



Miruna (workfield professional):
“Making the assignments real, tangible and visible tends to help youngsters to understand the theory behind the practice.”

Light Cube

[Physics] [Crafts] [Technology]



Lesson Objectives

Explore touch-sensitive paper circuits and RGB LEDs.

Materials Needed

- an RGB LED
 - a three volt button cell (i.e. CR2032)
 - conductive tape with conductive adhesive
 - two 100 Ohm resistors
 - a binder clip
- the printed template (see next pages)
 - scissors, glue and/or transparent tape
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Smart Hands youngsters carried out this assignment while having their international learning week in Romania, hosted by our partners Scientifica and CNER secondary school. You can see in the pictures how they did it, and this is what they did:

Step 1 : Cut out the template of the circuit. Score and fold all edges.

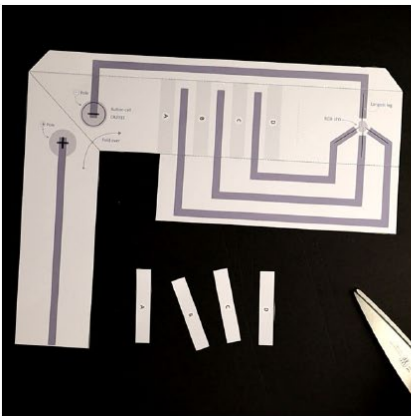
Step 2: Trace the circuit with conductive tape.

Step 3: Attach the longest leg of the RGB LED to one track and the other three legs to the other tracks. Make sure the four tracks do not touch each other!

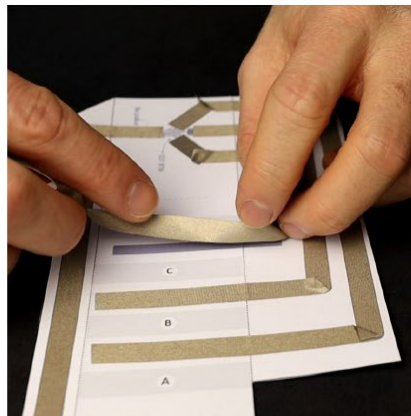
Step 4: Cut a gap and add a small resistor (e.g. 56 Ohm) in front of the "red leg".

Step 5: Add a button cell to the circuit and test it! When it is working, it is time to turn it into a light cube!

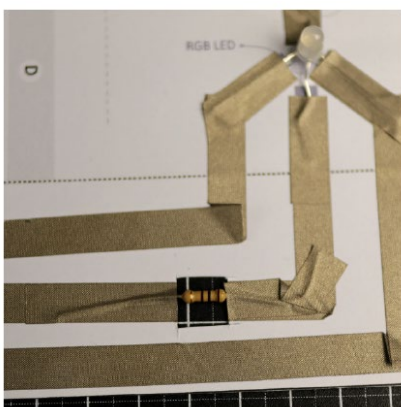
Step 1



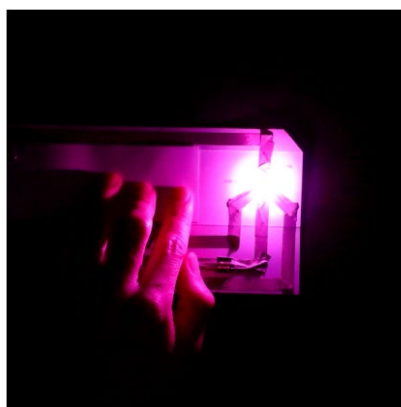
Step 2



Step 3



Step 4



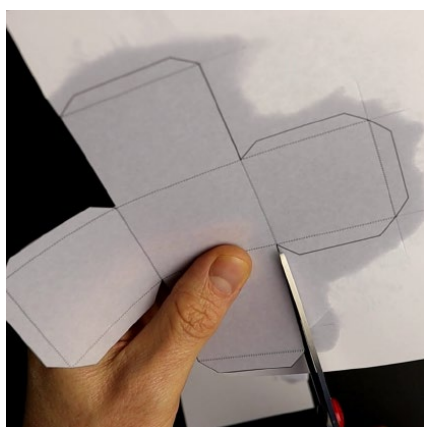
Step 5

Step 6: Cut out the template of the cube.

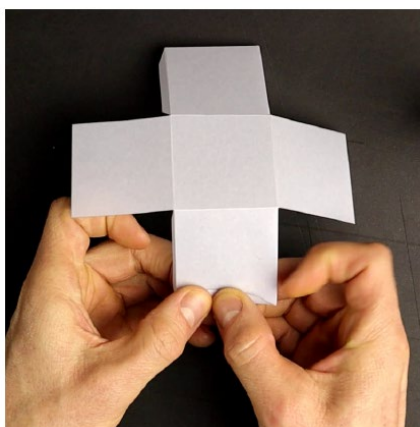
Step 7: Prefold every edge.

Step 8: Glue the cube together. Glue the cube on top of the RGB LED.

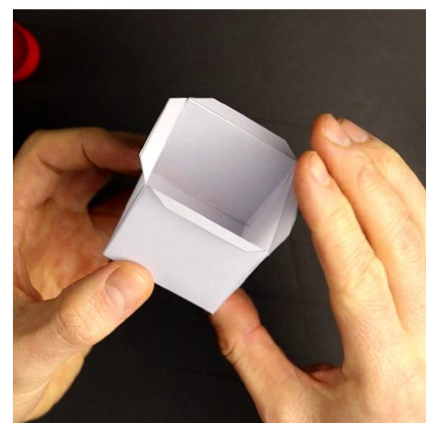
Step 9: You have a colour changing light cube, test it out in the dark!



Step 6



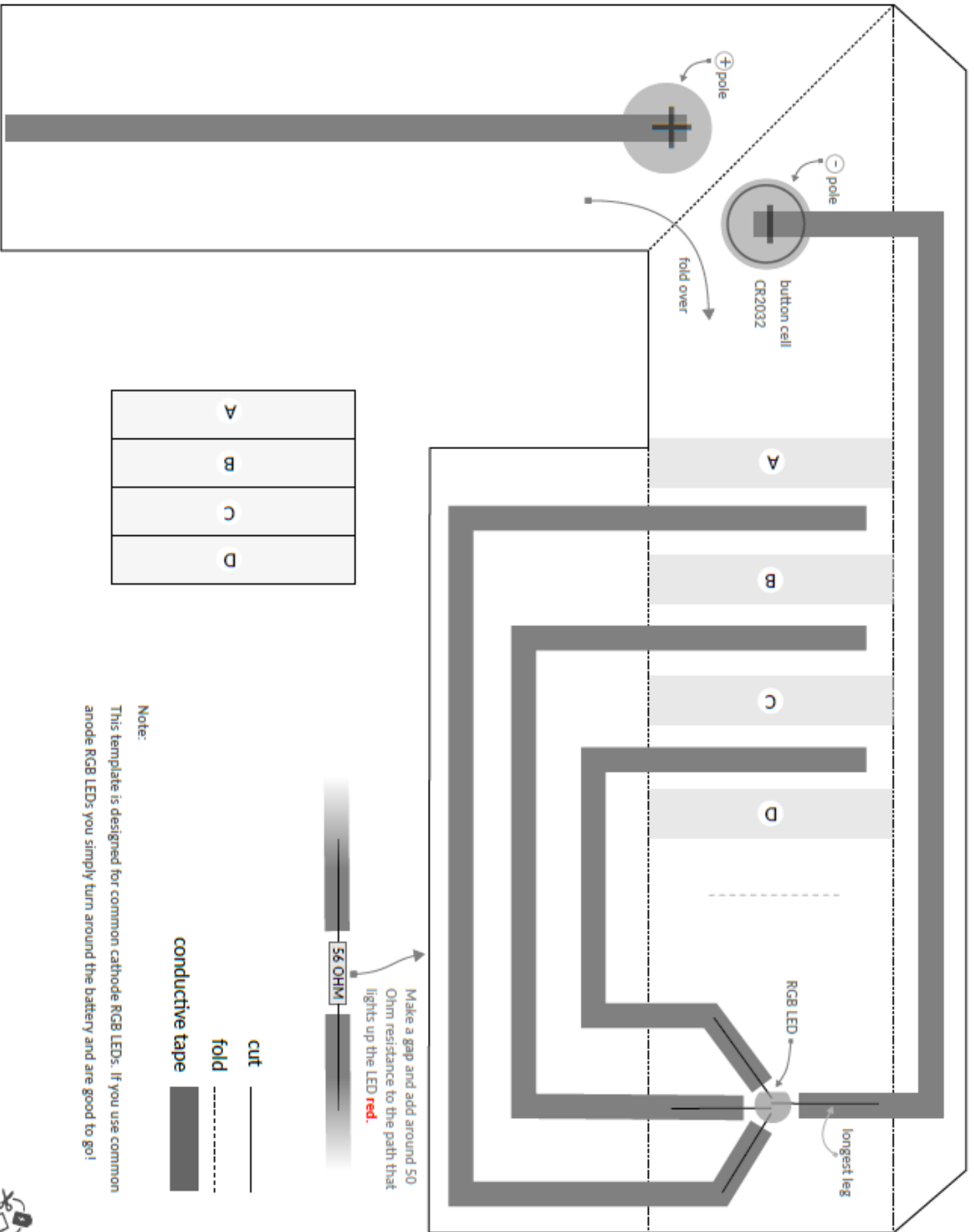
Step 7



Step 8

Step 9: test it out in the dark!





A	B	C	D
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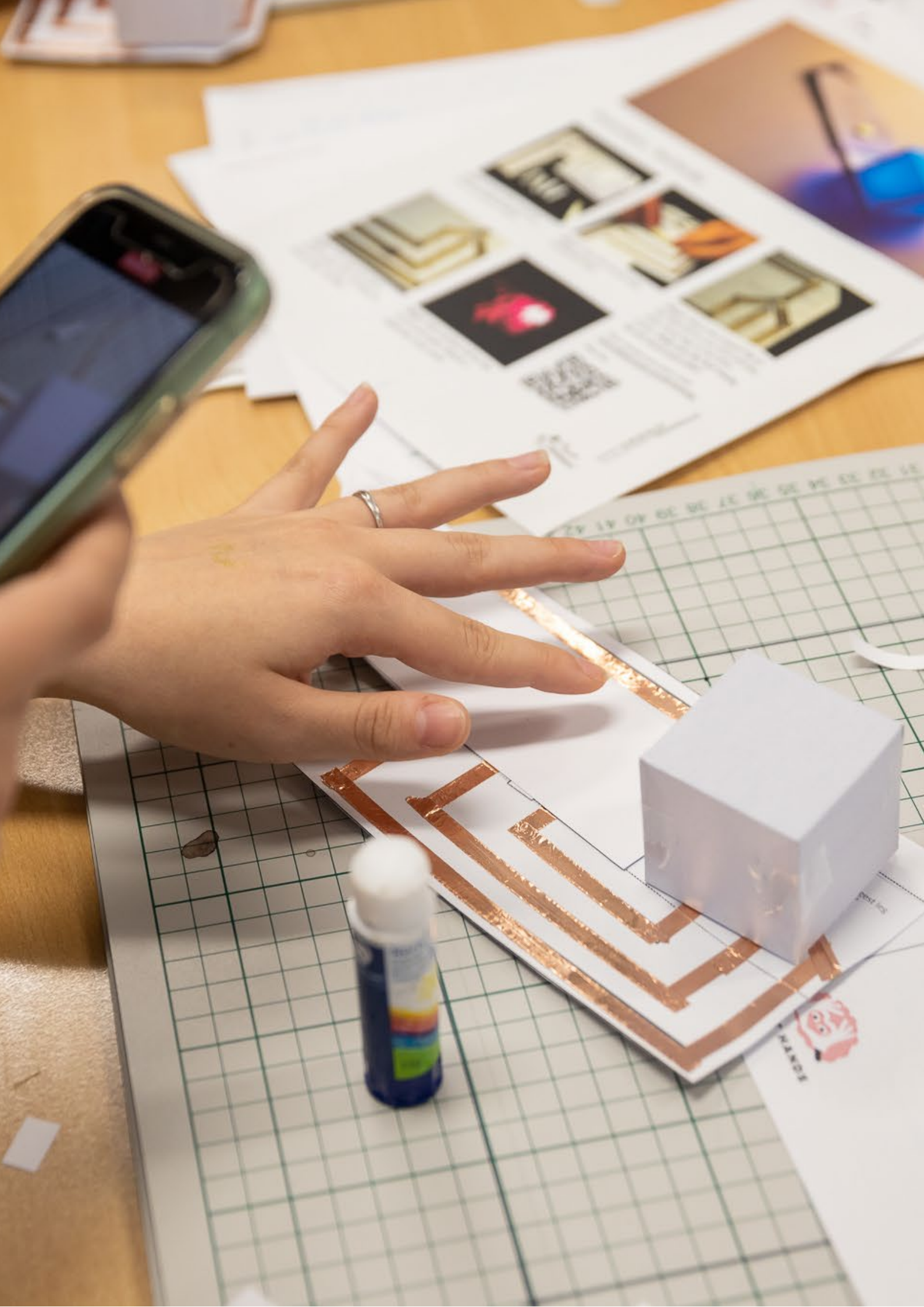
Note:

This template is designed for common cathode RGB LEDs. If you use common anode RGB LEDs you simply turn around the battery and are good to go!

Make a gap and add around 50 Ohm resistance to the path that lights up the LED **red**.

cut _____
 fold - - - - -
 conductive tape ██████████





— Cut
- - - - - Fold

