# A STEM PROJECT

with "Tinkering" approach: "Building a special card for our beloved ones with an electrical circuit that turns on an LED".

How does the circuit work?

Connecting the LED sticker to the battery with conductive tape creates a single unbroken loop for electricity to flow. Power from the battery flows along the loop, passing through the LED sticker and causing it to shine. This complete loop is called a circuit.
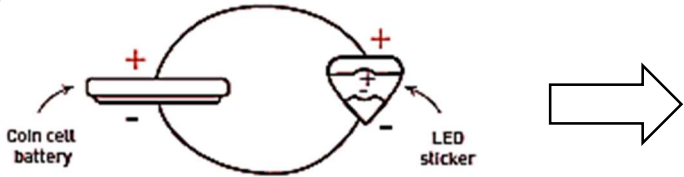
The LED sticker is a picky eater: the '+' side of the LED sticker needs to connect to the '+' side of the battery, and the '-' side of the LED sticker to the '-' side of the battery in order for it to shine.

Making a parallel circuit

To turn on multiple LEDs with one battery, you can make a parallel circuit. Here, we connect the "+" end of multiple LED stickers to the "+" side of the battery and the "-" points of the LEDS to the "-" side of the battery.
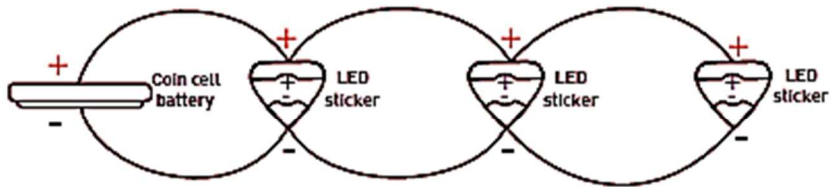
This creates multiple loops for electricity to flow, turning on all of the LEDs at the same time with only one battery.

This is called connecting LEDs in parallel. You can add as many LEDs as you want, though the LEDs will all get slightly dimmer as you add more to the circuit.
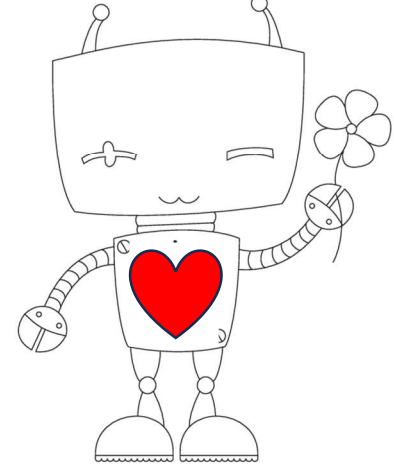
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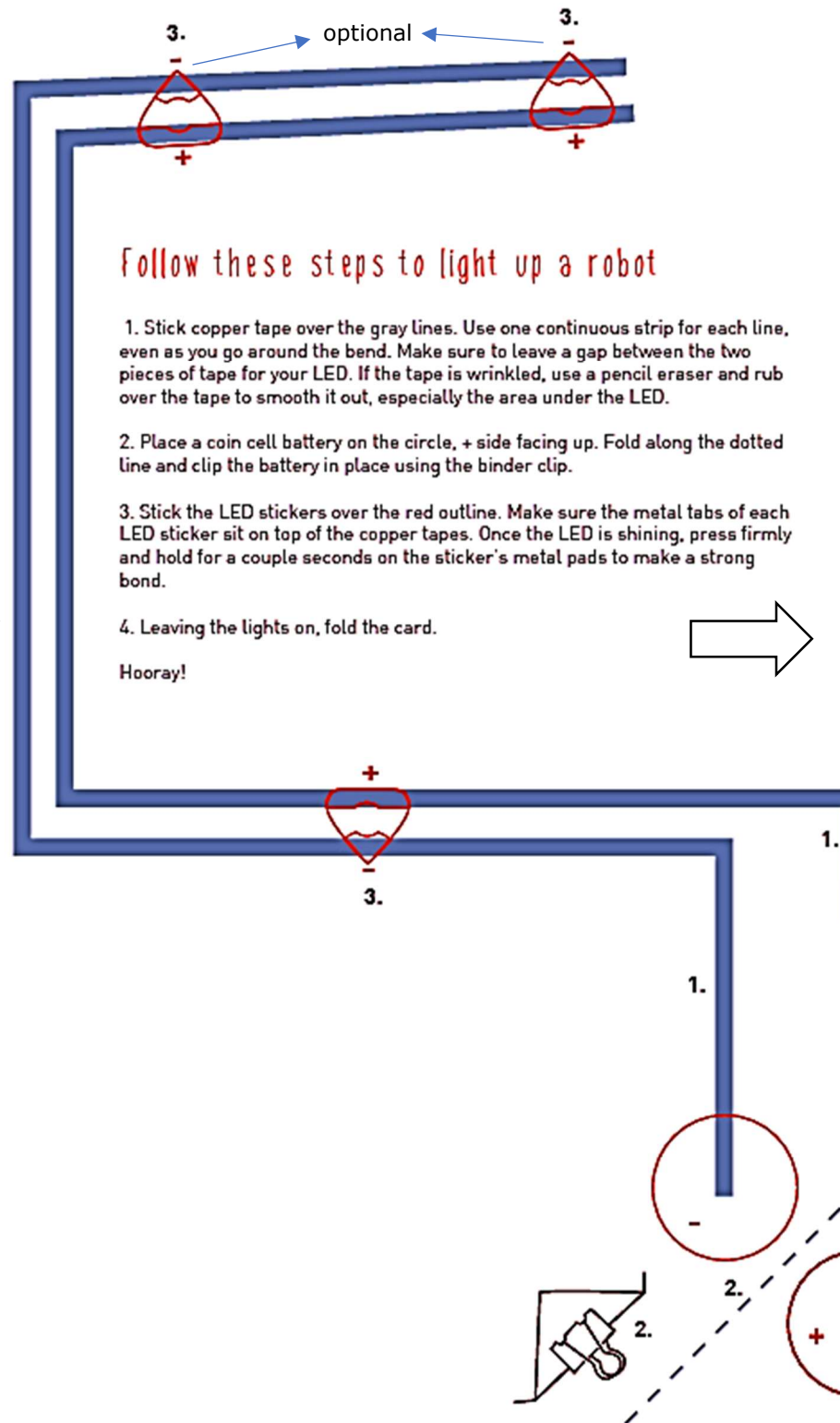
Follow these steps to light up a robot

1. Stick copper tape over the gray lines. Use one continuous strip for each line, even as you go around the bend. Make sure to leave a gap between the two pieces of tape for your LED. If the tape is wrinkled, use a pencil eraser and rub over the tape to smooth it out, especially the area under the LED.

2. Place a coin cell battery on the circle, + side facing up. Fold along the dotted line and clip the battery in place using the binder clip.

3. Stick the LED stickers over the red outline. Make sure the metal tabs of each LED sticker sit on top of the copper tapes. Once the LED is shining, press firmly and hold for a couple seconds on the sticker's metal pads to make a strong bond.

4. Leaving the lights on, fold the card.

Hooray!

February, 14th 2025

I love my family

MY HEART IS YOURS