envelope you'll find

- 1 coin battery and plastic holder
- 12 inches of copper tape
- 1 conductive fabric patch
- 1 circuit sticker

To make the card, you'll also need

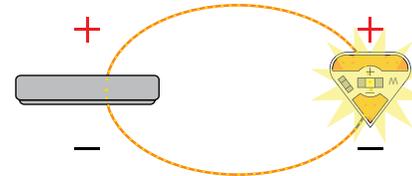
- something to draw with
- regular tape
- scissors



How it works

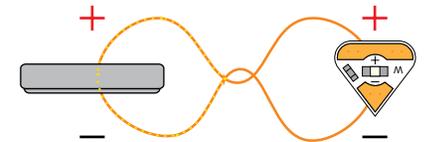
(from Jie Qi's Circuit Sticker Sketchbook)

In this project, we will light up an LED by using copper tape to connect a battery to an LED in a loop. The "+" side of the battery needs to connect to the "+" side of the circuit sticker, and the "-" point of the circuit sticker with the "-" side of the battery. This continuous loop is a **complete circuit**.



Electrons only flow in loops, and this complete circuit allows electrons to flow from the battery, through the LED, and back into the battery. This round-trip flow of electrons, called **current**, causes the light to turn on and shine.

Electrons are lazy, and always take the path of least resistance. Since electrons prefer to take a "shortcut" through foil, rather than do work lighting an LED, an accidental foil connection from "+" to "-" will quickly drain the battery, and the LED will not light. This condition is called a **short circuit**.



Learn more at bit.ly/what-is-electricity

Instructions

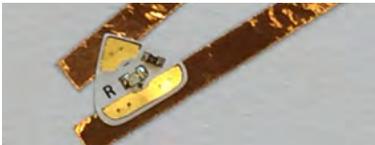
- 1 Fold along the dotted lines on the template.



- 2 Stick down an unbroken piece of copper tape over each gray line. Make sure the two pieces don't touch.



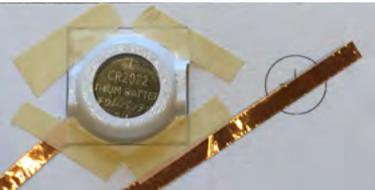
- 3 Place the circuit sticker so the “-” point overlaps the tape leading to the “-” circle inside a square and the opposite “+” side overlaps the tape leading to the “+” circle.



- 4 Place the battery as shown, with the “-” side with all the dots facing down and the “+” side with writing facing up.



- 5 Tape the plastic holder over the battery. Don't cover the battery or the copper tape in the “+” circle.



- 6 Using pencil, mark the spot where the light shines on the front. Draw your picture around it.



Troubleshooting

- 1 Check that the circuit sticker is properly placed and firmly stuck down.
- 2 Make sure the two lines of copper tape aren't touching.
- 3 Make sure the copper tape over the “+” circle has good, metal to metal contact with the battery when you fold and pinch them together.
- 4 Check for breaks or gaps in the copper tape. If you find one, bridge it with the conductive fabric patch.
- 5 Try flipping the battery.
- 6 Try replacing the battery.