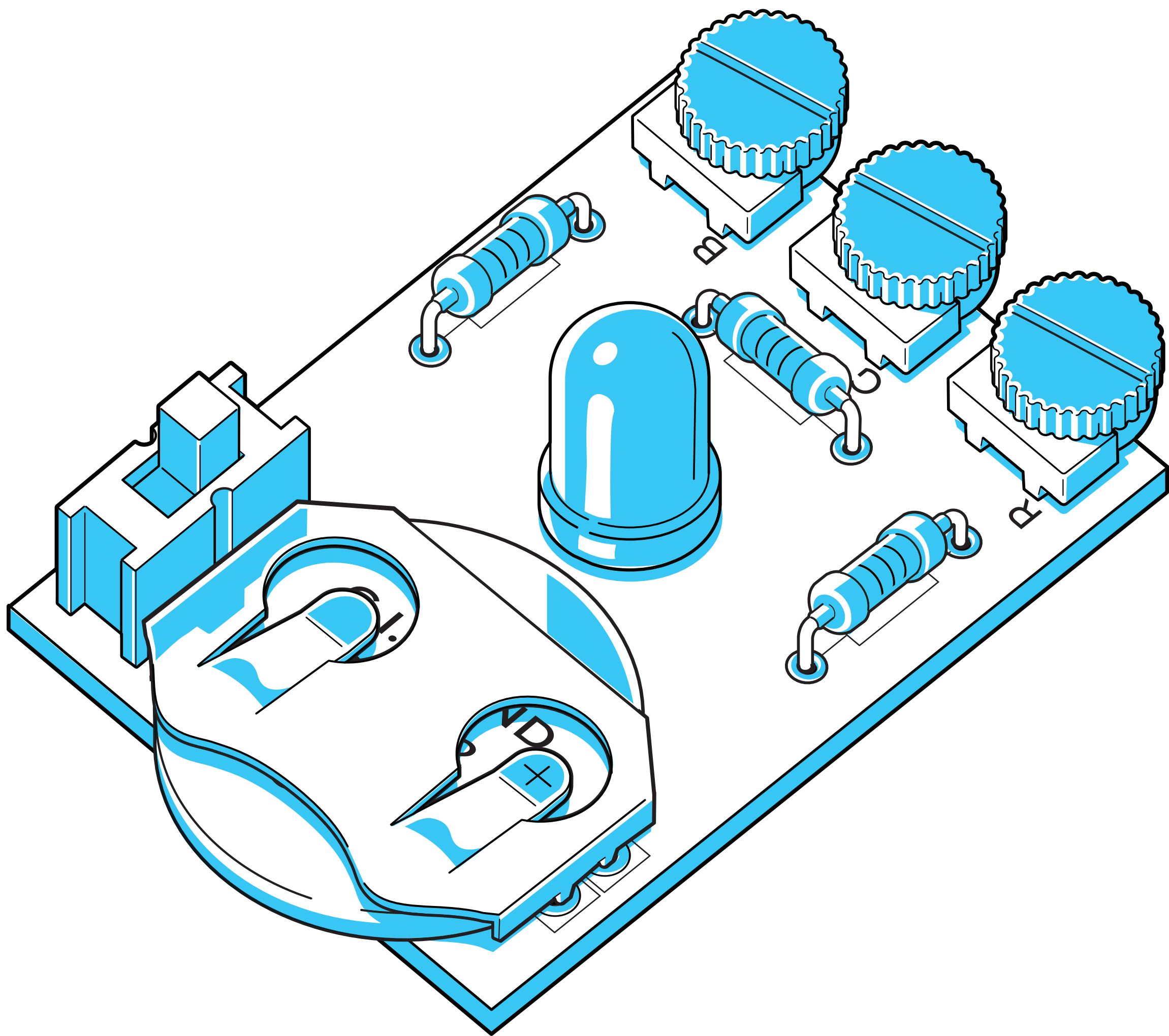


Hue

Learn to Solder Kit



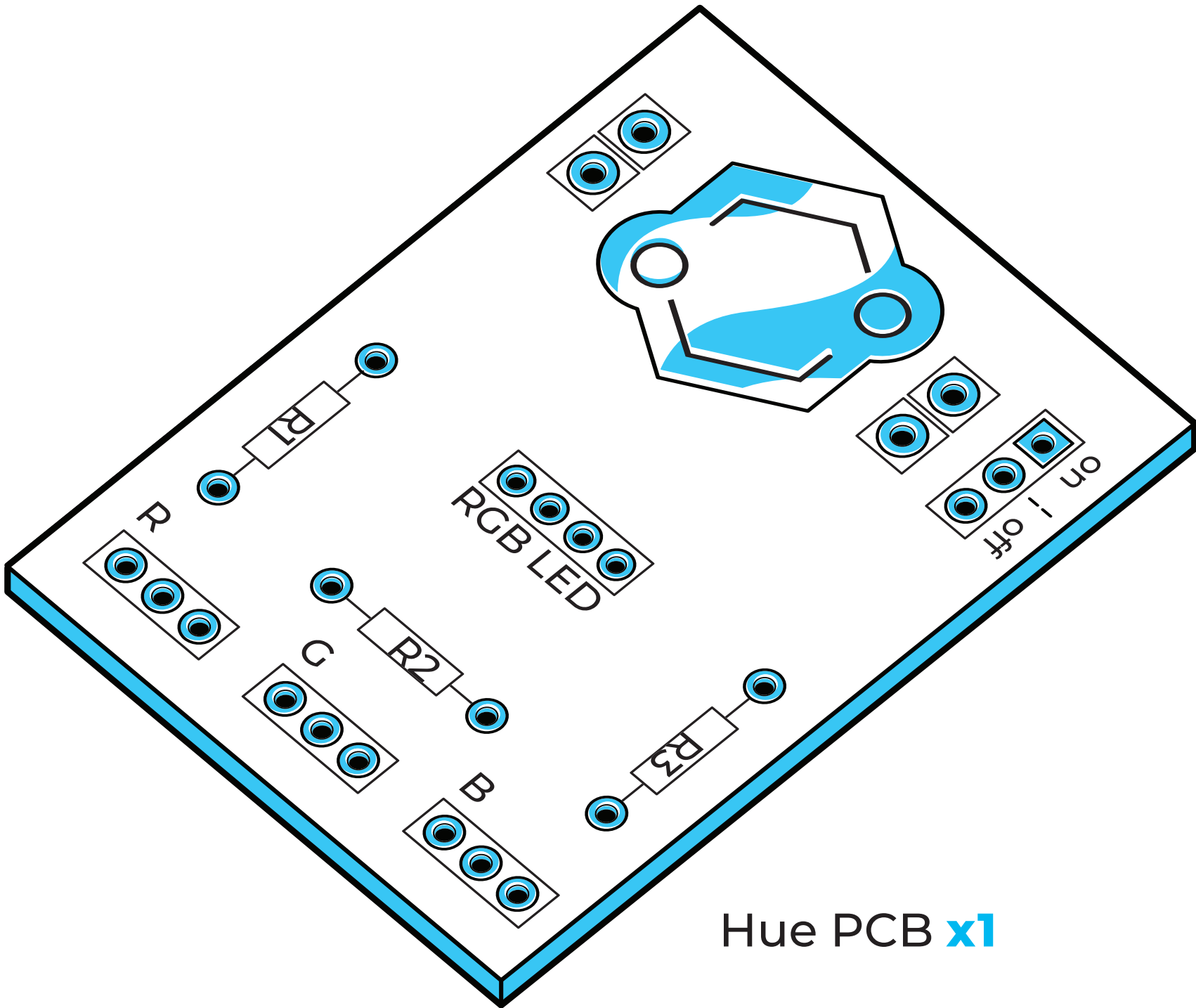
Easy to assemble

30-minutes or less

Made in California, USA

learntosolderkit.com

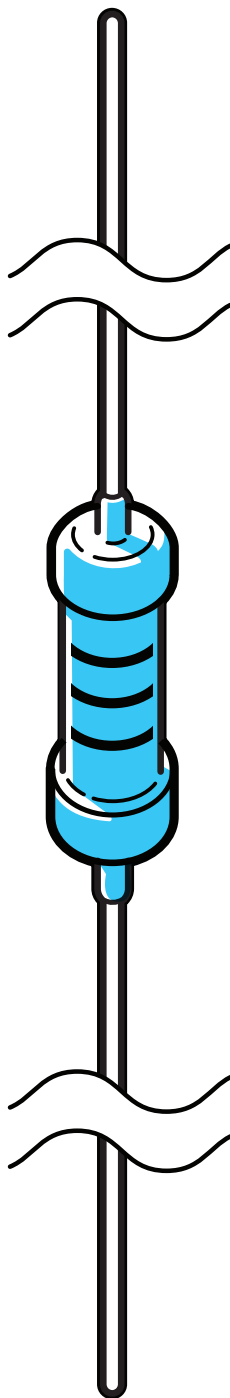
01. Parts



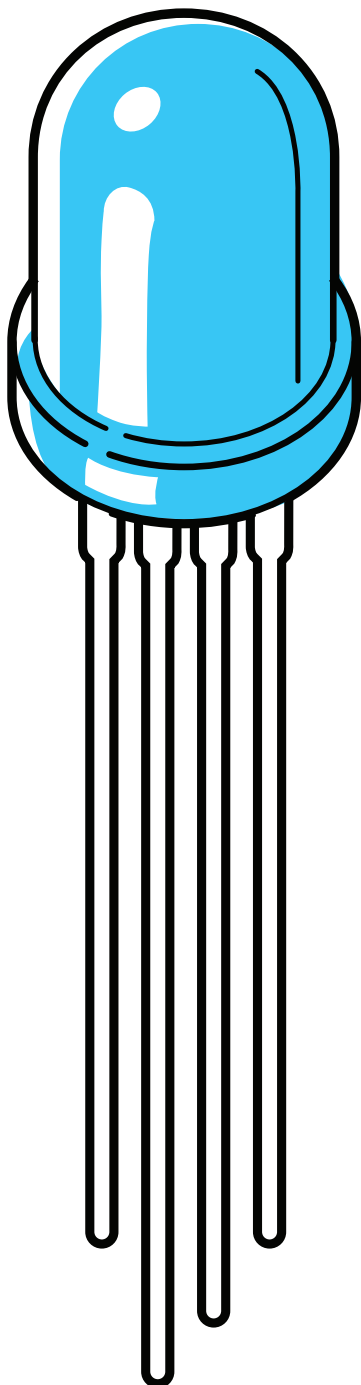
Hue PCB **x1**



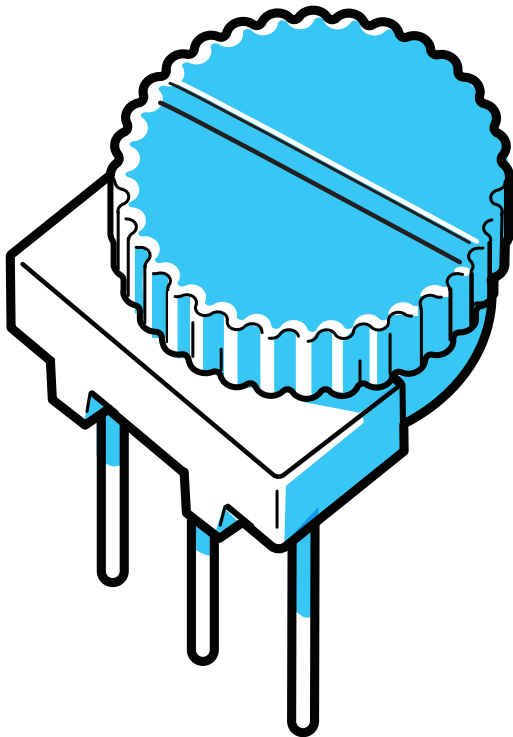
3V Coin Cell Battery **x1**



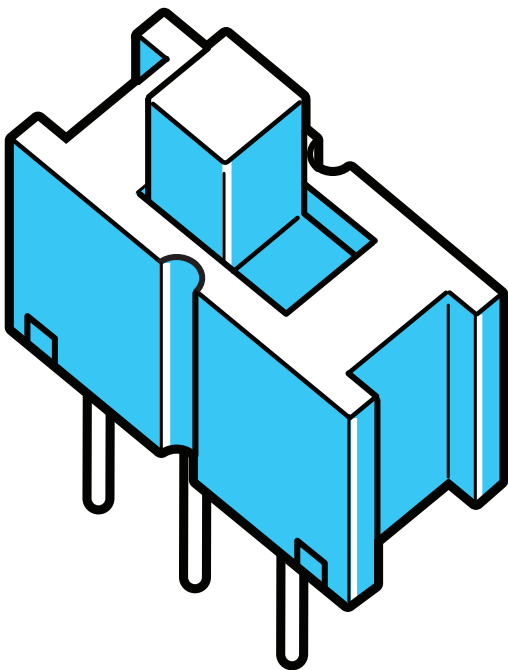
Resistors **x3**



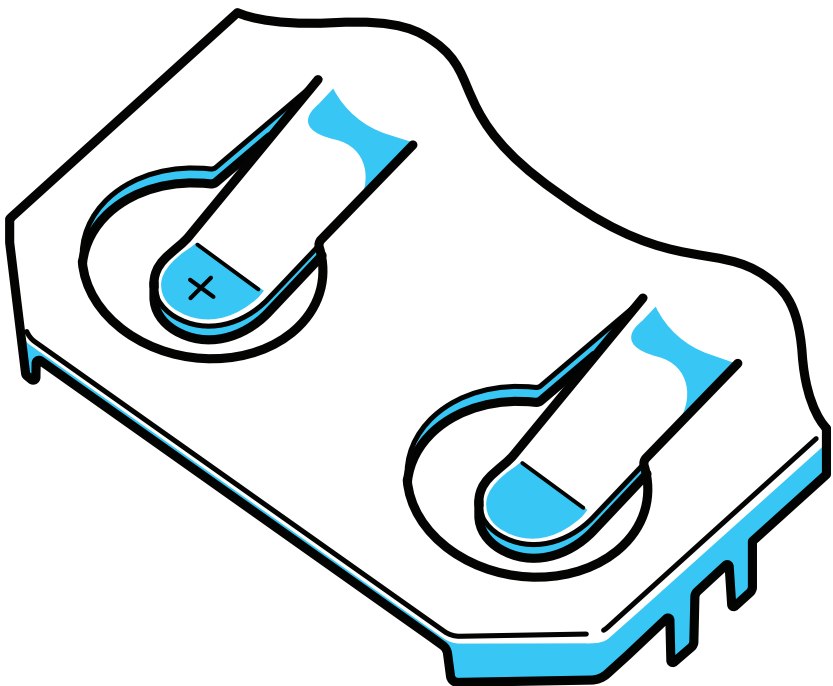
RGB LED **x1**
Common Cathode



Potentiometers **x3**



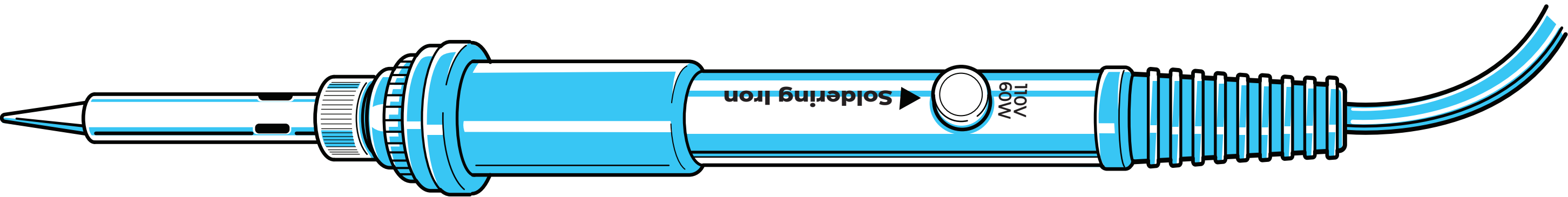
On/Off Switch **x1**



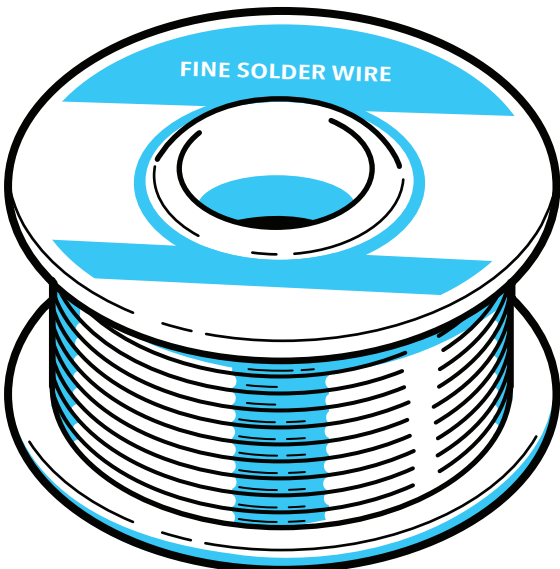
Battery Holder **x1**

02. Tools

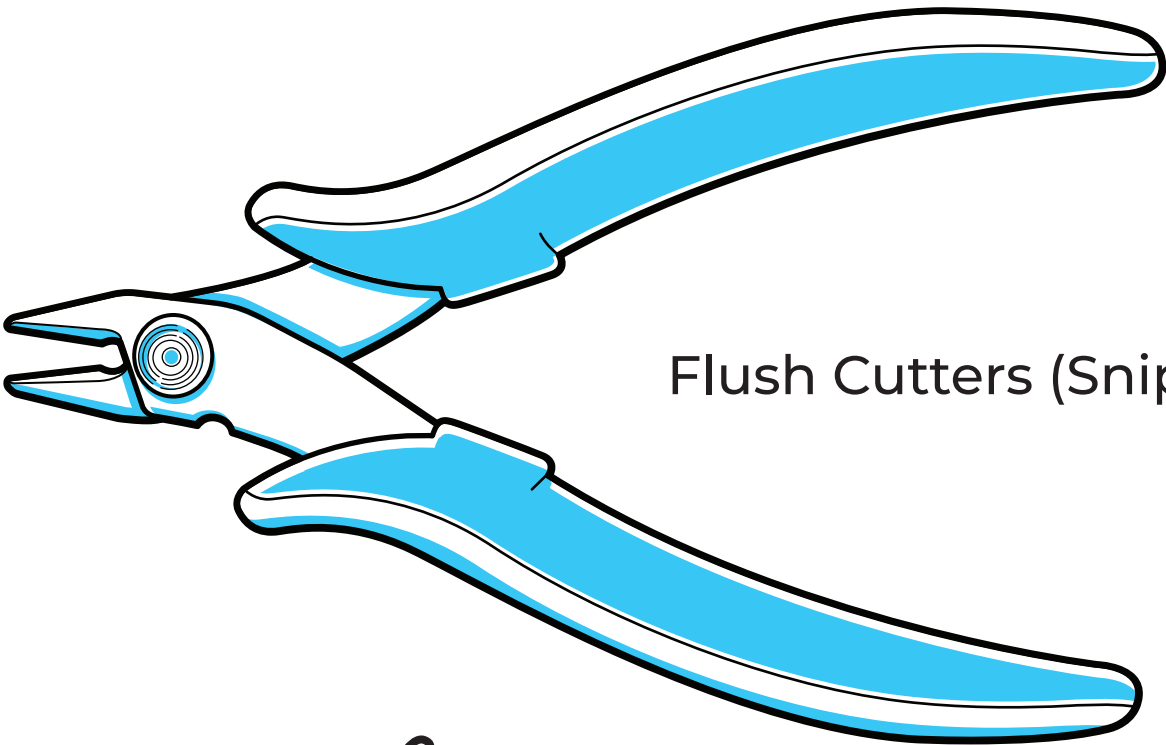
RECOMENDED



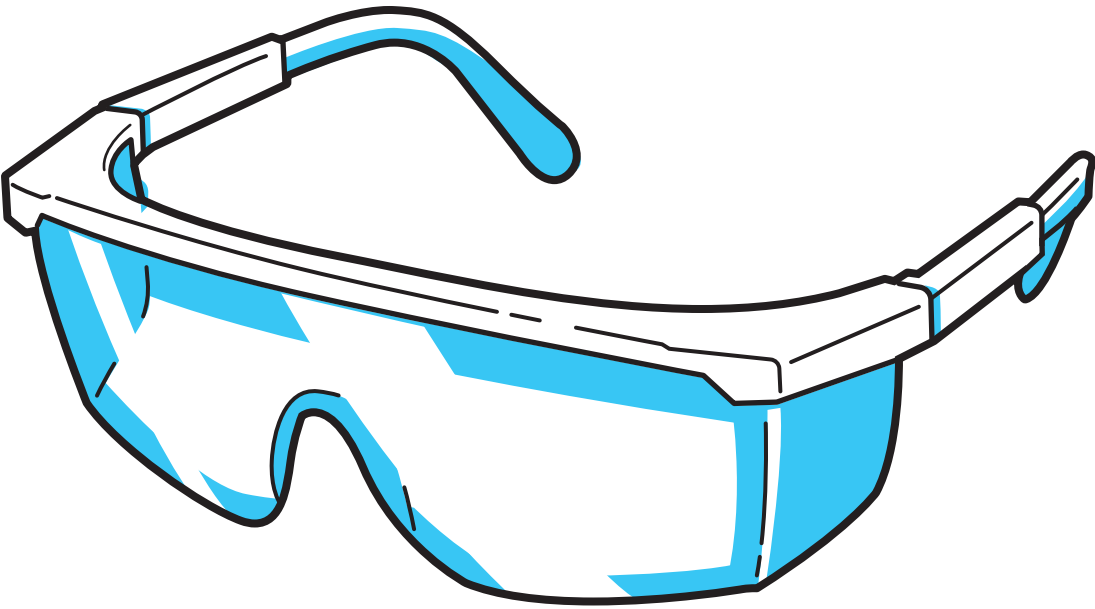
Soldering Iron



Solder

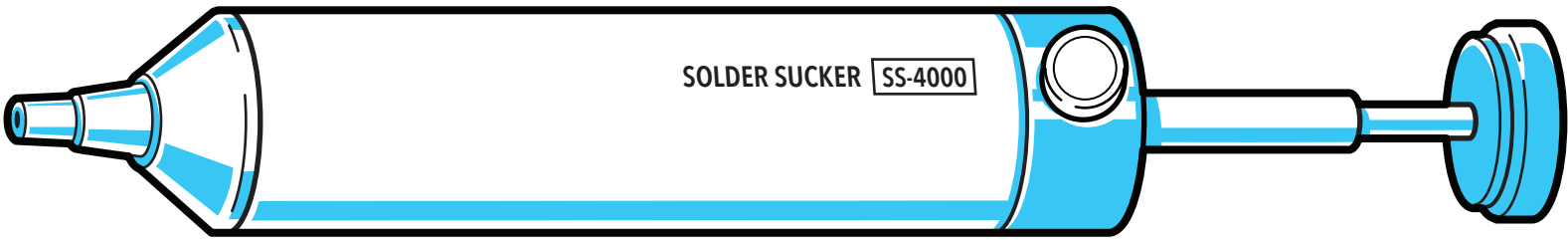


Flush Cutters (Snips)

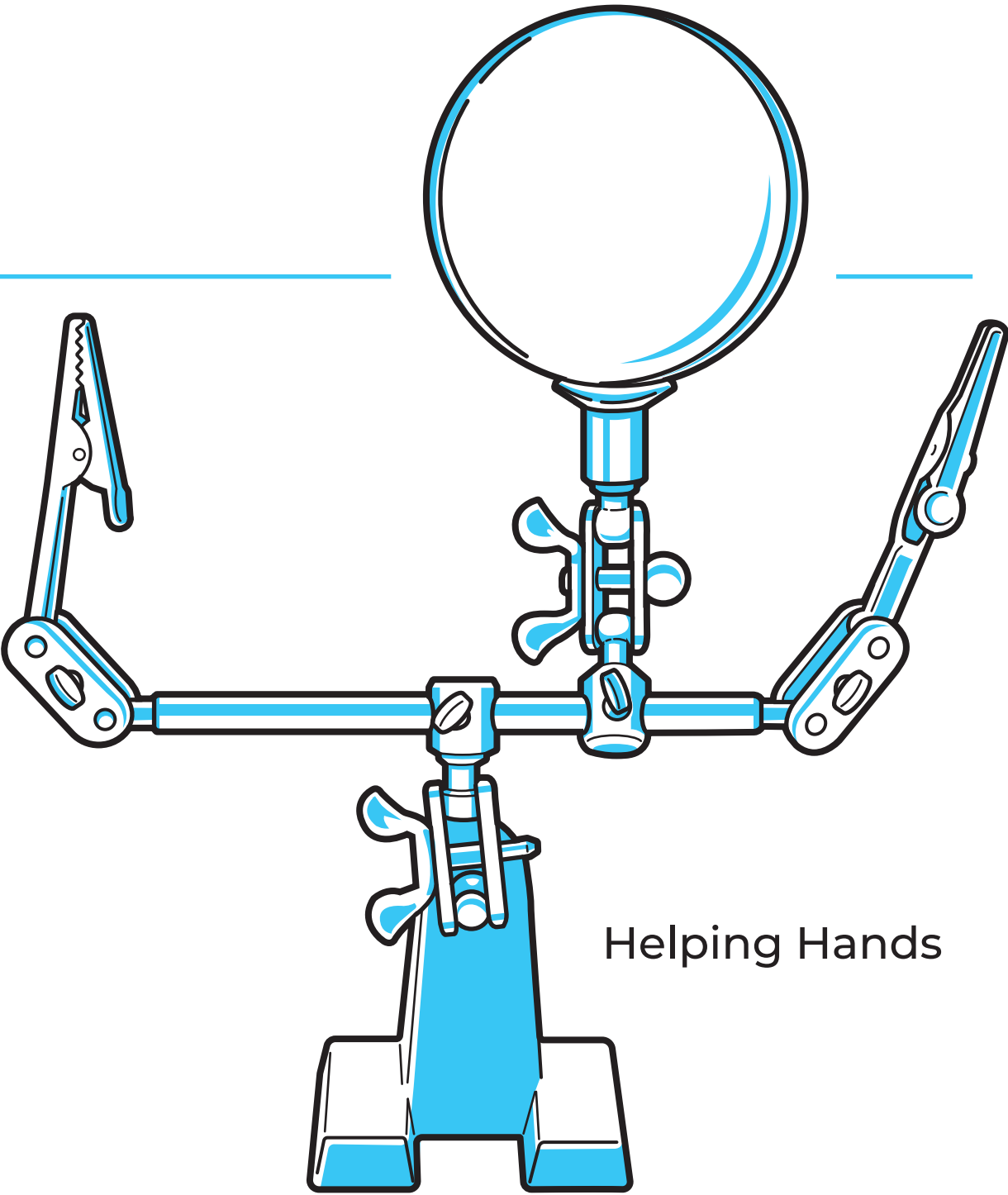


Safety Glasses

OPTIONAL

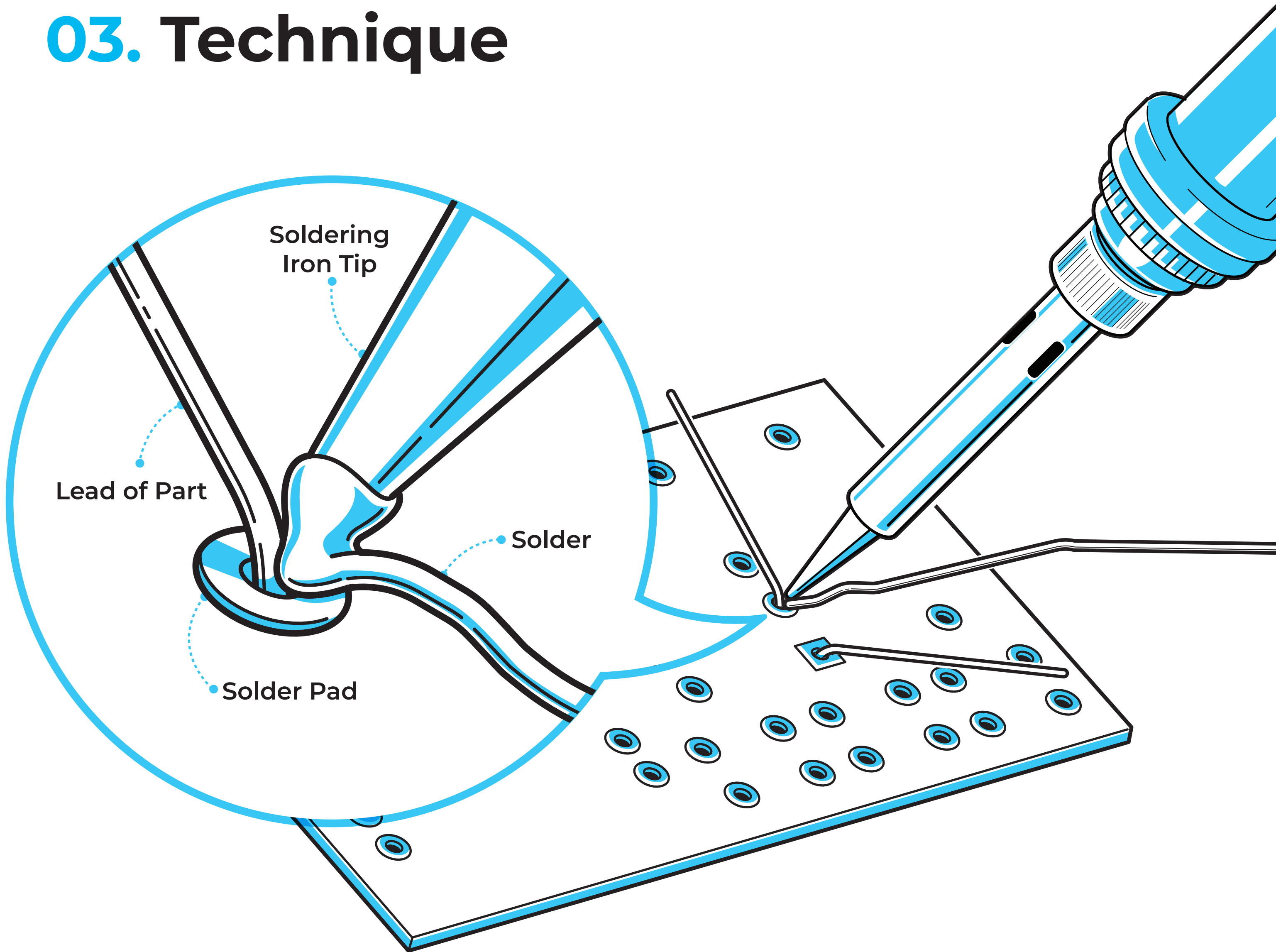


Solder Sucker



Helping Hands

03. Technique

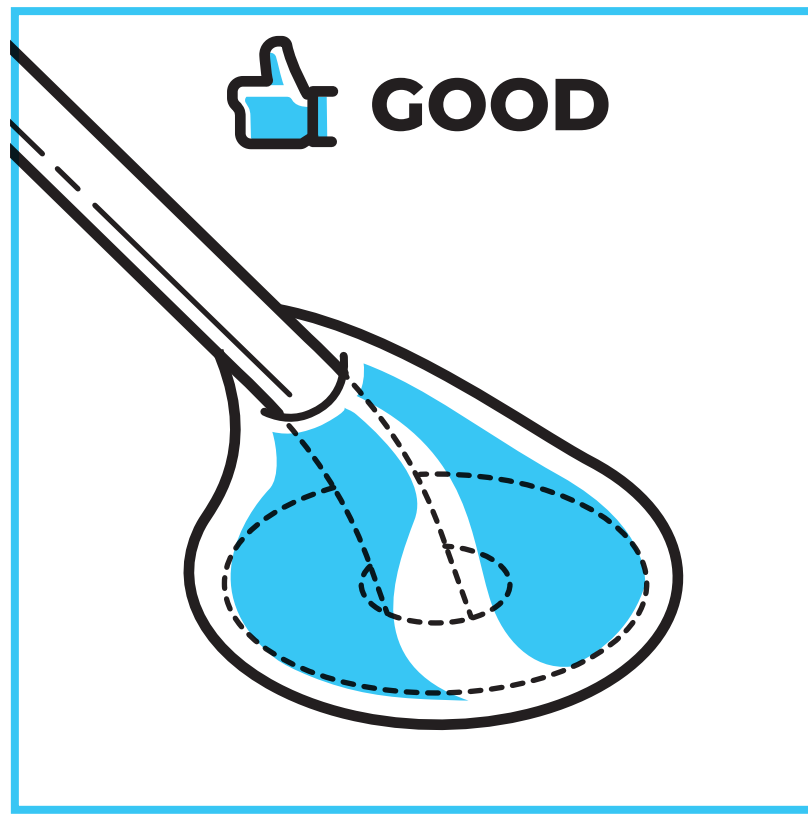


Above is the correct setup for creating a strong solder joint. Your goal is to heat both the lead of the part being solder and the solder pad. Then introduce the solder itself. By heating the lead and pad correctly the solder will flow around them to create a strong joint.

Your soldering iron should be set to at least 450F and less than 700F. If your solder iron does not have a temperature dial no problem! Just plug it in a go. Hold the tip of the iron to the lead and pad for about three seconds before introducing the solder. Don't worry if you heat up the board a bit, it is designed to withstand hot temperatures.

Hold the solder between your forefinger and thumb about four to six inches from the end. The solder is going to melt really quickly so you don't want your finger to be too close to the end. Touch the solder to the solder pad. It should liquify almost instantly and flow into the joint. Move the solder around a bit to cover the entire solder pad. You don't need very much to create a clean solder joint. It should only take a few seconds.

Pull the solder away first and then the soldering iron. Viola! You have just created your first soldering joint! Your solder joint should look something like the image below.



A little metal mountain resembling a hershey kiss. Fully covered solder pad, you should see no more gold.



A blobby solder joint that is more spherical. You can use less solder next time. The electronics should still work!



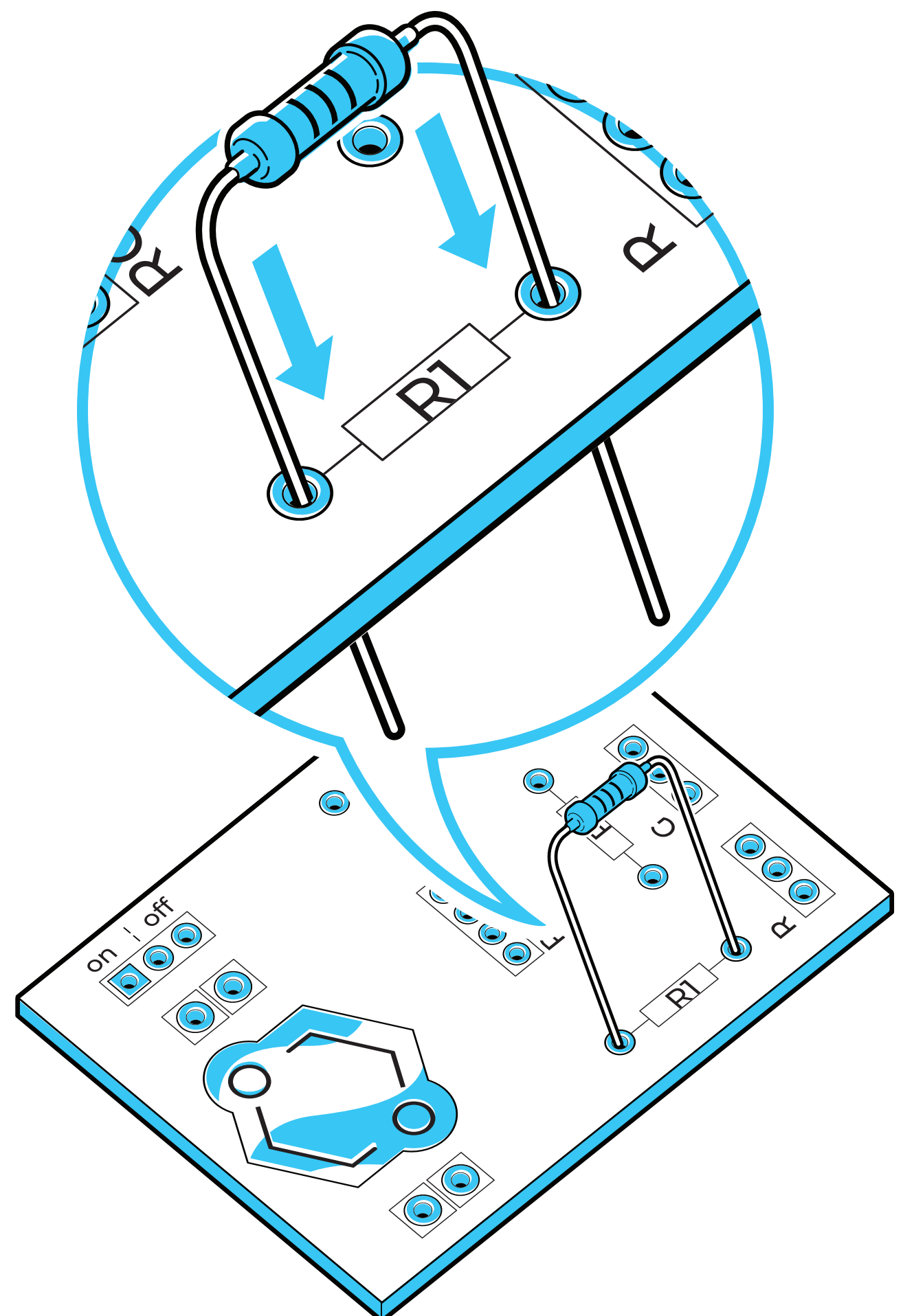
The solder is not fully on the solder pad. You still see some gold visible. Give it a another try. Just reheat the solder joint and add a little more solder.

04. Step-By-Step Assembly Instructions

STEP 1: RESISTORS

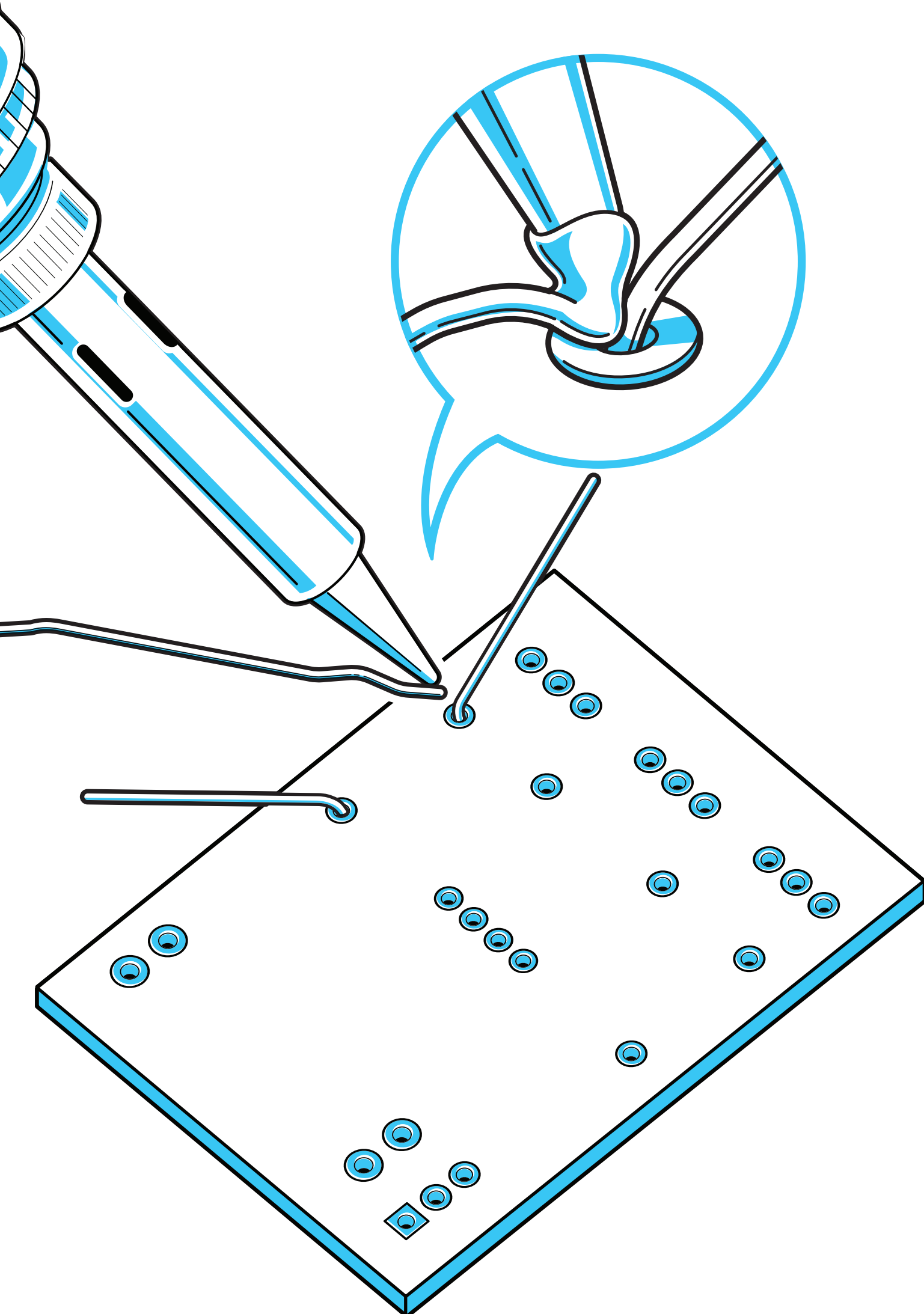
Start with the first resistor. This resistor is going to go into the place on the board labeled R1. Resistors are bi-directional meaning it doesn't matter which way they're rotated when you put them in. First remove the tape on both ends of the resistor leads. Then, bend the legs of the resistor and slide it into its home on the printed circuit board. Once the resistor is in place it helps to bend them slightly outwards so the part doesn't fall out.

1.



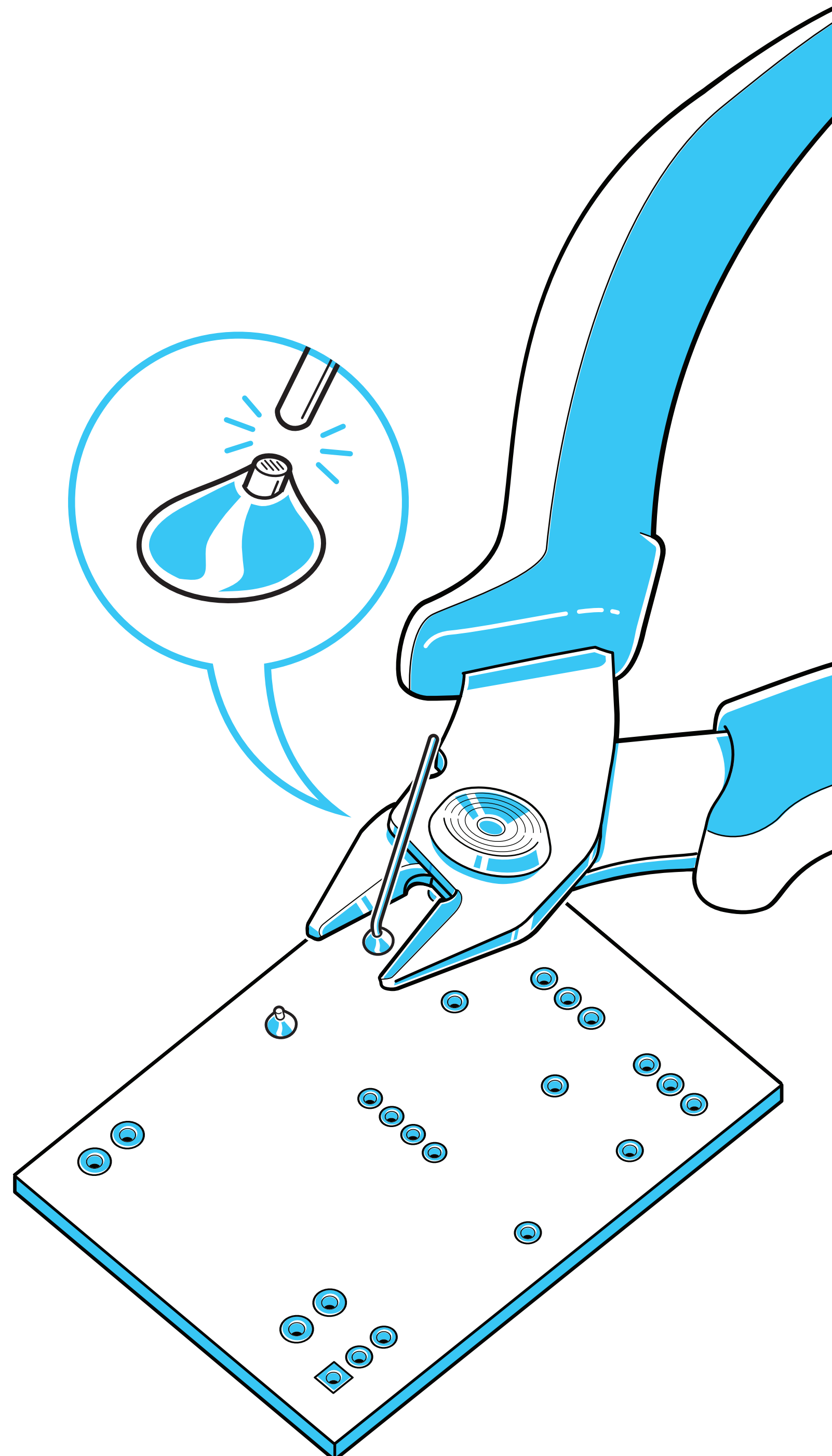
Now it's time to start soldering! Flip over your board so that the legs of your resistor are sticking up in the air and turn on your soldering iron. Be careful it will get hot!

Give yourself a length of solder, 4 to 6 inches. Then, holding the solder in one hand and your soldering iron in the other, use the tip of your iron to heat up both the leg of the resistor and the gold ring around the hole. Slowly feed in your solder into this joint until you've made a solid connection. Viola! One solder joint complete!



Do the same on the other leg of your resistor then use wire snips or scissors to cut the extra length of resistor leg that is not needed. Be careful not to cut too close or you might damage your solder joint.

Follow the same process for Resistor 2 and Resistor 3.

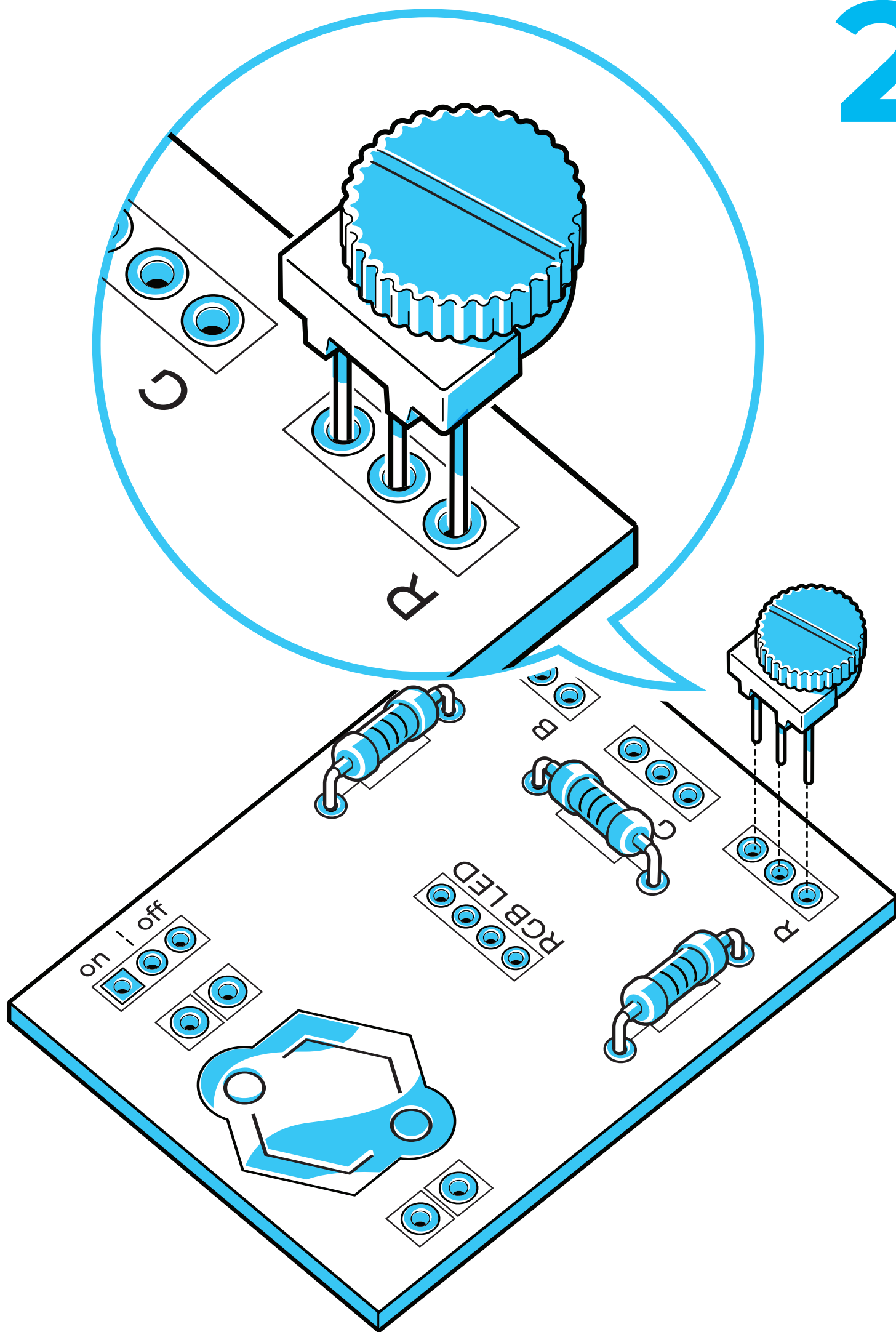


2.

STEP 2: POTENTIOMETERS

Next up is the potentiometers. These are used to control the amount of current going to each color LED varying the brightness. More current, brighter color, less current, less bright. These parts should be inserted with the black knob hanging over the edge of the circuit board. This will allow you to easily turn the potentiometers and change the colors. Heat the leg of the potentiometer and feed in the solder to create the solder joint. Be careful, the leads are close together and can be shorted. If you connect two joints together by accident you can remove the solder by using either a solder sucker or solder wick.

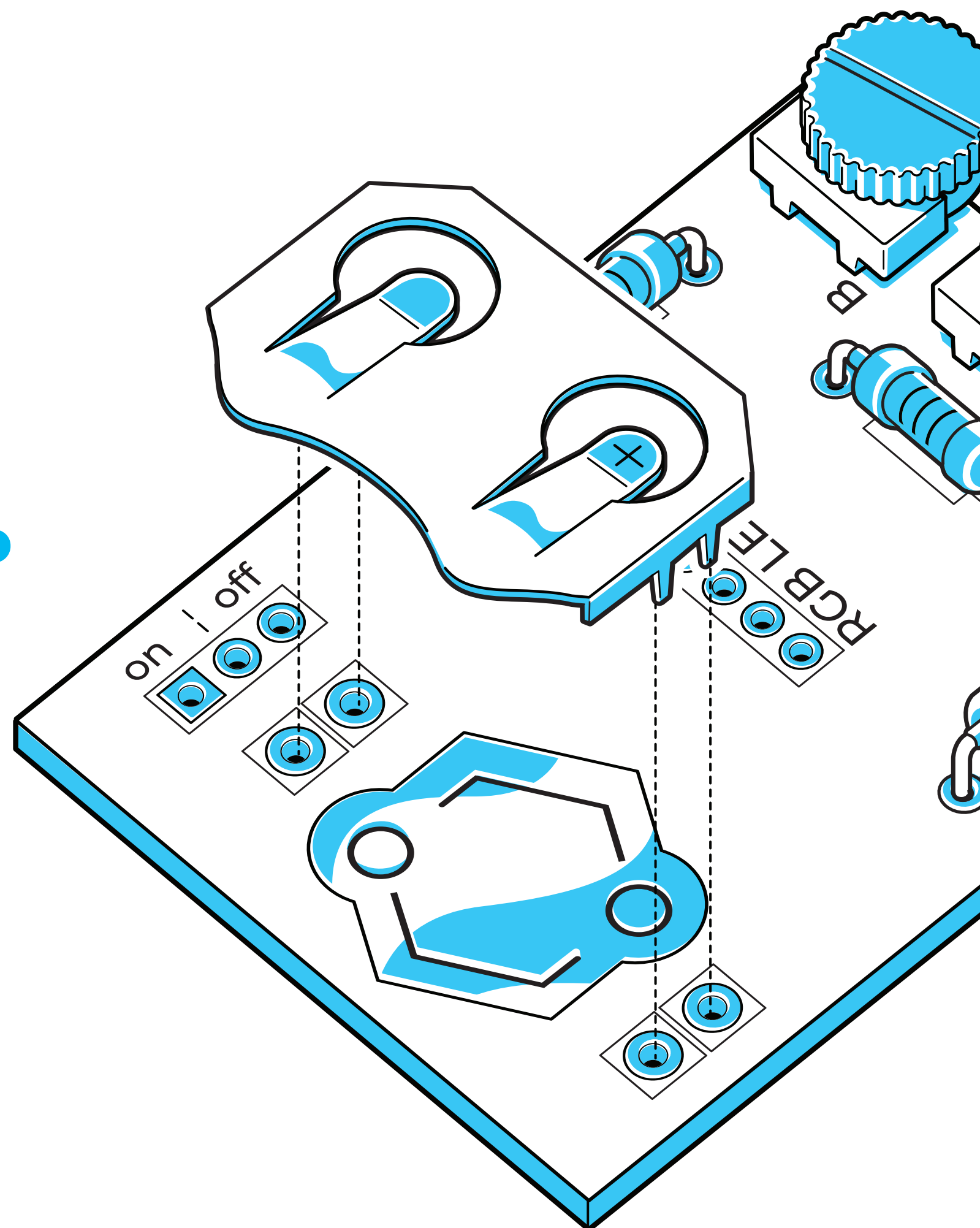
Complete the same process for Potentiometer 2 and 3.

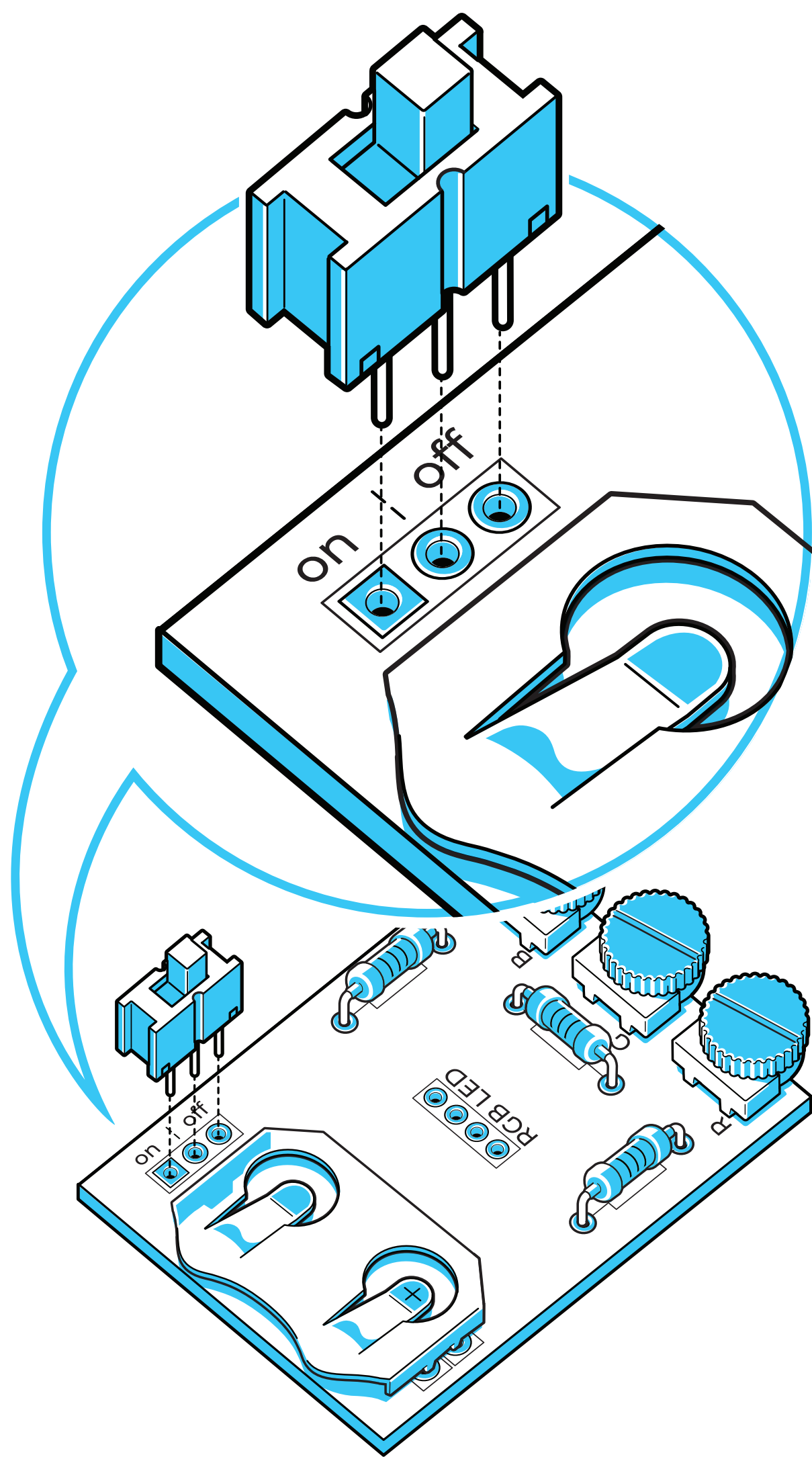


STEP 3: BATTERY HOLDER

Place the legs of the battery holder through the PCB holes. Do not place the battery in the batter holder yet. Batteries should not be heated with a soldering iron, it can make them unstable. Once the part is solder you will be able to slide in the CR2032 battery. Flip the PCB over and solder the connections. The orientation of the battery holder matters since once all the components are in place there will only be one way to slide the battery in. The half oval cut out should be positioned at the edge of the PCB.

3.





4.

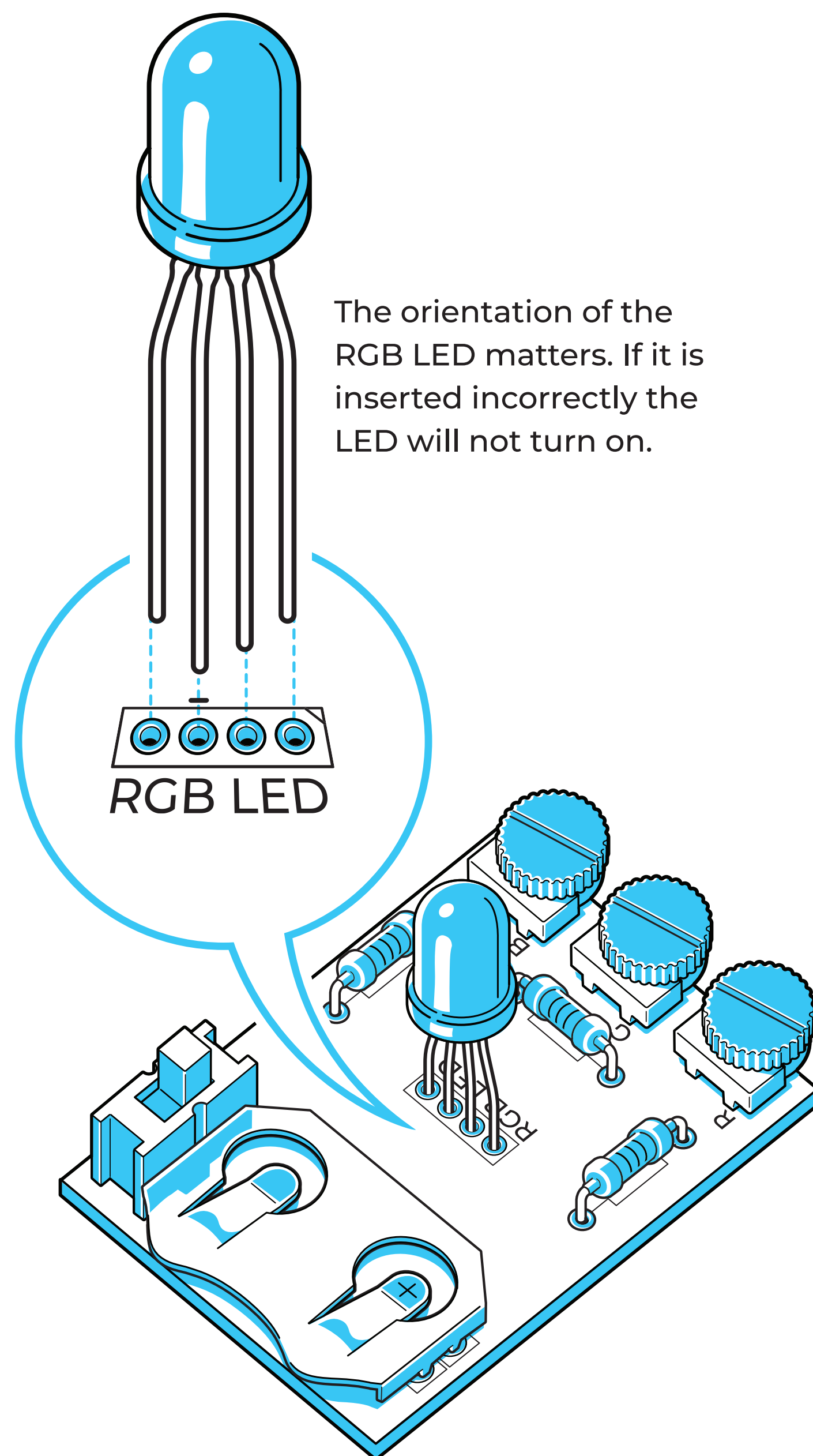
STEP 4: ON/OFF SWITCH

Next we add the On/Off switch. Without this component the circuit would be always on and the battery would drain quickly. The orientation of this part doesn't matter in this circuit. The switch will connect the middle pin with either the top or the bottom pin depending on how it positioned.

STEP 5: RGB LED

This is a common cathode with means all three colors share a common ground. The longest pin (marked with a red circle and dash in the picture) is the common ground pin. The other three pins control the three colors, red, green, blue. The longest pin must be inserted into the hole marked with a dash on the printed circuit board. Press the LED through the PCB. The LED will not be completely flush with the board because of how close the leads are, we need some space to solder! Very carefully solder the leads on the LED. These are the trickiest connections of this kit. Once the connections are complete snip the leads of the RGB LED.

5.

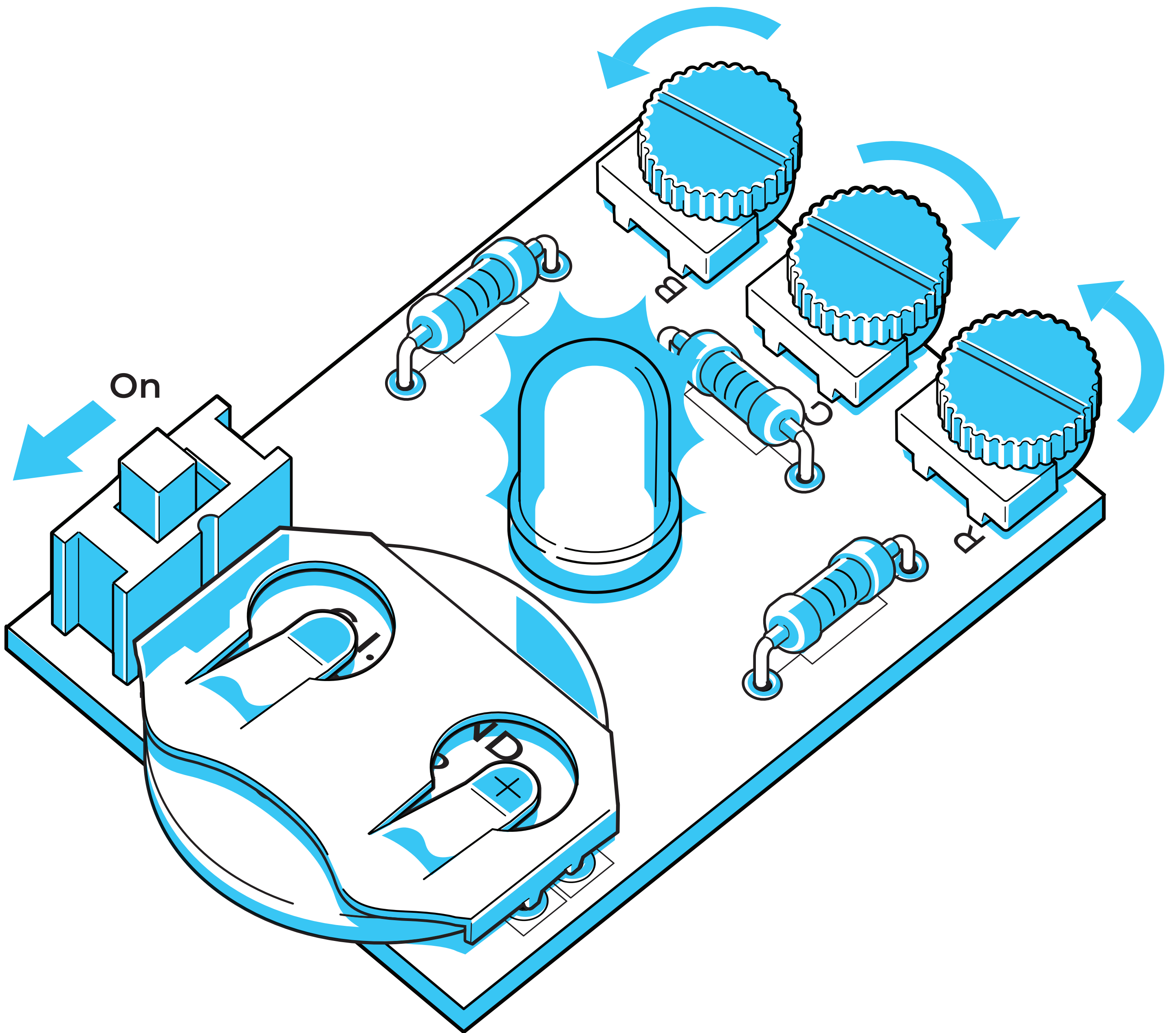


The orientation of the RGB LED matters. If it is inserted incorrectly the LED will not turn on.

STEP 6: ENJOY!

6.

Insert the battery and flip the On/Off Switch. Watch it light up! Rotate the knobs to control the colors and create a beautiful rainbow light show.



QUESTIONS? COMMENTS?

Contact Rocket Department at ideas@rocketdept.com