



13

HALLOWEEN

Paper Circuits

Get into the Halloween “spirit” by creating these fun light-up paper circuit cards.

These projects are not only fun but educational. You will learn how to create different kinds of conductive circuits using copper tape, LEDs and a coin cell battery.

Materials Needed

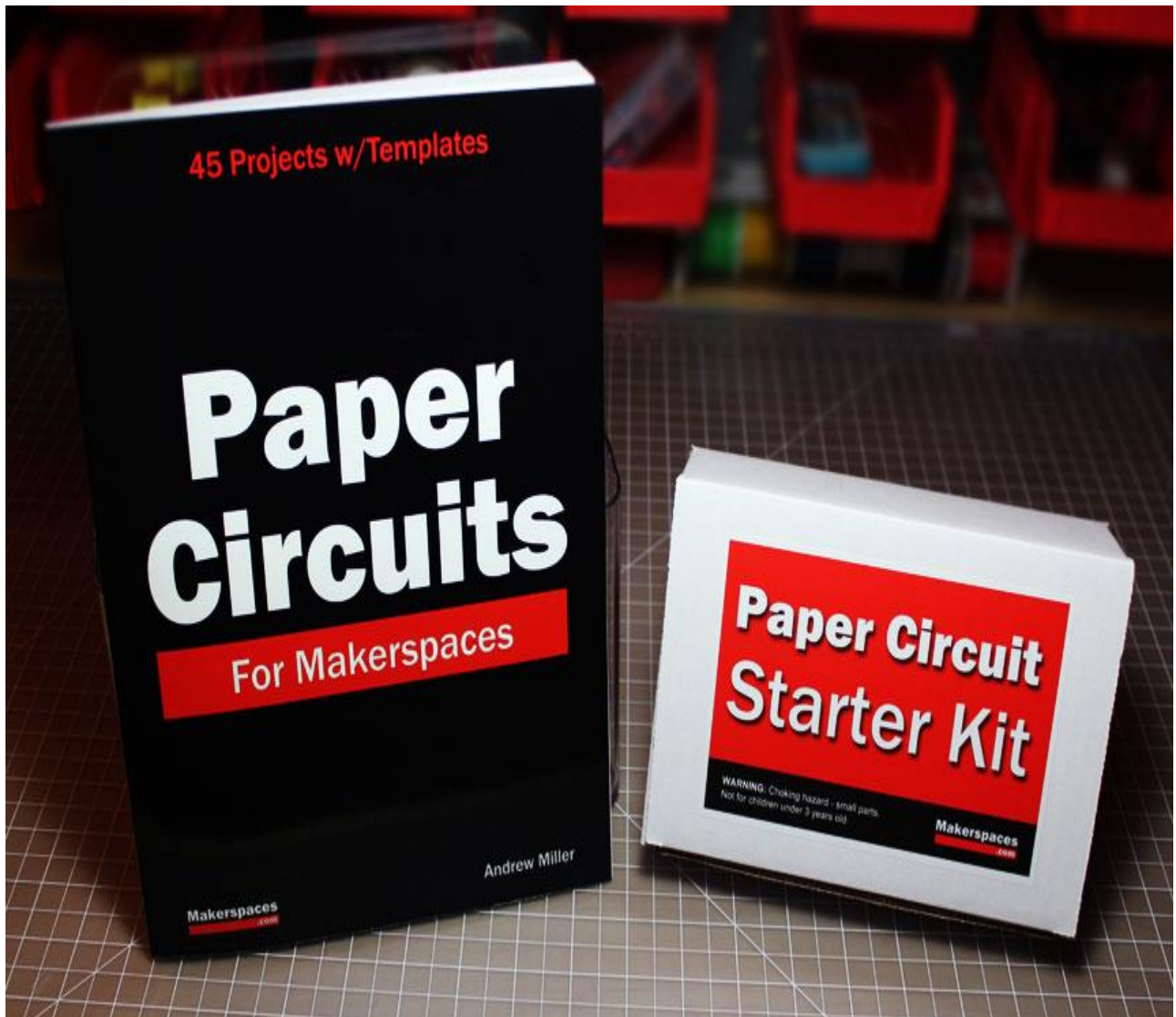
This project requires the following materials:

- Copper Tape w/ Conductive Adhesive
- (1) CR2032 Coin Cell Battery
- (2) LEDs – Any Color
- Project Template (Found at end of ebook)



Need the materials for this project? We have a paper circuit starter kit available at www.makerspaces.com

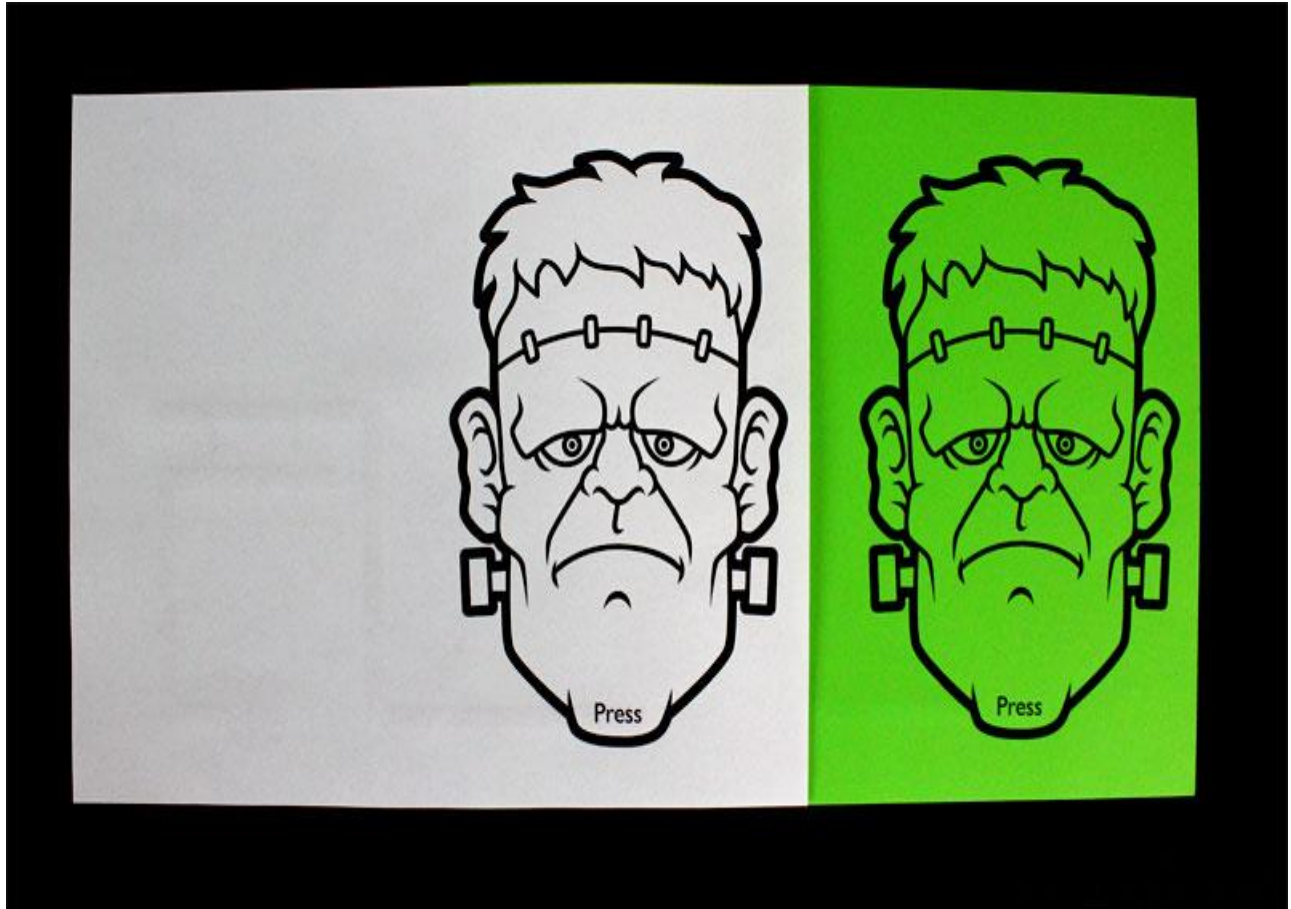
The kit includes copper tape, LEDs and CR2032 batteries. Also included is a project ebook with 45 project templates.



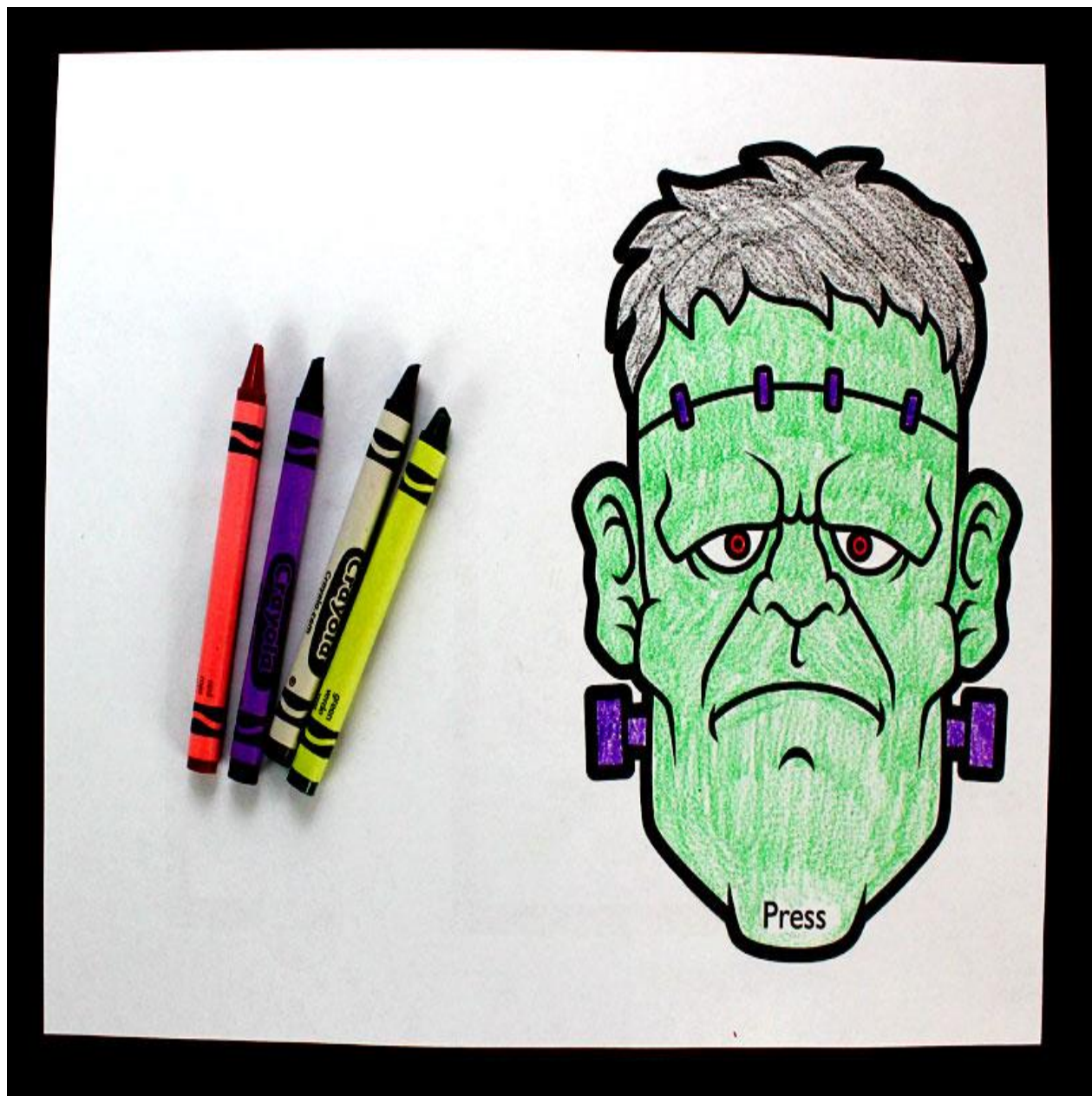
Step 1 – Print Project Template

Select your template and print it on white or colored paper. Printing on white paper will allow you to color the Halloween card with crayons or markers.

NOTE: Templates are found at the end of this ebook

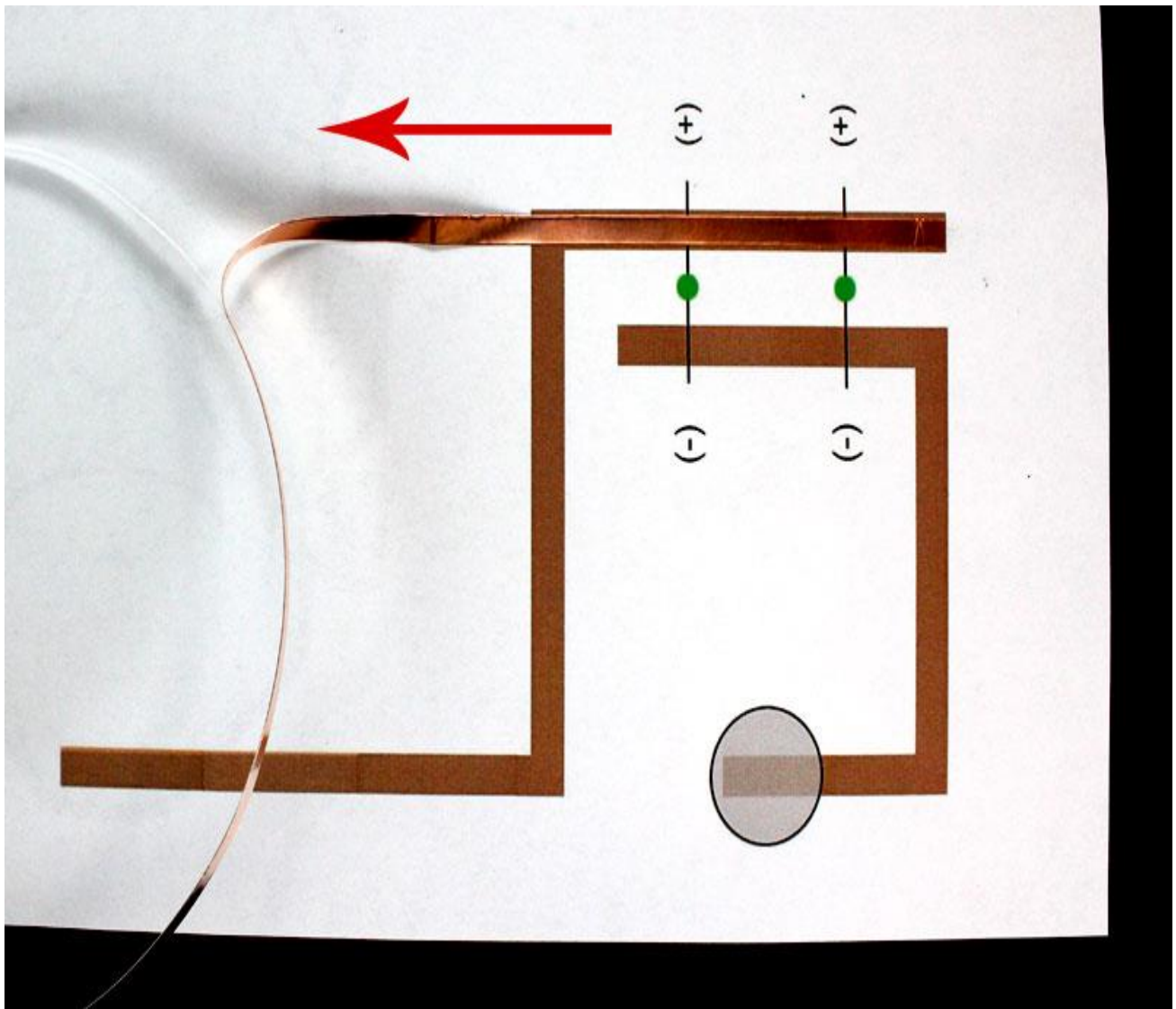


If you do decide to color the template, make sure you do that now before proceeding to the other steps.



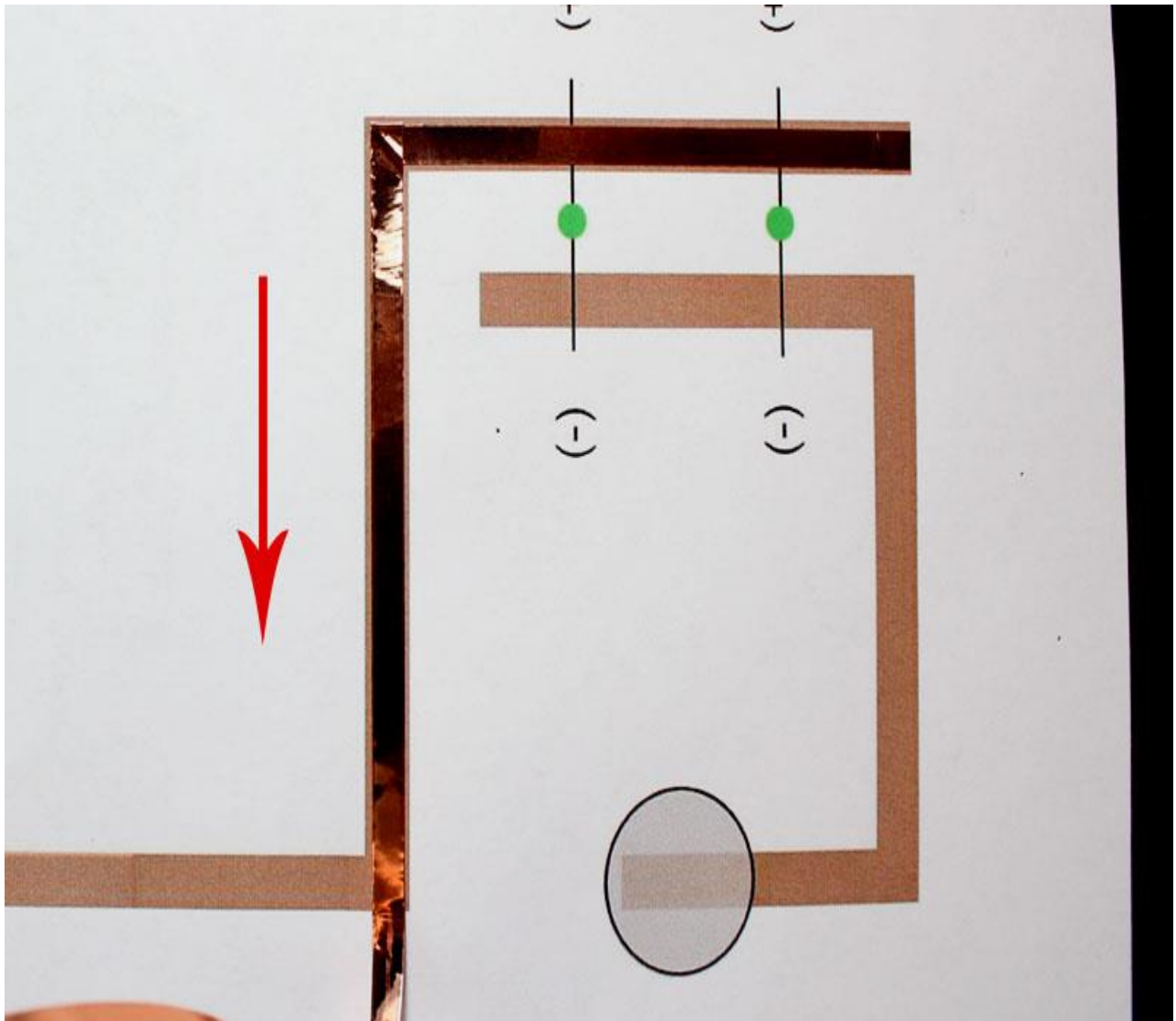
Step 2 – Apply Copper Tape

Flip over your project template and apply your copper tape to all the brown lines. We recommend applying the copper in a single piece versus cutting it at the corners. A single piece will help with the conductivity and will ensure the LEDs light properly.

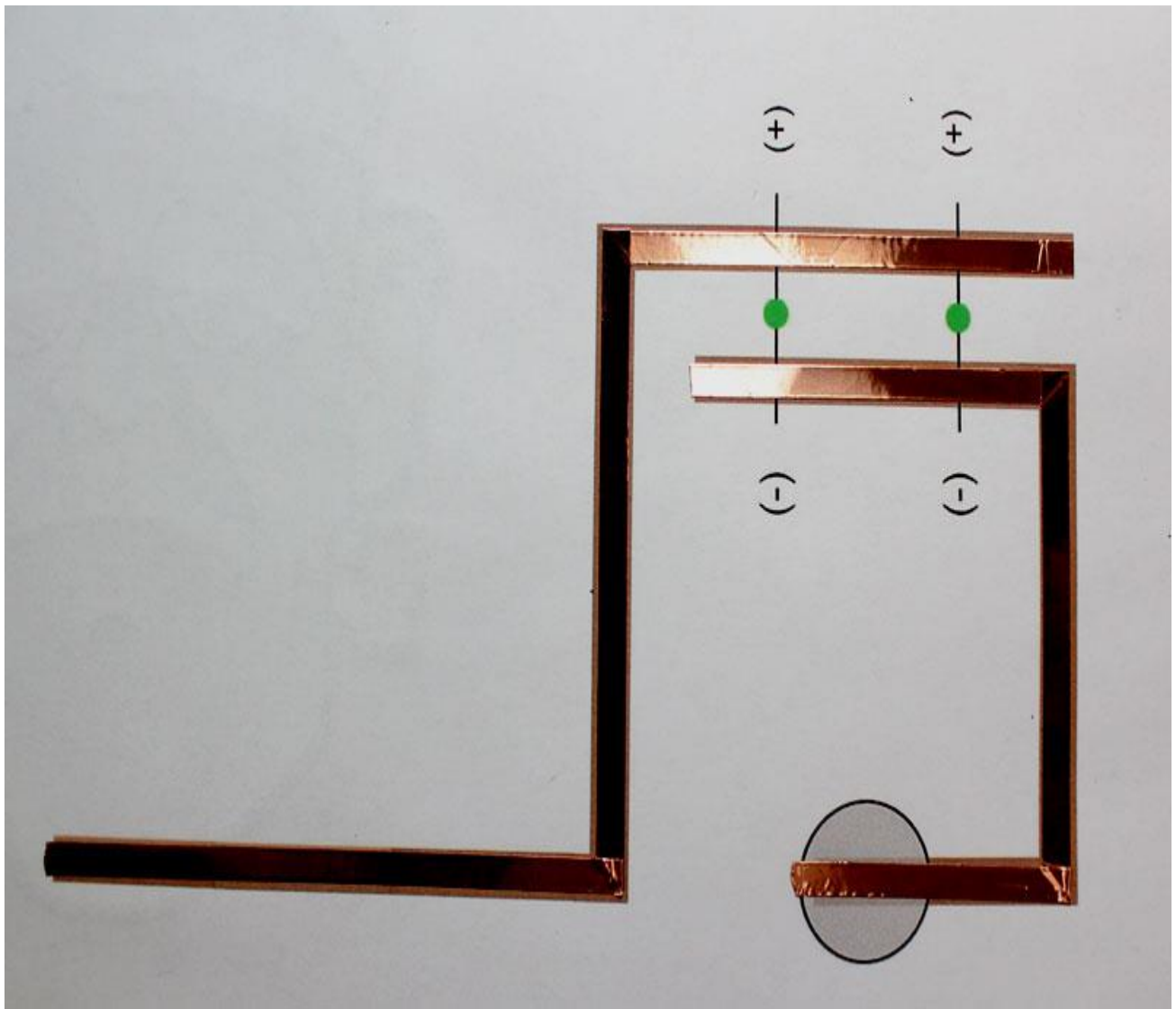


A diagram of a differential amplifier circuit. It features a horizontal copper strip at the top, connected to a vertical copper strip on the left. Below this, there are two green dots representing input nodes. Each green dot is connected to a horizontal copper strip, which is then connected to a vertical copper strip on the right. The top horizontal strip is labeled with a '+' sign, and the bottom horizontal strip is labeled with a '-' sign. A red arrow points upwards from the bottom horizontal strip.

Next, bend the copper tape straight down along the other brown line.



Apply copper to the other brown lines on the template and smooth it down with your finger.

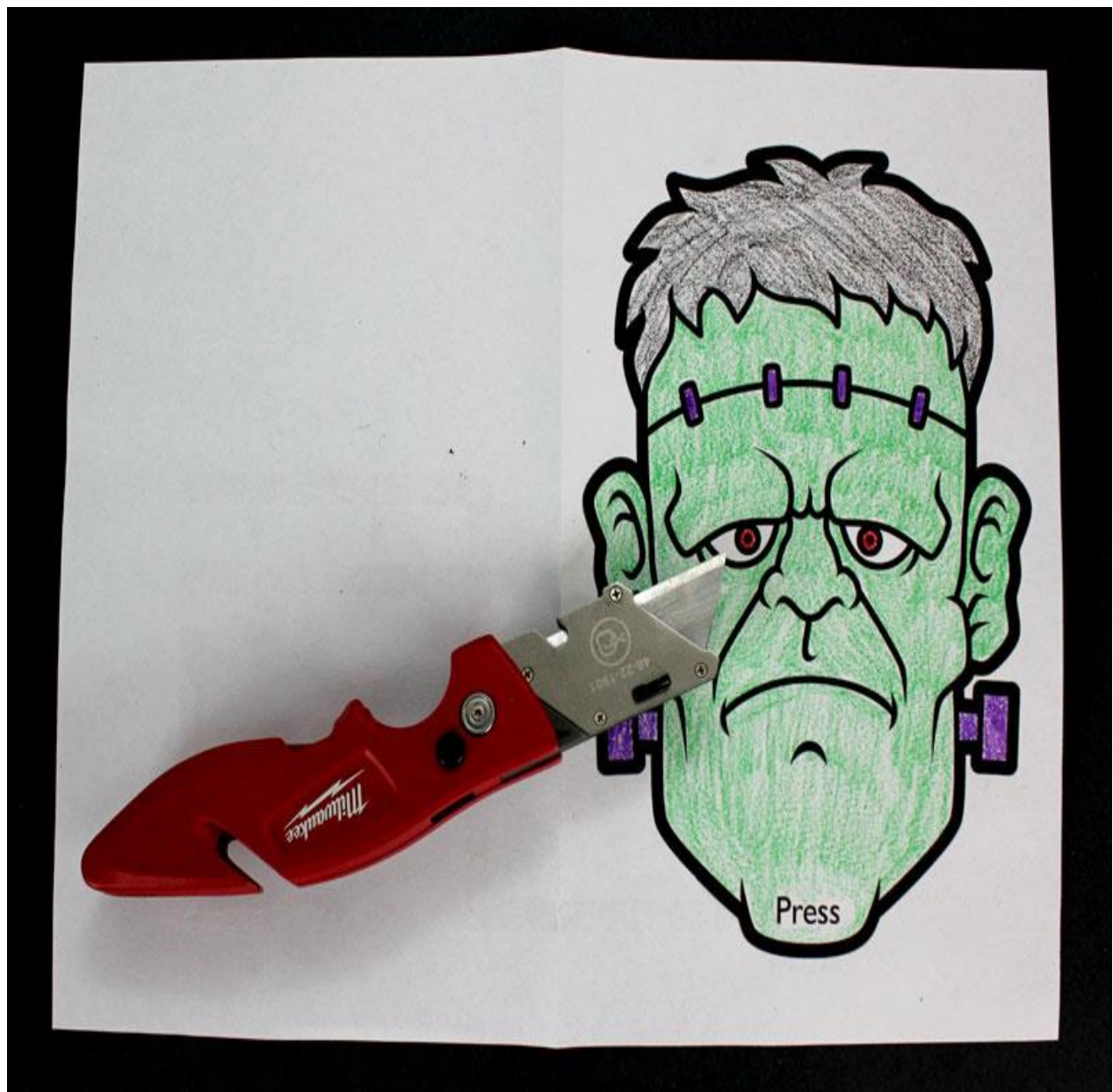


Step 3 – Fold and Cut

Fold your template in half before proceeding to the other steps.

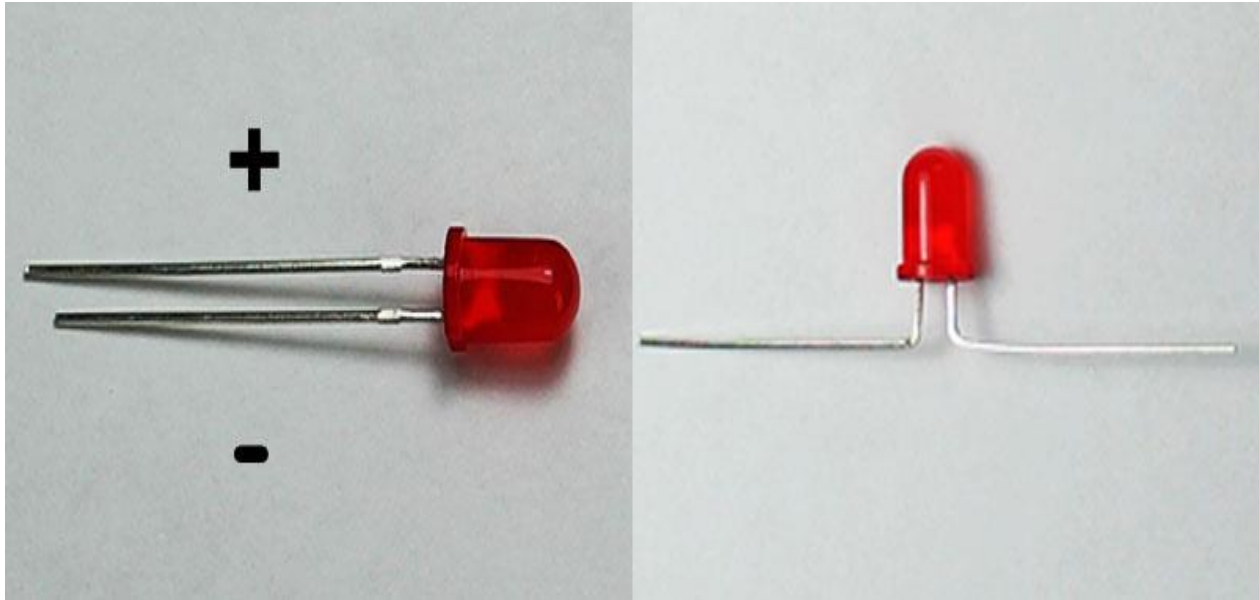


Open your card up and cut a tiny “X” in both of the eyes on the template.
The LEDs will fit through these cuts.

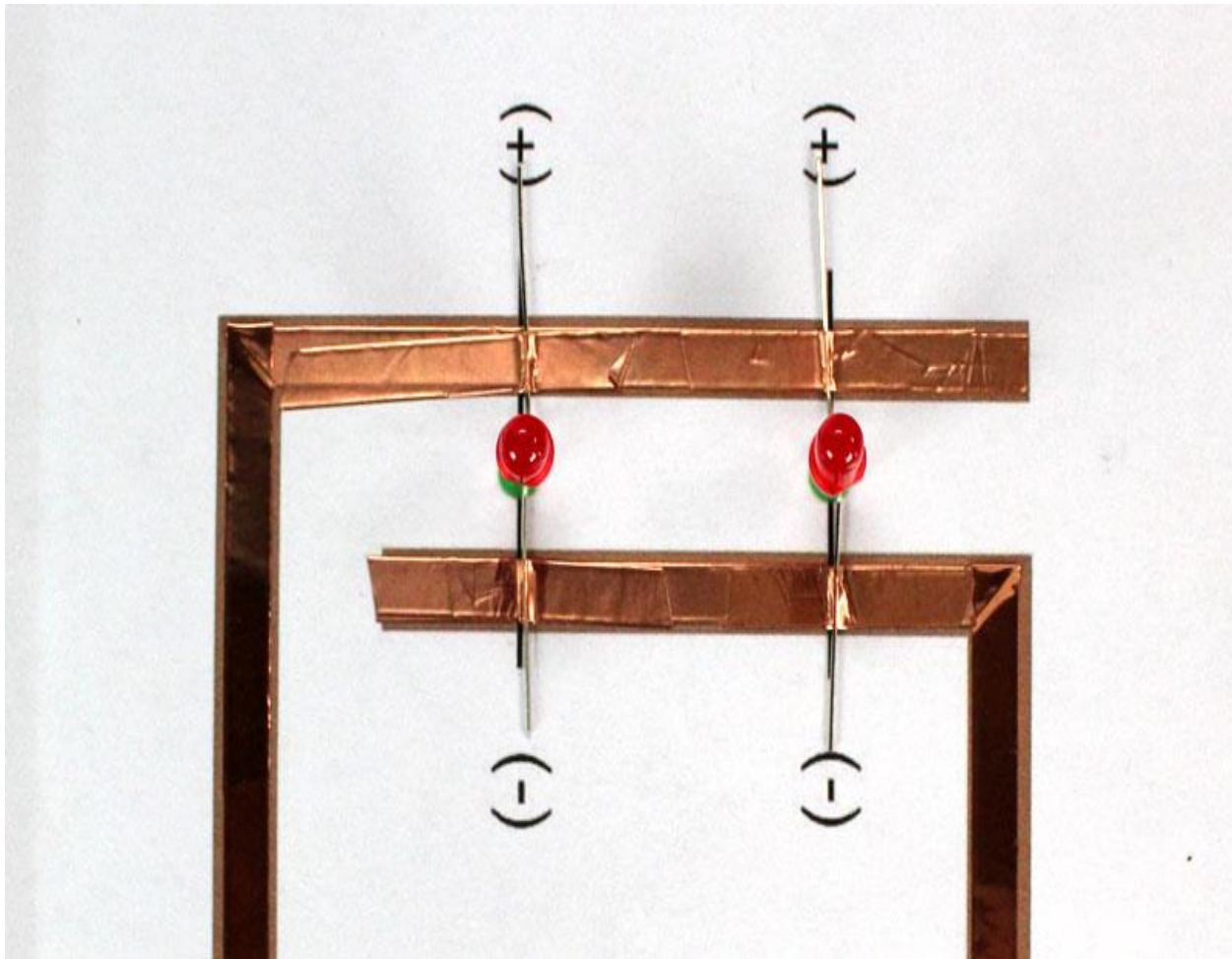


Step 4 – Mount LEDs

The next step is to mount the LEDs to the circuit. Before you do this, you must make verify which leg is positive and negative. Look closely and you will notice one leg is longer than the other. This is the positive (+) and the short leg is (-) negative. Bend the legs at a 90 degree angle but remember which leg is which.

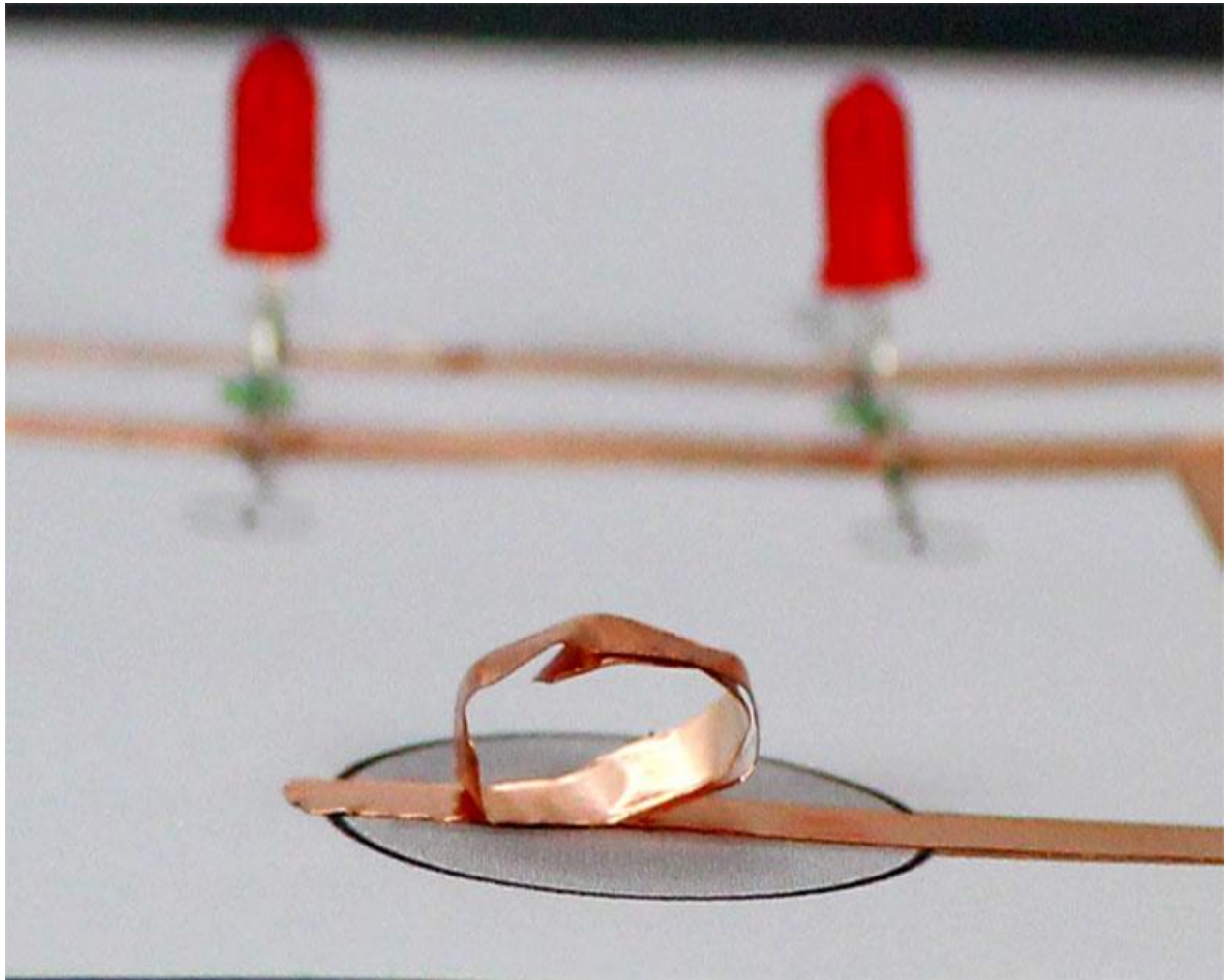


Mount the LEDs to the template making sure the long leg goes on the (+) side. Use copper tape to secure the legs to the copper tape below. Rub the copper to make sure it is making a solid connection.

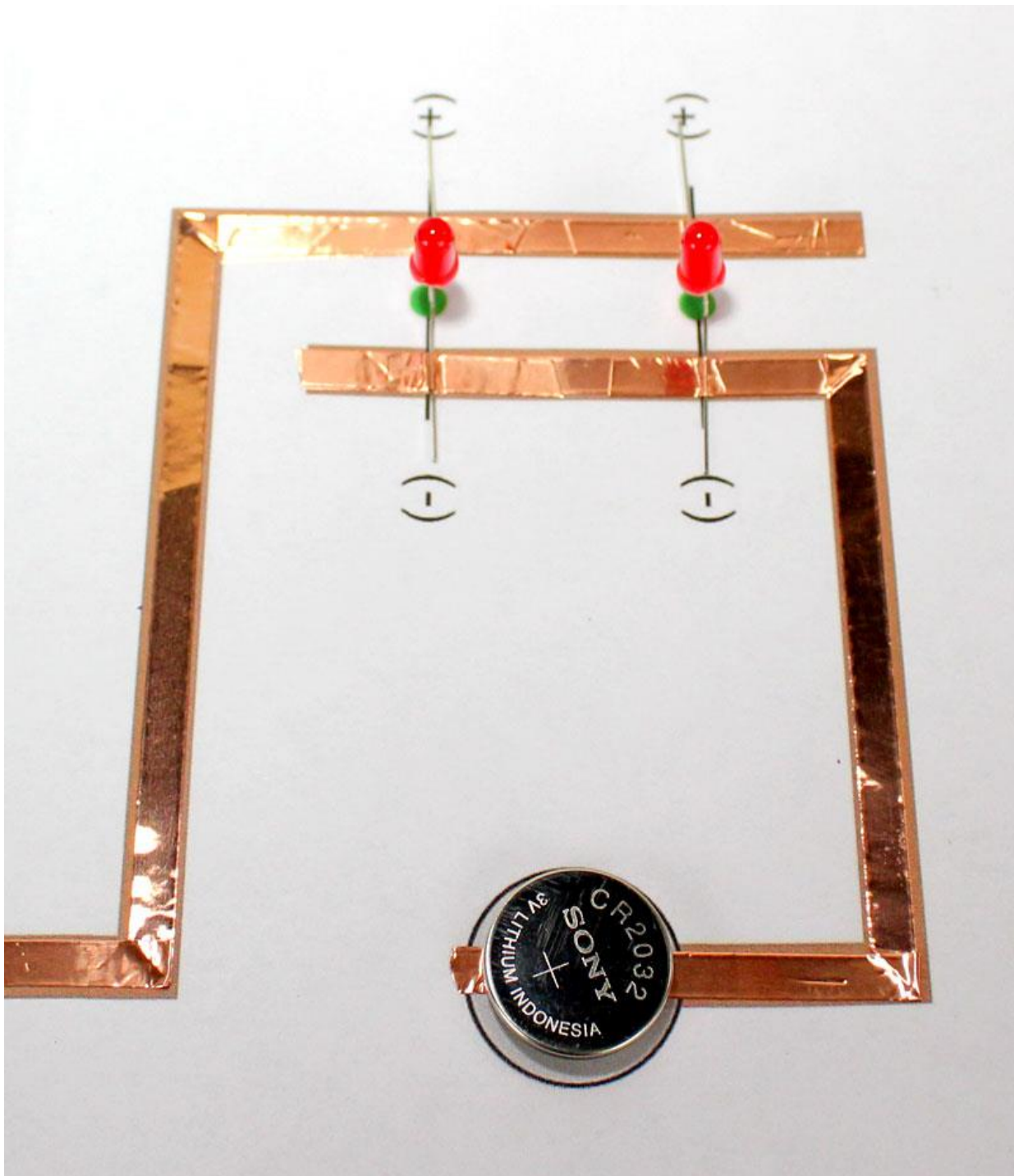


Step 5 – Attach Coin Cell Battery

Next, we need to attach the CR2032 coin cell battery to the template. Cut a small piece of copper tape and roll it up with the sticky side facing out. Stick the roll of copper to the copper tape inside the battery circle.



Place a CR2032 battery on top of the copper roll with the negative (-) side facing down.



Step 6 – Test the Paper Circuit

The last step is the best part. Close your card and push the LEDs through the cuts you made in the eyes. Press the card to see your creation come alive.

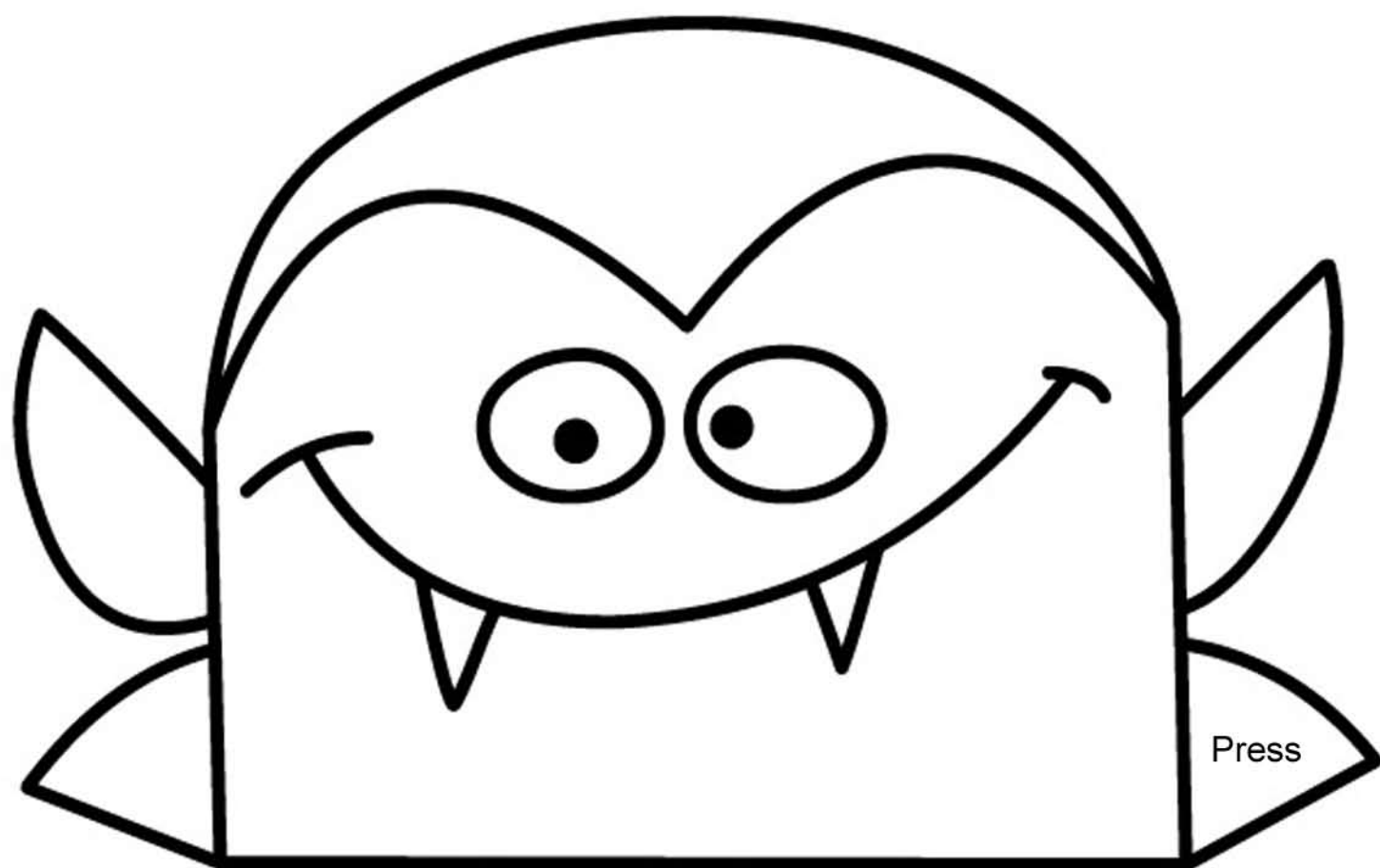


Project Templates

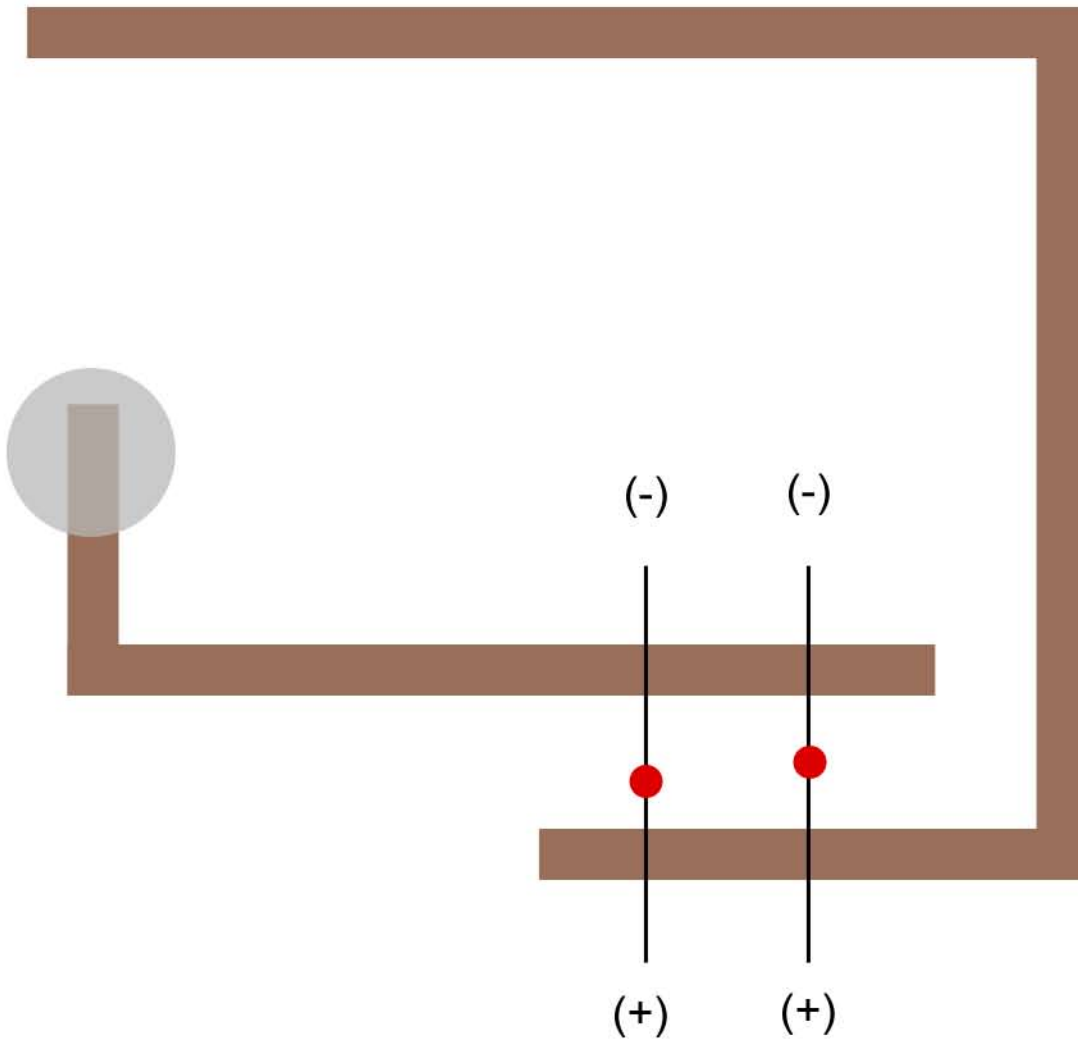
The rest of the ebook contains the 13 Halloween project templates. Find the template you like and print it out.

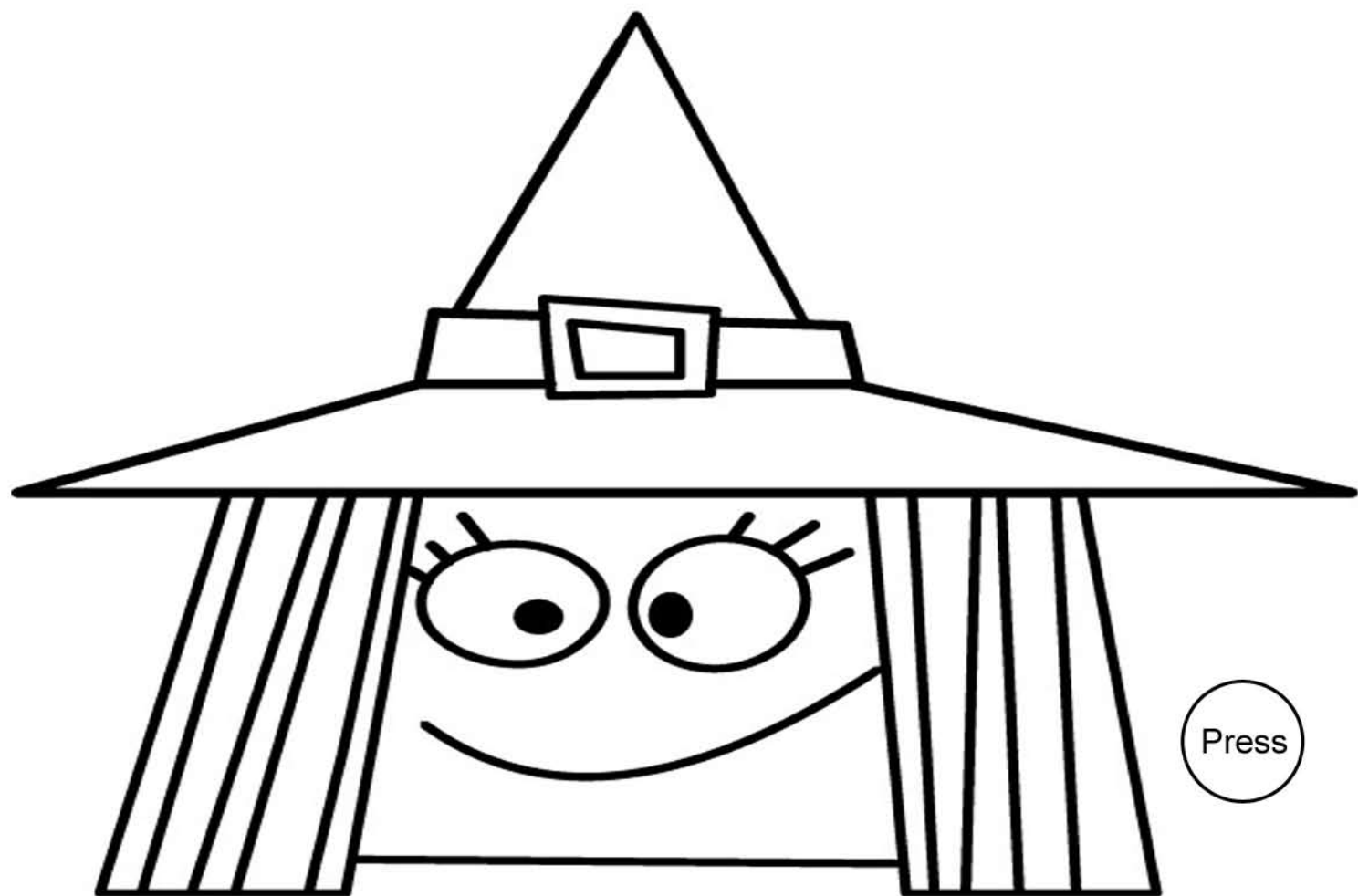
Feel free to share your project with us on Twitter @Makerspaces_com

Happy Halloween!

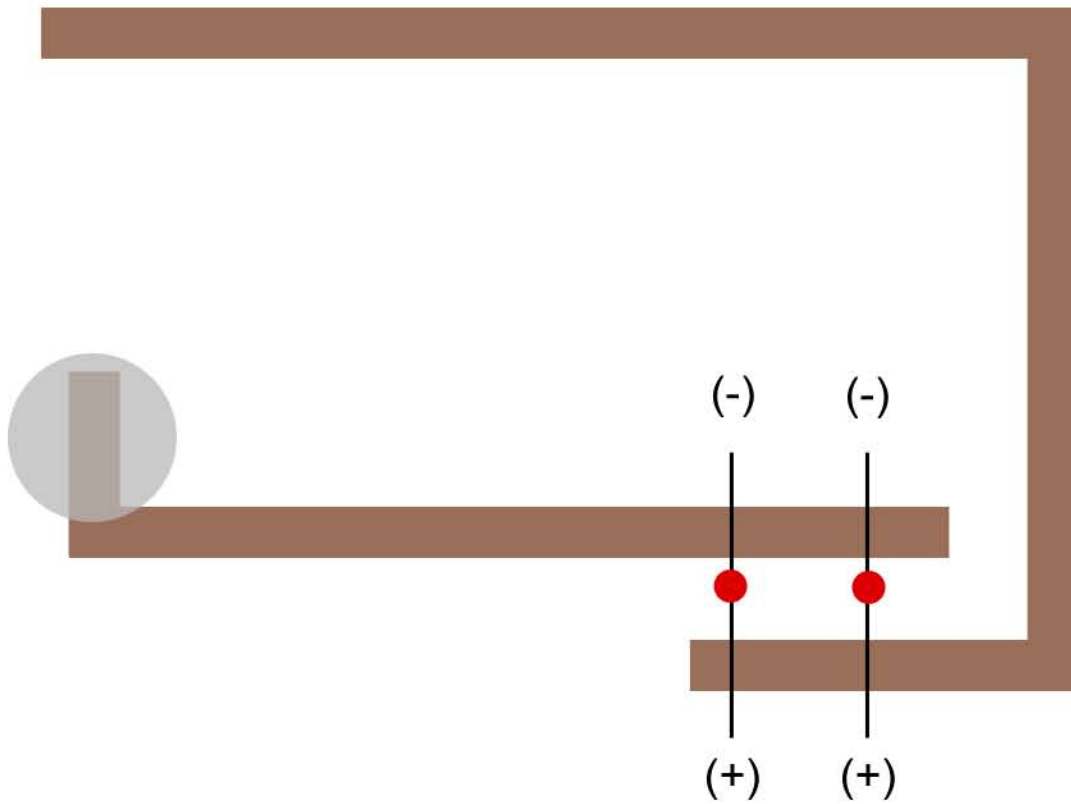


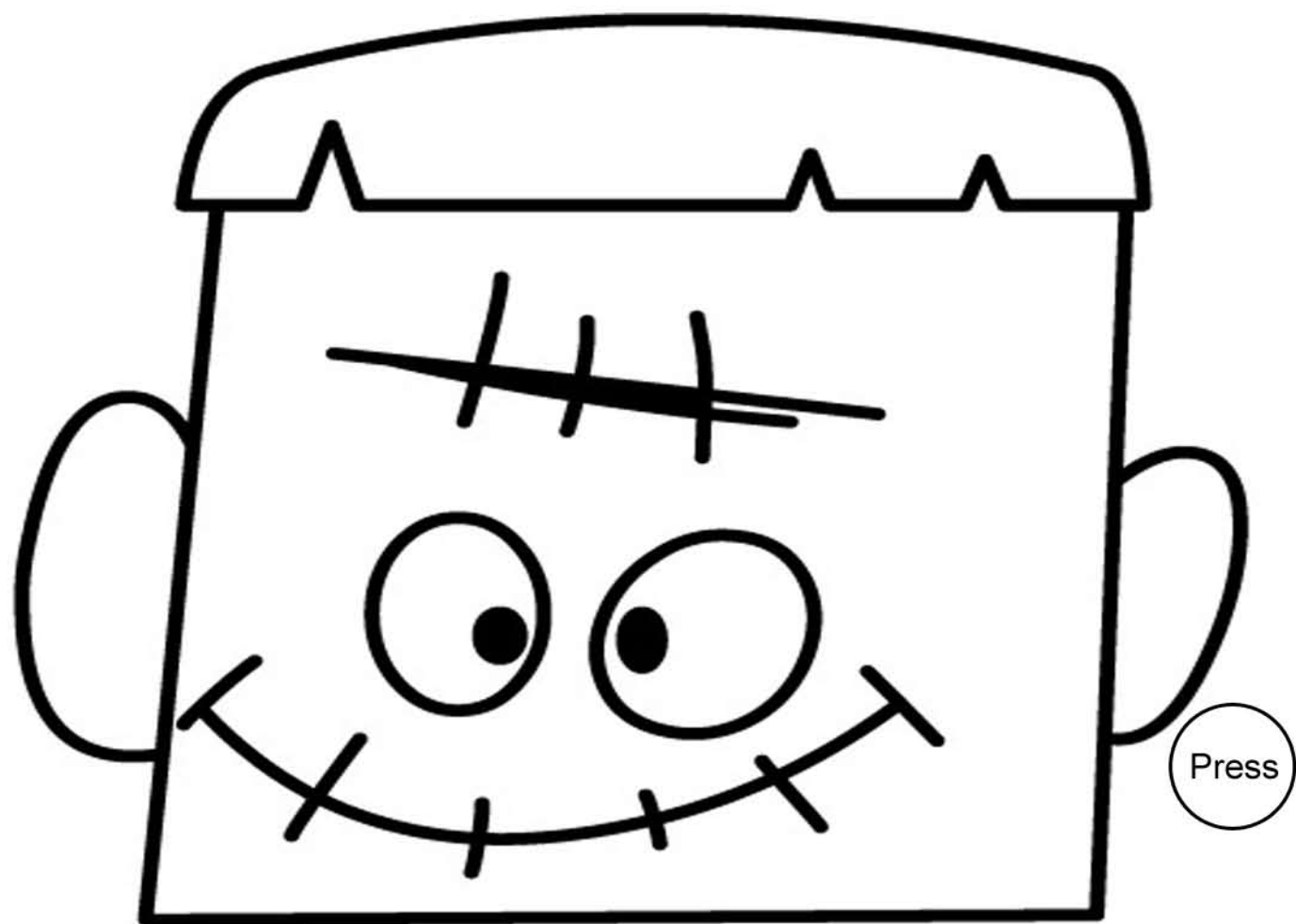
Vampire Circuit



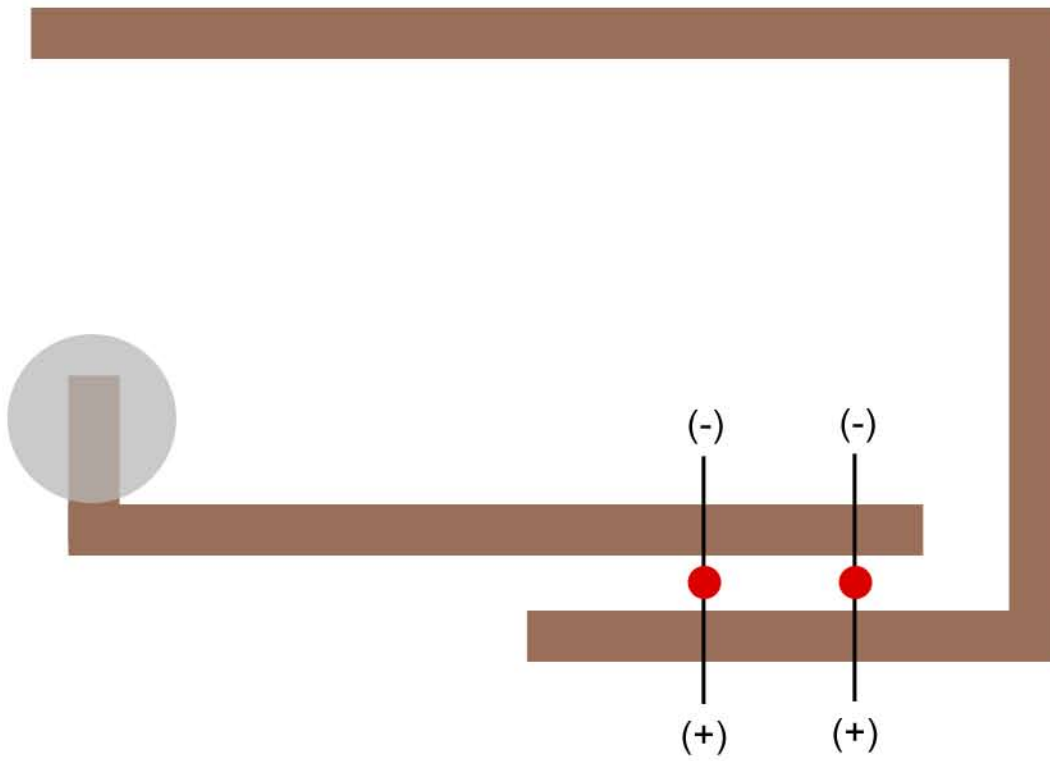


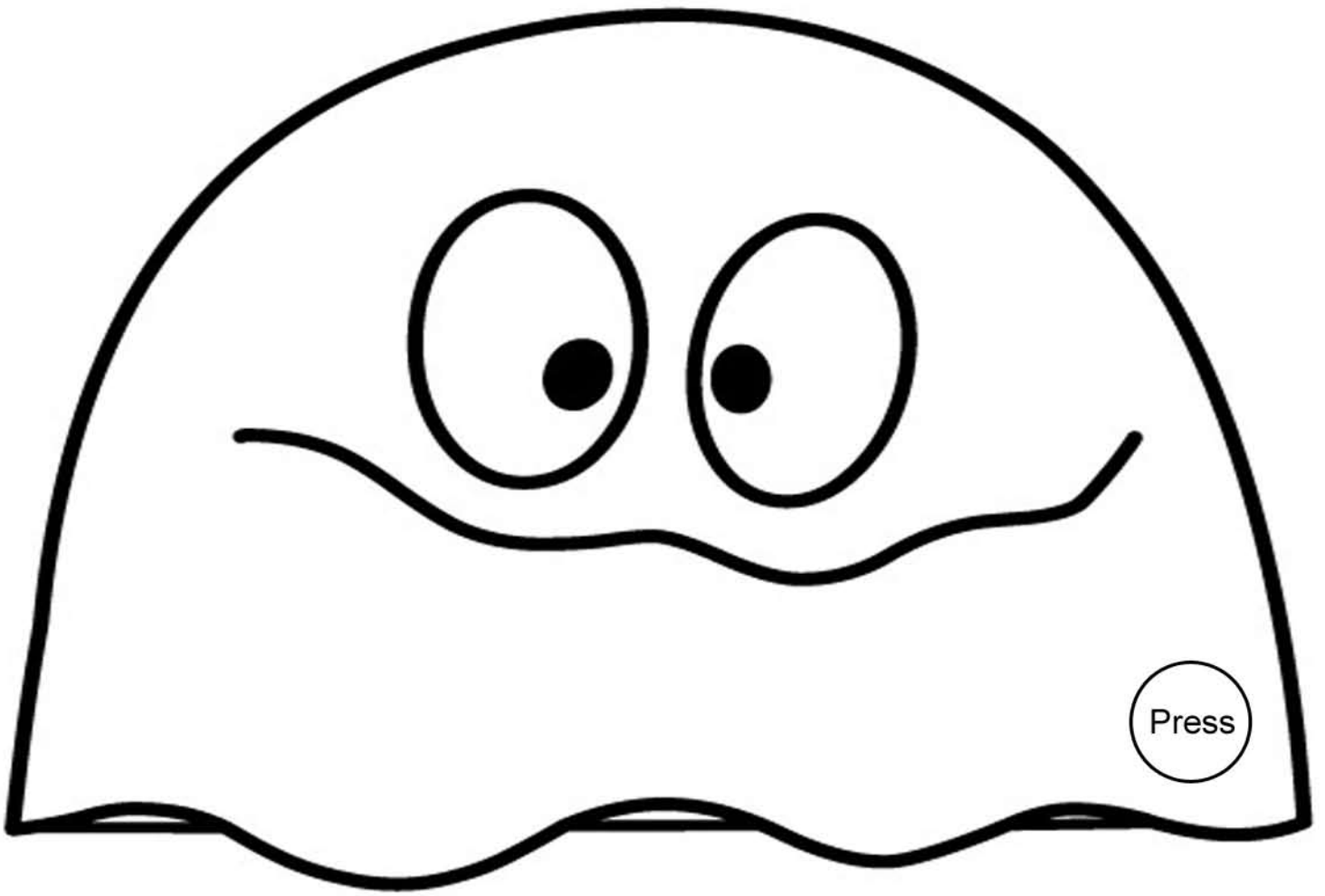
Witch Circuit



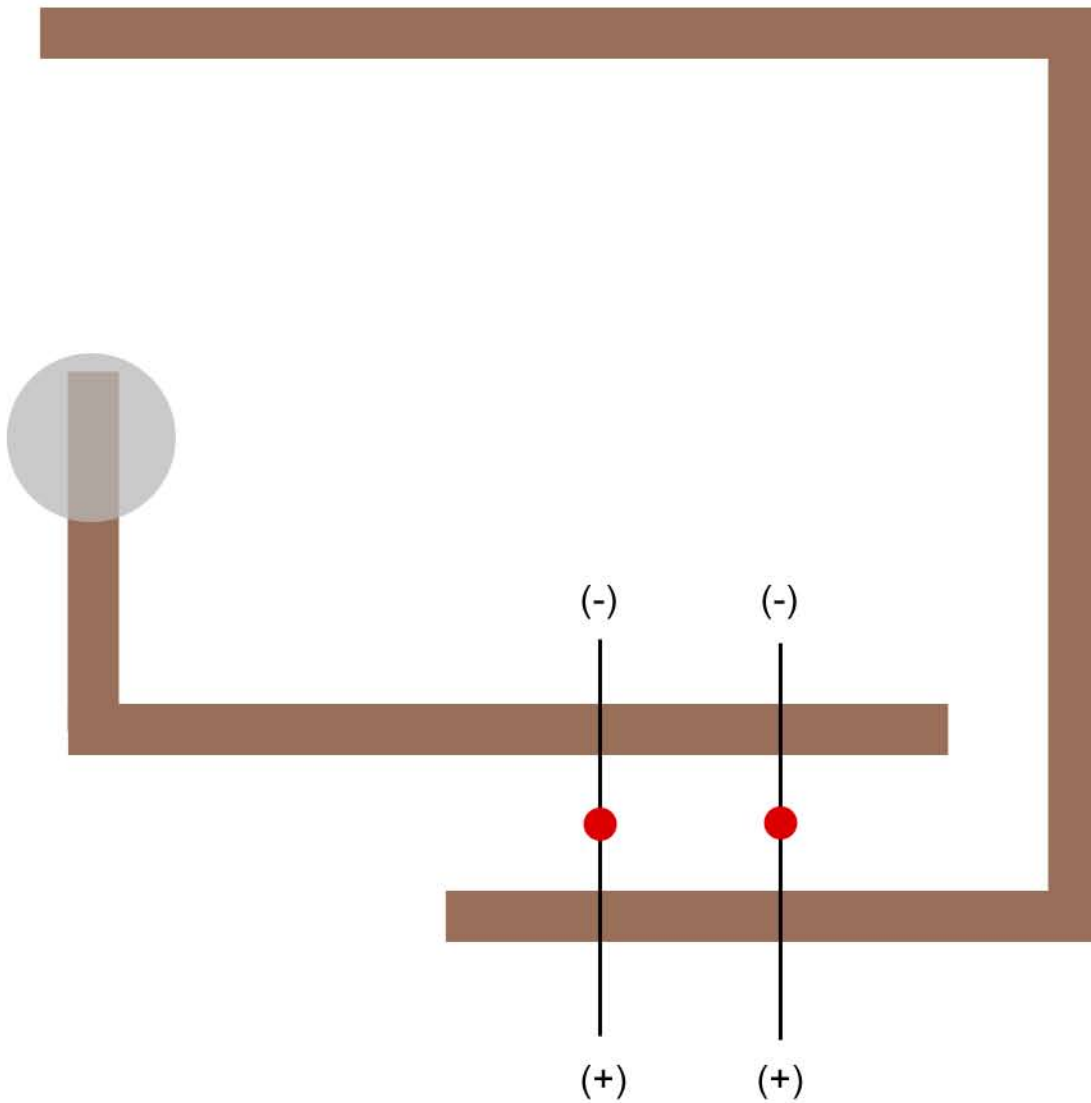


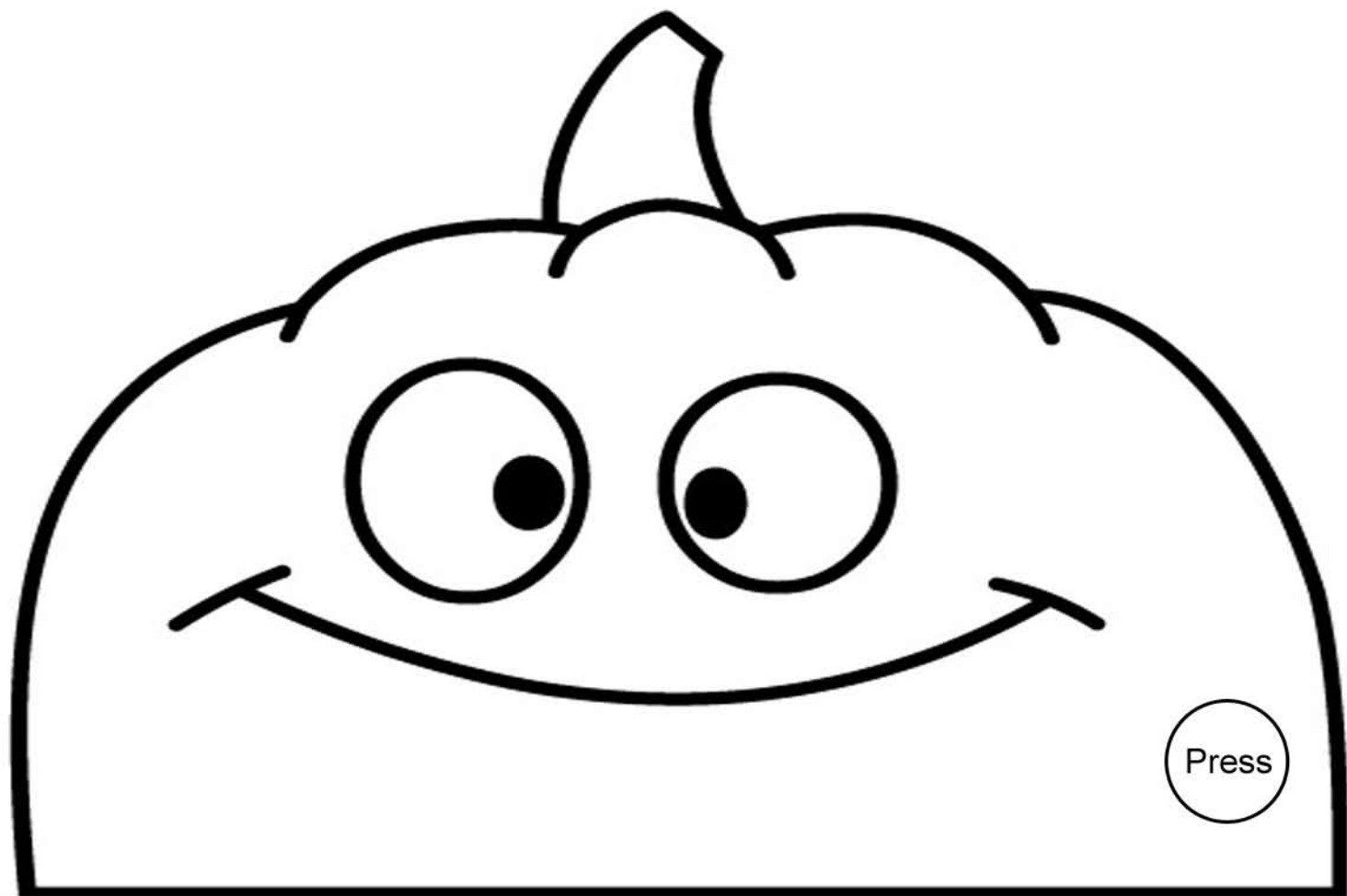
Happy Frankenstein Circuit



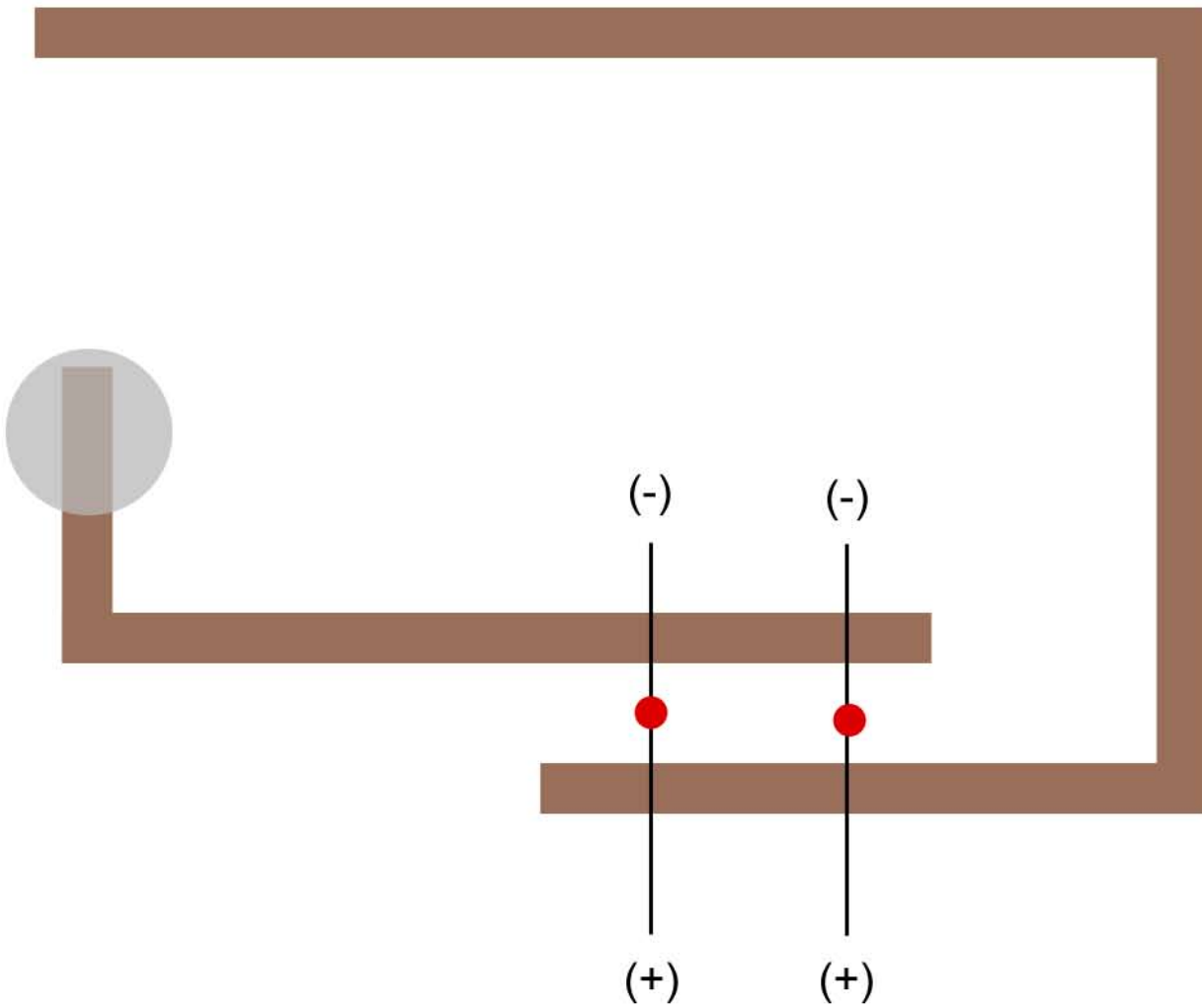


Ghost Circuit



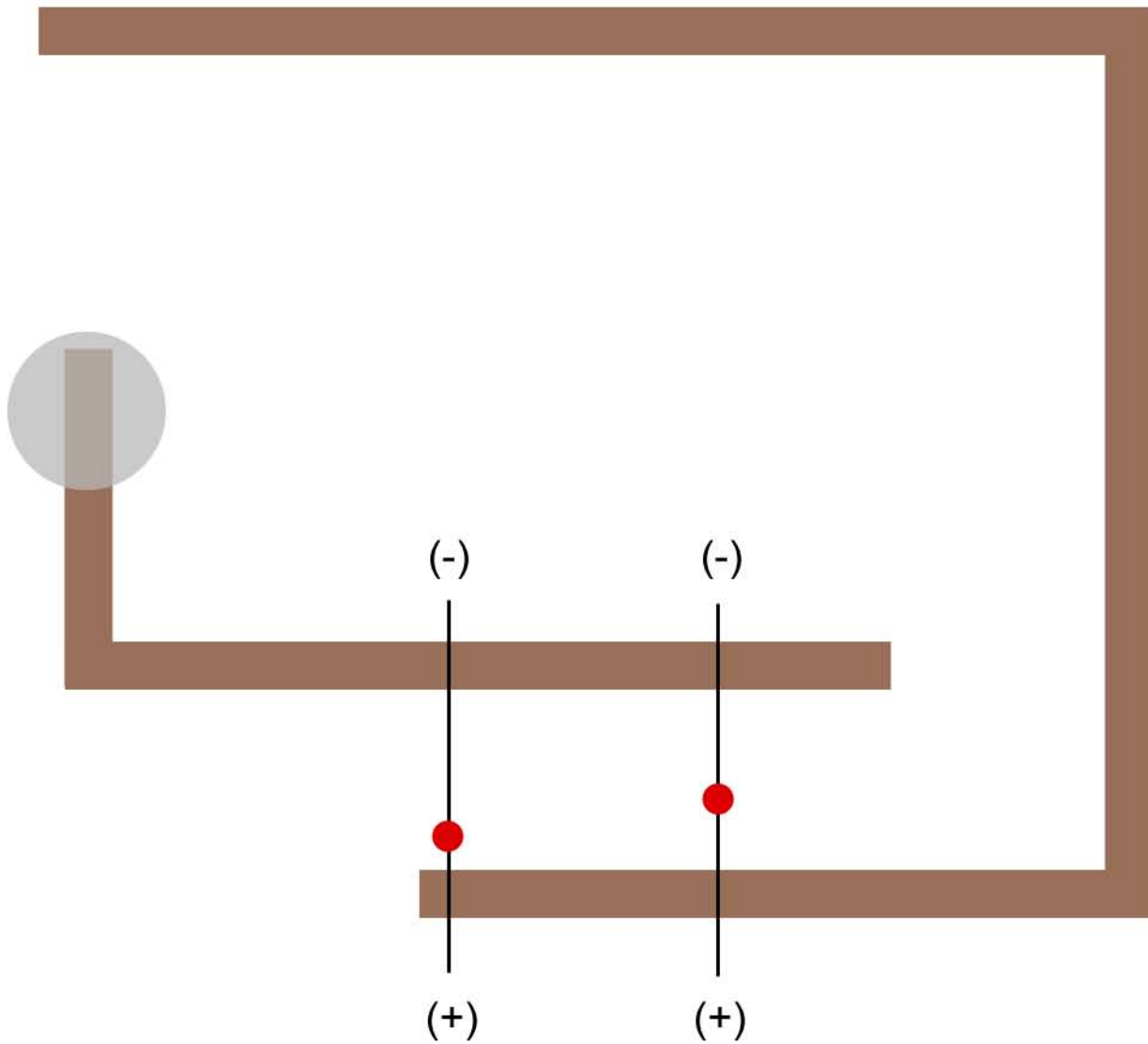


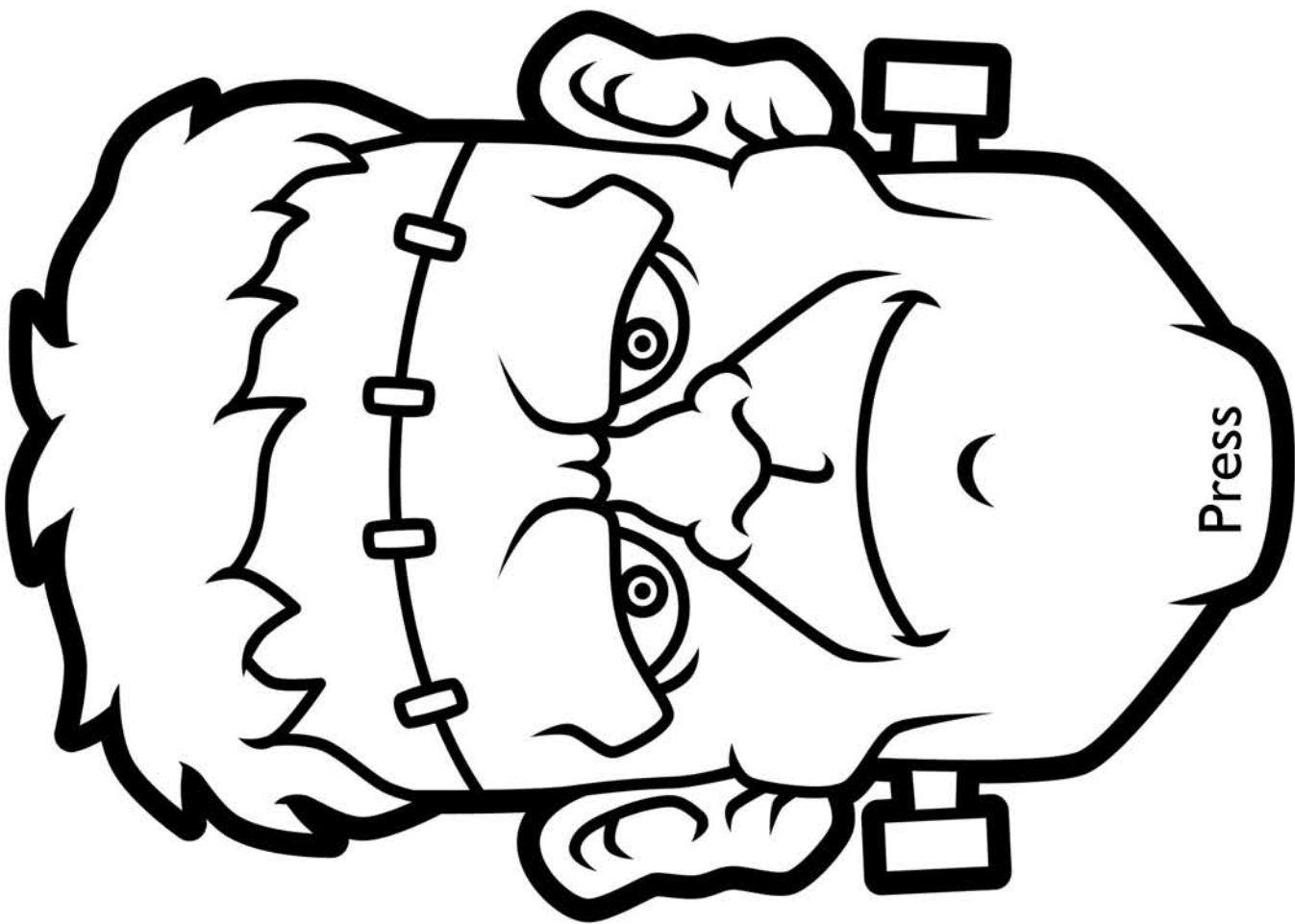
Pumpkin Circuit

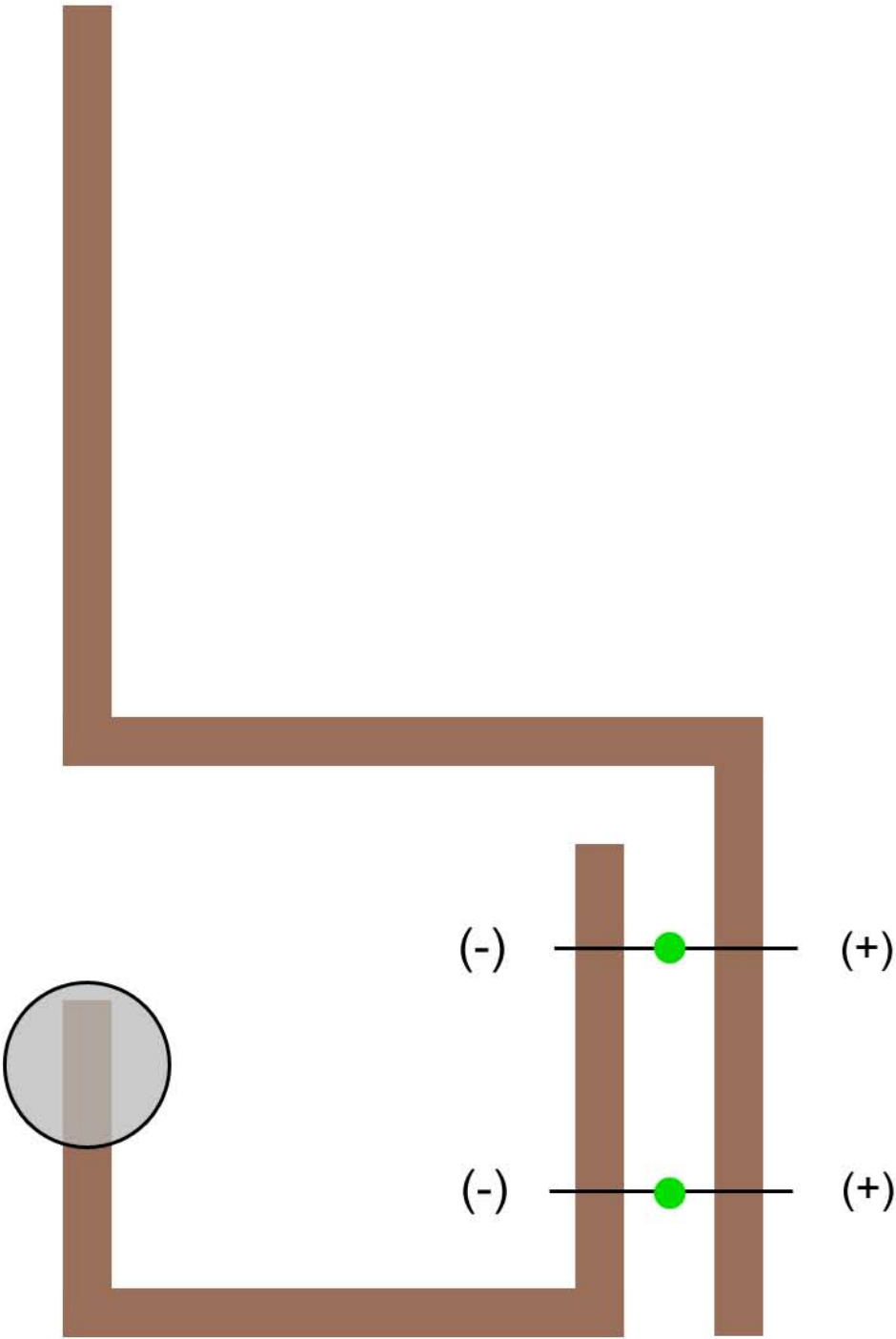


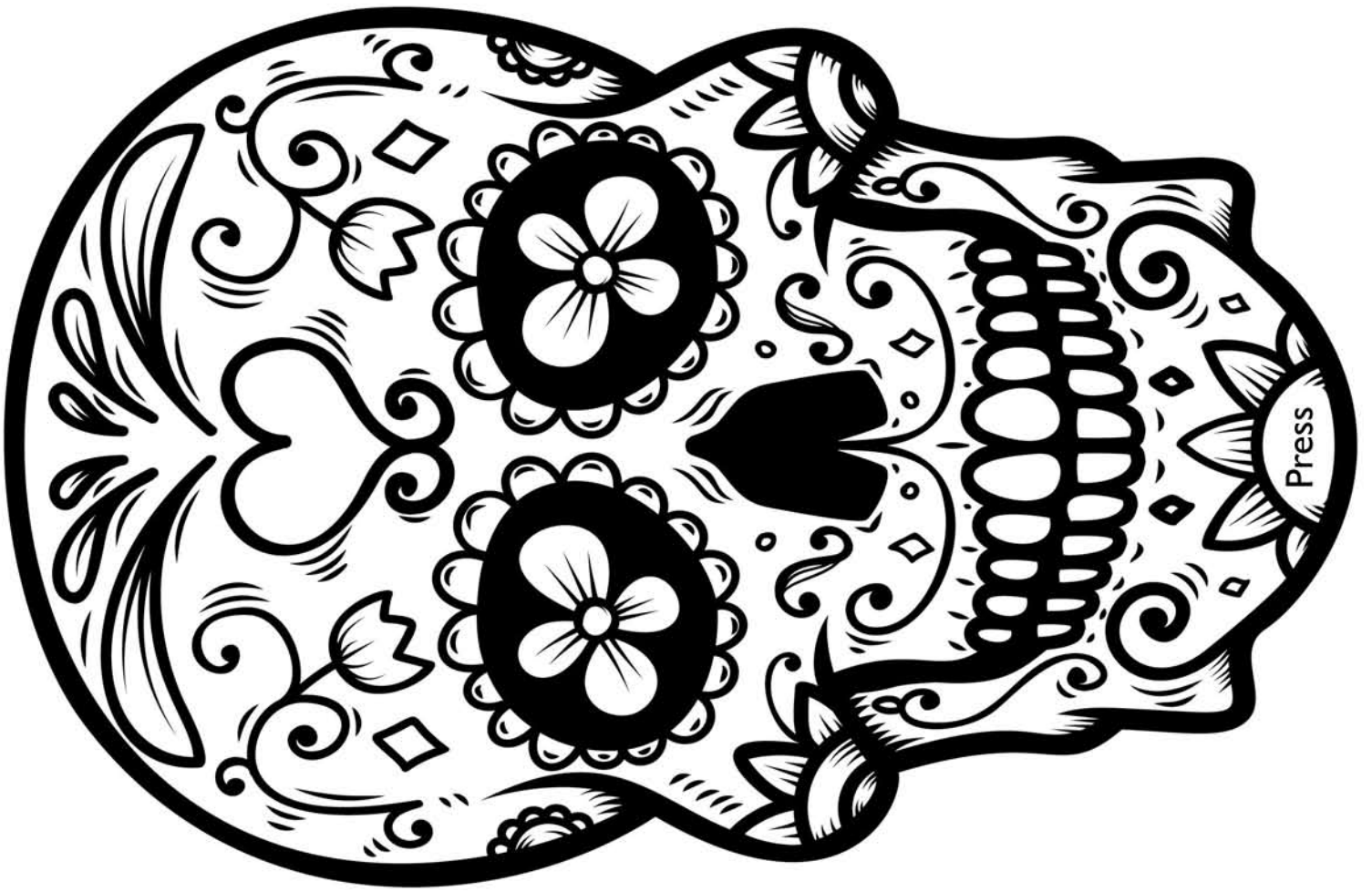


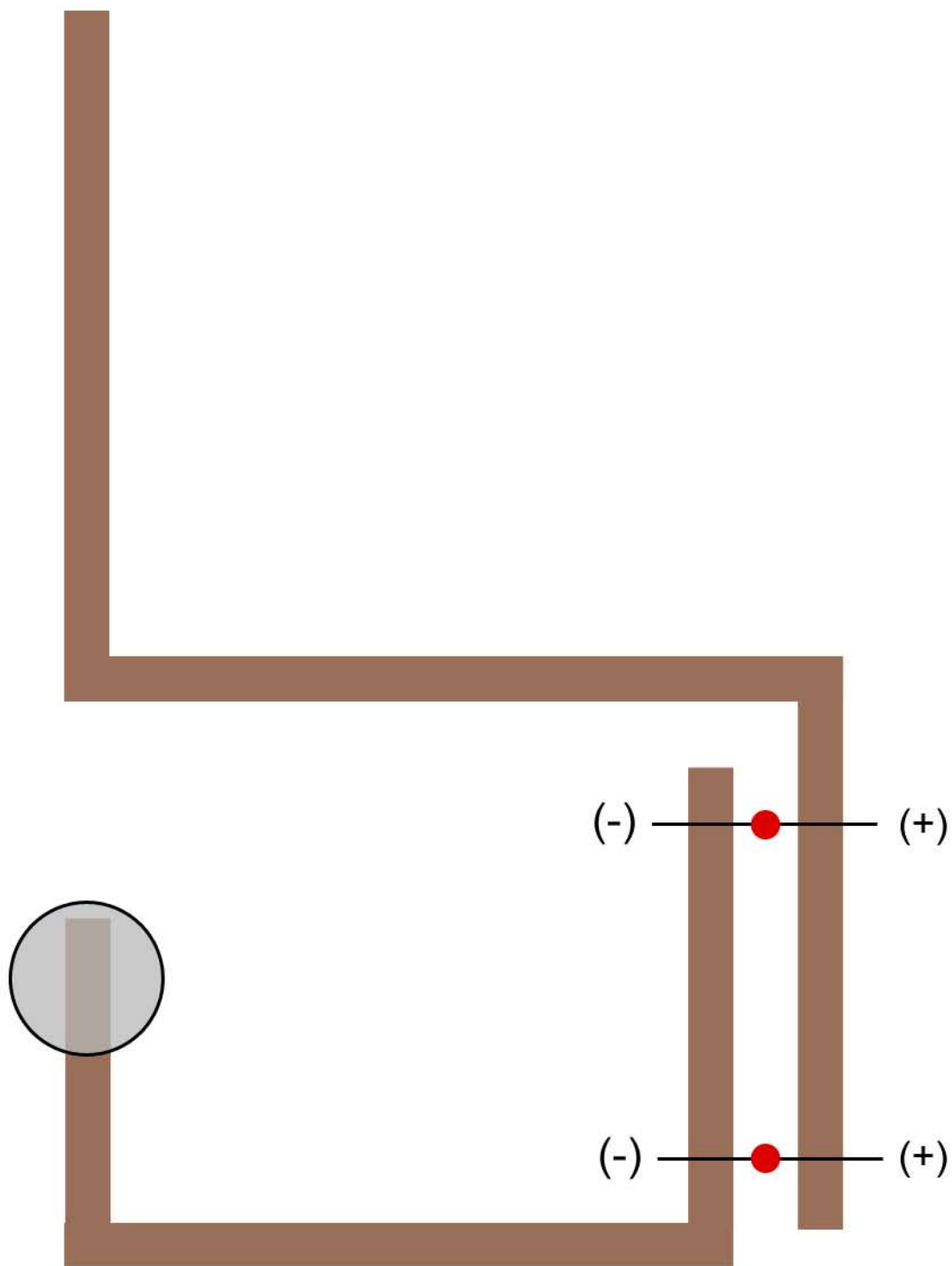
Mummy Circuit

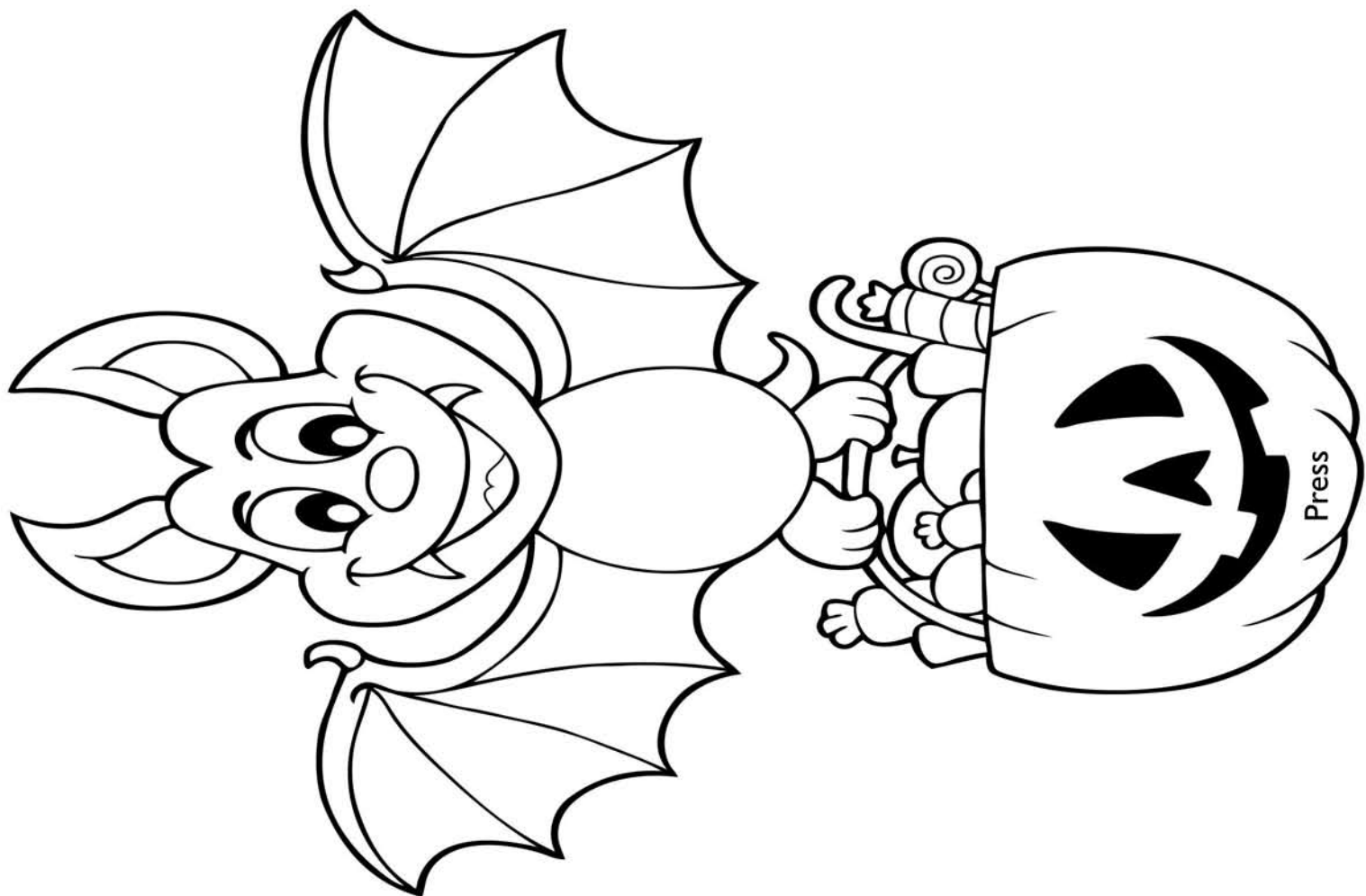


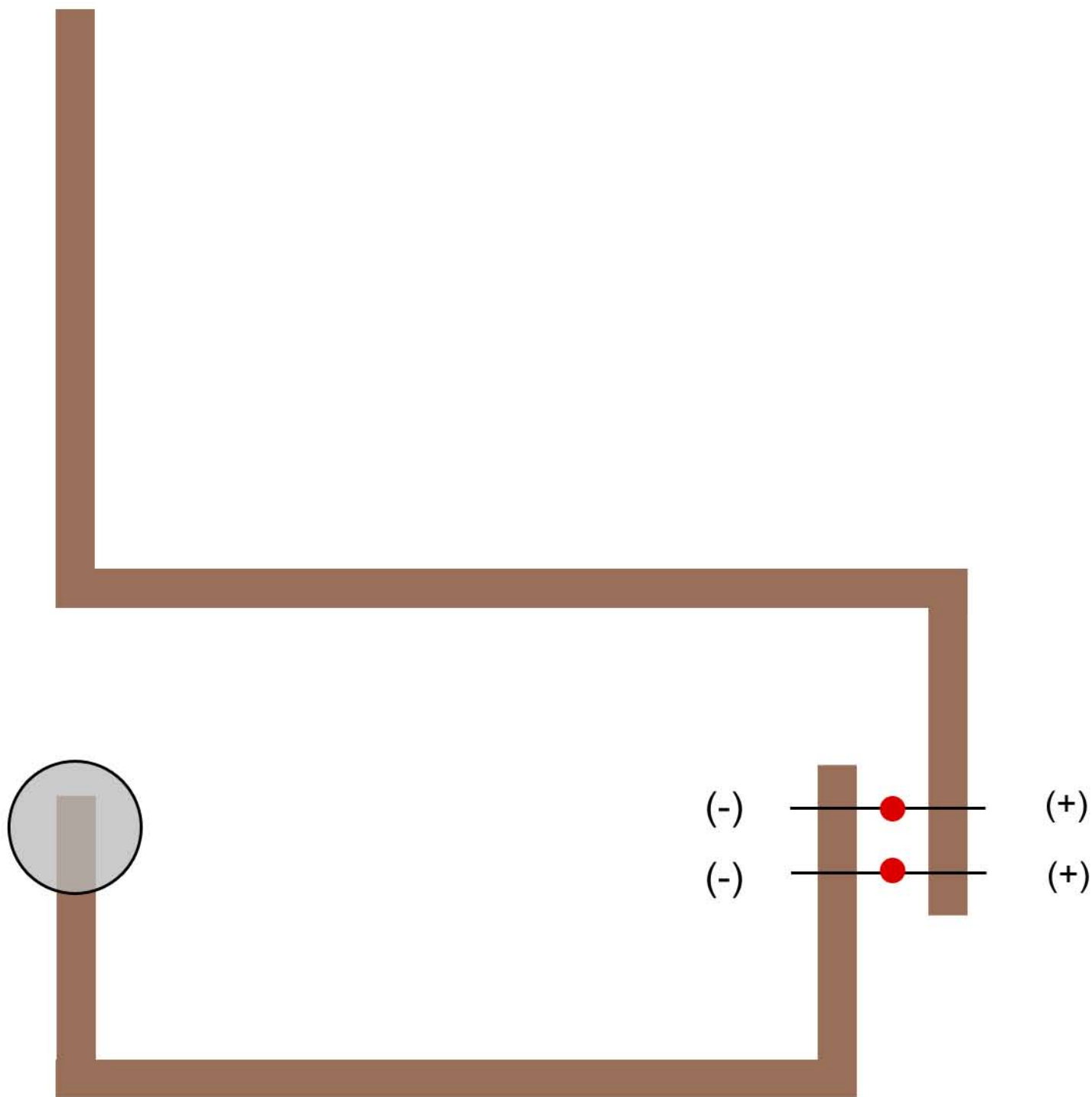


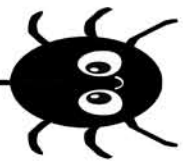
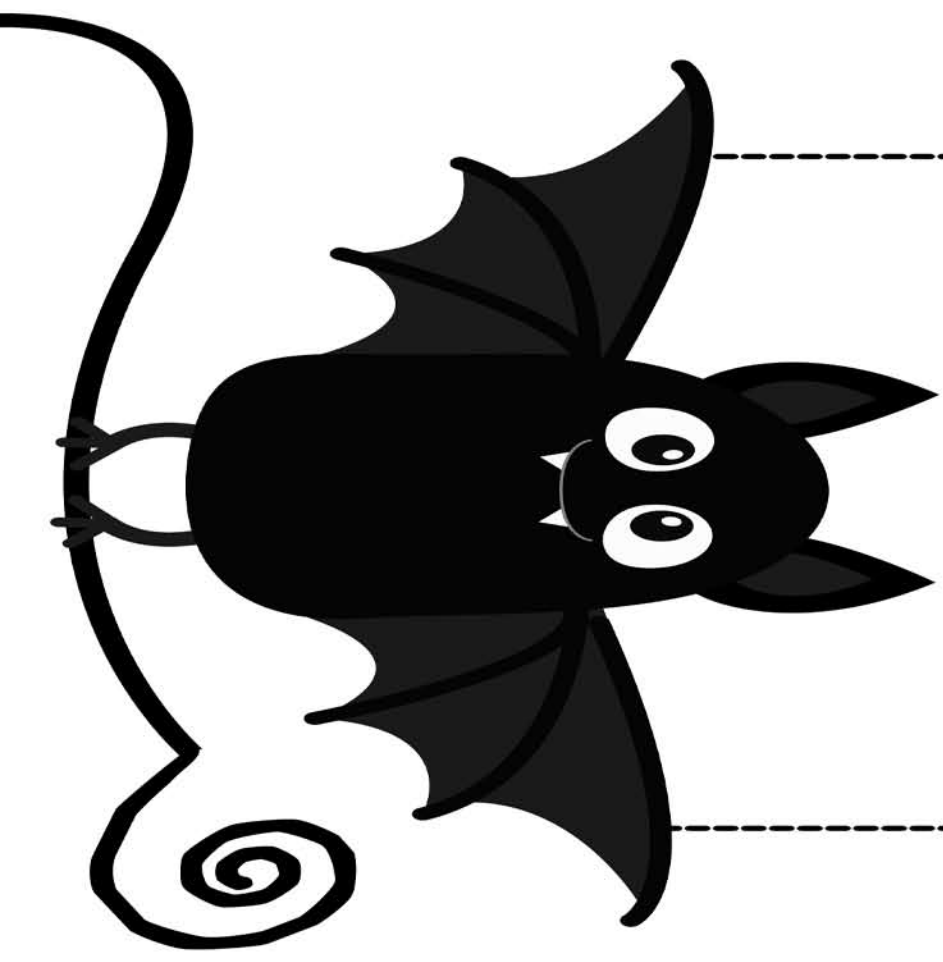








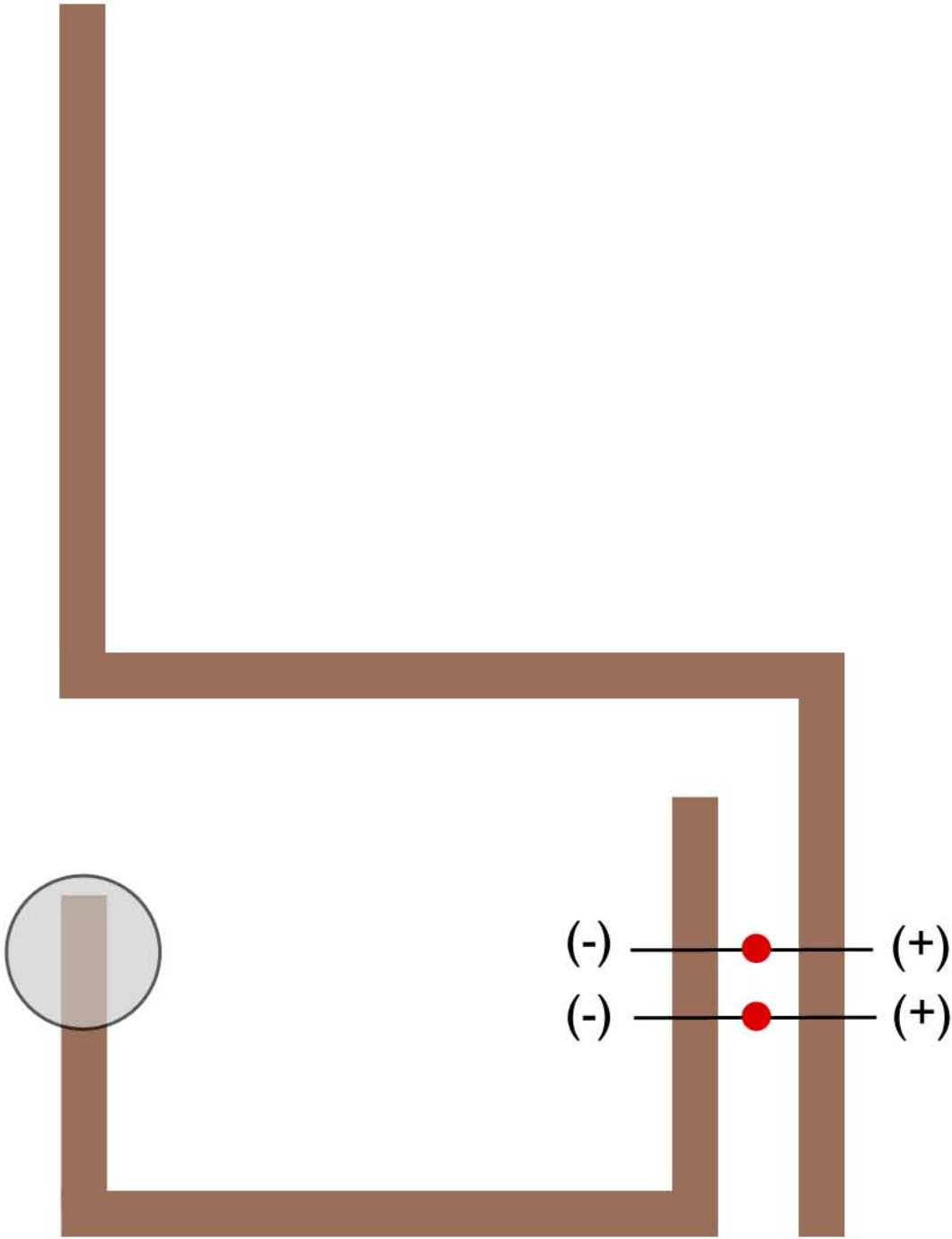


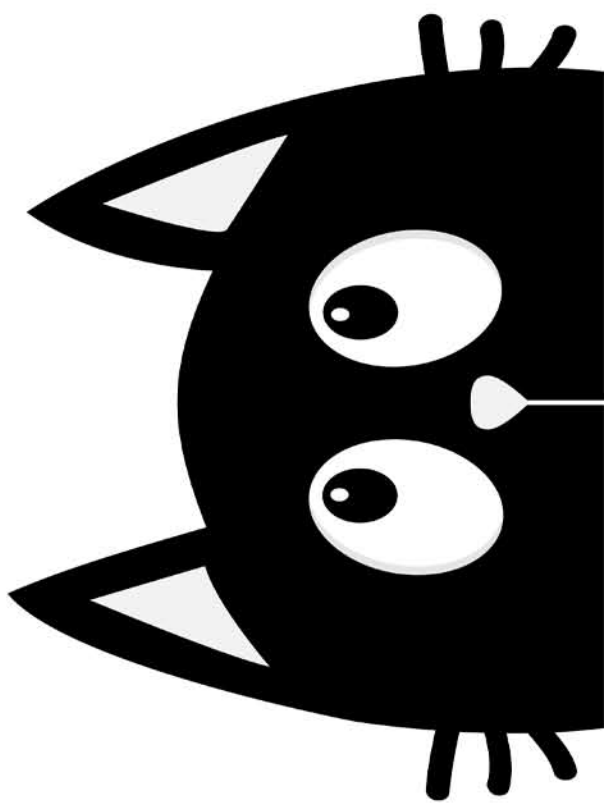


HAPPY

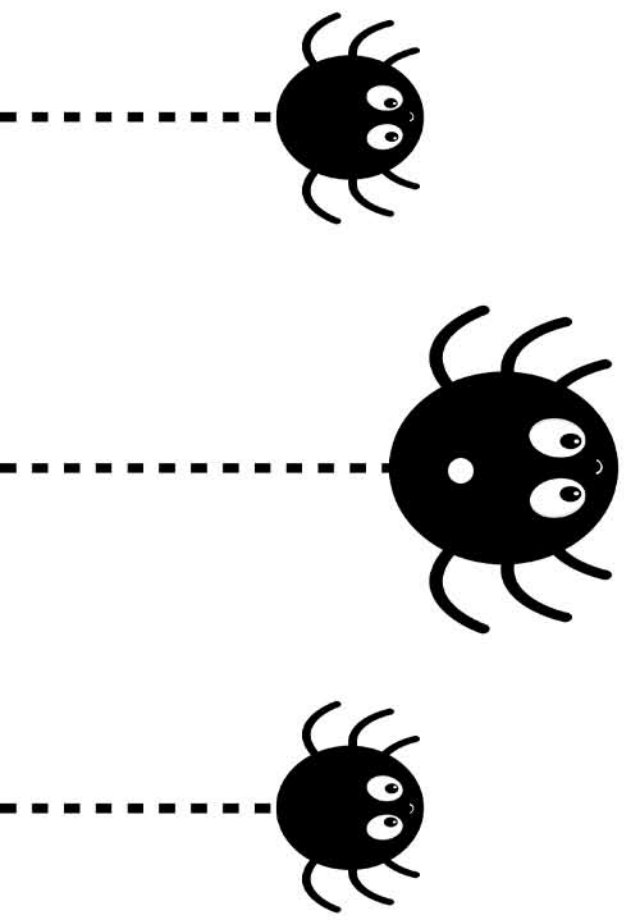


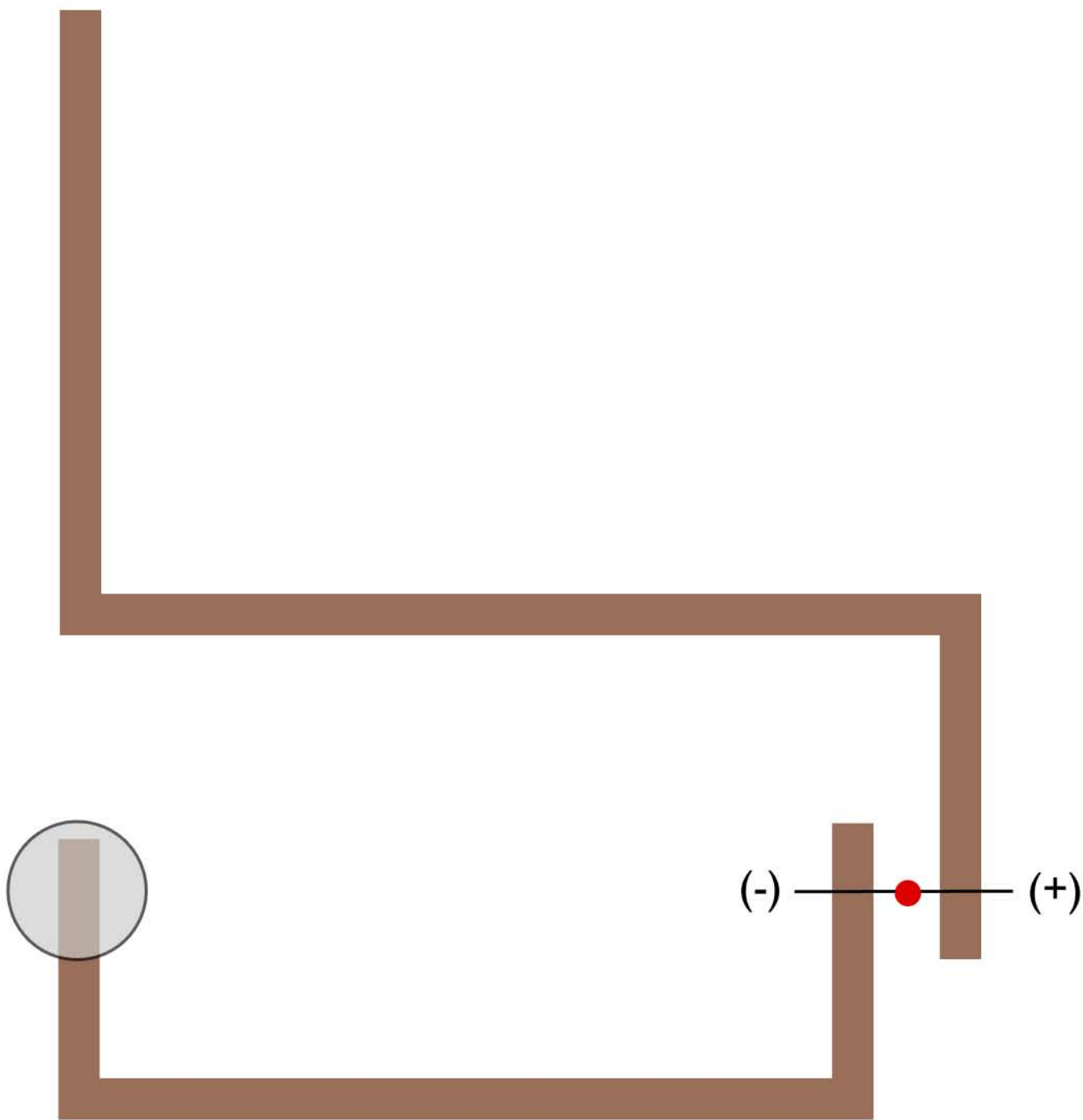
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