



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

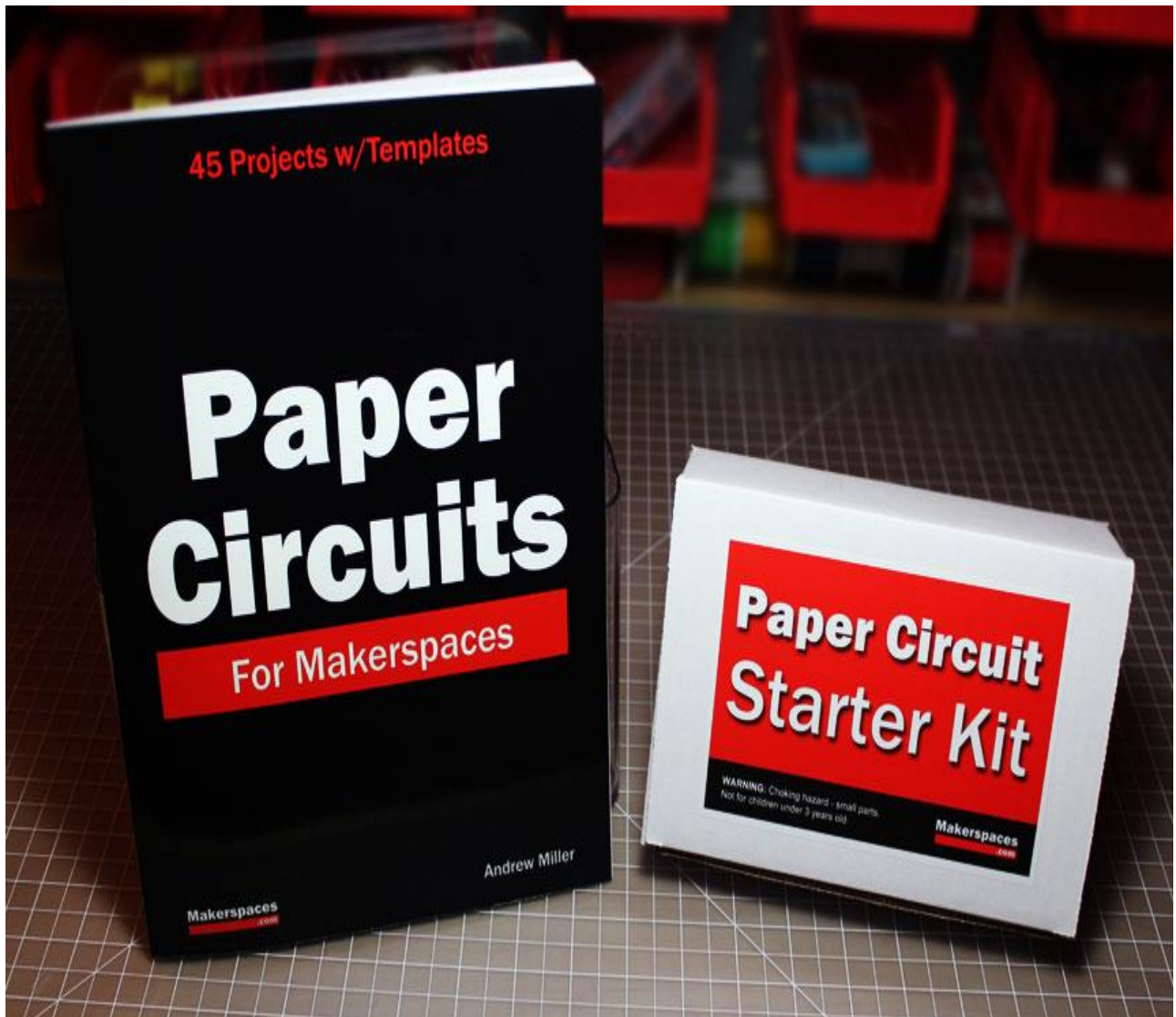
This project requires the following materials:

- 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](http://www.makerspaces.com)

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

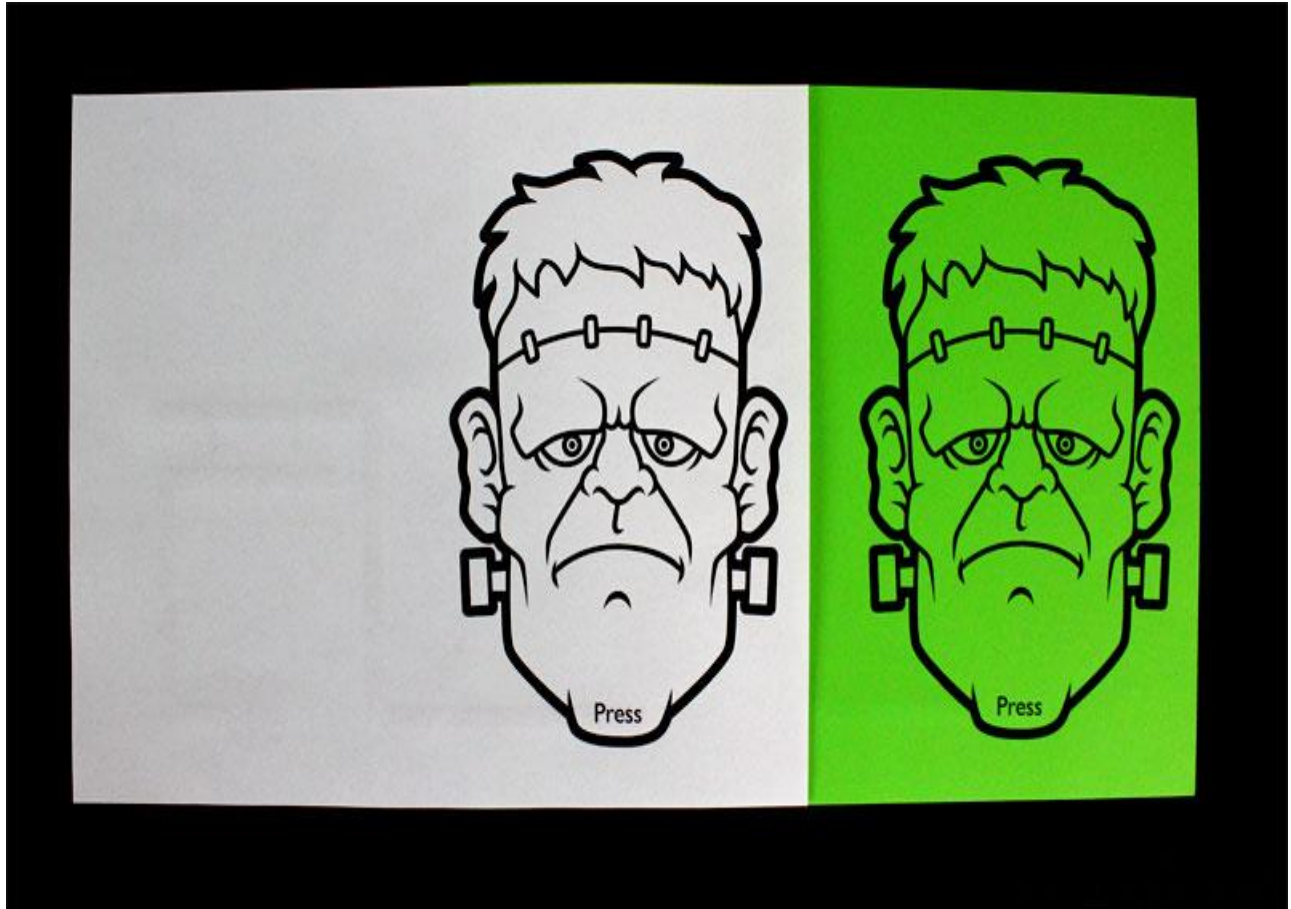




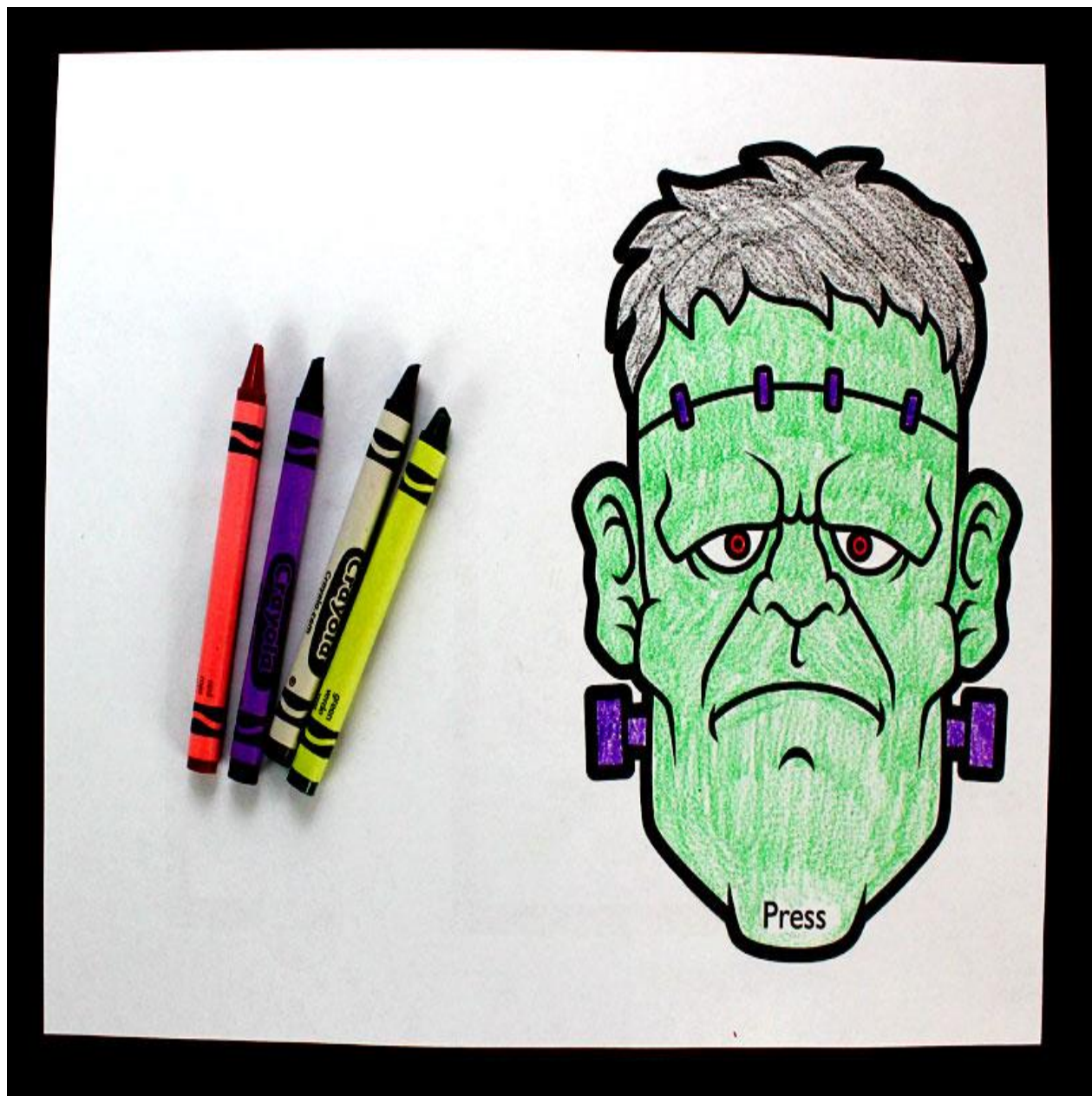
## Step 1 – Print Project Template

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

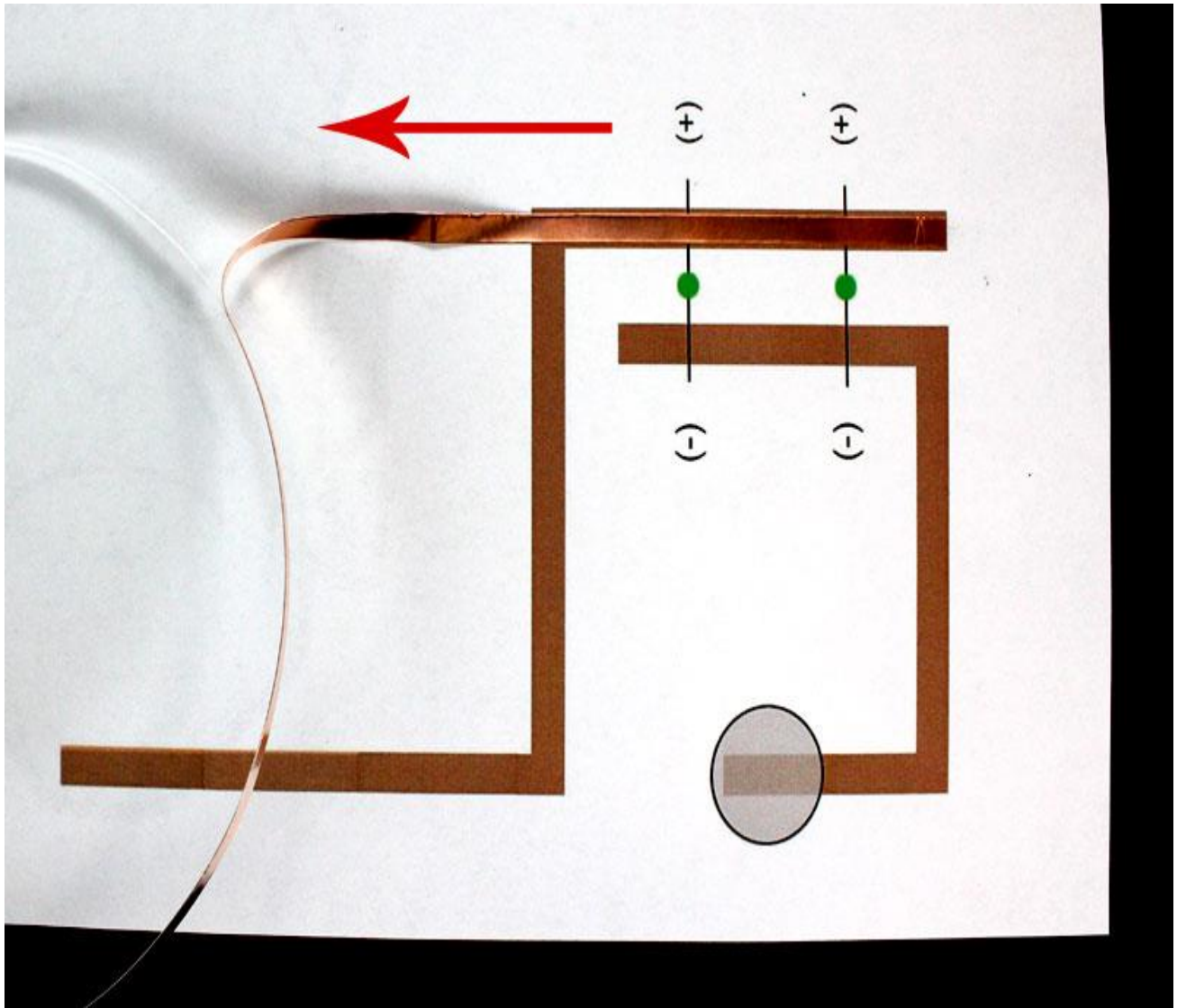


If you do decide to color the template, make sure you do that now before proceeding to the other steps.

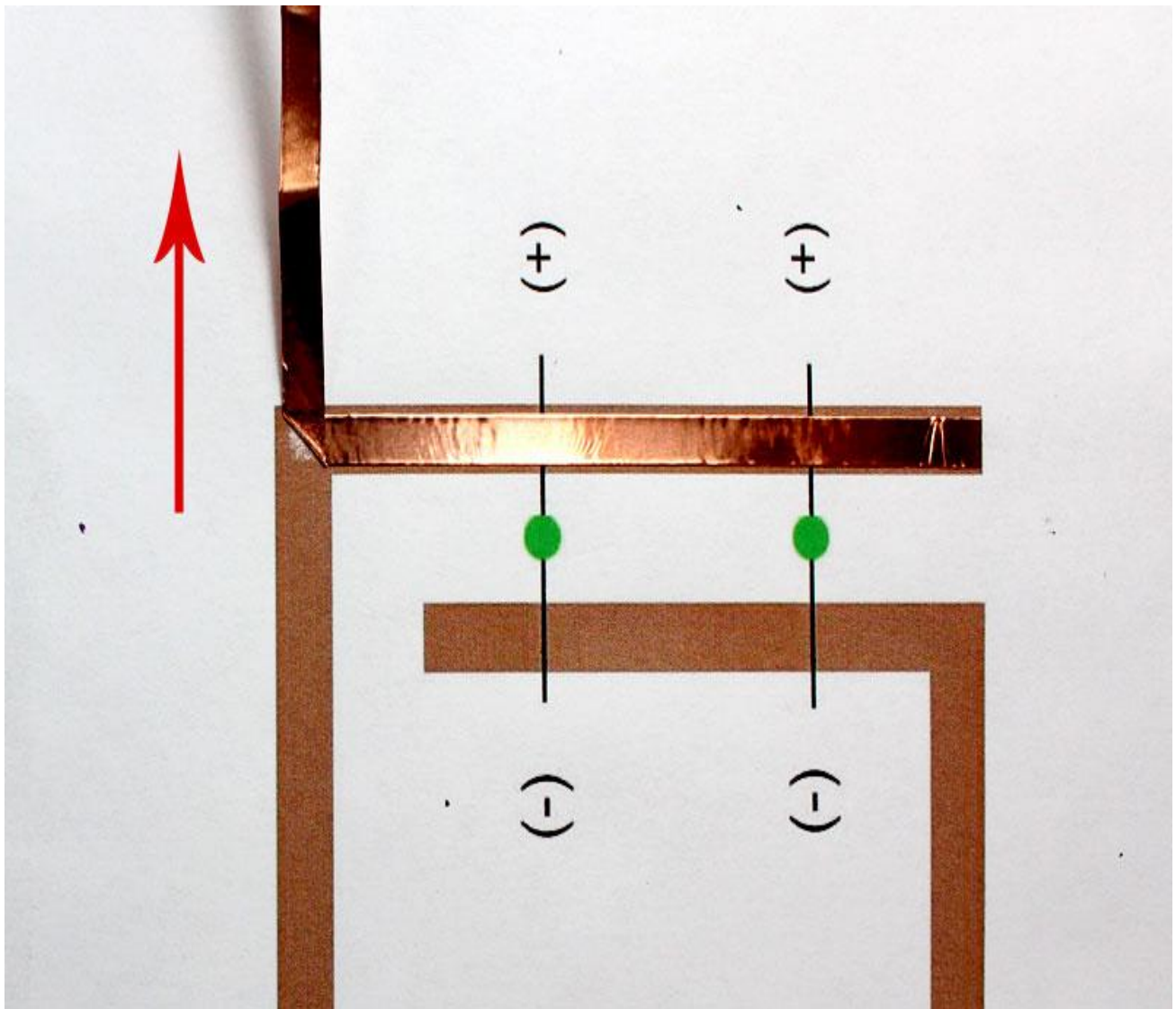


## Step 2 – Apply Copper Tape

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.

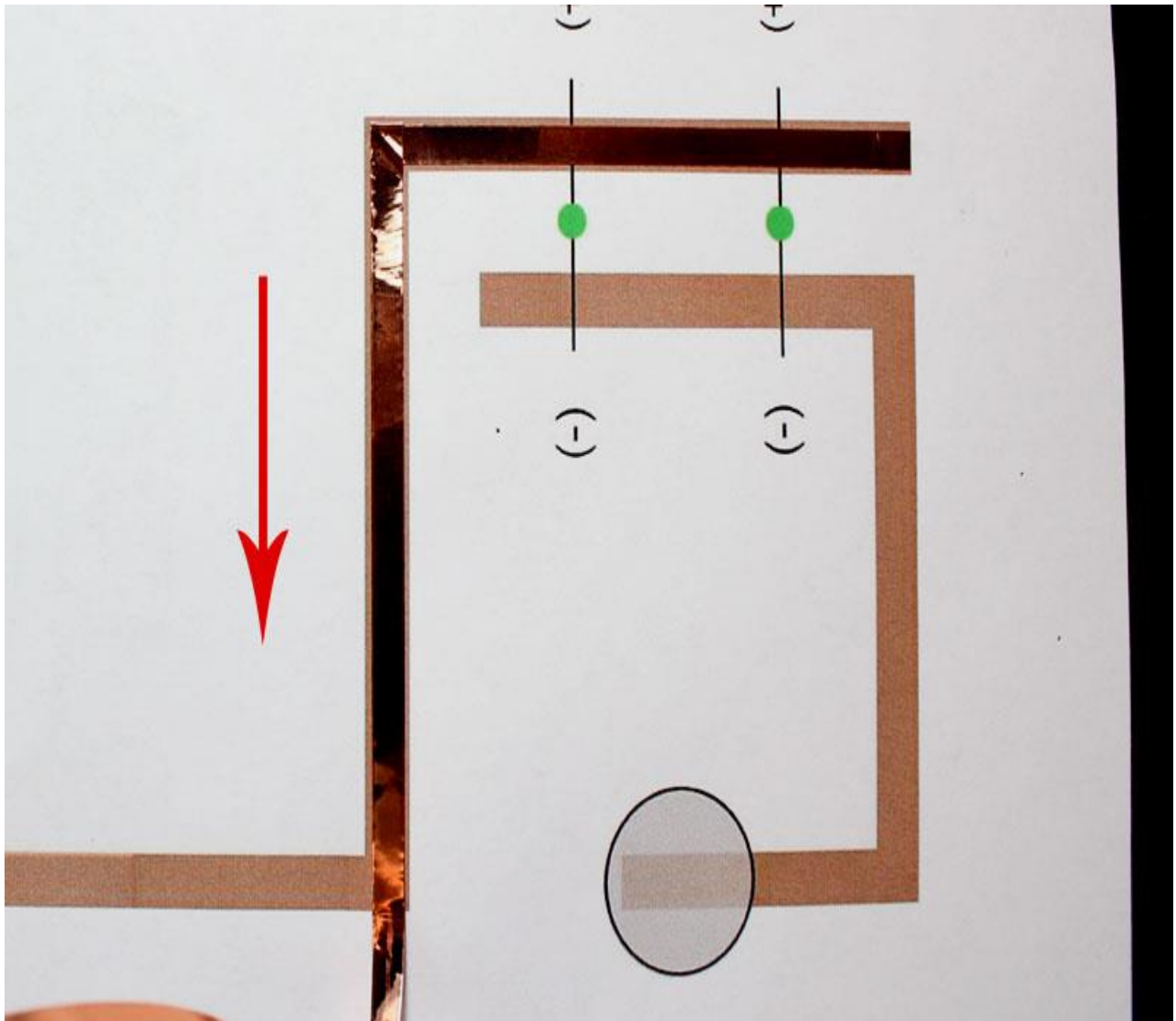


Apply the copper tape in a straight line and then bend it up at a 45 degree angle.





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





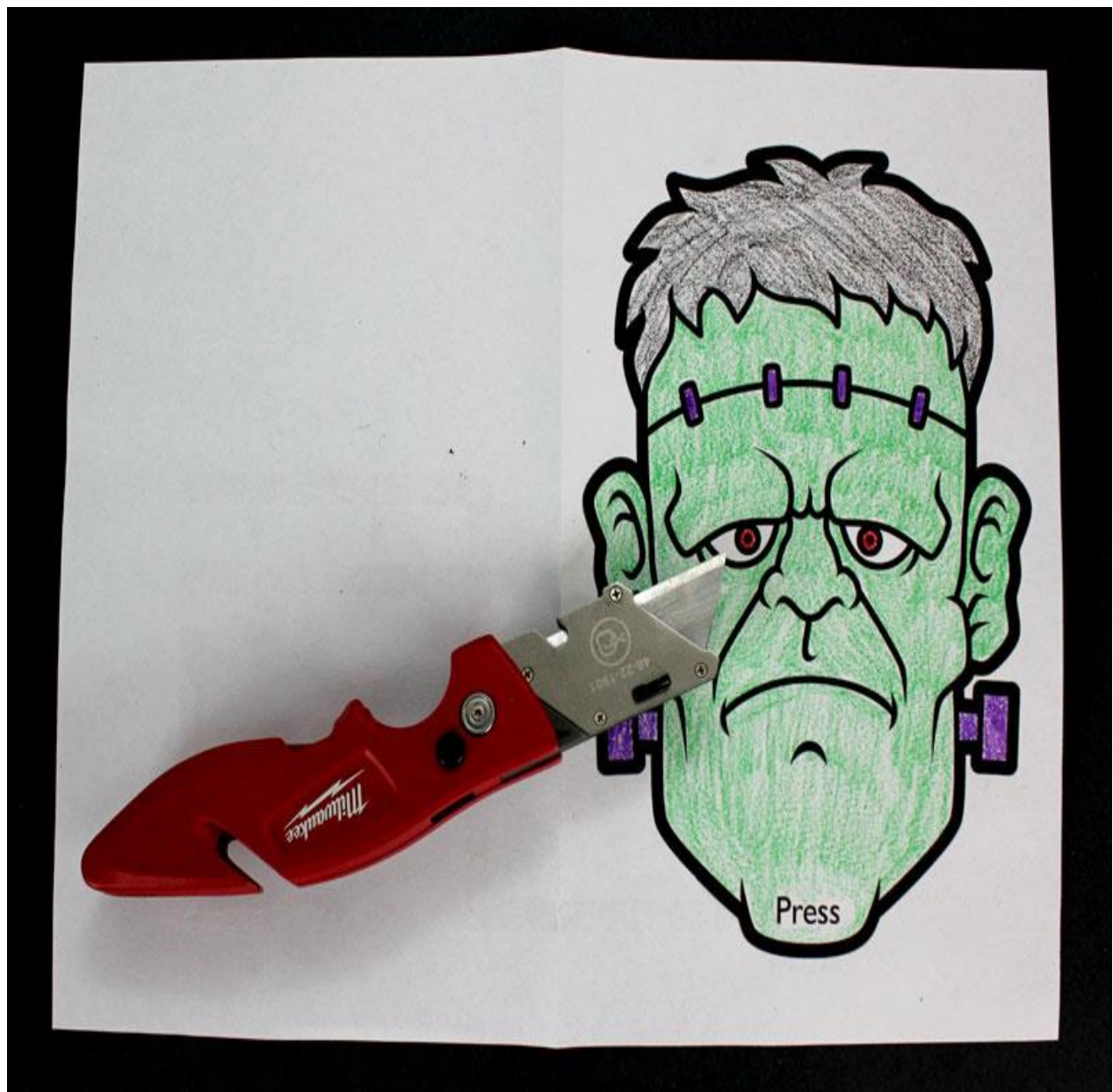


### Step 3 – Fold and Cut

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



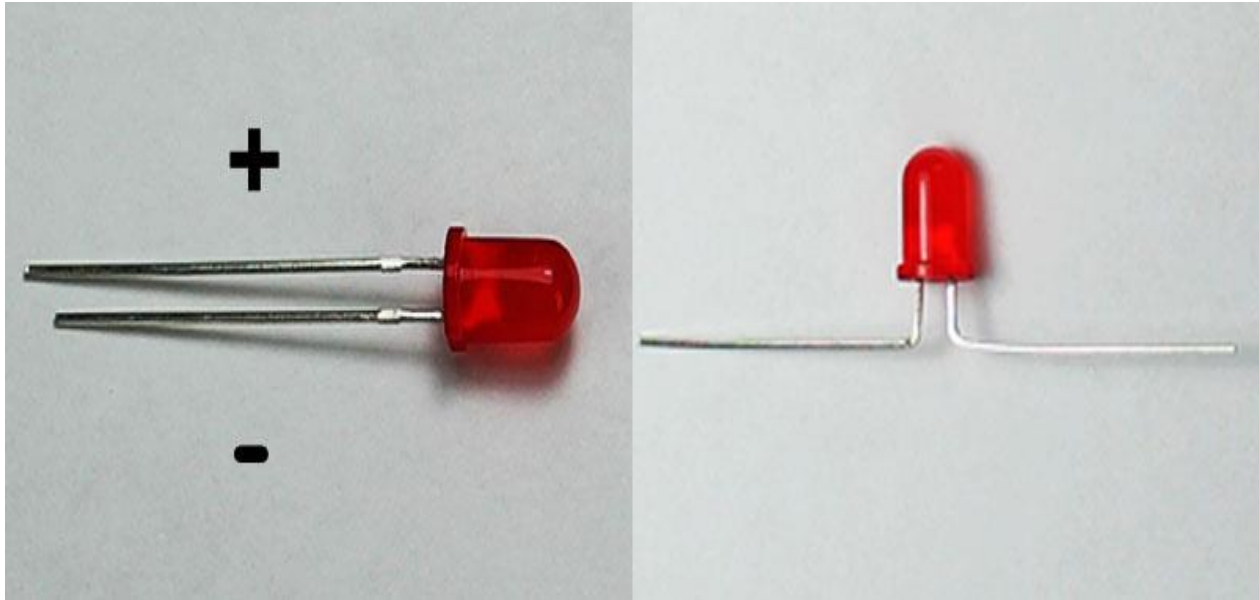
Open your card up and cut a tiny "X" in both of the eyes on the template.  
The LEDs will fit through these cuts.



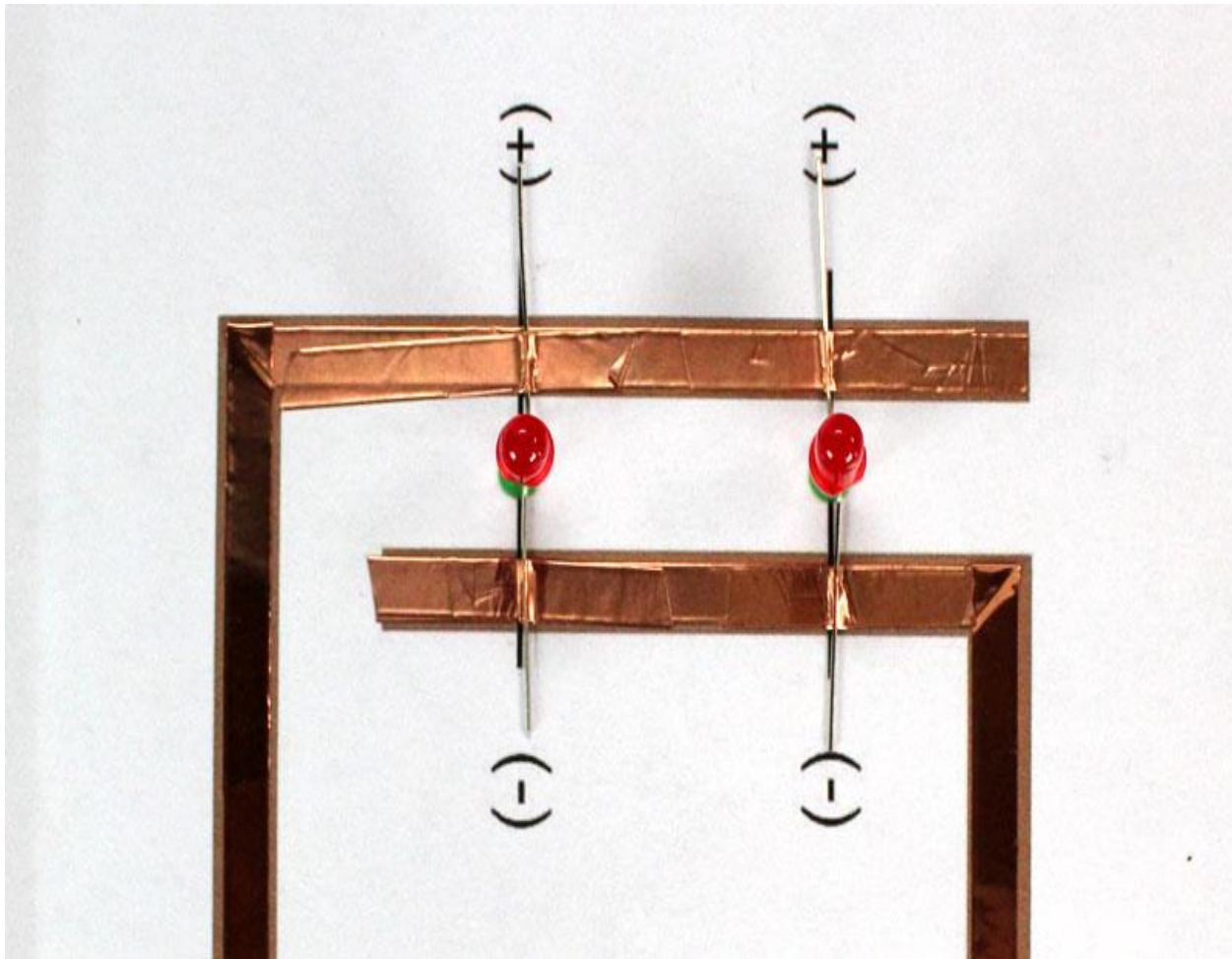


## Step 4 – Mount LEDs

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.

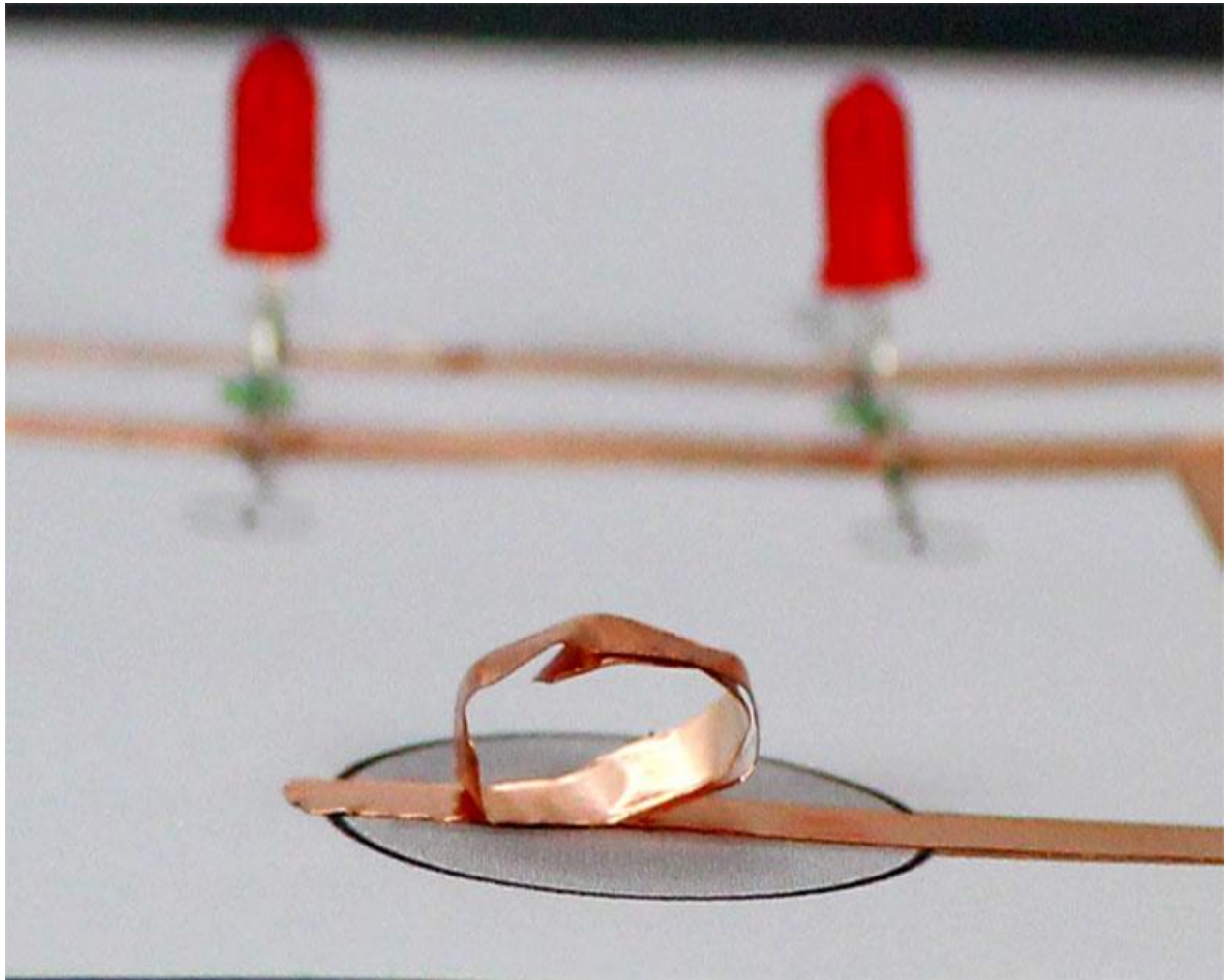


Mount the LEDs to the template making sure the long leg goes on the (+) side. Use copper tape to secure the legs to the copper tape below. Rub the copper to make sure it is making a solid connection.



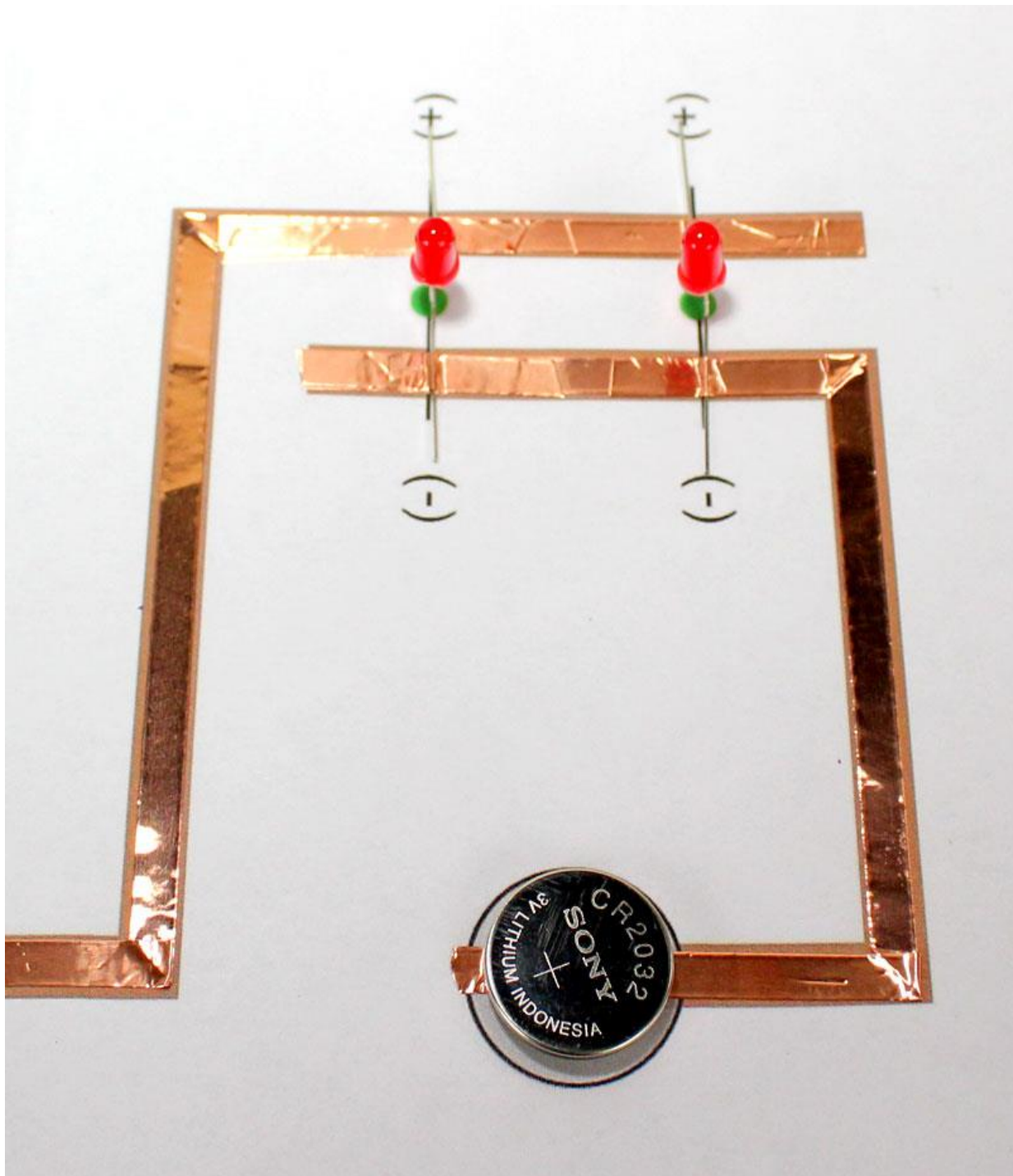
## Step 5 – Attach Coin Cell Battery

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.



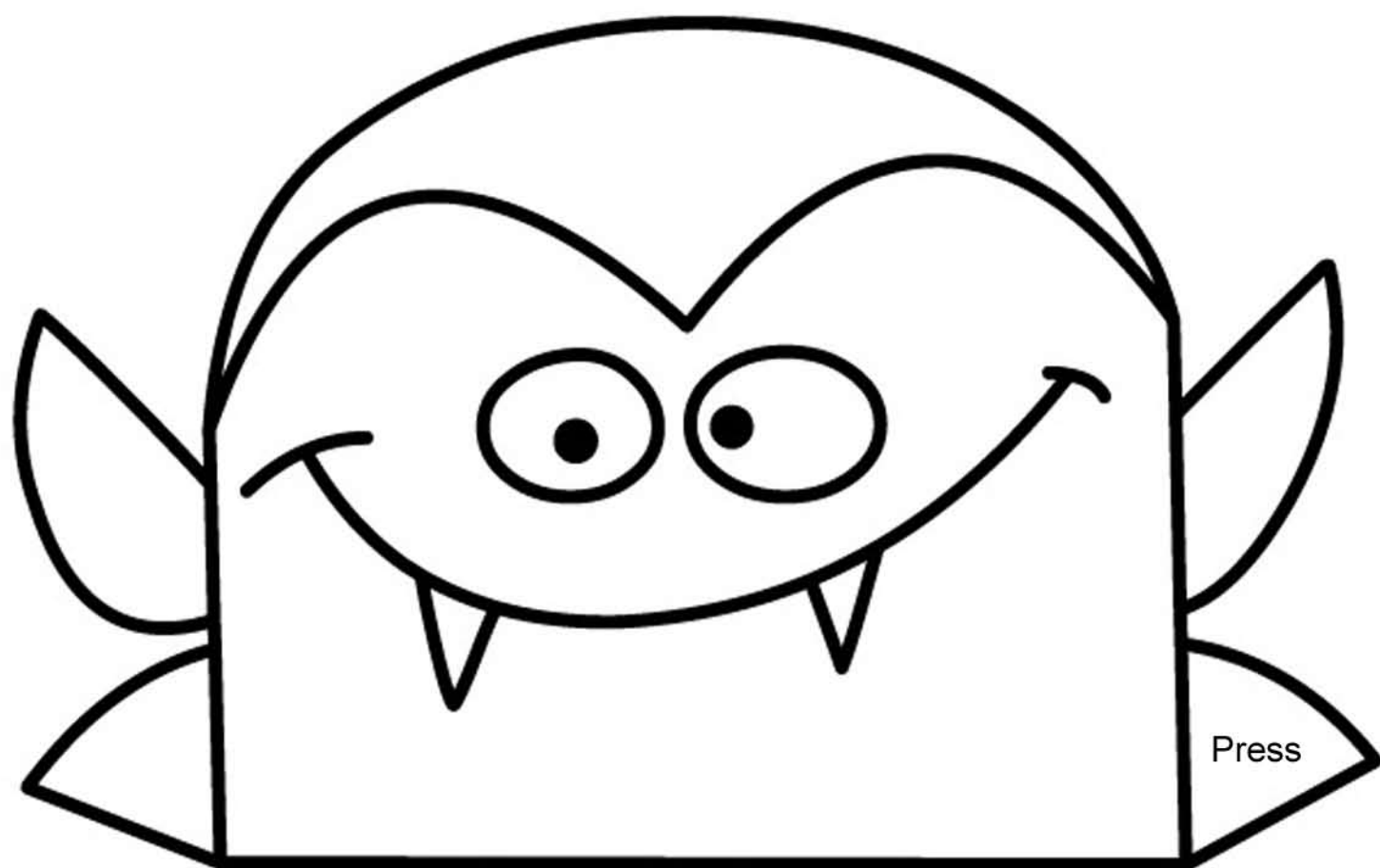
## **Project Templates**

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

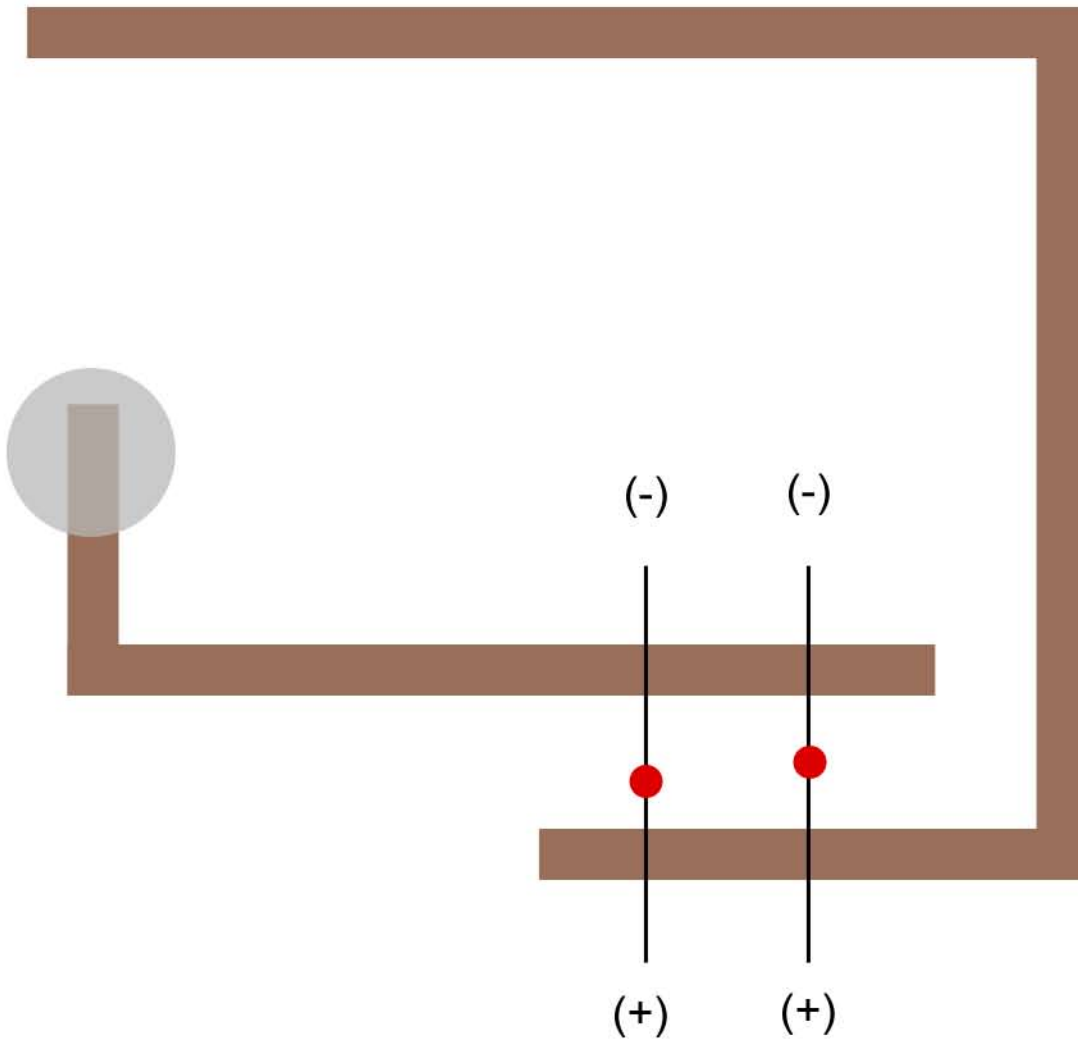
Feel free to share your project with us on Twitter @Makerspaces\_com

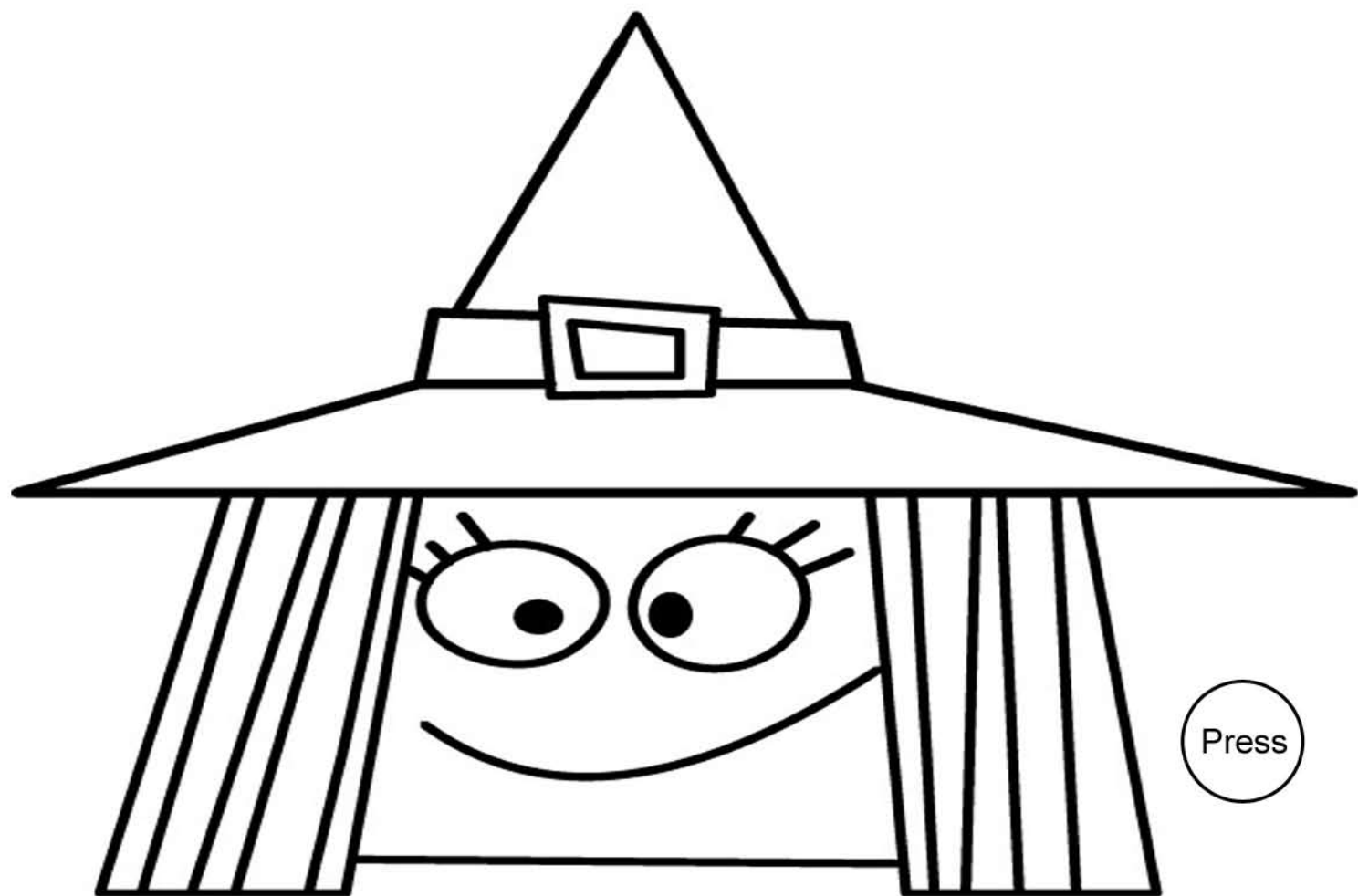
Happy Halloween!



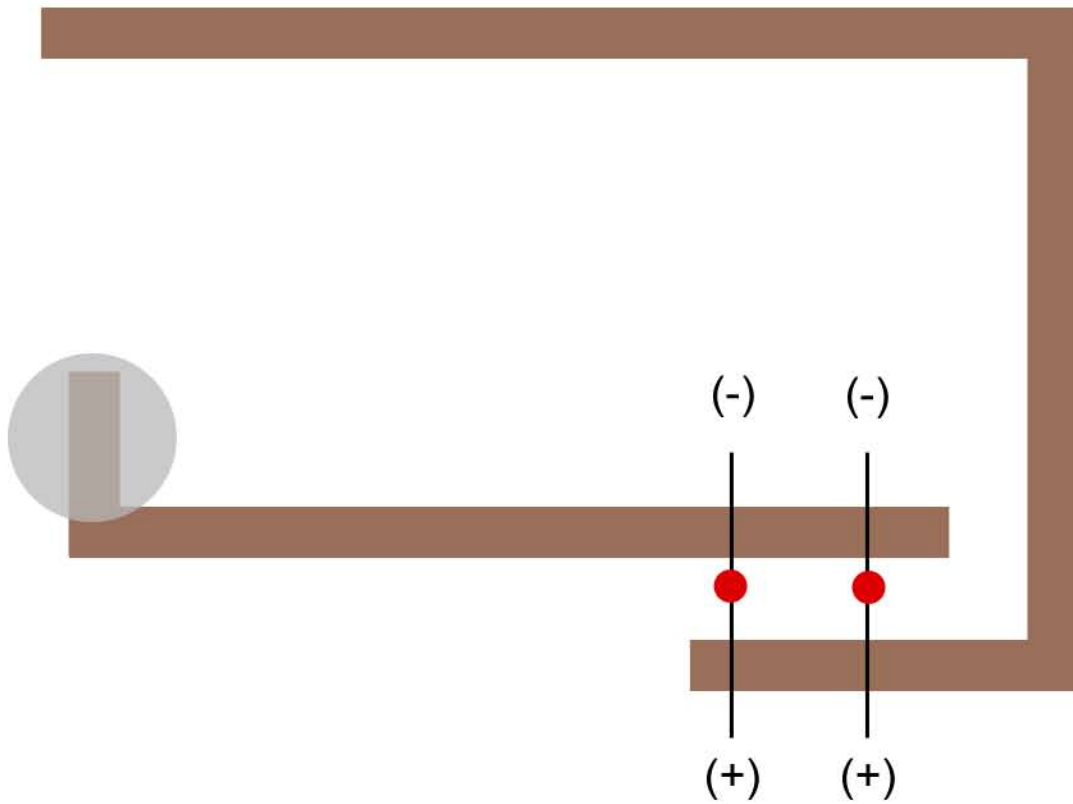


## Vampire Circuit

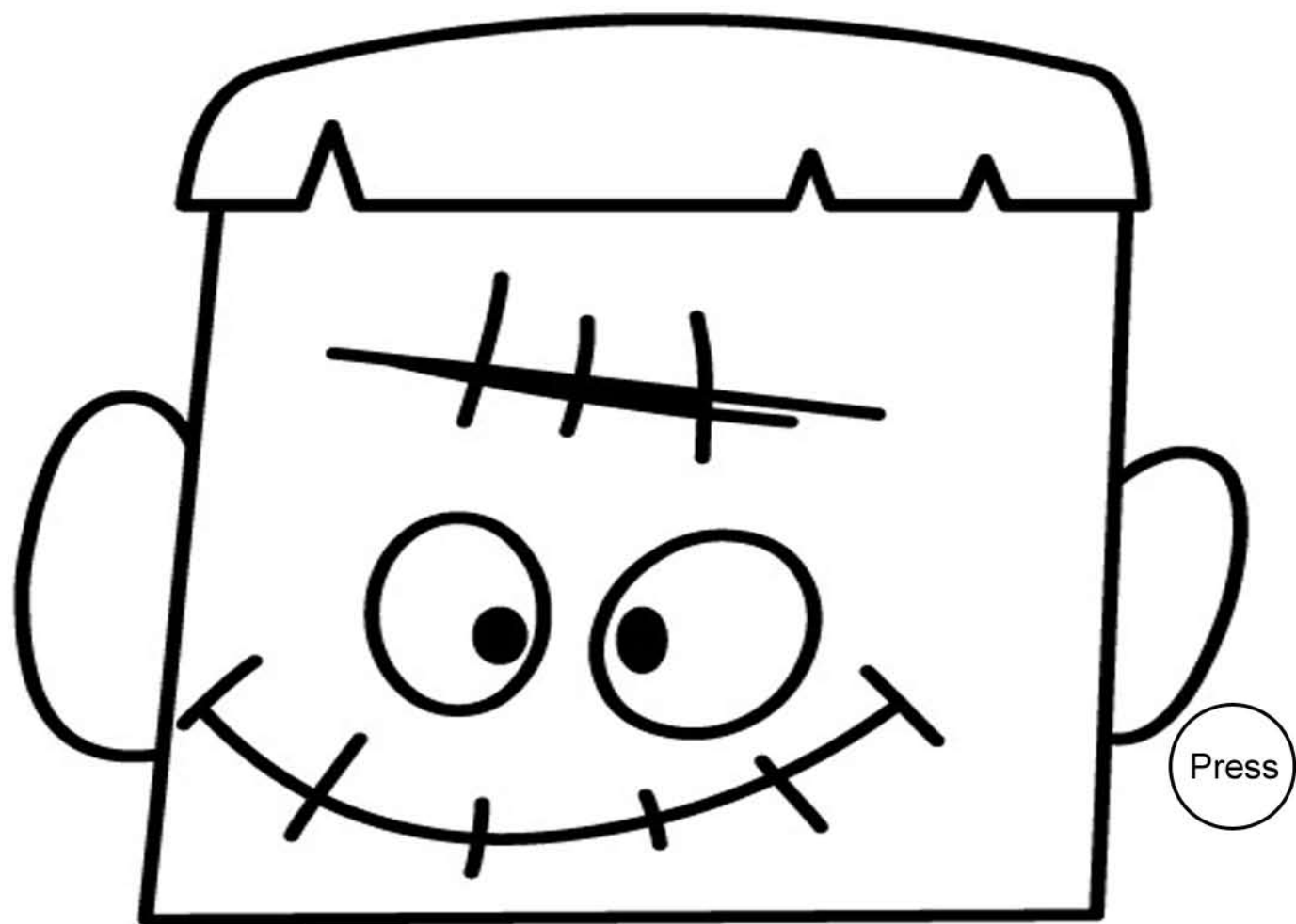




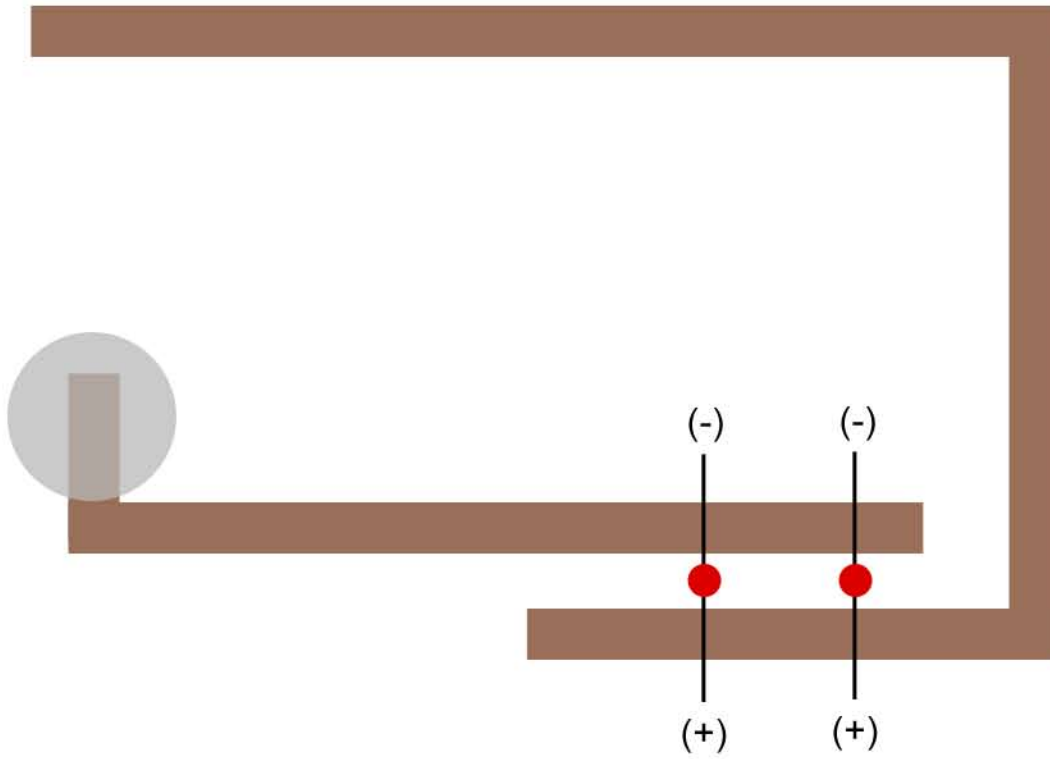
## Witch Circuit

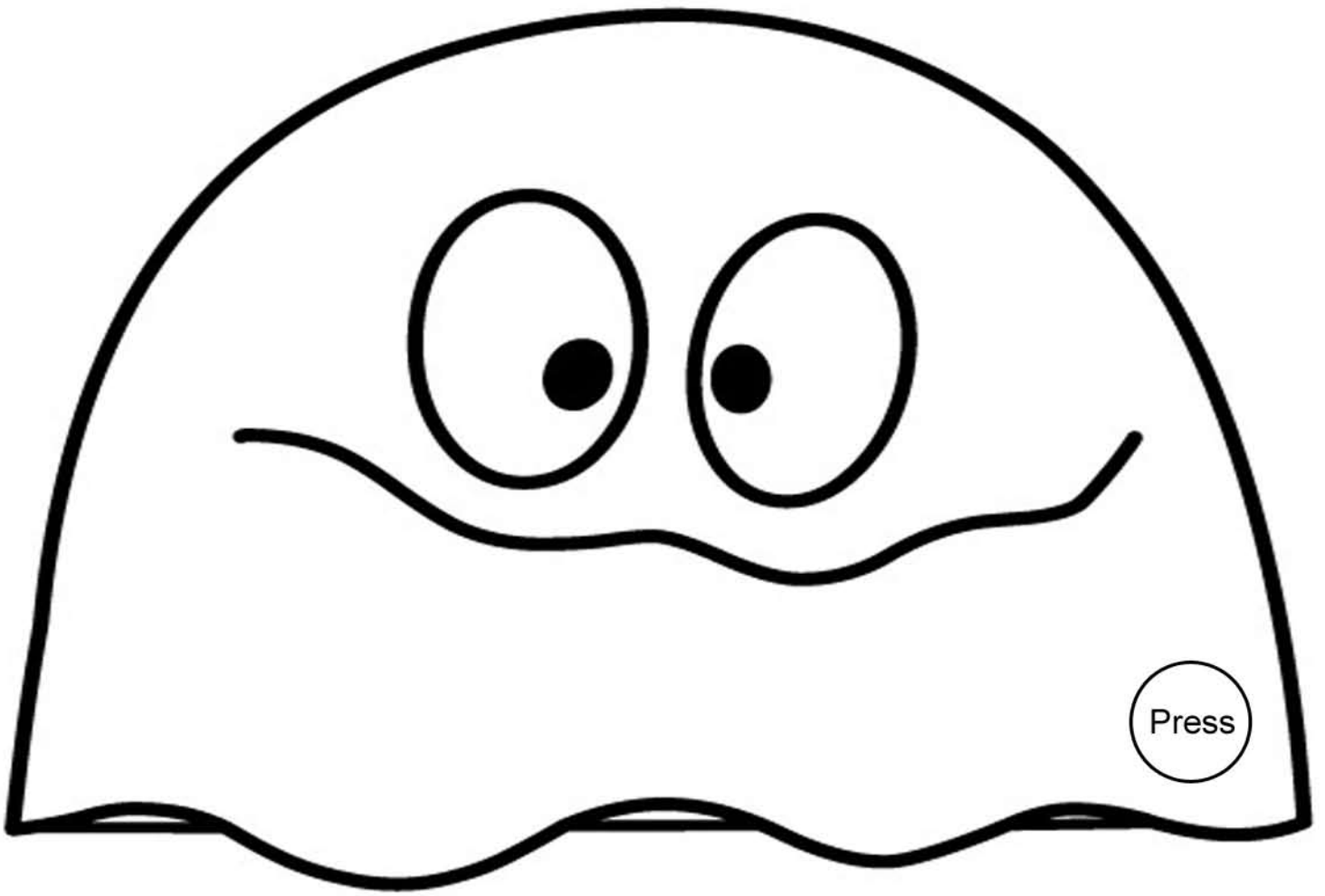




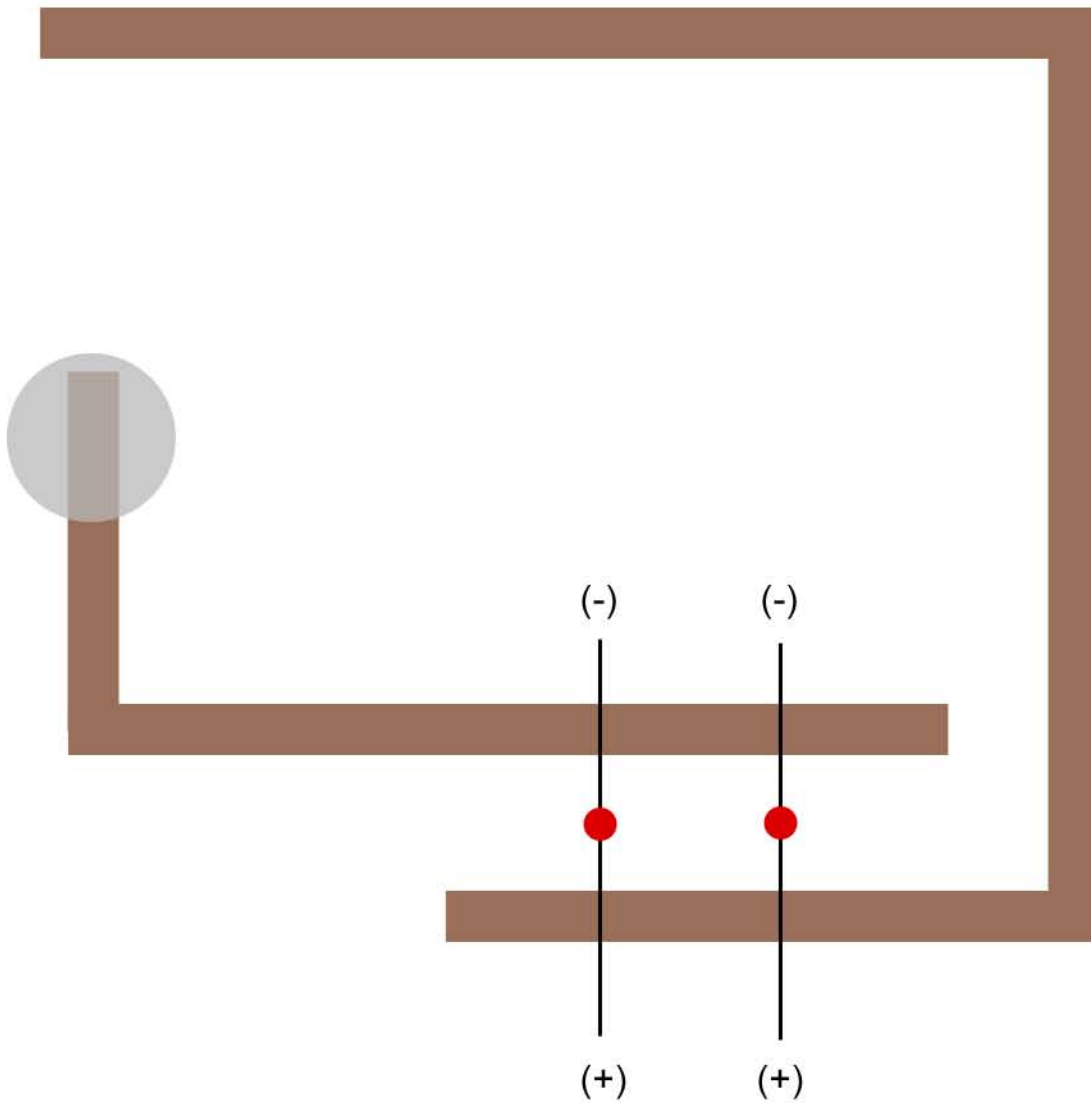


## Happy Frankenstein Circuit

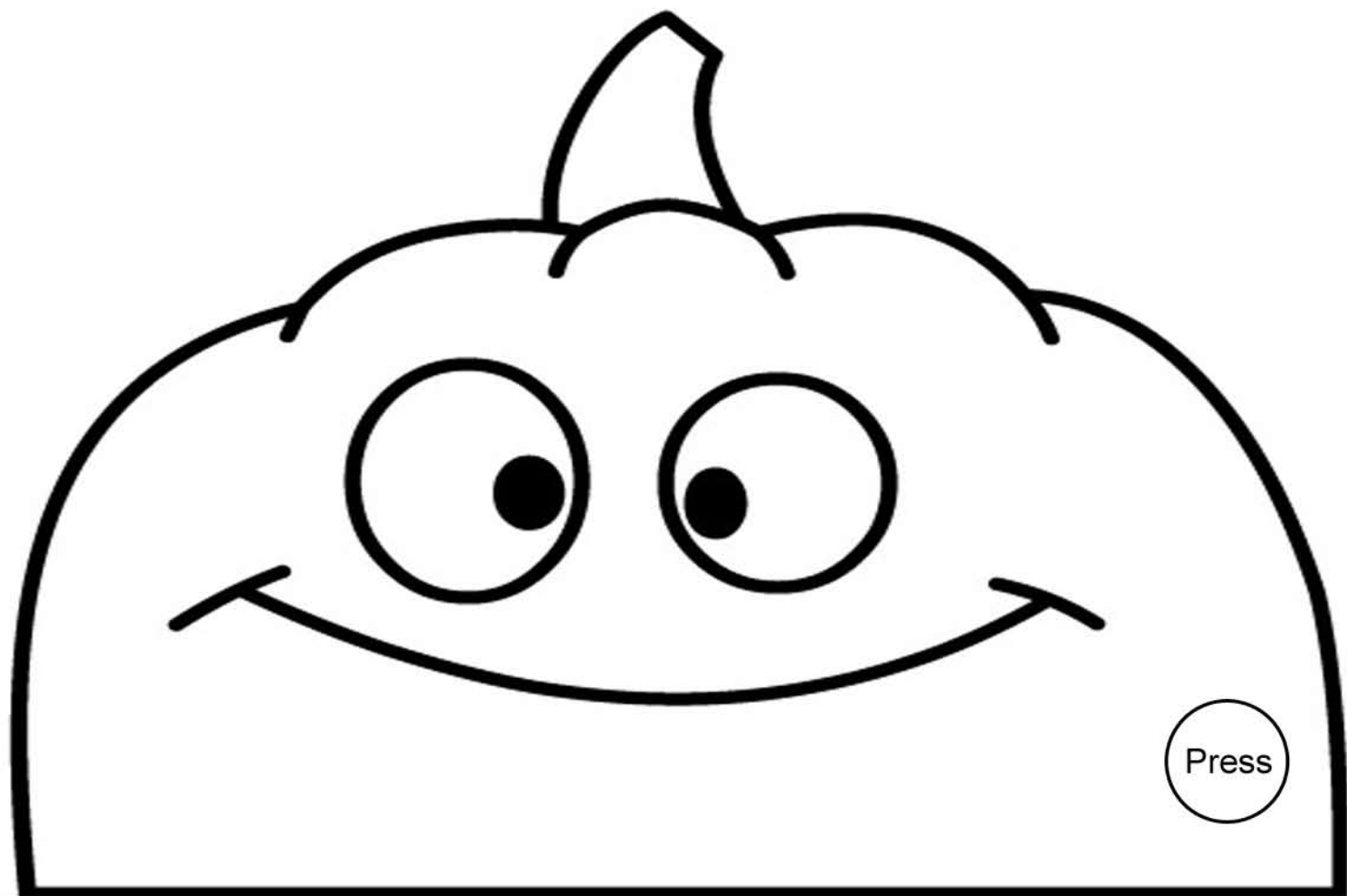




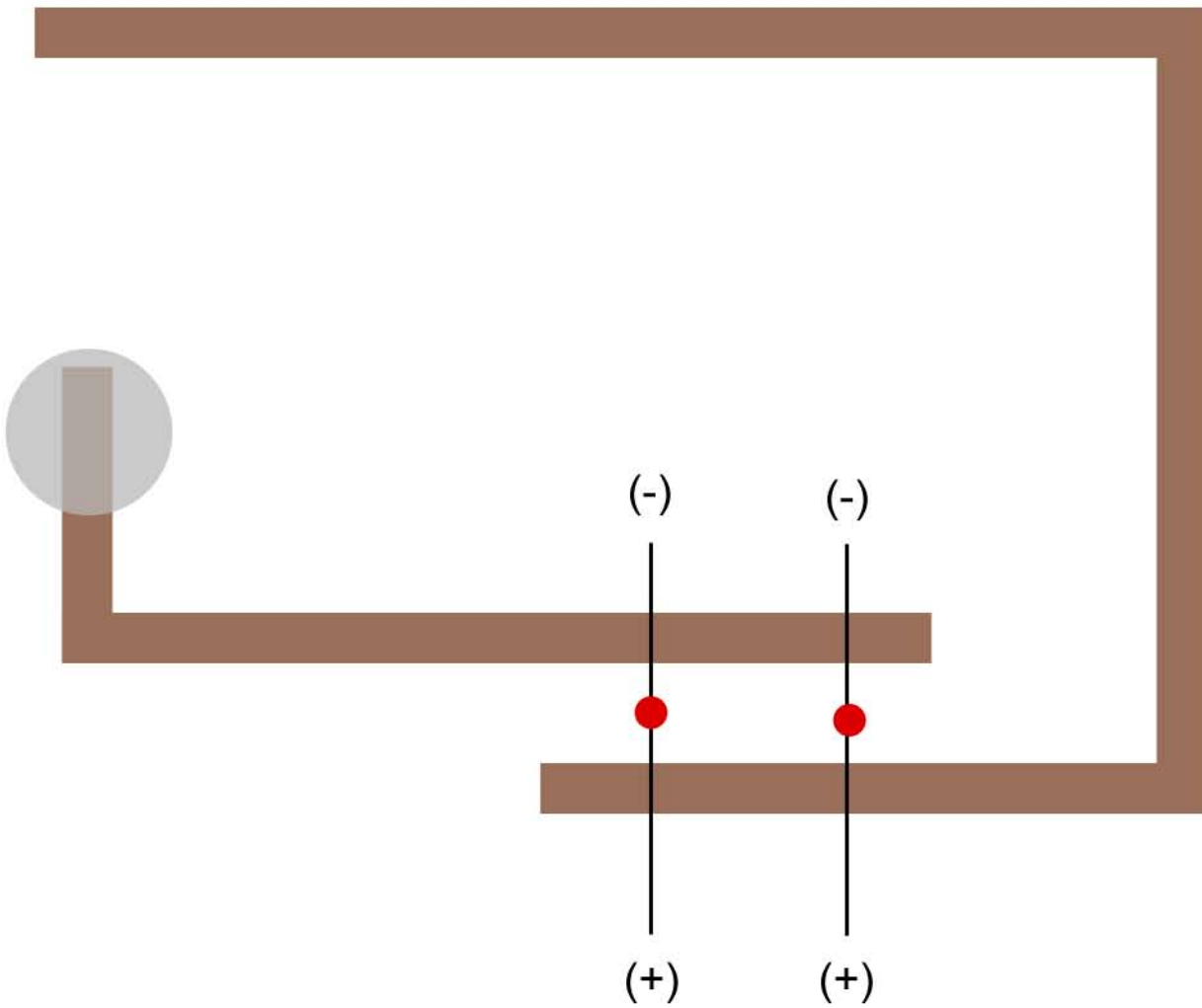
## Ghost Circuit

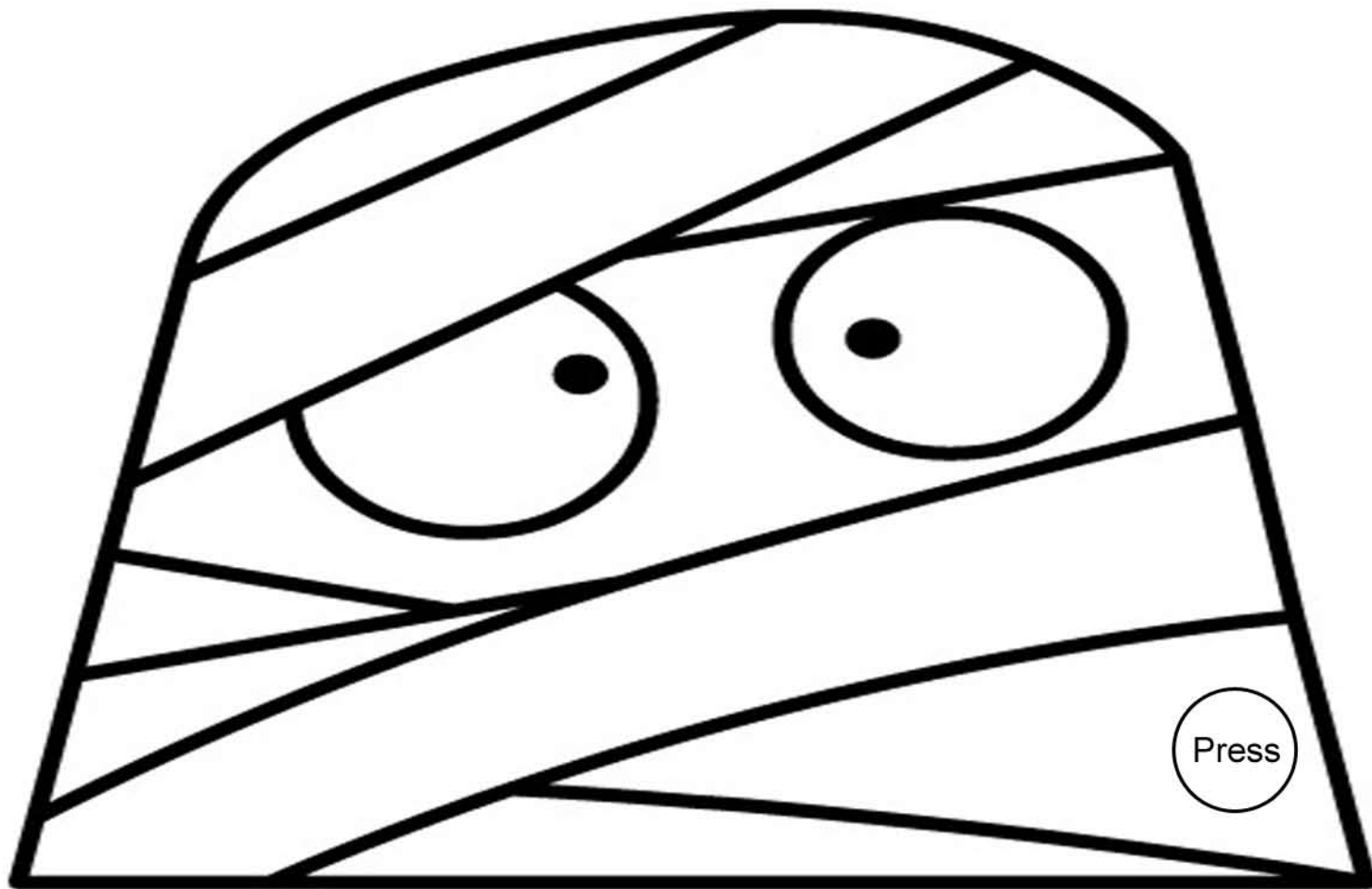




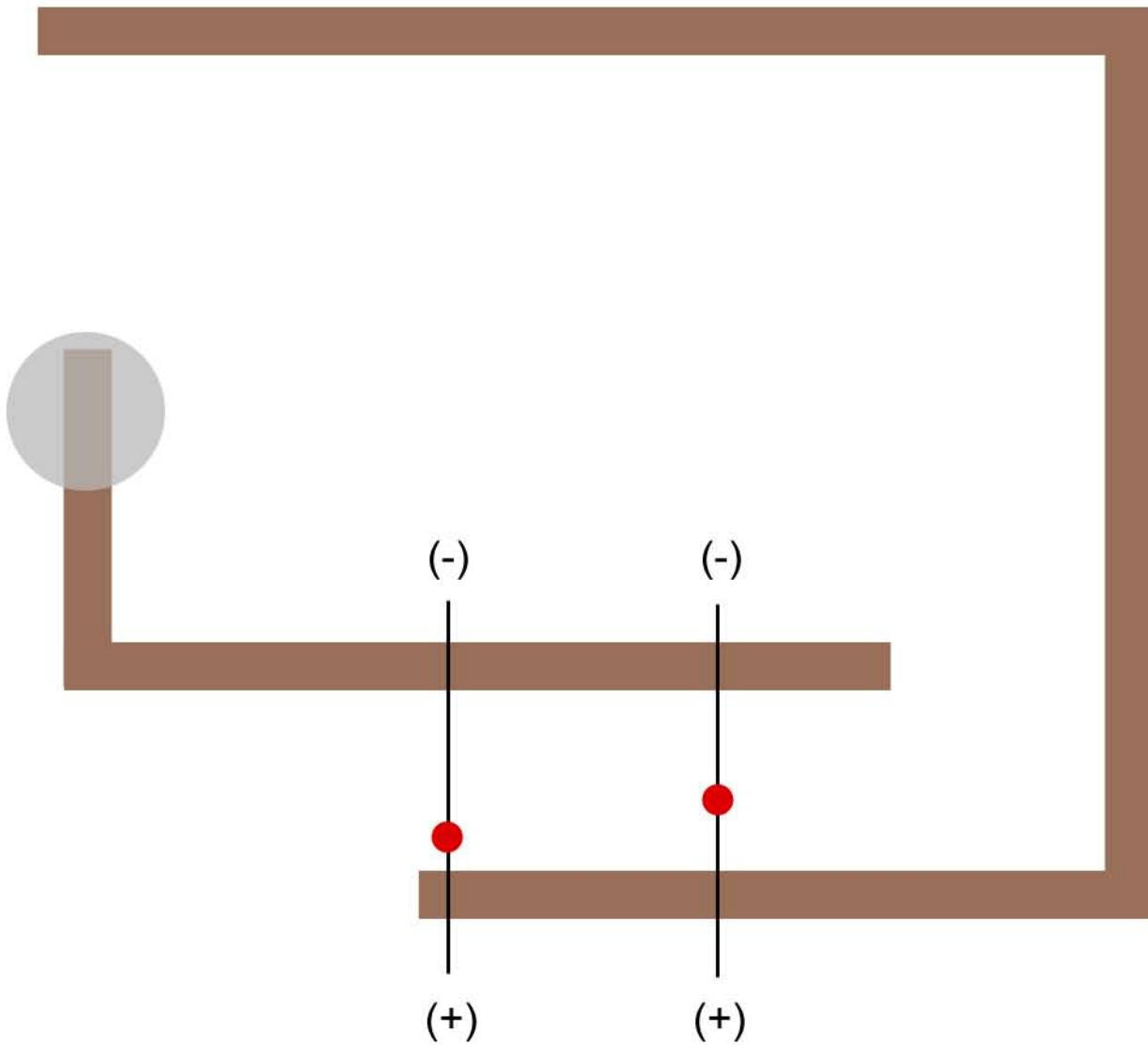


## Pumpkin Circuit

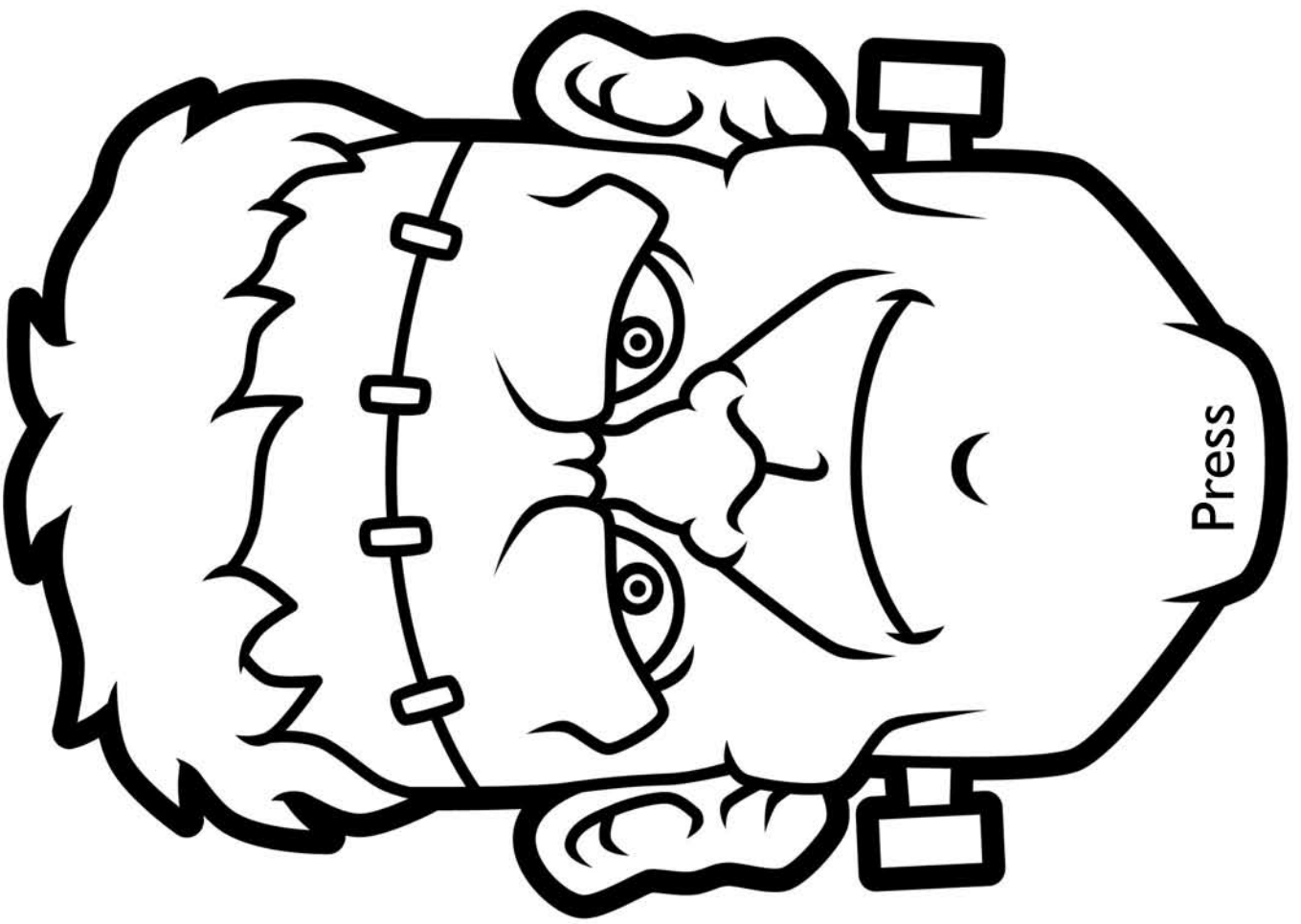


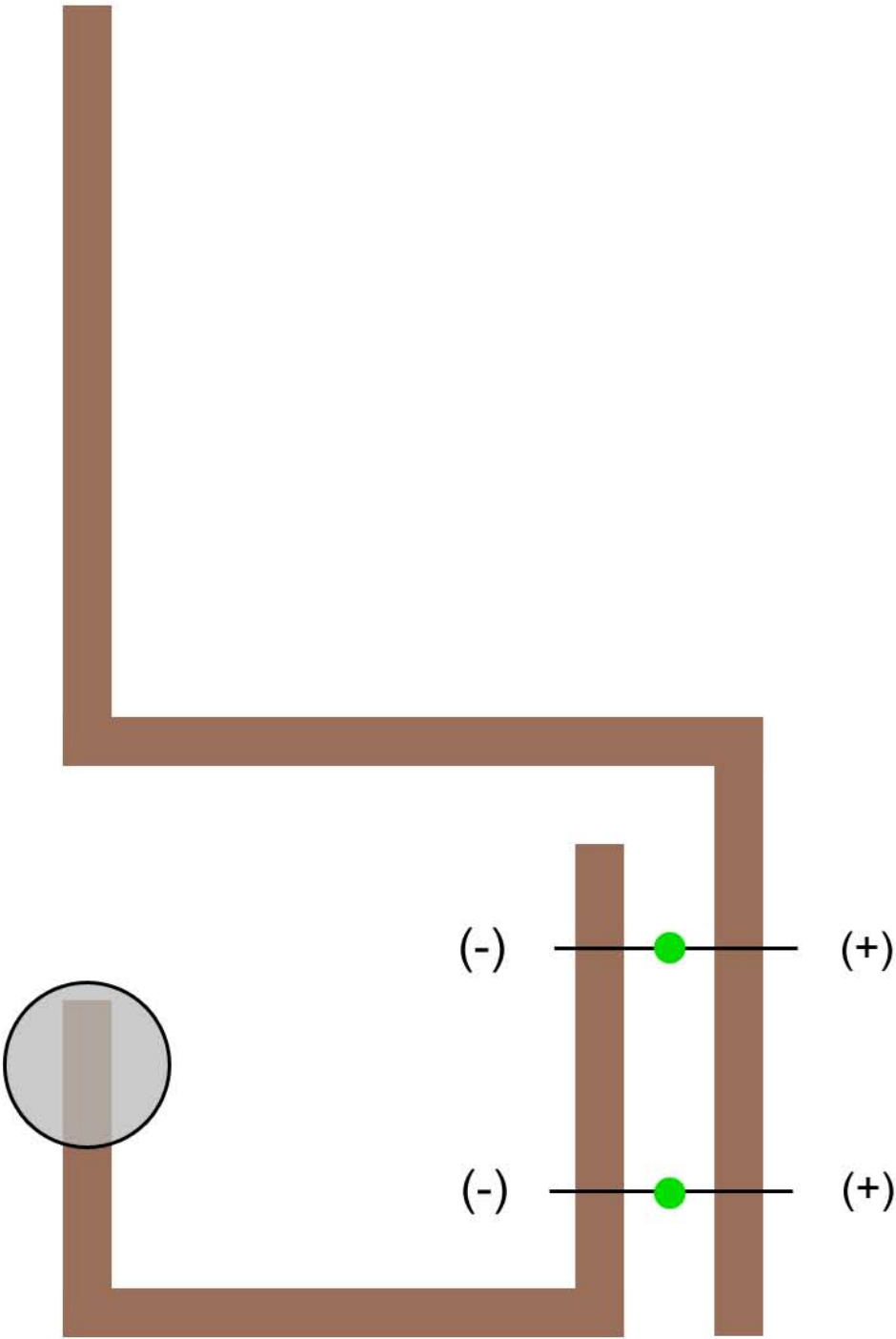


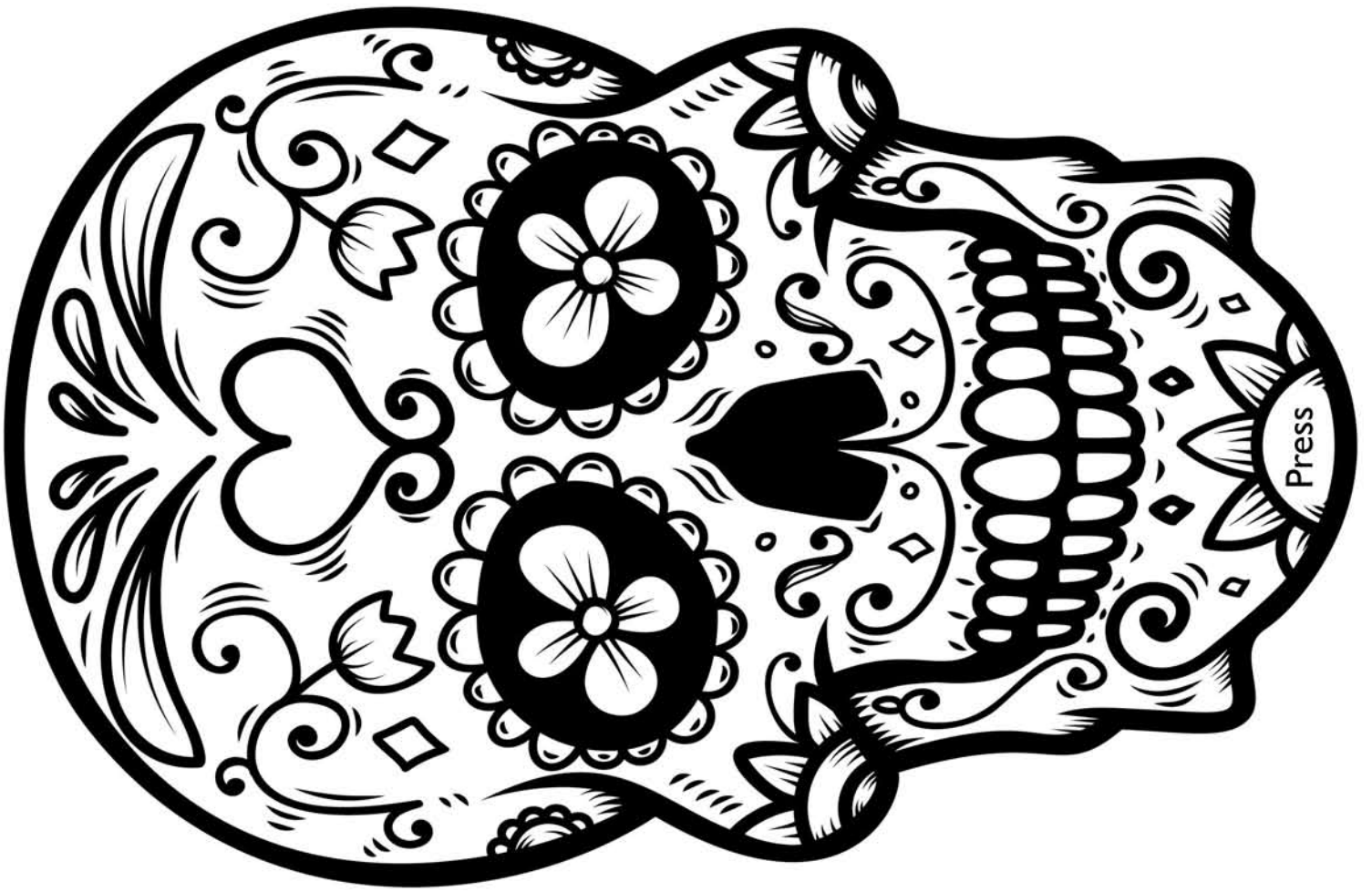
## Mummy Circuit

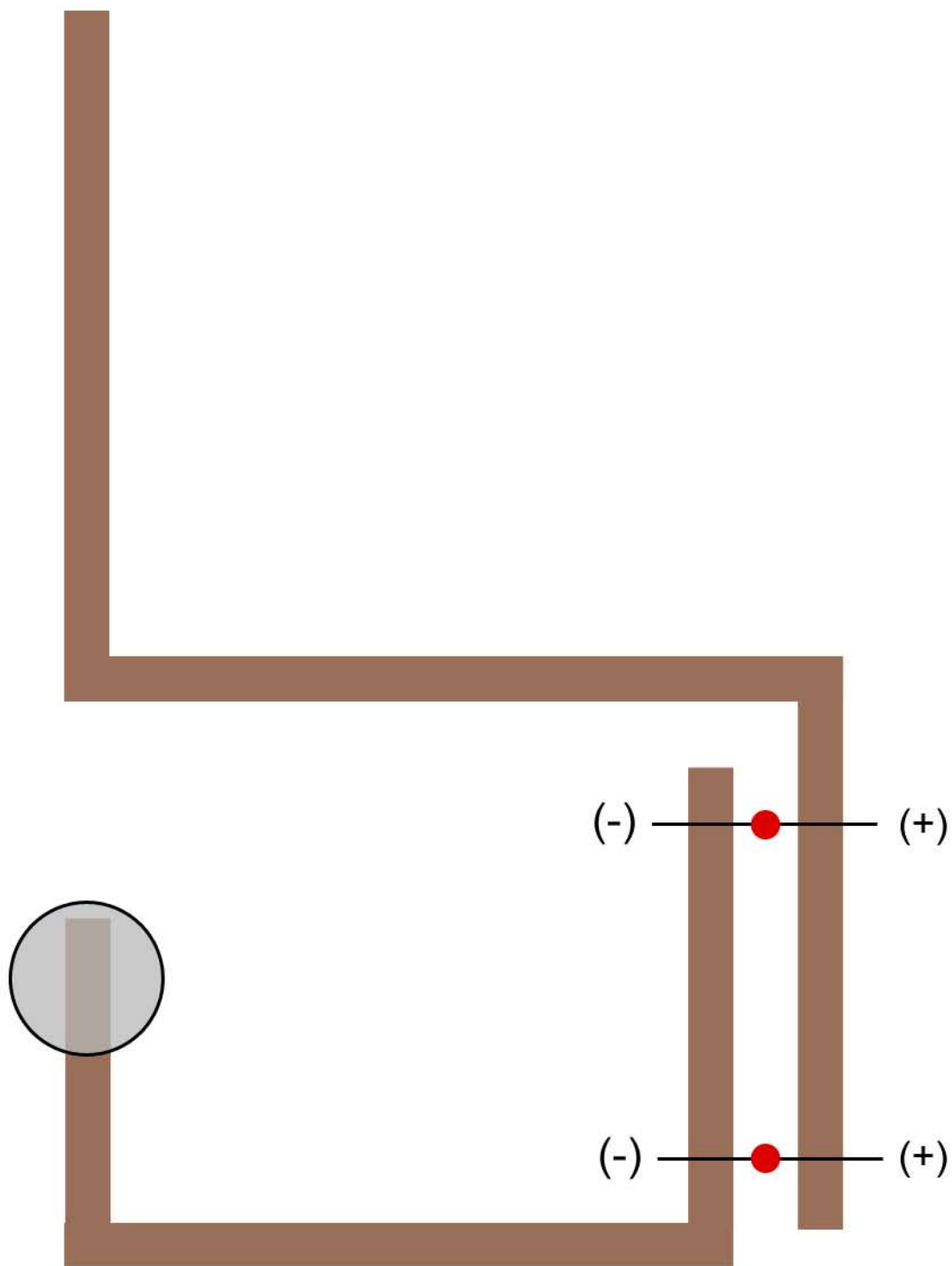


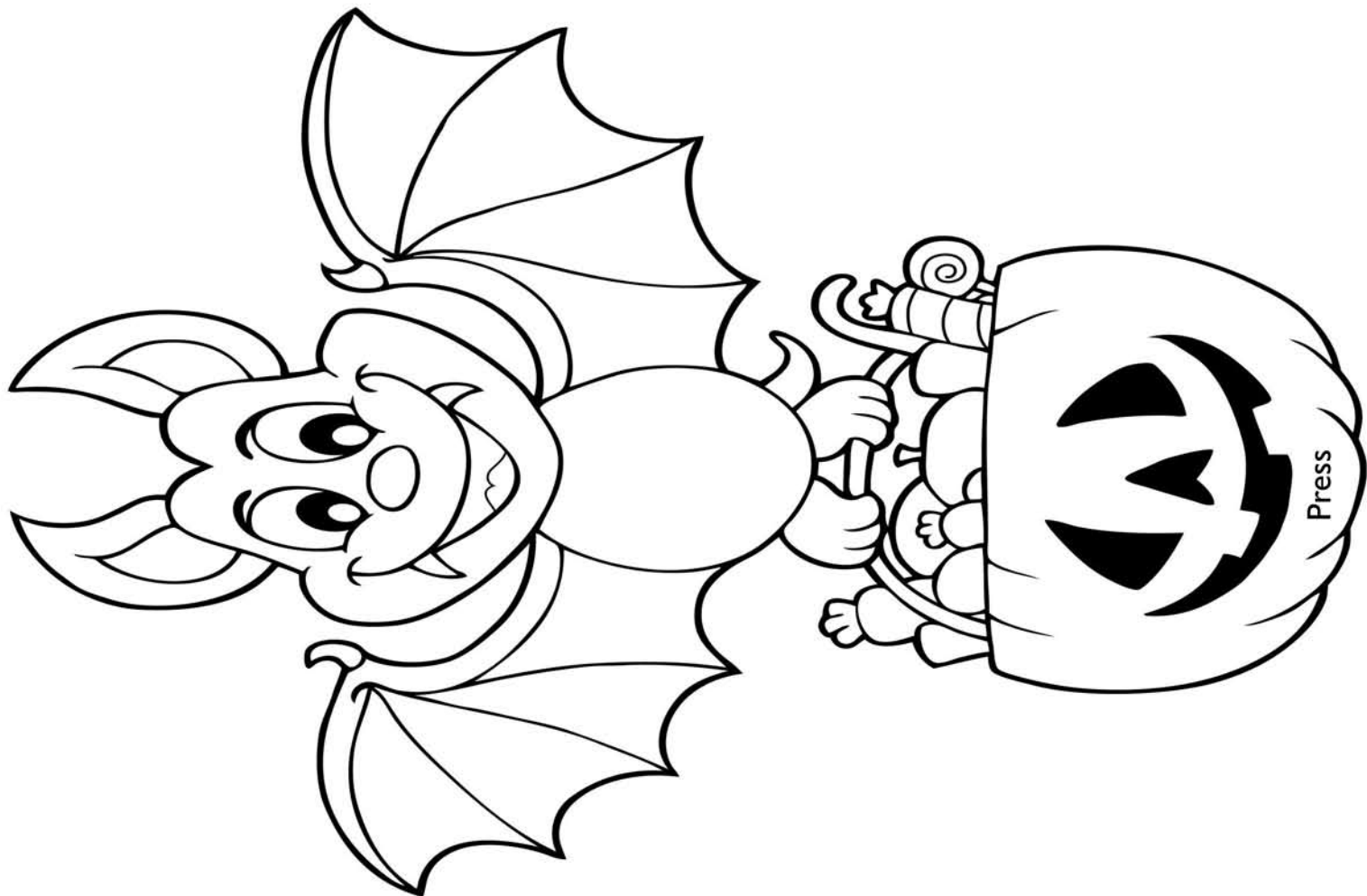




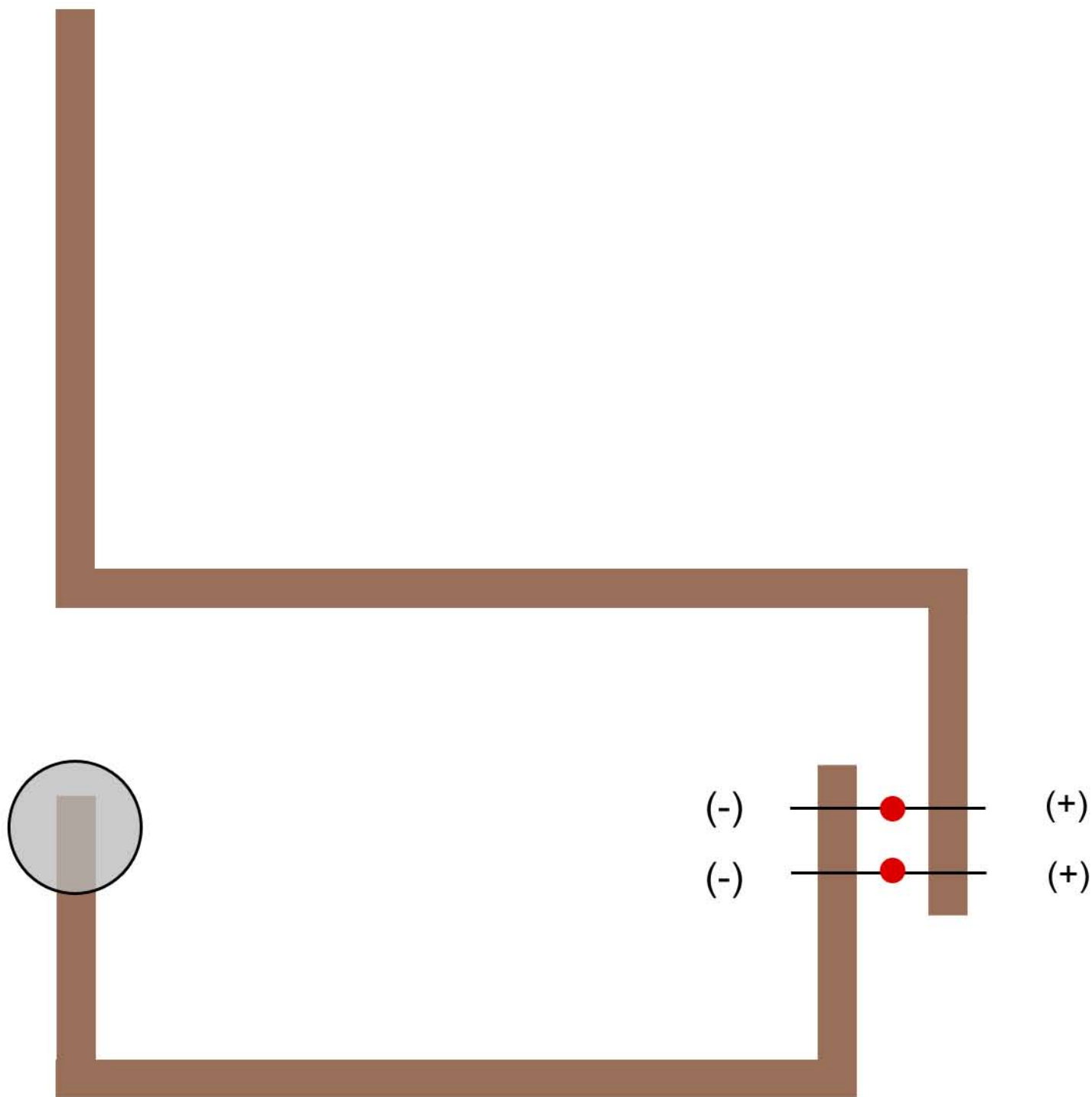


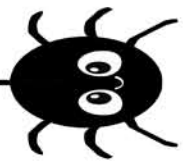
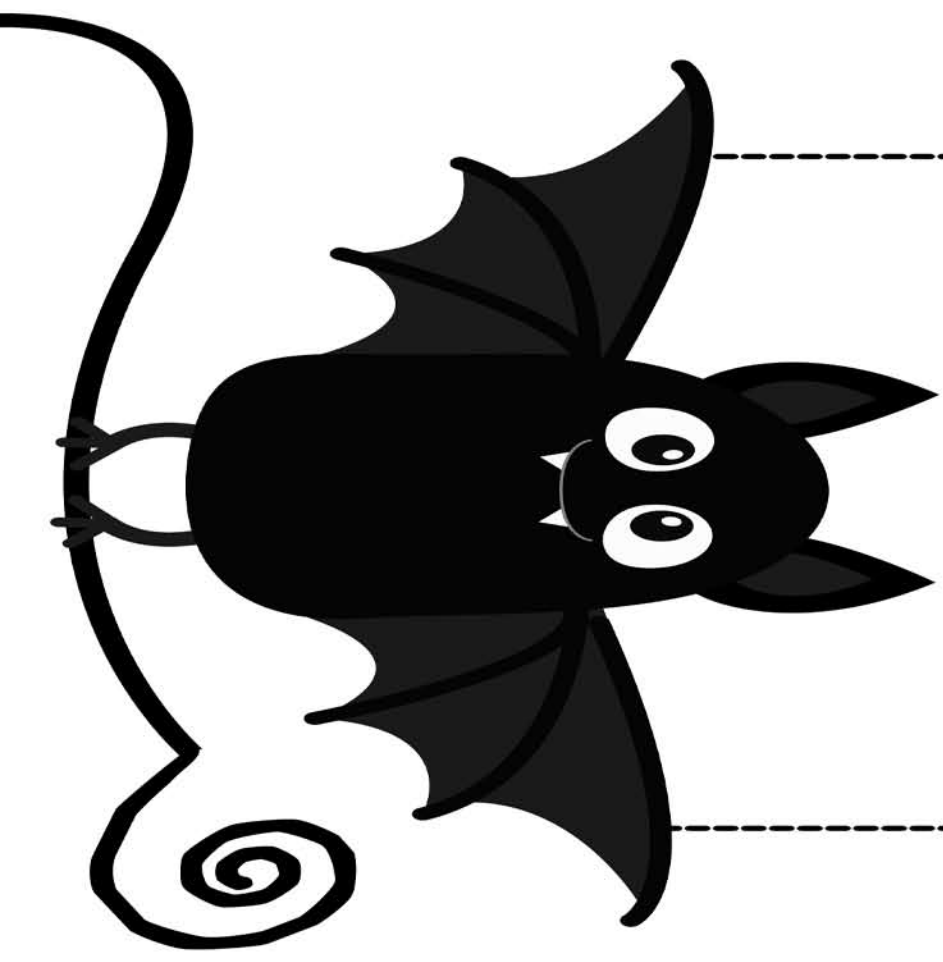




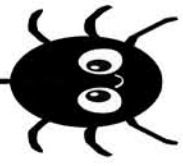




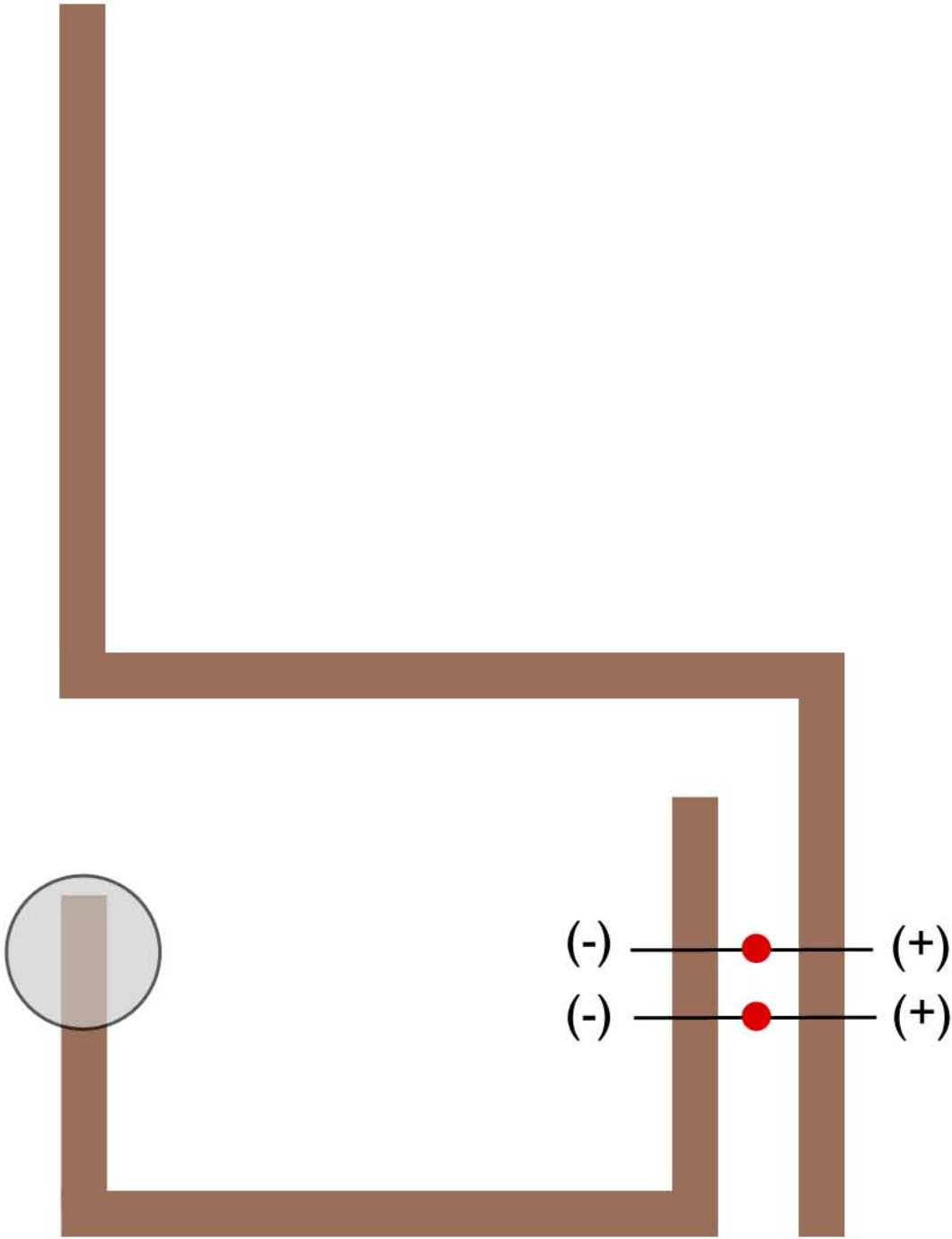


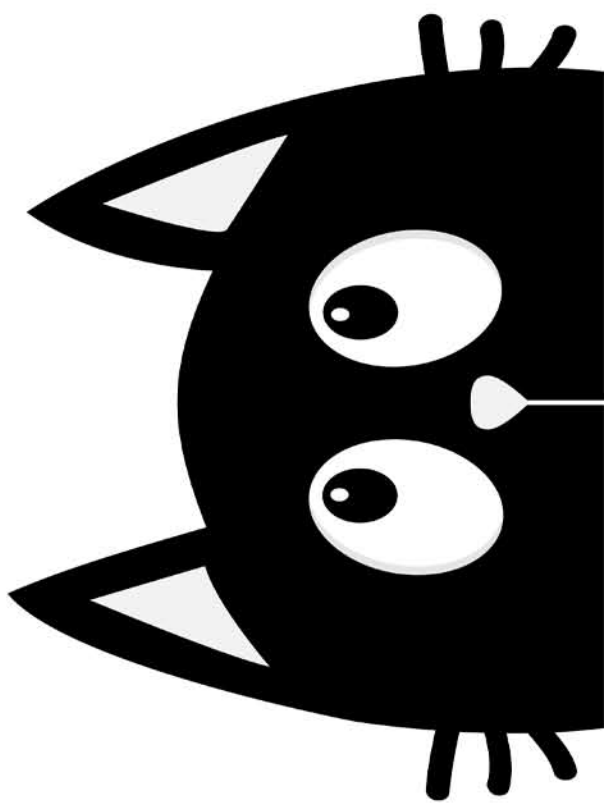


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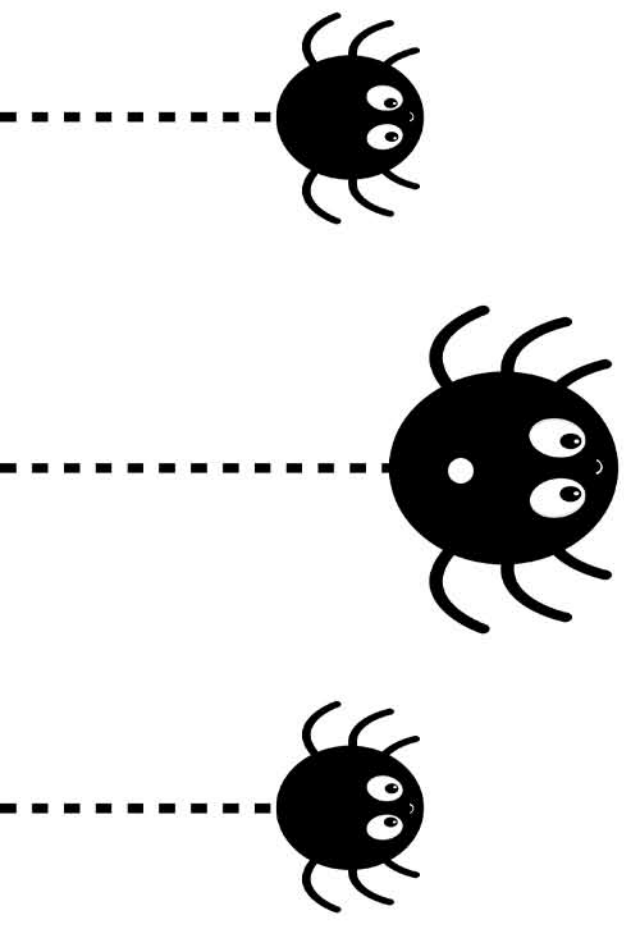


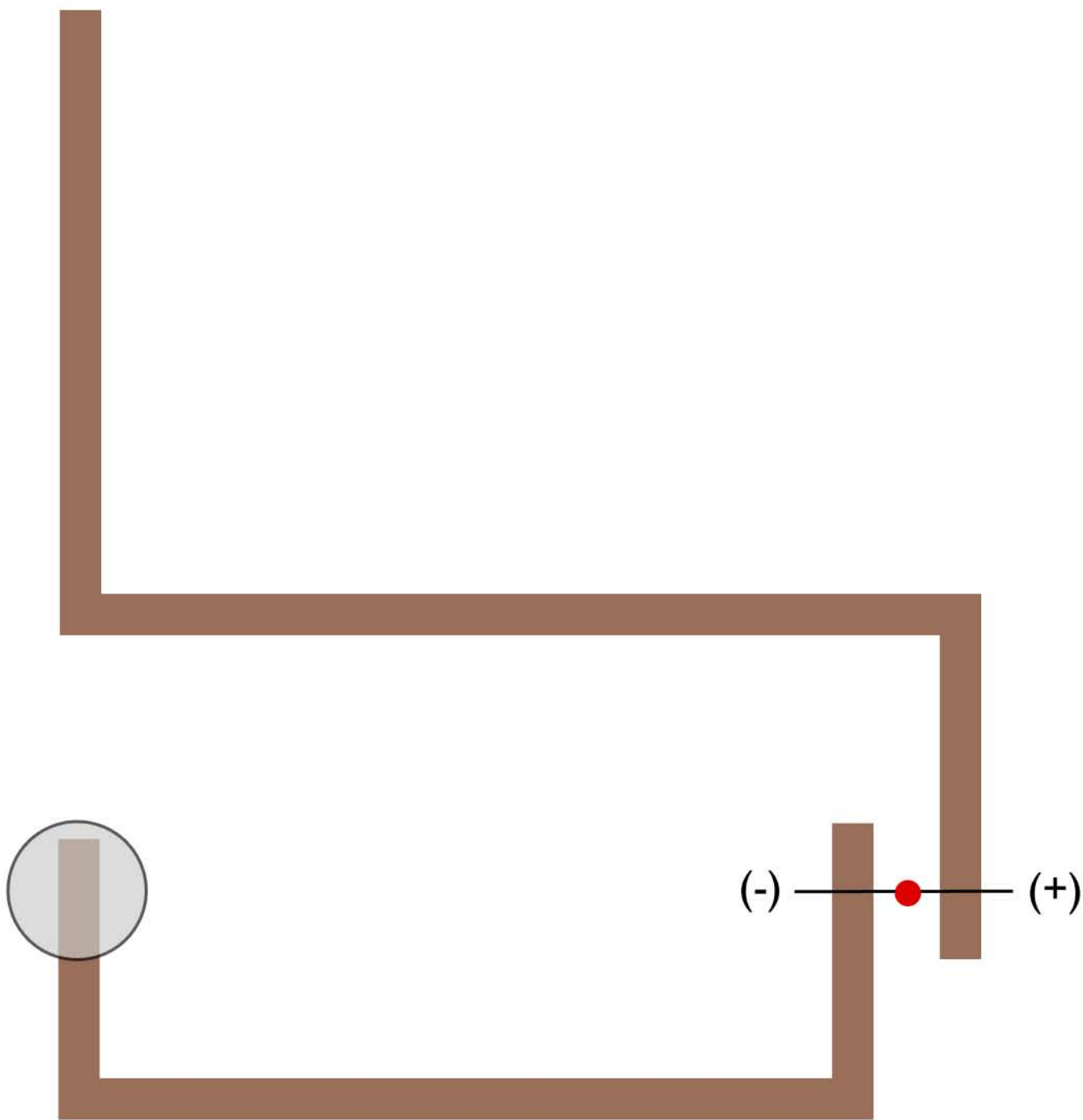
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