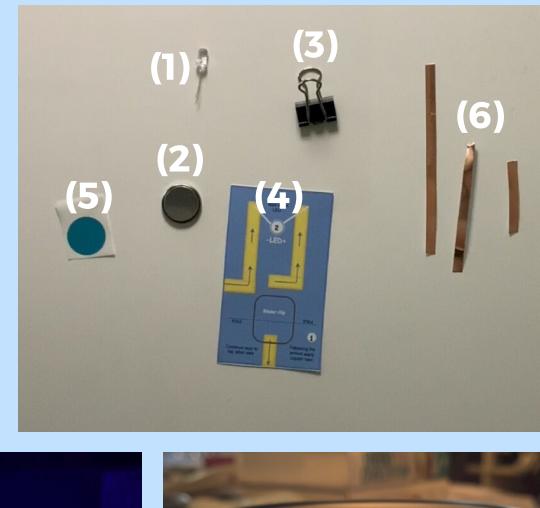


OVERVIEW

How to create a circuit: An electrical circuit is a path on which electricity flows.



MATERIALS

Light Emitting Diode (LED): turns on once electricity flows (1)

CR2032 Battery: stores electrical energy (2)

Binder Clip: the switch to turn the circuit on/off (3)

Template: the traces of the circuit (4)

Sticker Dot: to tape down the LED (5)

Copper Tape: conducts electricity from (6)

battery to light (LED)

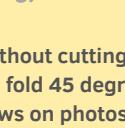
Follow the white numbered dots on the template :

The dots correspond to the step numbers below.

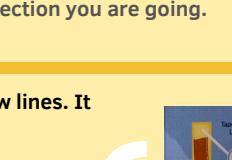
Once finished, you can place the circuit back into the jar!



STEP 1: Copper Tape



Peel tape a little bit at a time to prevent it from sticking to itself.



1

Apply the 3 pre-cut pieces of copper tape to the three lines marked in yellow on the template (they are already sized, DO NOT cut anything). There are 3 lengths of copper tape: Long, Medium, Short. Each length corresponds to a section. The order you tape in does not matter.

You will need to fold CORNERS, as you want to maintain a CONTINUOUS strip without cutting:

To fold corners, start by folding it back from the direction you came from. Then fold 45 degrees upward in the direction you are going.

Crease down the corner with your finger and continue applying (use white arrows on photos as guidance).

LONGEST copper tape: Start taping from the back side within the gray circle and follow the arrows on the yellow lines. It will wrap over onto the frontside of the template.

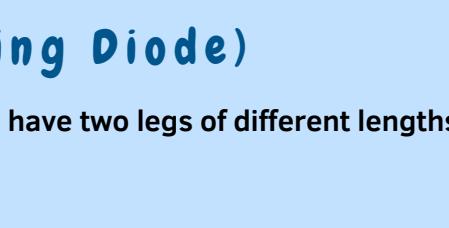


NOTE: It's OKAY if your tape does not reach the end!

MEDIUM copper tape: goes on the right yellow lines on the frontside (does not fold over anywhere, only goes on the surface of the template).



SHORTEST copper tape: goes besides the white dot labeled "1" and WRAPS over to the backside.



STEP 2: LED (Light Emitting Diode)

2

→ The LED must be put in a certain direction to work. LEDs have two legs of different lengths:

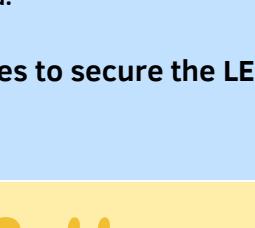
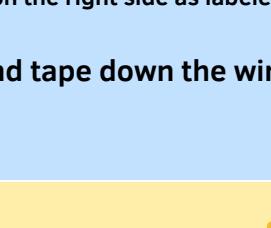
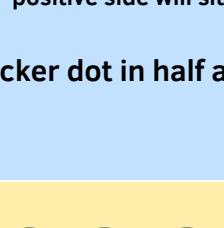
Longer leg is positive

Shorter leg is negative

→ Match the legs according to the signs on the template!!

→ Split the two wires of the LED into a "V" shape then fold up 90 degrees so that the LED sits flat on the white circle labeled (2) also labeled (+LED-).

→ Make sure the wires TOUCH the copper tape!!



When folding the LED wires make sure the positive side is on the left when it faces you, so that when you place the LED on the template (facing away from you) the positive side will sit on the right side as labeled.

→ Cut the sticker dot in half and tape down the wires to secure the LED onto the template.

Below shows another way to place the LED: as long as the positive side goes on the side labeled positive and same for the negative end.



STEPS 3 & 4:

Battery & Binder Clip

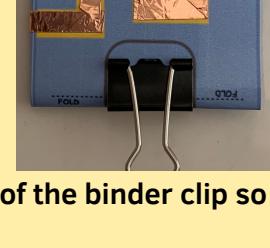
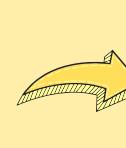
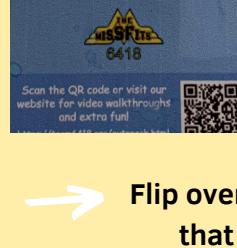
3 4

On the back side of the template:

→ Install the battery with the positive (+) side facing up onto the template with a white dot labeled (3).

→ Fold over the dotted line, covering around half of the battery.

→ Attach the binder clip on the folded flap, holding the battery in place.



ON

Closed circuit=Complete

OFF

Open circuit=Incomplete

→ Flip over to the front side: To turn the light on, bring down the silver metal handle of the binder clip so that it comes in contact with the copper tape on the frontside of the template.

The binder clip acts as a switch, closing and opening the circuit turns it on and off.

about us:

MISSFITS

FRC TEAM 6418

The Missfits is an all-female FIRST (For Inspiration and Recognition of Science and Technology)

Robotics team based in San Francisco, California.

The team is open to all girls attending high school in the SF Bay Area.

As a robotics team, we value the spread of STEM

to youth, therefore we created these mini LED electronics kits. The kit is an easy interactive activity to get kids involved!



YOUR GOAL is to have a completely connected circuit in order for the current to flow:

The negative side of the battery traces to the negative end of the LED and the positive end of the LED traces to the positive side of the battery through the clip.

team6418.org

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INSTAGRAM/FACEBOOK/TWITTER:
@Missfits6418

SAFETY MEASURES



Find video walkthroughs and extra

decorating ideas via

Link:

<https://team6418.org/outreach.html>

! If under 8 years old, have an adult supervise the child when constructing the kit.

! DO NOT EAT the battery or any other materials.

! The jar is made with glass! So handle with care.

! The edges of the copper tape are sharp: be careful not to cut your fingers.

TURN OFF the light when not in use:
-To turn off LED, flip the binder arms open
(off the copper tape).

or scan this QR code:



EXTRAS

NEW



OPEN

