Resources:
https://www.youtube.com/watch?v=HOFp8bHTN30

Materials:

- Copper Tape
- Scotch (clear) tape
- Coloring supplies (markers, colored pencils, crayons)
- Stickers
- LEDs

Basic Lesson Outline:

- Electricity Intro
- Circuit Explanation
- Activity
- Review

Introduction:

1. **Ask:** What are some things we use electricity for?
    a. Take one of the simpler examples (i.e, flashlight):
        i. **Ask**: How does the flashlight give off light?
            1. Turn on switch, batteries, lightbulb
            2. But the energy inside the batteries can't just jump to the light bulb,
                a. Has to go along a specific path called a **circuit**

Circuit Explanation:

1. **Ask** When you say the word circuit, what shape does it remind you of? (circle)
    a. Draw circle on whiteboard/paper
        i. Notice how the circle goes around and around without ever having a stopping point? Circuits are just like this

        Start passing out one LED and one battery to each kid

            1. There can't be any stops or gaps in a circuits path, otherwise the electricity won't flow through
2. With your LED light and your battery, try and get the LED to light up
    a. Ask what they noticed when they tried; what worked, what didn't work. How do you need to arrange the battery and the LED in order for it to light up
        i. Here, we created a small circuit, from one side of the battery, through one end of the LED, and out the other
            1. Just like we said before, there can't be any gaps in the circuit, which is why the LED needs to be touching
        ii. **Ask** them to carefully look at the batteries, ask what symbols they see
            1. Another important thing that needs to happen in order for electricity to flow through a circuit is for it to flow from negative to positive
                a. If you look carefully, you'll see that the **leads** of the LEDs (the metal parts sticking out) are different lengths.
                    i. The shorter lead is negative, and the longer lead is positive
                    ii. So, the negative lead has to be touching the negative side of the battery, and the positive lead has to be touching the positive side of the battery

Activity:

1. Pass out papers, and put out a set of markers at each table
2. Show kids example of the cards, explain what we're going to be making
    a. Tell kids to draw a picture on the front of the card, and tell them to think of a place they want to incorporate their LED

3. Once the kids are done drawing, tell them to open up card, trace with a pencil where they want their battery, wires, LED
4. Pass out strips of copper tape to the kids, about a foot long
5. Pass out scotch tape to tape down battery in corner and LEDs
    a. *Make sure that scotch tape doesn't break the circuit!*

Review Questions

1. **Ask** what problems the kids ran into while making the circuit, how they solved them (*i.e did the scotch tape break their circuit? Were there enough batteries on their circuit to power their LEDs? Were their LEDs flipped the wrong way?)*
2. **Ask** if anyone wants to show the card the made to everybody

1. What's the name of this whole system (***haha lmao)***of wires, batteries, and LEDs?
2. Who remembers that the leads of an LED are?
    a. What's different about the two leads?
3. What are the rules we need to remember in order to get our circuit to work?
    a. Electricity flow from negative to positive, can't have any breaks in the circuit.