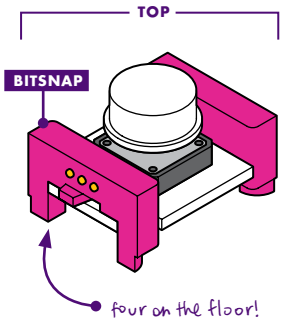
NIGHT LIGHT

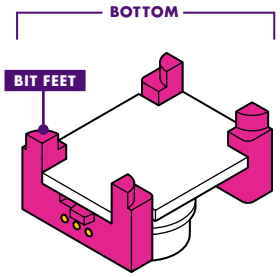
littleBits™

littleBits™ BASICS

1 ANATOMY OF A BIT™

Learn how you can tell top from bottom.





2 COLOR-CODED BY FUNCTION

Bits™ are grouped into four different categories, which are color-coded.

POWER (BLUE)
Power Bits, plus a power supply, run power through your circuit.

WIRE (ORANGE)
Wire Bits connect to other systems and let you build circuits in new directions.

INPUT (PINK)
Input Bits accept input from you or the environment and send signals that affect the Bits that follow.

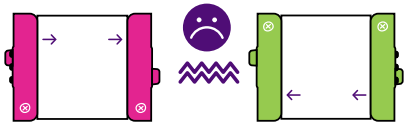
OUTPUT (GREEN)
Output Bits do something – light up, buzz, move...

3 MAGNET MAGIC!

Bits snap together with magnets. The magnets are always right – you can't snap them together the wrong way.

ARROWS SHOULD POINT IN THE SAME DIRECTION

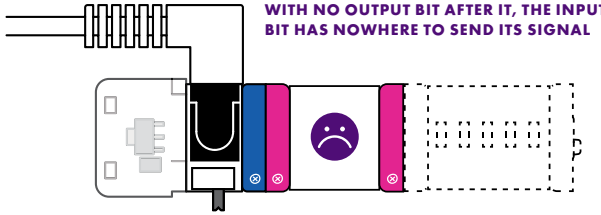
IF THE BITS WON'T SNAP TOGETHER, TRY SPINNING ONE AROUND AND MAKE SURE THE ARROWS POINT IN THE SAME DIRECTION



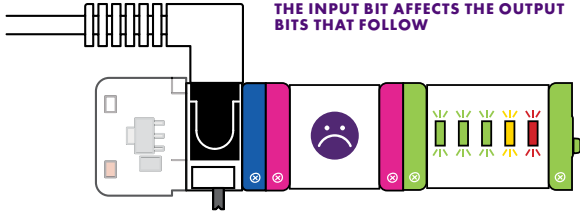
4 ORDER IS IMPORTANT

POWER BITS always come first and **INPUT BITS** only affect the **OUTPUT BITS** that come after them.

WITH NO OUTPUT BIT AFTER IT, THE INPUT BIT HAS NOWHERE TO SEND ITS SIGNAL

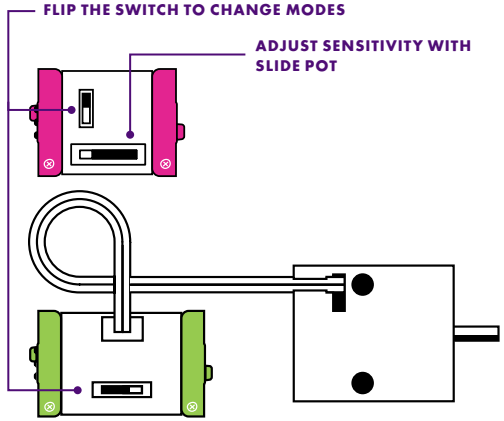


THE INPUT BIT AFFECTS THE OUTPUT BITS THAT FOLLOW

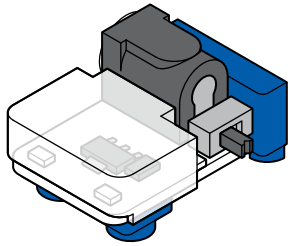


5 SOME BITS ARE ADJUSTABLE

Switches, buttons, and dials on the Bit allow you to change how the Bit functions.



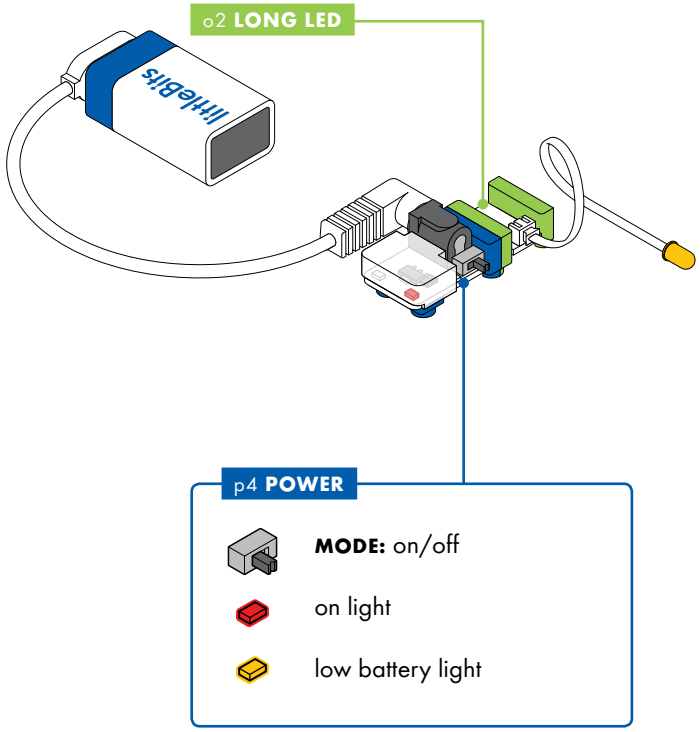
p4 POWER



MEET THE BIT

Every circuit starts with power. It provides the electricity that makes your Bits spin, buzz, blink, and shine.

SAMPLE CIRCUIT



HOW IT WORKS

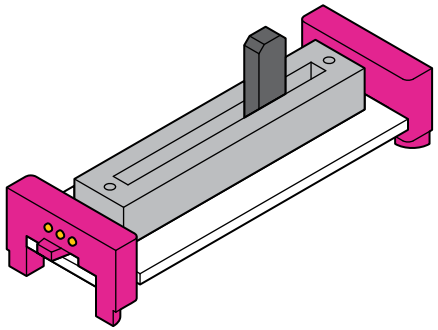
The p4 power Bit converts the 9 volts of electricity in the battery to the 5 volts that littleBits circuits run on.

The power Bit also sends a signal through your circuit. Controlling this signal with inputs is how you control your circuit.

REAL WORLD ANALOGIES

PHONE CHARGER

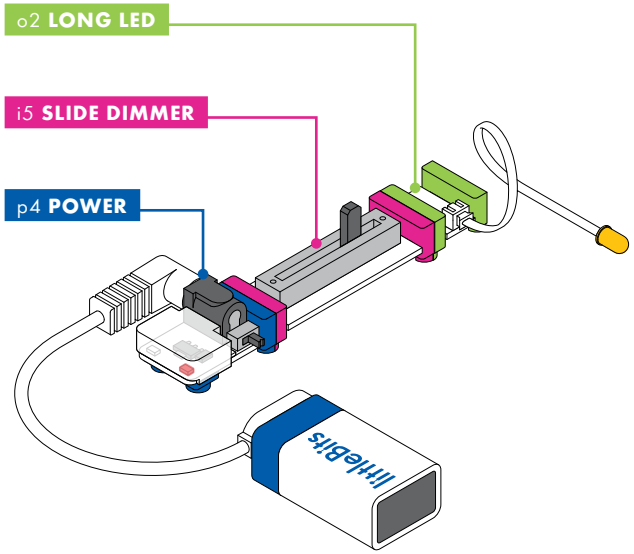
i5 SLIDE DIMMER



MEET THE BIT

Slide this dimmer back and forth to control your circuit. As you slide it up, more signal goes to the Bits that follow, brightening lights, speeding up motors, and raising the volume on your buzzer.

SAMPLE CIRCUIT



HOW IT WORKS

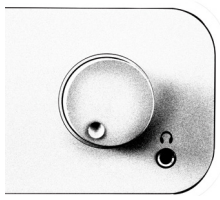
When the slider is all the way to the left, it's sending an off or 0 volt signal. When the slider is all the way to the right, it's sending a 5 volt signal. The slider can be positioned to send any signal between 0 and 5 volts.

MINI-CHALLENGE

Can you invent something with the slide dimmer that waves a flag back and forth? How could you change the speed that it waves?

REAL WORLD ANALOGIES

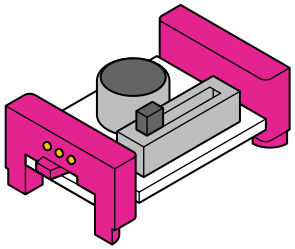
HOUSEHOLD DIMMER SWITCH



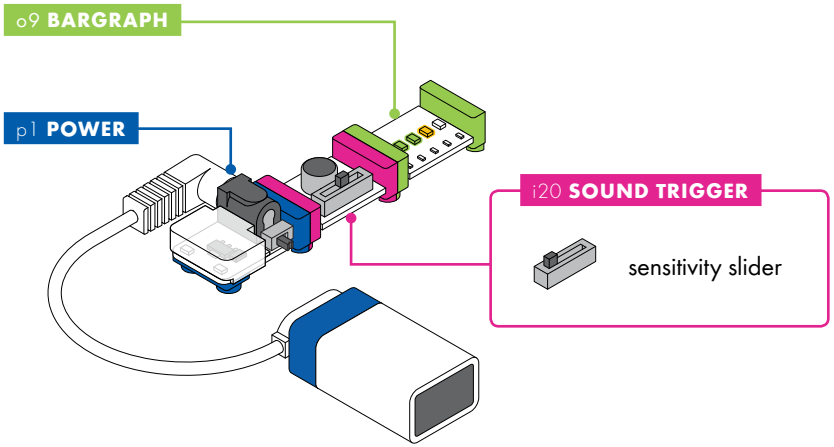
STEREO VOLUME CONTROL

CAR PEDAL

i20 SOUND TRIGGER



SAMPLE CIRCUIT



HOW IT WORKS

The sound trigger has a microphone that measures how much noise is around it. When the noise goes above a certain level, the sound trigger will send out an on or 5 volt signal to the following Bits in the circuit. Use the adjustment slider to set the sensitivity (how much noise is needed to trigger your Bit).

MEET THE BIT

Use this Bit to control your circuits with sound. It's a great way to make your inventions hands-free!

MINI-CHALLENGE

Can you invent something that moves at the snap of your fingers?

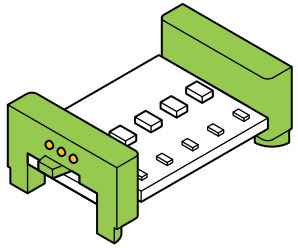
REAL WORLD ANALOGIES

CLAP ON LIGHT

HUMAN EAR

BEAR IN HIBERNATION

o9 BARGRAPH



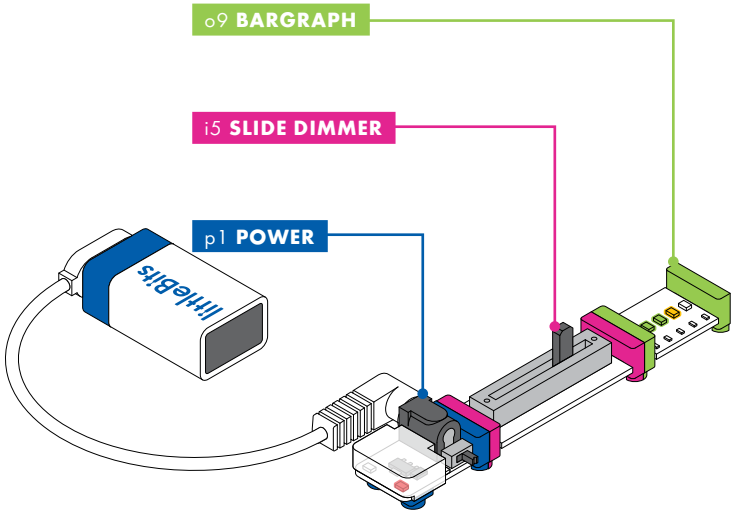
MEET THE BIT

The bargraph shows you how much signal the Bit is receiving with a display of five light-emitting diodes (LEDs) in different colors. Try it with a dimmer to make your own adjustable lamp.

MINI-CHALLENGE

Can you invent a way to show your mood to a friend?

SAMPLE CIRCUIT



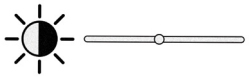
HOW IT WORKS

The bargraph uses five LEDs to turn electricity into light. Each LED on the board needs a certain amount of signal in order to light up. As you increase the signal sent to the bargraph, more LEDs will shine.

REAL WORLD ANALOGIES

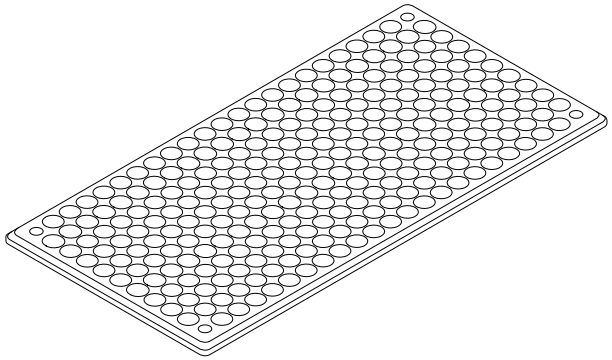
MUSIC VISUALIZER

TV VOLUME



PHONE SCREEN BRIGHTNESS

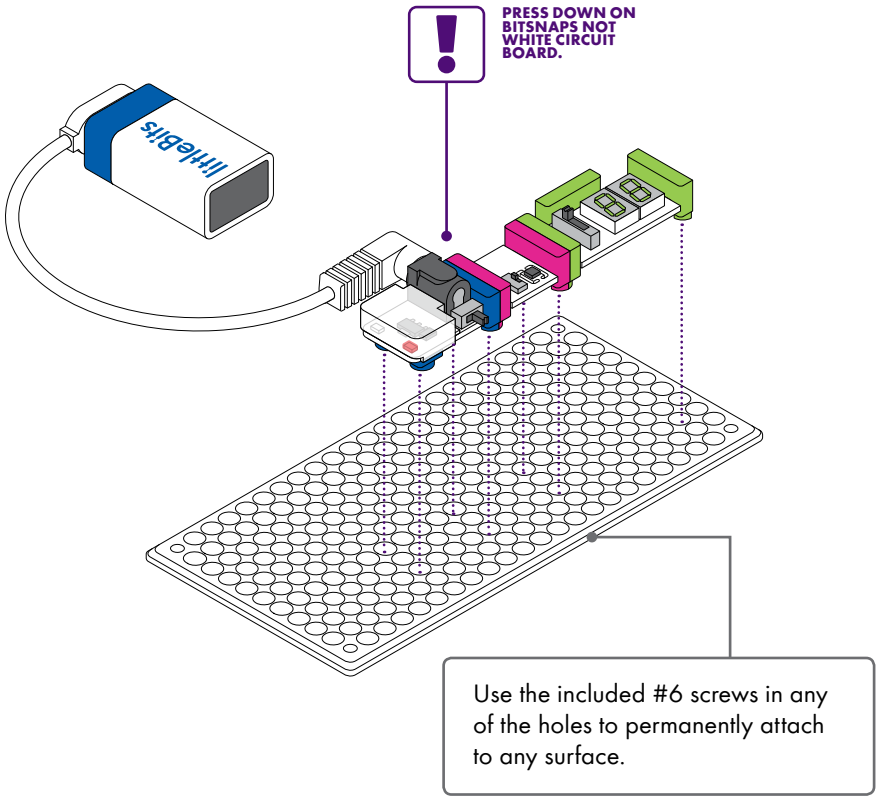
a26 MOUNTING BOARD



MEET THE ACCESSORY

The mounting board is like the backbone of some of your inventions. It allows you to keep your circuit intact and move it around with ease! It also provides structure, which is helpful for building out inventions like a vehicle.

SAMPLE CIRCUIT

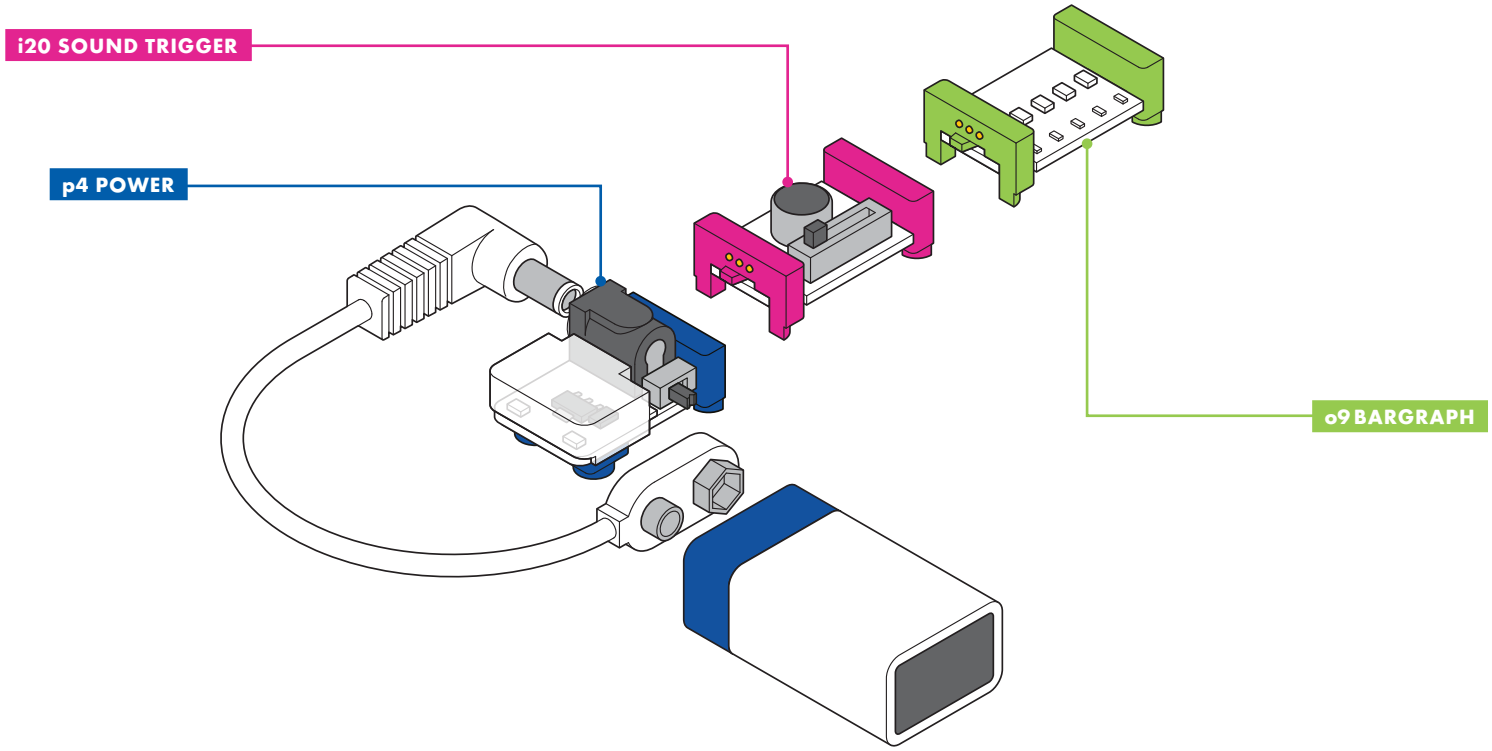


HOW IT WORKS

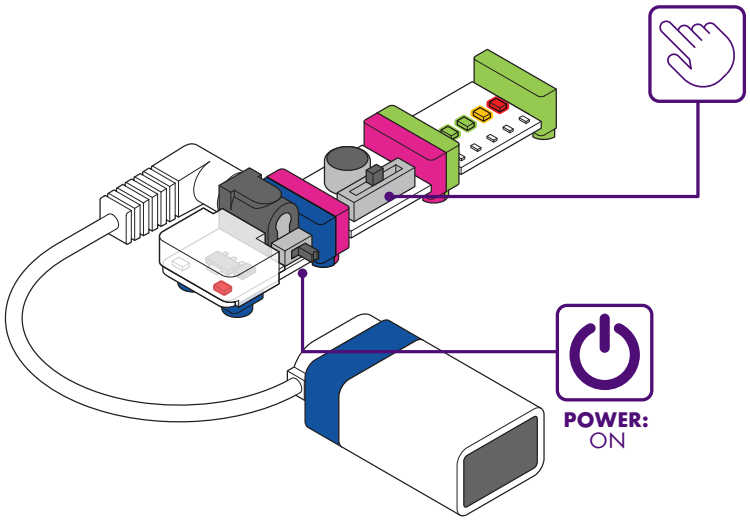
Snap together your littleBits circuit and press the feet of your Bits into the holes of the mounting board.

NOTE: Your circuit must be complete before you press it onto the board. You won't be able to add Bits one at a time.

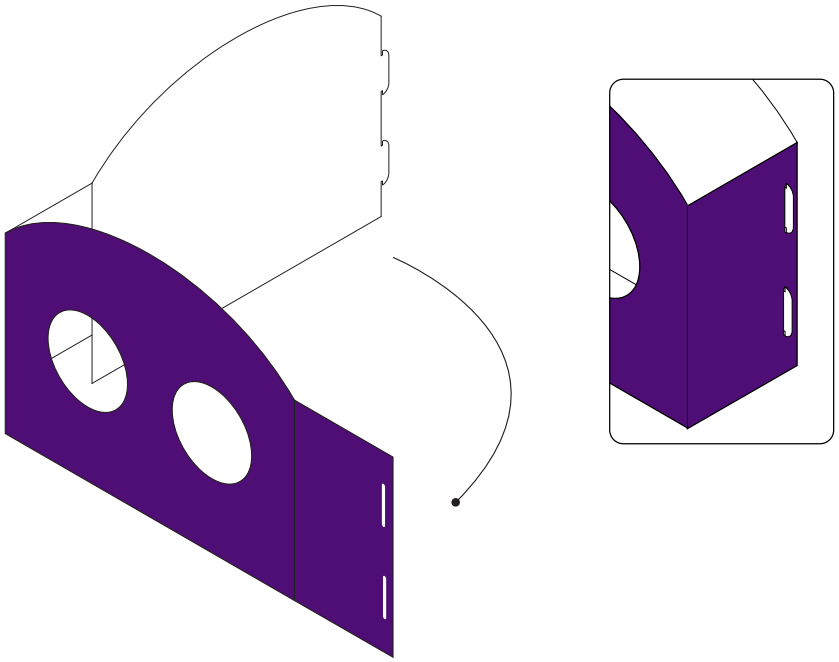
1 BUILD YOUR CIRCUIT.



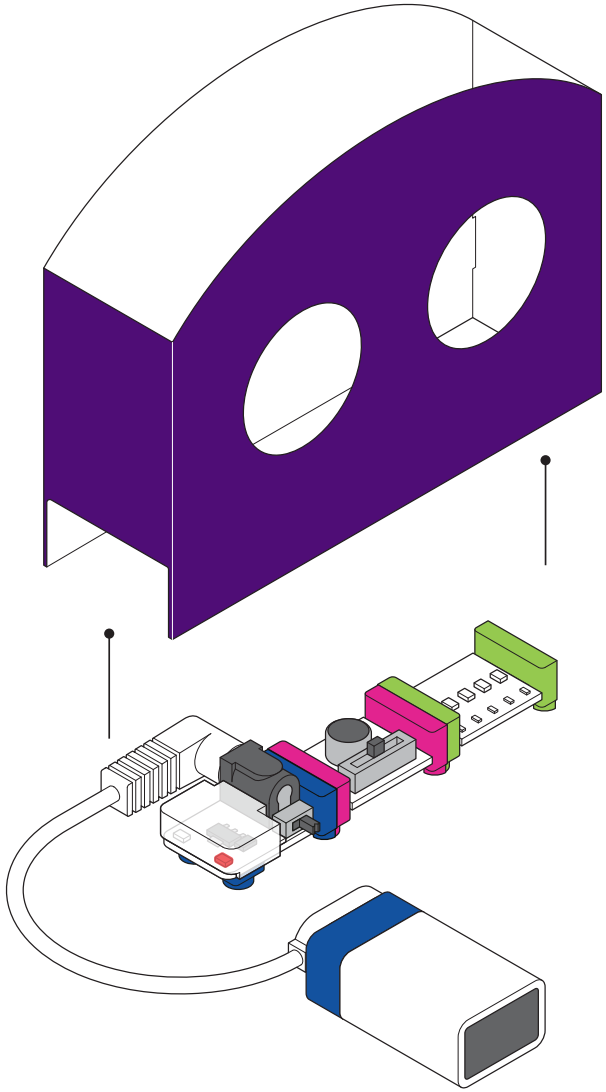
2 **ADJUST AND TEST THE SOUND TRIGGER.** When you clap, the bargraph should light up for three seconds.



3 **ASSEMBLE THE TEMPLATE.**

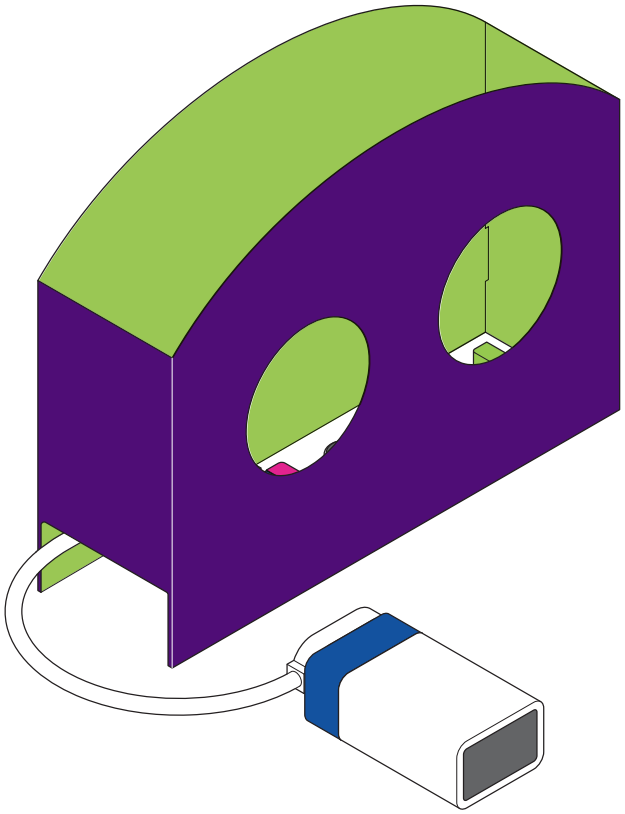


4 PLACE THE TEMPLATE OVER THE CIRCUIT.

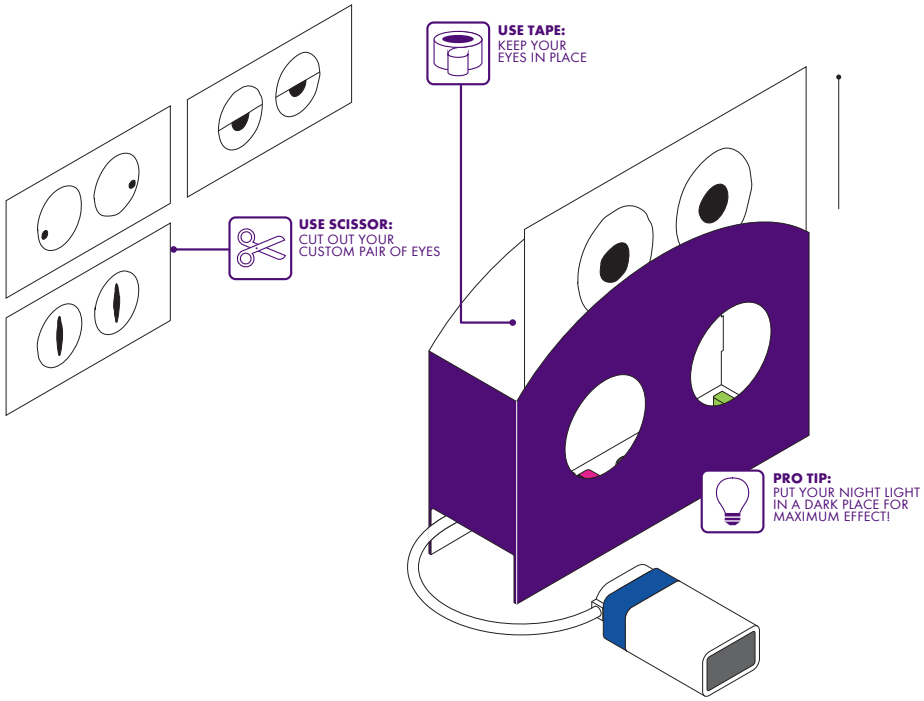


5 GET YOUR SOUND-ACTIVATED NIGHT LIGHT TO LIGHT UP!

Just make a sound.

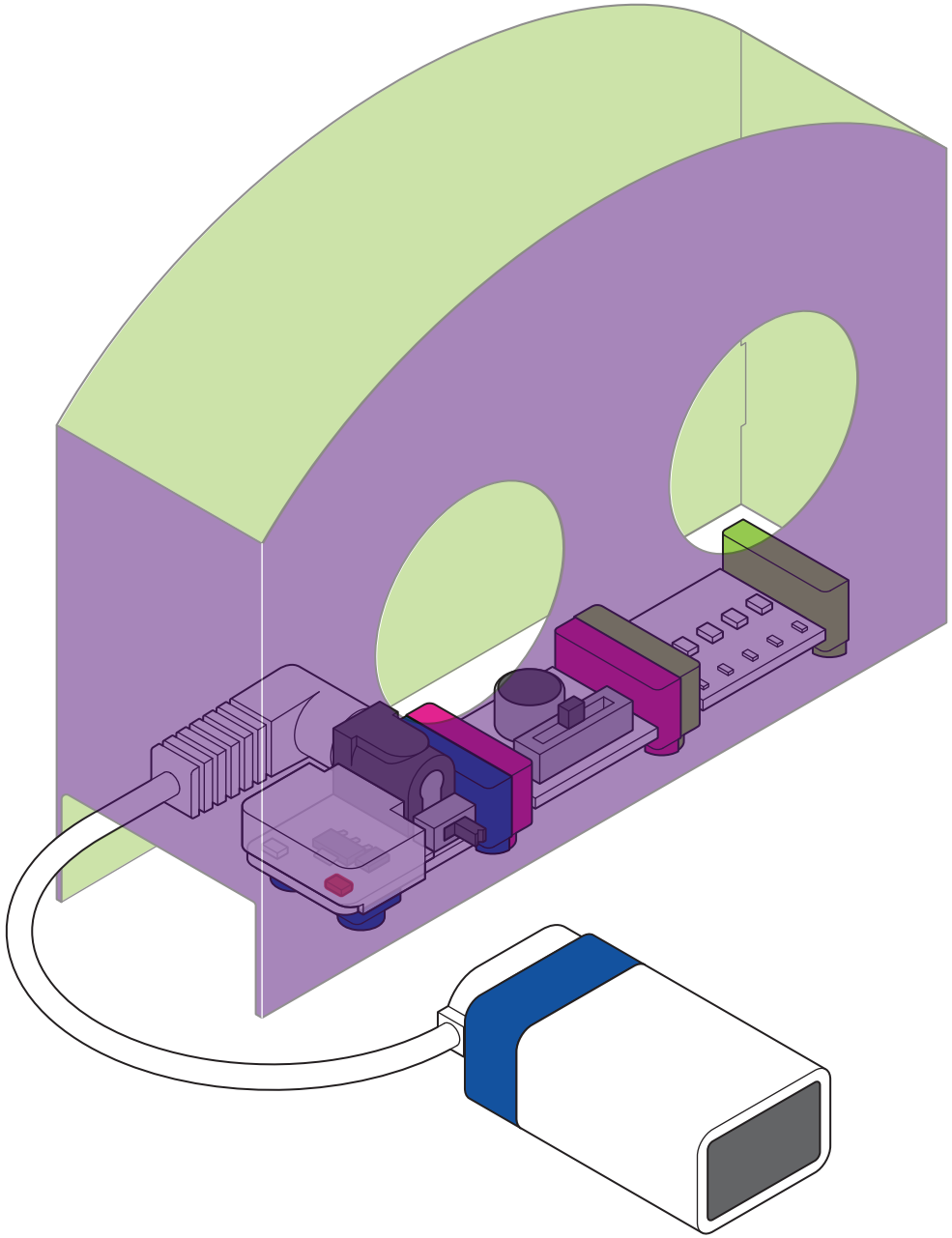


6 **CUSTOMIZE!** Draw some crazy eyeballs on a piece of paper and place it inside your template.



7 **LIGHT UP THE ROOM!** Place your new Night Light anywhere you wish to make bright. Try a dark closet or your bedside table!

HOW IT WORKS



p4 POWER sends a signal through the circuit.

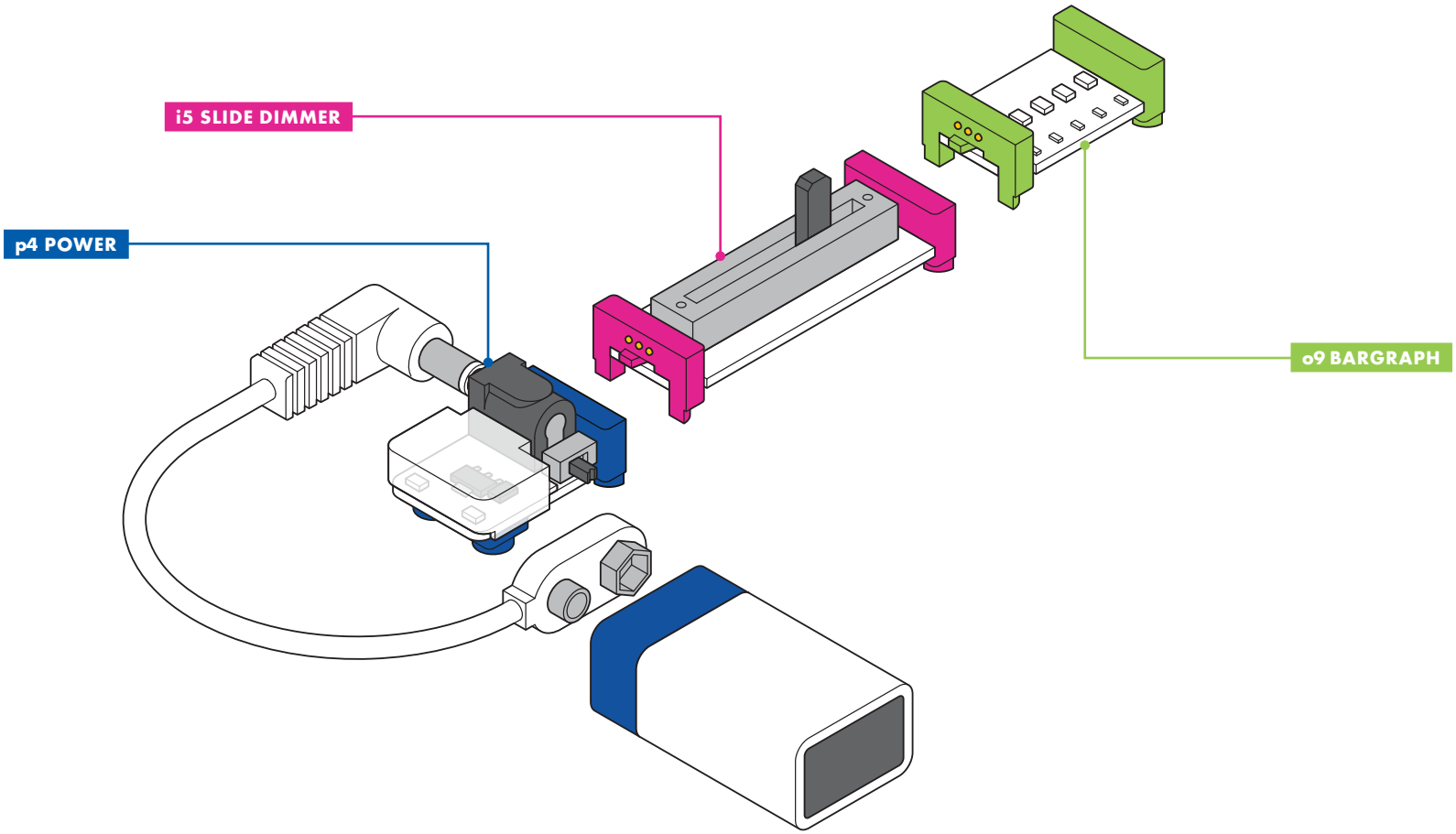
When it detects sound, the **i20 SOUND TRIGGER** lets the signal pass through for three seconds.

The **o9 BARGRAPH** lights up when it recieves the signal, revealing the creature's face.

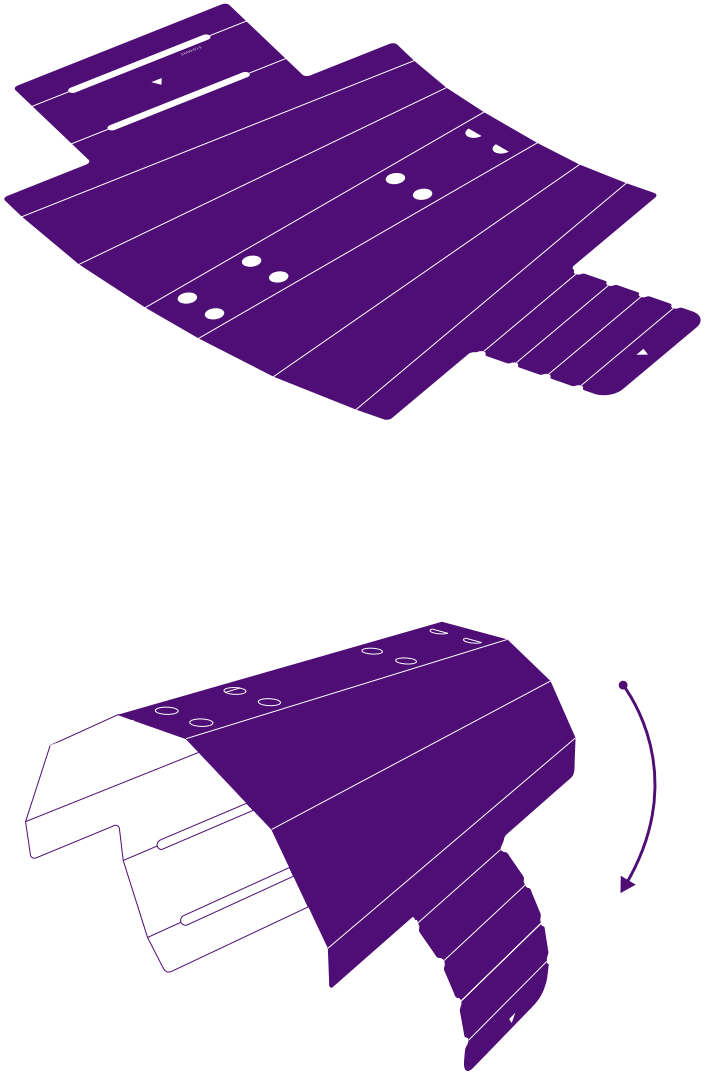
INVENTION #2

MEGA BLASTER

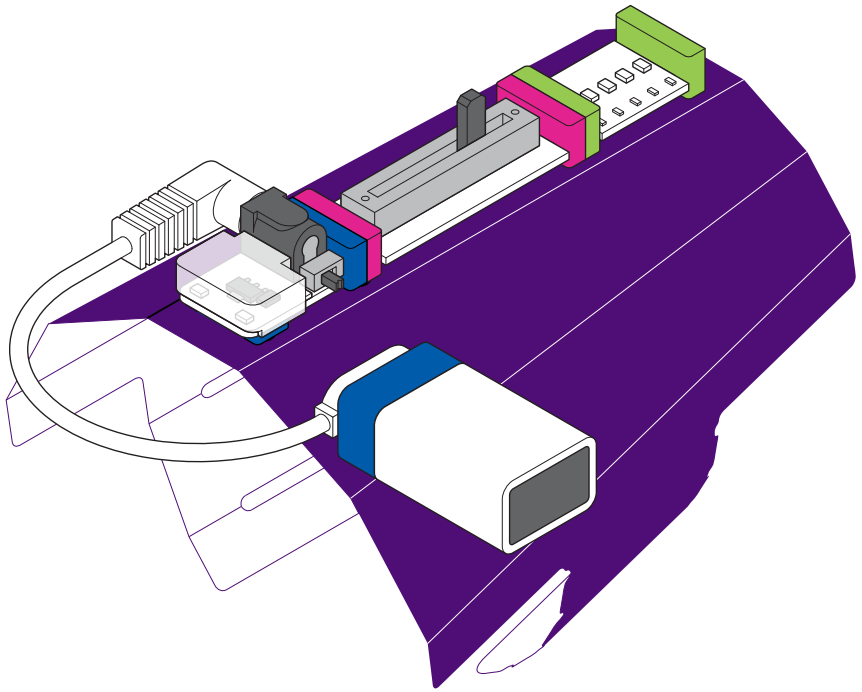
1 BUILD YOUR CIRCUIT.



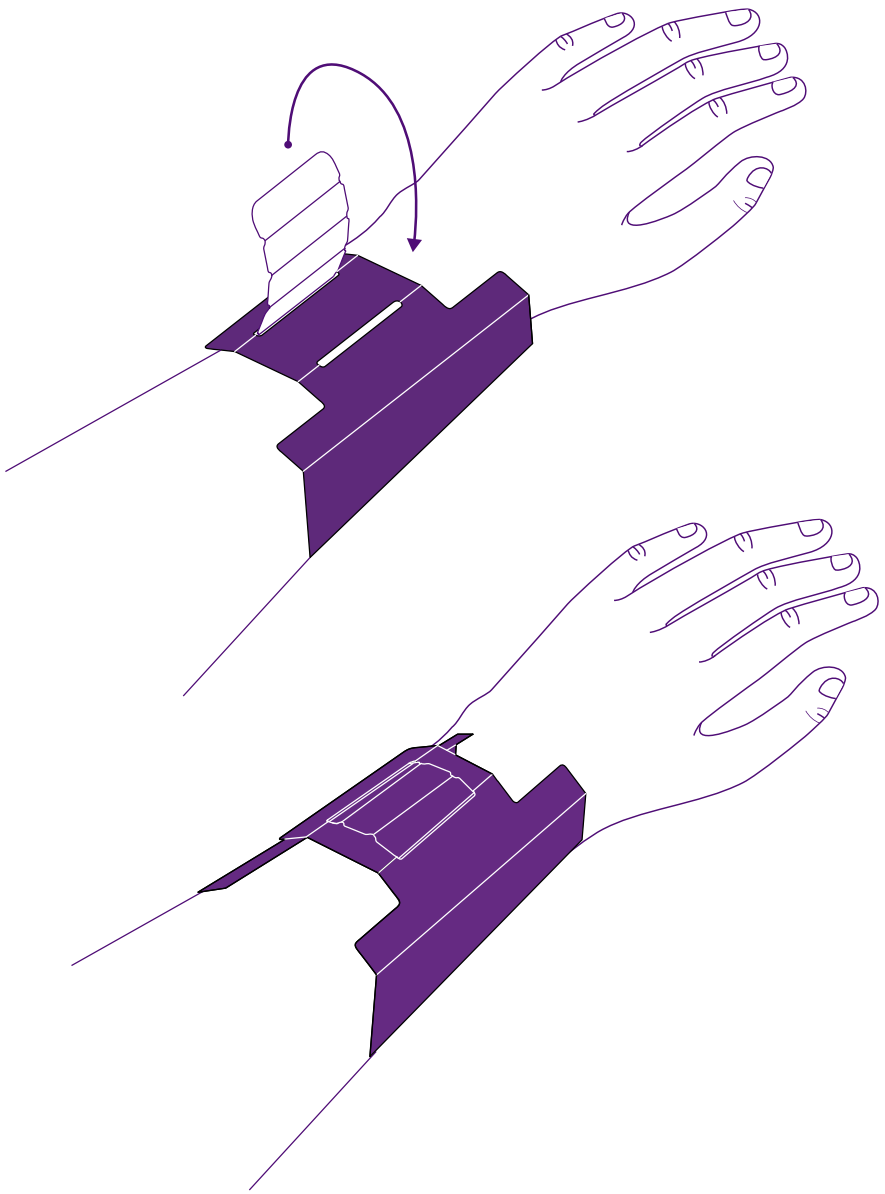
2 **PREPARE THE MEGABLASTER TEMPLATE.** Fold along every scored line.



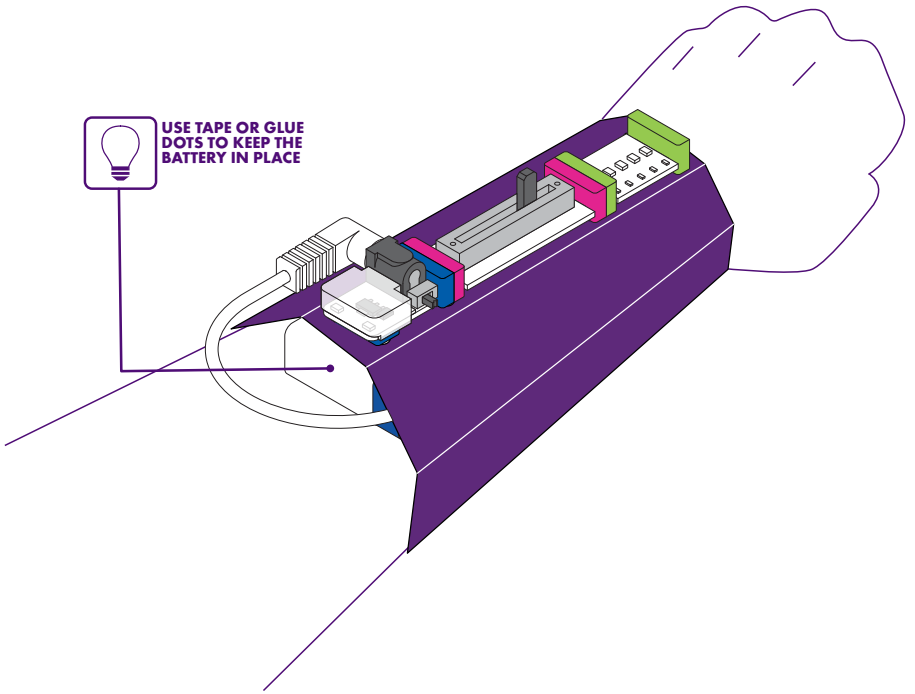
3 **PRESS YOUR CIRCUIT ONTO THE MEGABLASTER TEMPLATE AS SHOWN.**



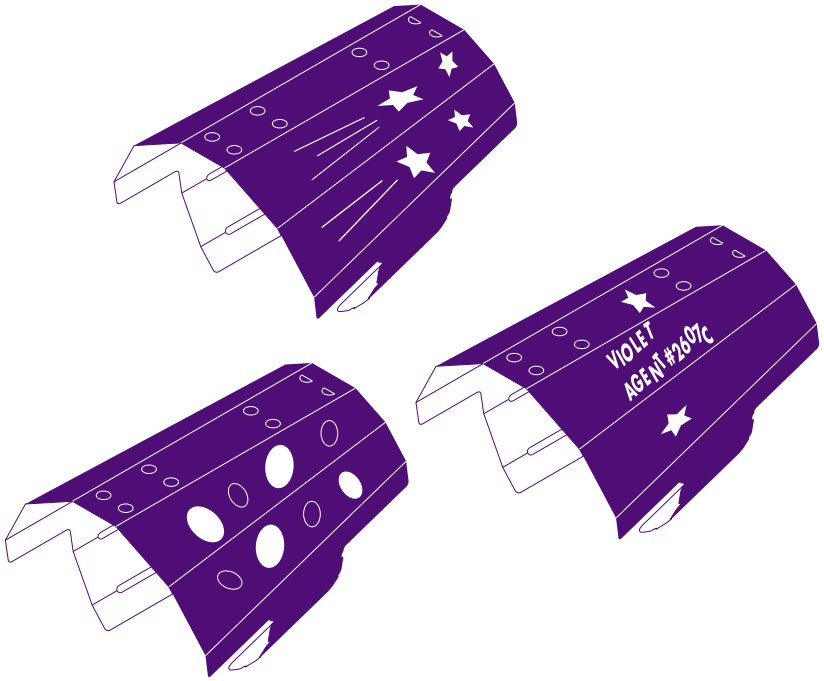
4 ASSEMBLE MEGABLASTER TEMPLATE AROUND YOUR WRIST.



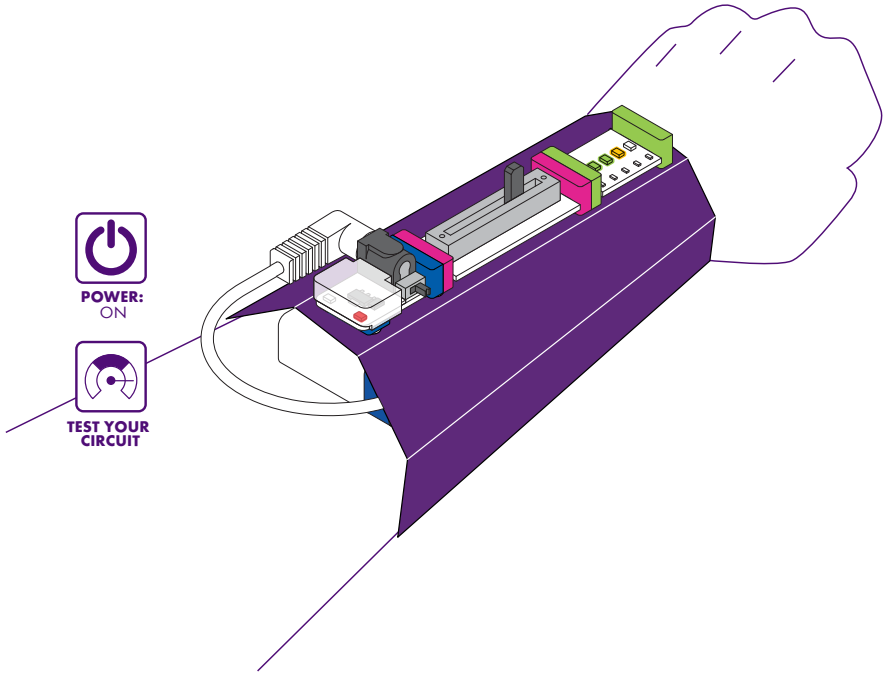
5 TUCK THE BATTERY INTO THE BACK OF THE CUFF.



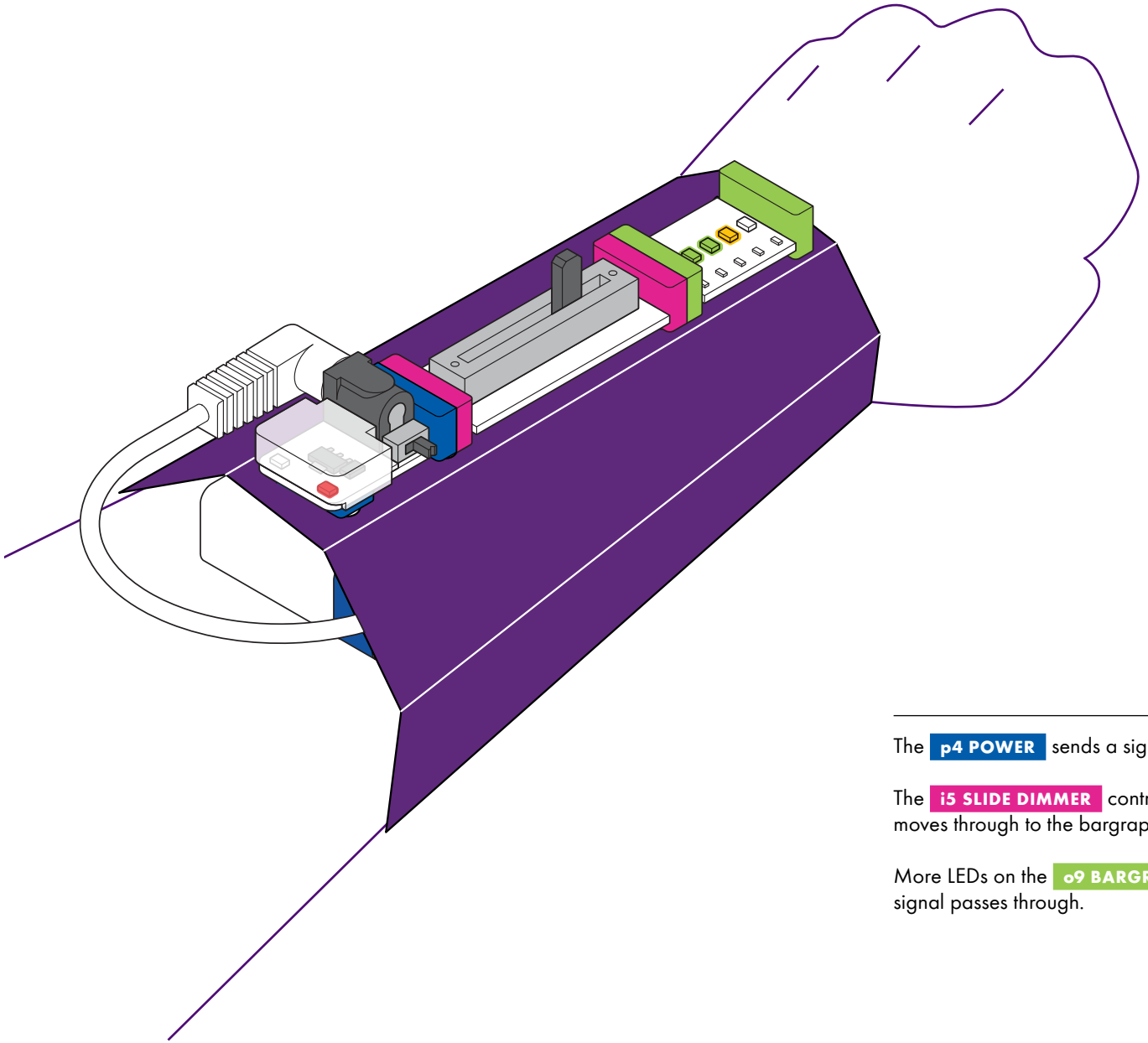
6 **CUSTOMIZE IT!** Use stickers, markers, and anything else you can find to decorate your Megablaster.



7 **TAKE ACTION!**



HOW IT WORKS



The **p4 POWER** sends a signal through the circuit.

The **i5 SLIDE DIMMER** controls how much signal moves through to the bargraph.

More LEDs on the **o9 BARGRAPH** light up as more signal passes through.

VIDEO LINKS

click to explore!