

⚠ WARNING

- This product contains small magnets. Swallowed magnets can stick together across intestines causing serious infections and death. Seek immediate medical attention if magnets are swallowed or inhaled.
- Most littleBits are small parts. DO NOT allow children under 3 years old to play with or near this product.
- NEVER connect any littleBits or circuits to any AC electrical outlet.
- Do not touch or hold any moving parts of littleBits while they are operating.
- Keep conductive materials (such as aluminum foil, staples, paper clips, etc.) away from the circuit and the connector terminals.
- Always turn off circuits when not in use or when left unattended.
- Never use littleBits in or near any liquid.
- Never use in any extreme environments such as extreme hot or cold, high humidity, dust or sand.
- littleBits are subject to damage by static electricity. Handle with care.
- Some littleBits may become warm to the touch when used in certain circuit designs. This is normal. Rearrange modules or discontinue using if they become excessively hot.
- Discontinue use of any littleBits that malfunction, become damaged or broken.

VERY IMPORTANT NOTE

- Several projects in this kit involve the use of a box cutter, grill skewers and/or a hot glue gun.
- These tools should be used ONLY under direct adult supervision and ONLY by children capable of using them safely.

INSTRUCTIONS

We recommend using littleBits brand 9-volt batteries, but standard alkaline or standard rechargeable batteries may also be used. Properly discard and replace exhausted battery. Do not connect the two battery terminals with any conducting material.

CARE AND CLEANING

Clean Bits modules ONLY by wiping with a dry cloth. If necessary, isopropyl alcohol on a cloth may be used sparingly, and then wipe with a dry cloth.

DO NOT use any other cleaning products on Bits modules. Congratulations for reading this fine print. Your dedication and persistence will serve you well.

FCC RADIO AND TELEVISION INTERFERENCE

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Changes and Modifications not expressly approved by the manufacturer or registrant of this equipment can void your authority to operate this equipment under Federal Communications Commissions rules.

SEND US YOUR LOVE

Contact support@littleBits.cc with any questions or comments.

www.littleBits.cc

littleBits Electronics Inc.
60 E. 11th Street
NY, NY 10003
(917)464-4577

You are a proud owner of the **Deluxe Kit v1** from the Exploration Series. Over 5 million combinations?! Are you serious? Yep, www.littleBits.cc/mathmagic

🌟 An open source project under Creative Commons license  and OSHW definition v1.1

littleBits Electronics, Inc.
Made in Dongguan City, China

littleBits, Bits, Circuits in Seconds, and Make Something That Does Something are trademarks of littleBits Electronics, Inc.

THE LITTLEBITS™ BASICS

1

CIRCUITS IN SECONDS™

littleBits™ is an expanding library of modular electronics that snap together with magnets.

*You always need a Blue and a Green,
Pink and Orange are optional, in between*

2

COLOR CODED

littleBits™ are grouped into 4 different categories, which are color coded:

POWER needed in every circuit and the start of all your creations.

INPUT these Bits modules accept input from you and the environment and send signals to the modules that follow.

OUTPUT these Bits modules DO something—light, buzz, move...

WIRES these Bits modules expand your reach and change direction—great for helping to incorporate littleBits into your projects.

3

ORDER IS IMPORTANT

Power Modules always come first and **Input Modules** only affect the **Output Modules** that come after them.

4

MAGNET MAGIC

littleBits™ snap together with magnets. The magnets are always right, you can't put modules together the wrong way.

5

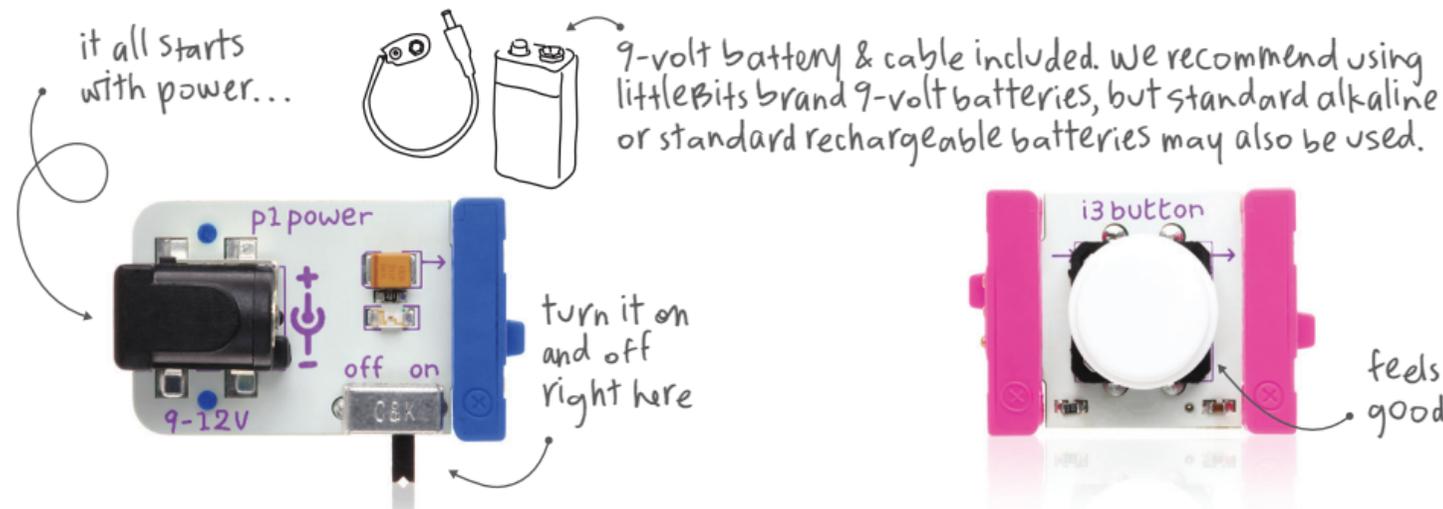
littleBits™ + anything

littleBits are just the beginning. Combine them with craft materials, building sets, and other toys to electrify your life. We'll show you how!

*no soldering
no programming
no wiring*

KNOW YOUR BITS™ MODULES

This is the Deluxe Kit, Version 1
Learn more and shop for individual
Bits Modules at littleBits.cc/Bits



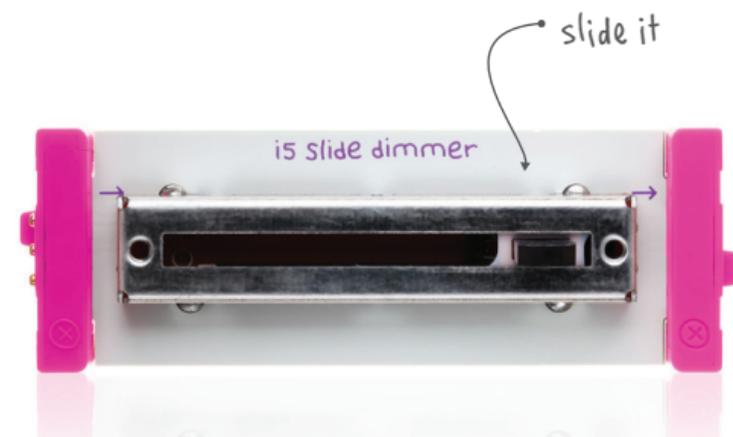
POWER p1

This power module lets you use a 9-volt battery to supply electricity to your littleBits. Snap in the battery + cable (both included) and flip the switch to turn it on.



BUTTON i3

It's a classic: big, round, and springy for comfortable pressing! Push to turn on and release to turn it off – just like a button on a keyboard or elevator.



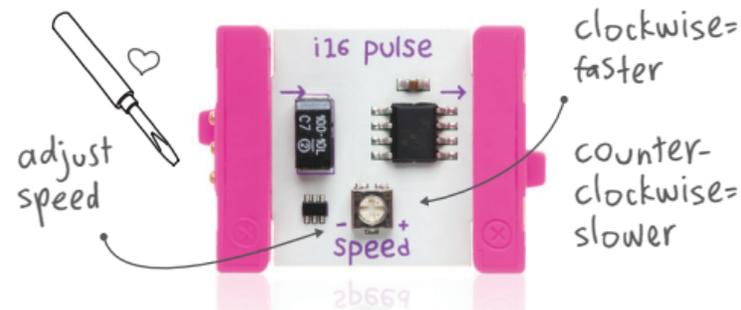
SLIDE DIMMER i5

Move the slider from one end to the other. It functions just like a light dimmer you might find at home or a volume fader in a recording studio. Experiment with how it affects output modules that follow.



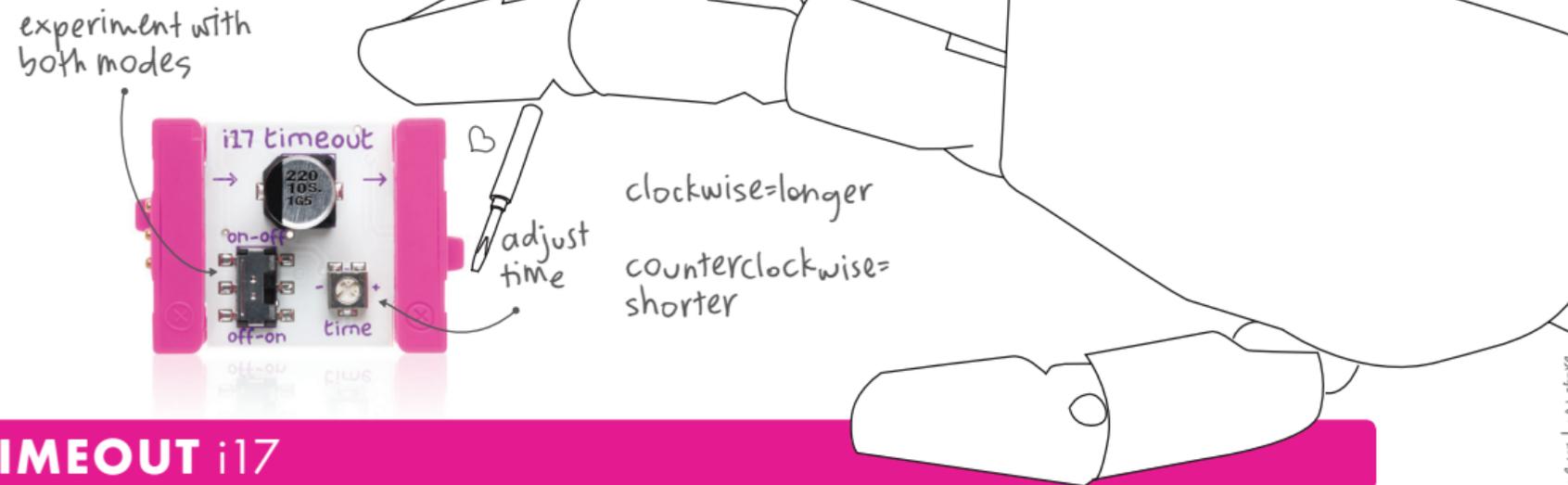
SOUND TRIGGER i20

This module senses the noise level in your room, and sends an ON signal when it gets over a certain level. You can make that threshold louder or softer using the included screwdriver.



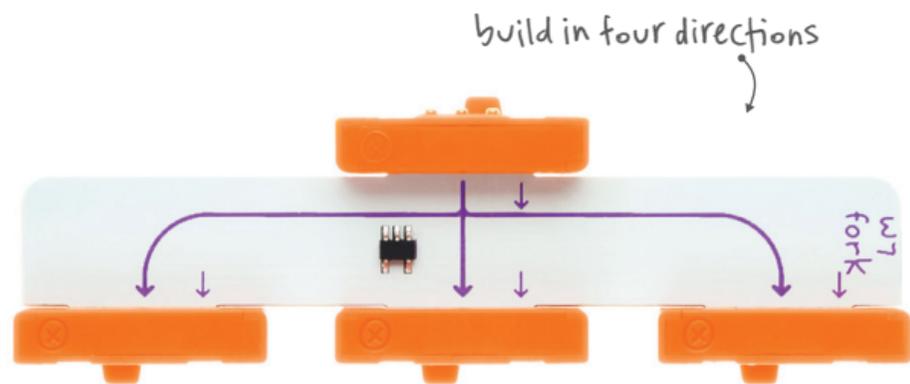
PULSE i16

The pulse is like an electronic heartbeat. It sends out a stream of short ON signals and you can make the speed of the pulses faster or slower using the included screwdriver. It's great for making lights blink!



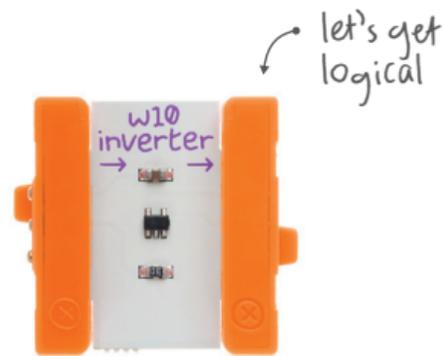
TIMEOUT i17

This module is like a settable timer. Try it after a button and follow it with a light. Press and release the button to start the countdown. In "on-off" mode, the light will go on and the timer will start counting down to turn-off time. In "off-on" mode, the light will go out when you release the button and will turn back on after the timer reaches the allotted time. The time ranges from approximately 1 second to 5 minutes.



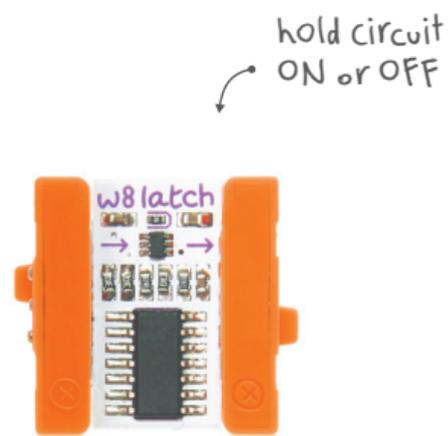
FORK w7

The fork gives you more options for connecting your littleBits: it lets you connect the output of a single module to as many as three others. Use it when you want to trigger light, sound, and motion at the same time.



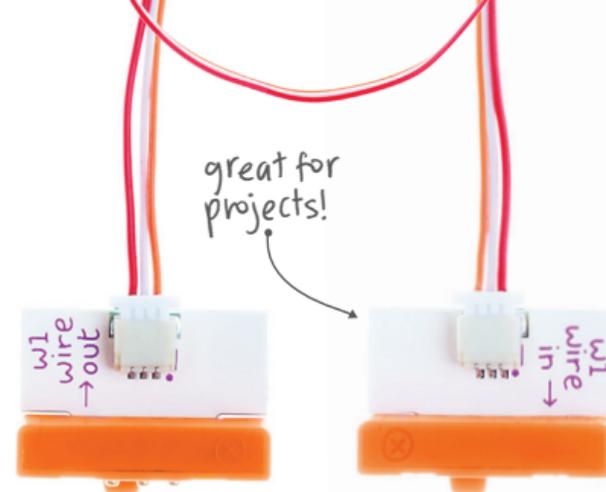
INVERTER w10

It sends out the opposite of whatever it receives: send it an ON signal, and the inverter changes it to an OFF signal, or vice versa.



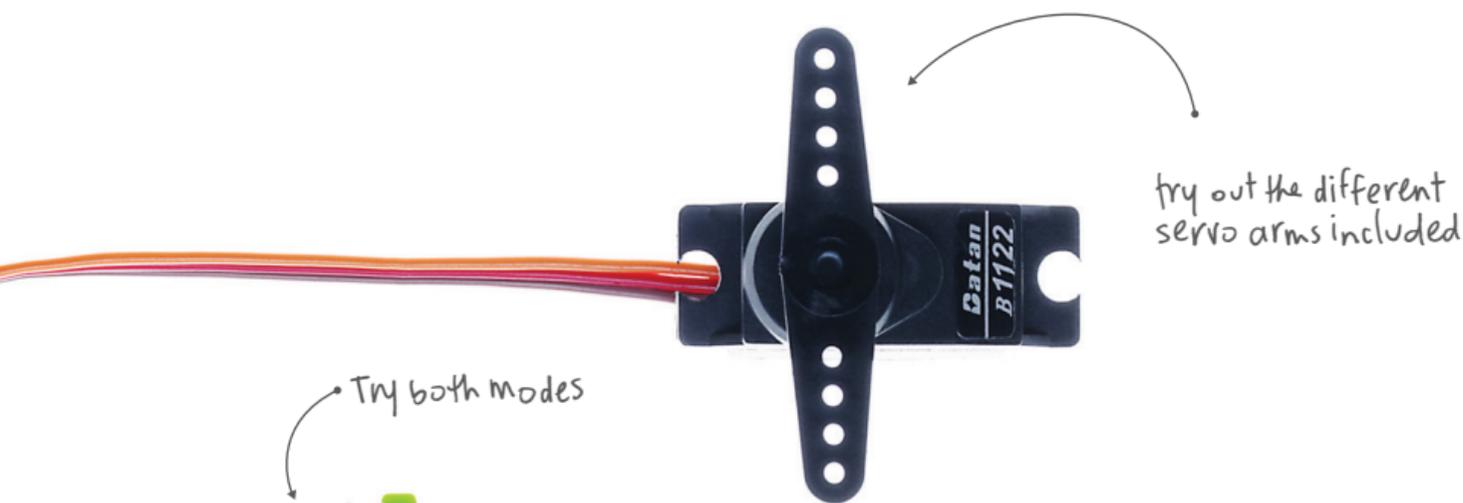
LATCH w8

Use the latch to turn any momentary input, like a button, into an ON/OFF switch. If you place a button in front of the latch, and a light after, pressing the button once will turn it ON and keep it on. Pressing it again will turn it OFF.



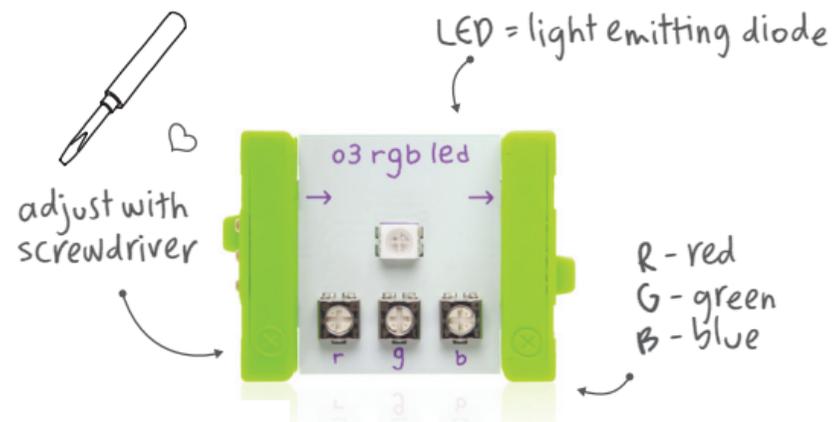
WIRE w1

The wire allows you to physically separate your Bits modules. Try it whenever you need to break up your chain of littleBits, like when you need to put a light at the top of a model building.



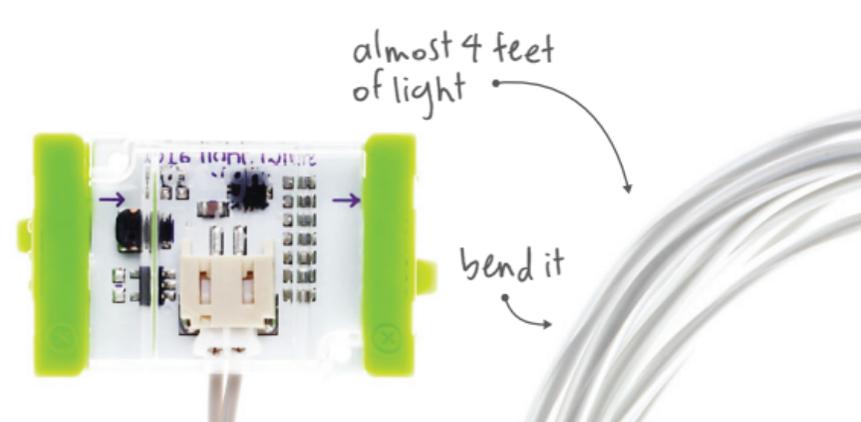
SERVO MOTOR 011

A controllable motor that can swing back and forth. It has two modes: in "Turn" mode, the input from other littleBits determines the position of the arm - try using your slide dimmer to set the angle you want. In "Swing" mode, the servo will move back and forth on its own - the input controls how fast it goes.



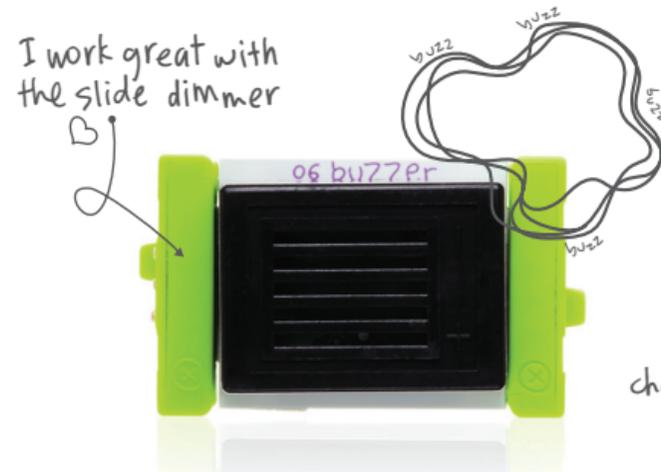
RGB LED 03

The RGB LED is a special light whose color you can adjust. Use the included screwdriver to adjust each of the color channels to get almost any color. RGB light is what produces every color from your computer monitor.



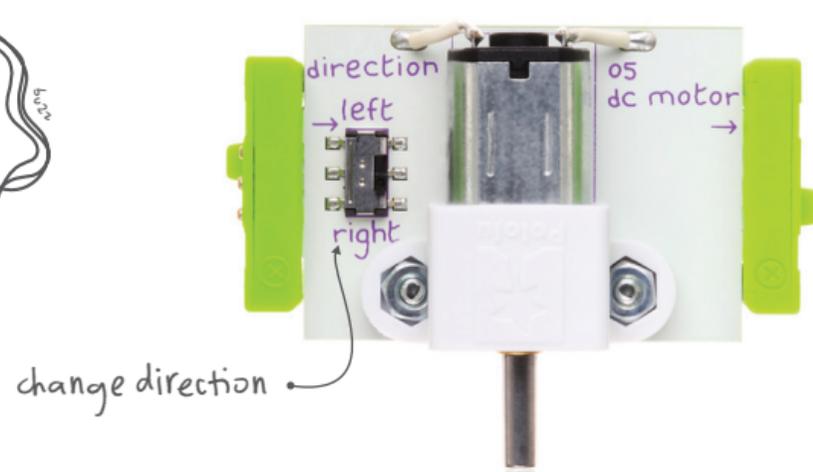
LIGHT WIRE 016

The light wire's entire length glows a soft blue. It's made of special stuff called "electroluminescent wire," which is great to form into glowing shapes. Like safe neon, it's best to use in the dark.



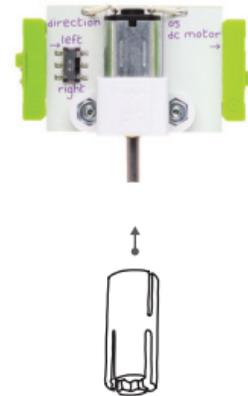
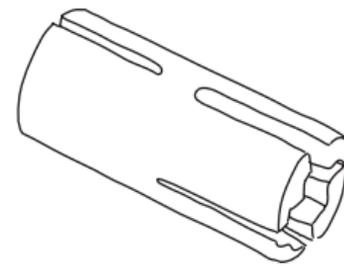
BUZZER 06

The buzzer is like the sound in an alarm clock: it makes a noise that you just can't ignore. It buzzes whenever it gets an ON signal. Try using it to make your own doorbell or alarm!



DC MOTOR 05

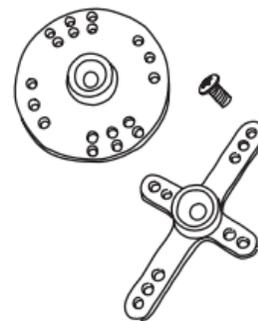
The DC (or "Direct Current") motor rotates a shaft when you send it an ON signal. The left/right switch controls the direction of rotation. Try attaching various things to make windmills, cars, helicopters and more.



MOTORMATE™ a10

motorMate works with the DC motor. This makes it easy to attach wheels, paper, cardboard, and lots of other materials to the DC motor. Simply slide it on the "D" shape of the shaft. A LEGO™ axle also fits in the end.

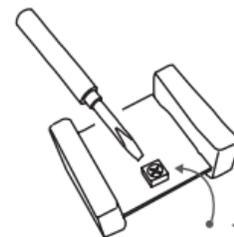
SERVO ACCESSORIES



Your servo motor comes with a couple great arms to help you in your projects. Use a Phillips screwdriver* to change the arms.

*not included

SCREWDRIVER a4

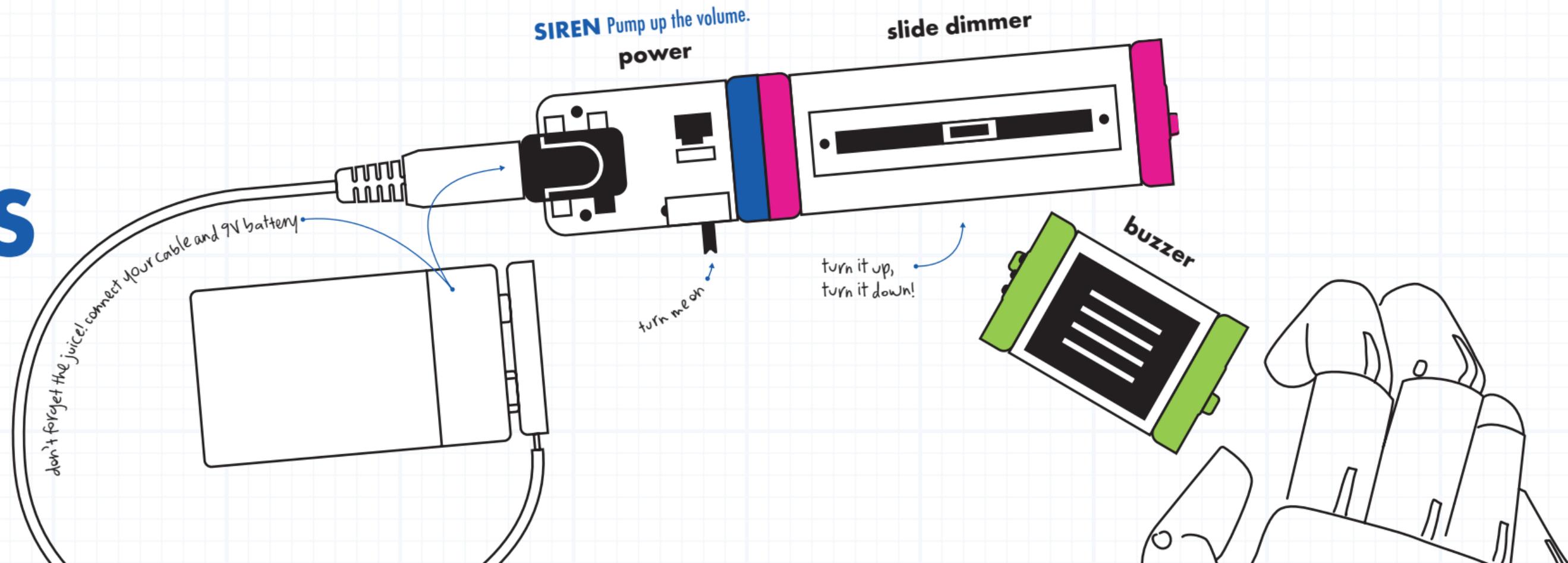


This little purple screwdriver is used to modify any module that has a micro adjuster.

this is a micro adjuster

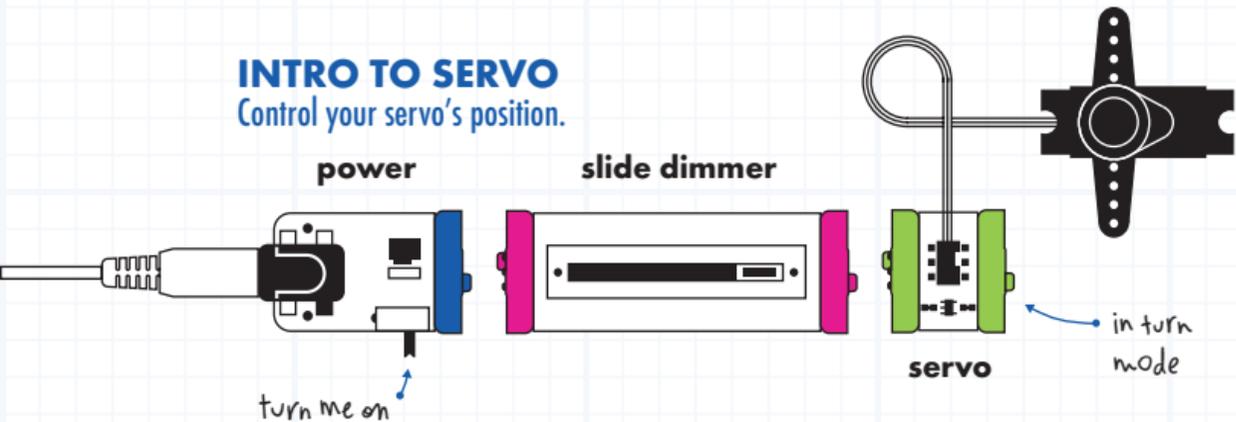
TRY THESE CIRCUITS

Get started with these, but don't let us hold you back - every module fits with every other module - feel free to experiment.



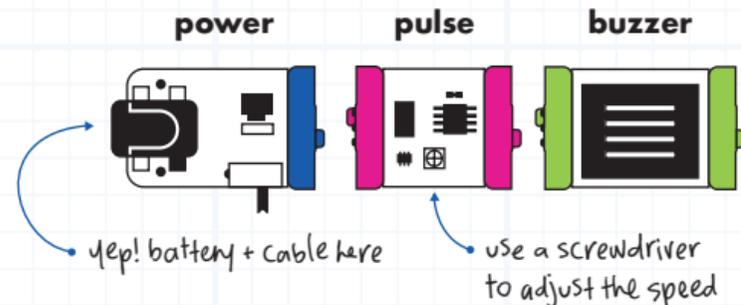
INTRO TO SERVO

Control your servo's position.



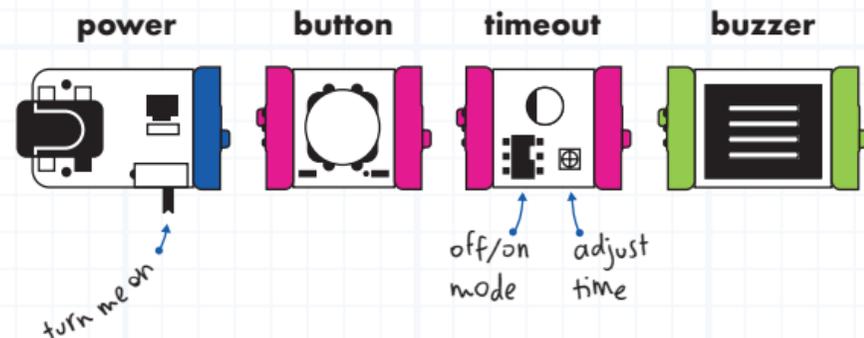
NOISE MAKER

Have fun making your own rhythm.



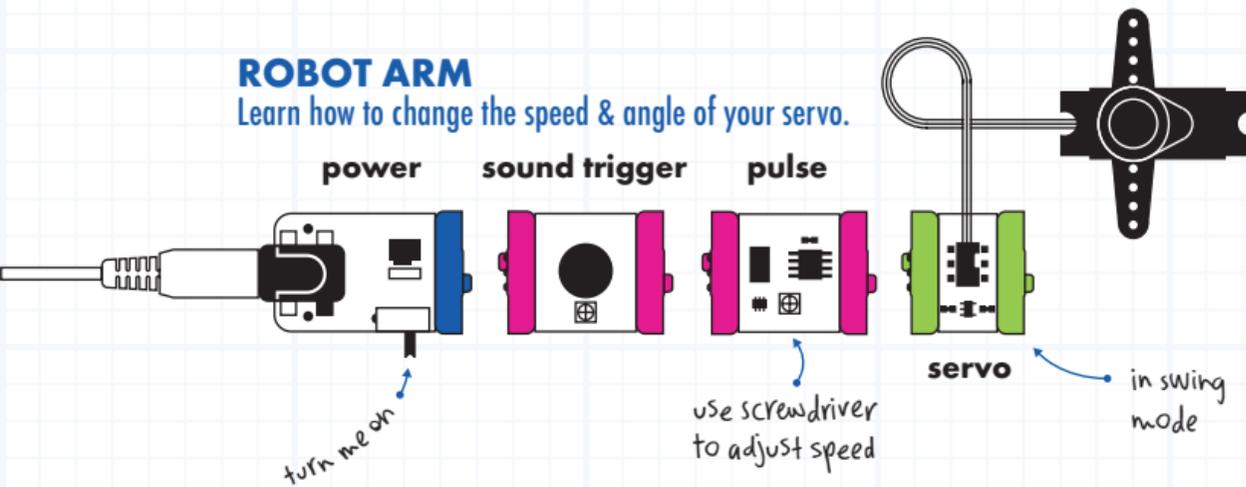
TIMER

Learn how to make an alarm clock.



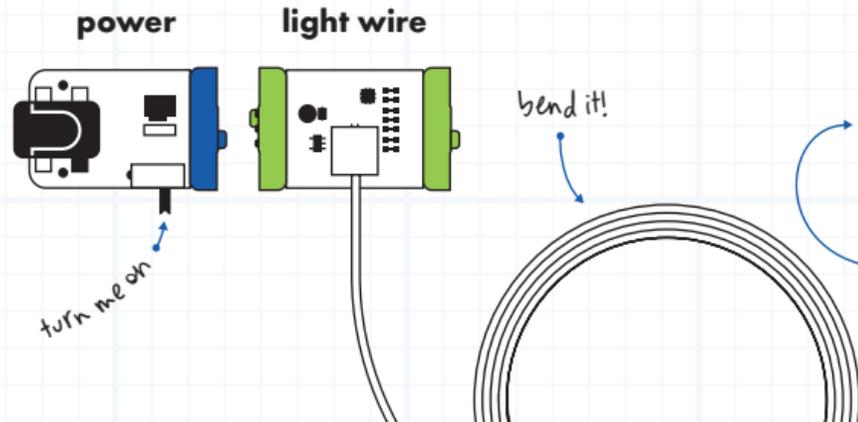
ROBOT ARM

Learn how to change the speed & angle of your servo.



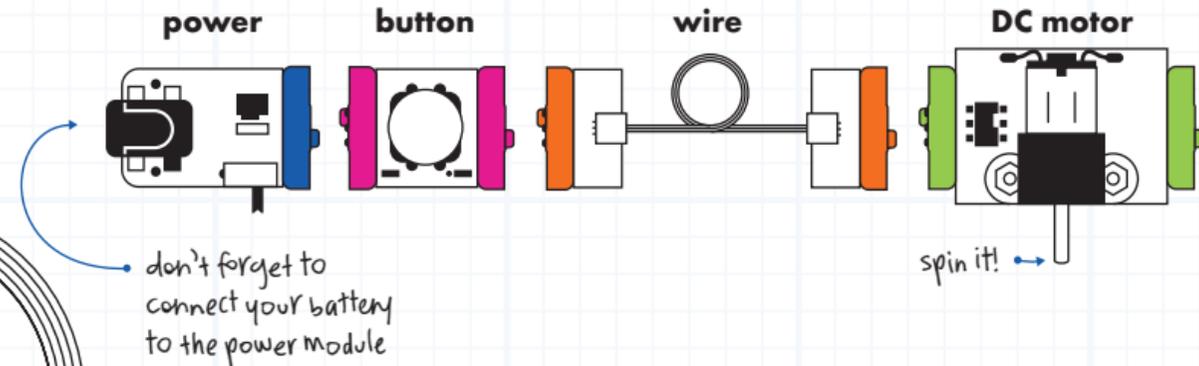
NEON SIGN

Make a bright statement.



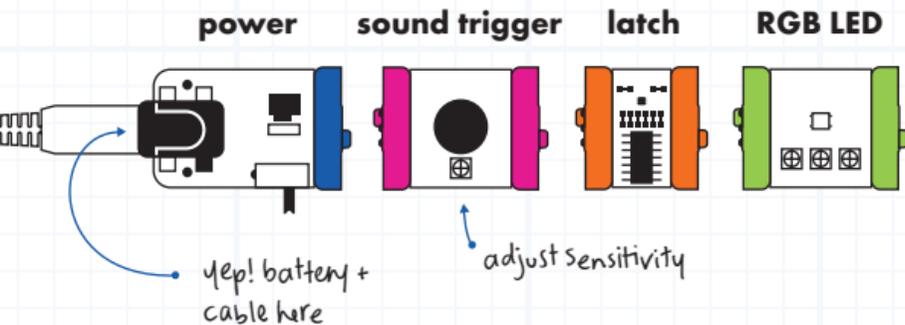
INTRO TO DC MOTOR

Get to know the motor.



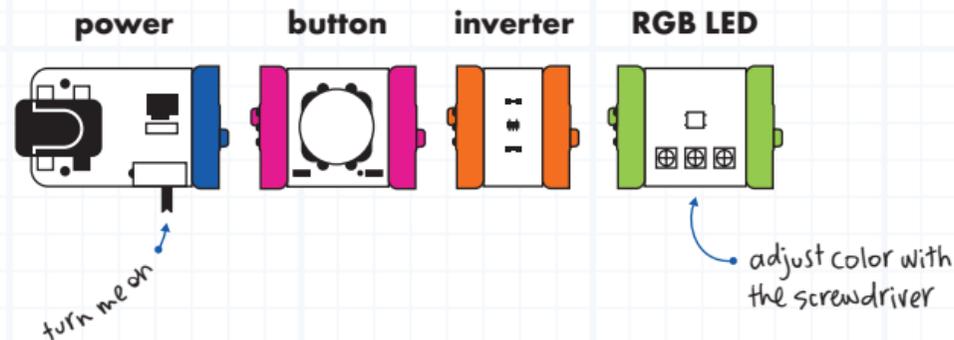
CLAP IT

Clap your lights on and off.



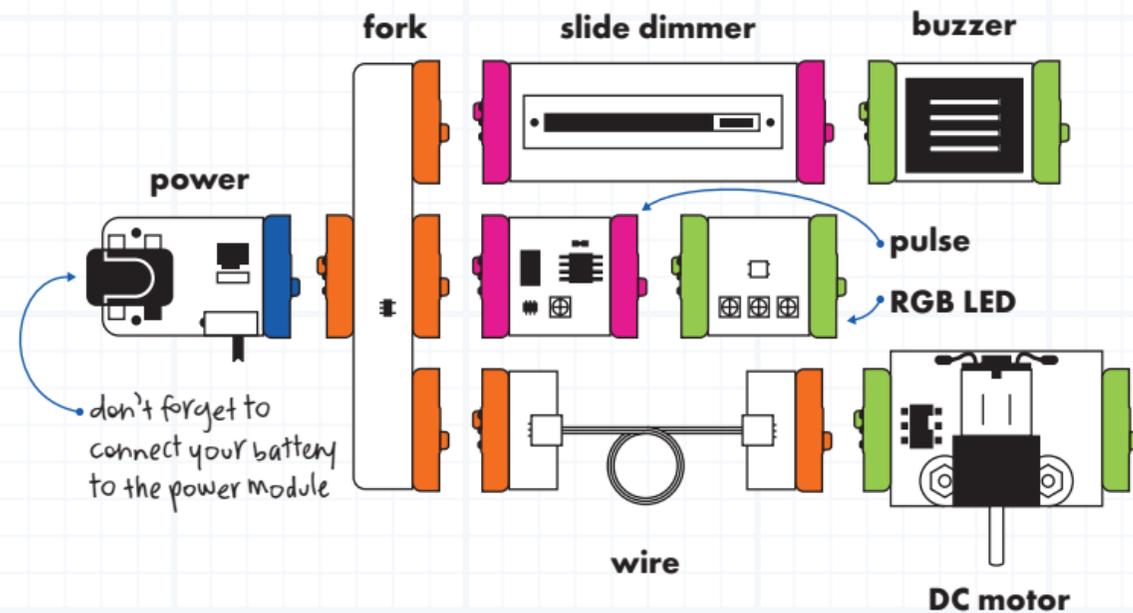
DO THE OPPOSITE

Discover the magic of the inverter.



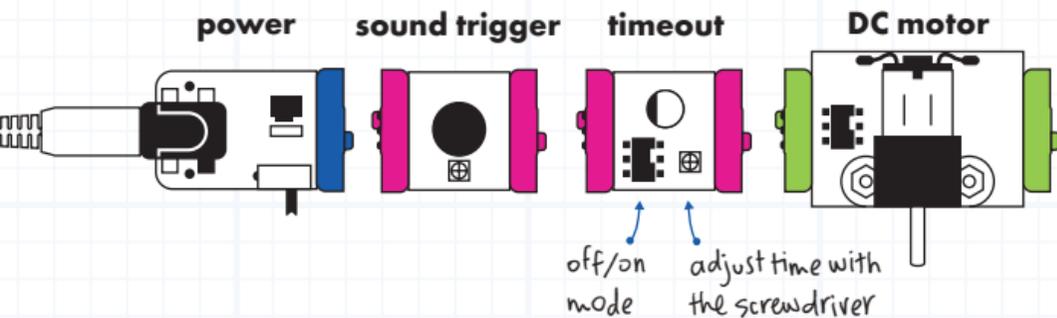
TO THE RESCUE

Create sirens, light and motion!



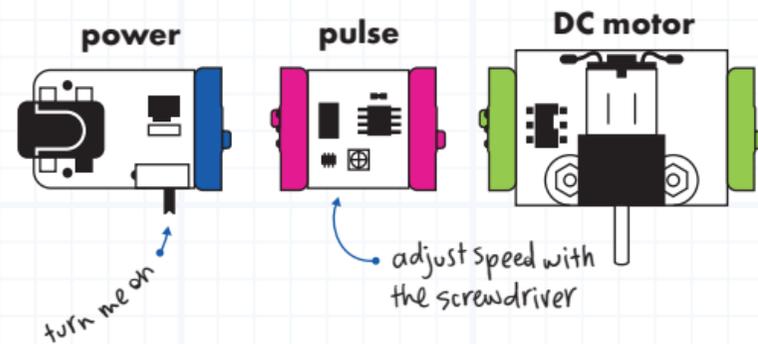
TIMED MOTION

Set how long your DC motor spins for.



CLOCK

Learn how to make the DC motor tick.



PROJECTS

TRY THESE
AND INVENT
YOUR OWN

1 Tickle Machine

2 Prank Handshake

3 Auto Greeter

4 Truck Crane

5 Art Bot

6 Dancing Signs

7 Glowing
Handlebars

8 Birthday Candle

9 Stomping Shoes

10 Surprise Party

11 Flickering Lantern

12 Cat Nap

13 Unihorn Helmet

14 Honking Tricycle

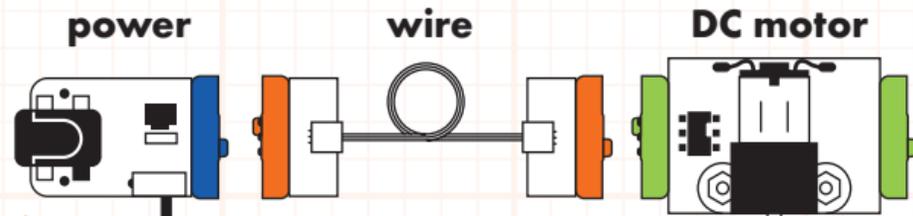
15 Robot

Enhanced instructions plus tons more
projects online, littleBits.cc/deluxe

PROJECT 1: How can electronics help spread laughs?

TICKLE MACHINE

1 Start with this circuit



always connect
battery and cable
to power module

a wire to extend and bend

plus the
motorMate

YOU'LL NEED



feathers

TIME: 15 mins

DIFFICULTY: ●○○○○

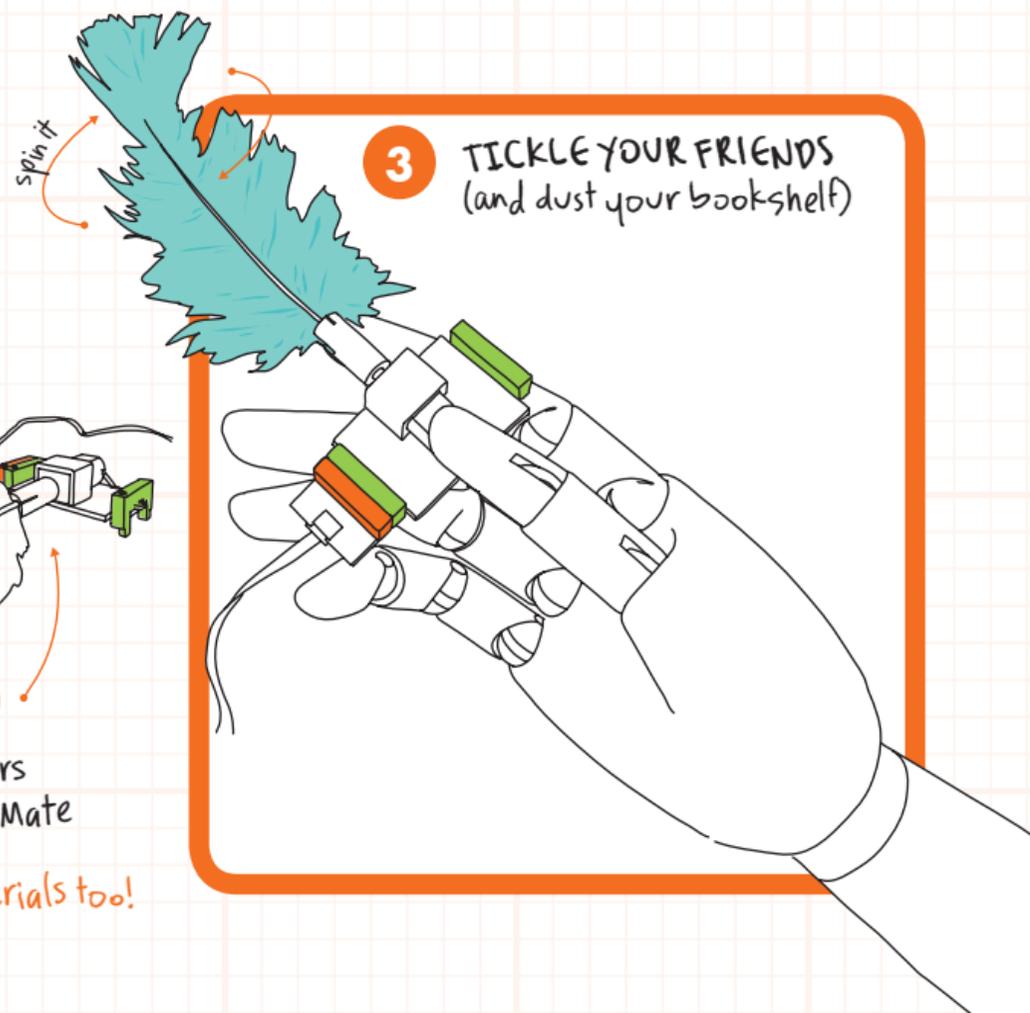
2

Attach feathers
to the motorMate

Try other materials too!

3

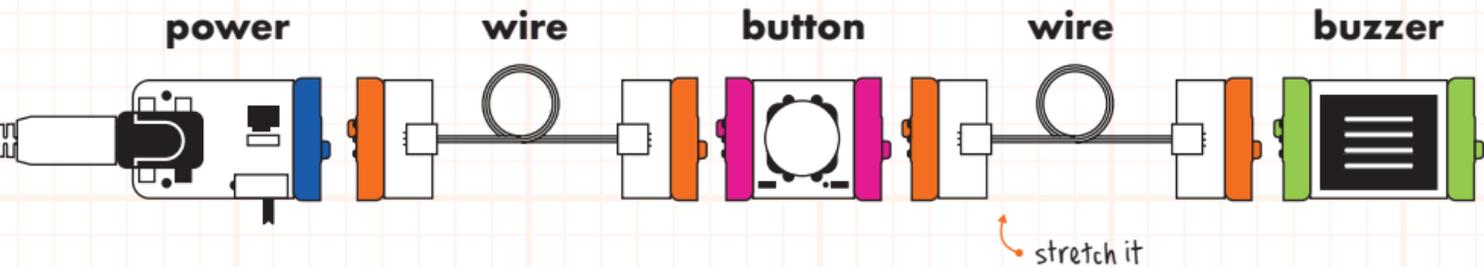
TICKLE YOUR FRIENDS
(and dust your bookshelf)



PROJECT 2: Want to trick a friend? We'll show you how!

PRANK HANDSHAKE

1 Start with this circuit



TIME: 15 mins
DIFFICULTY: ●○○○○

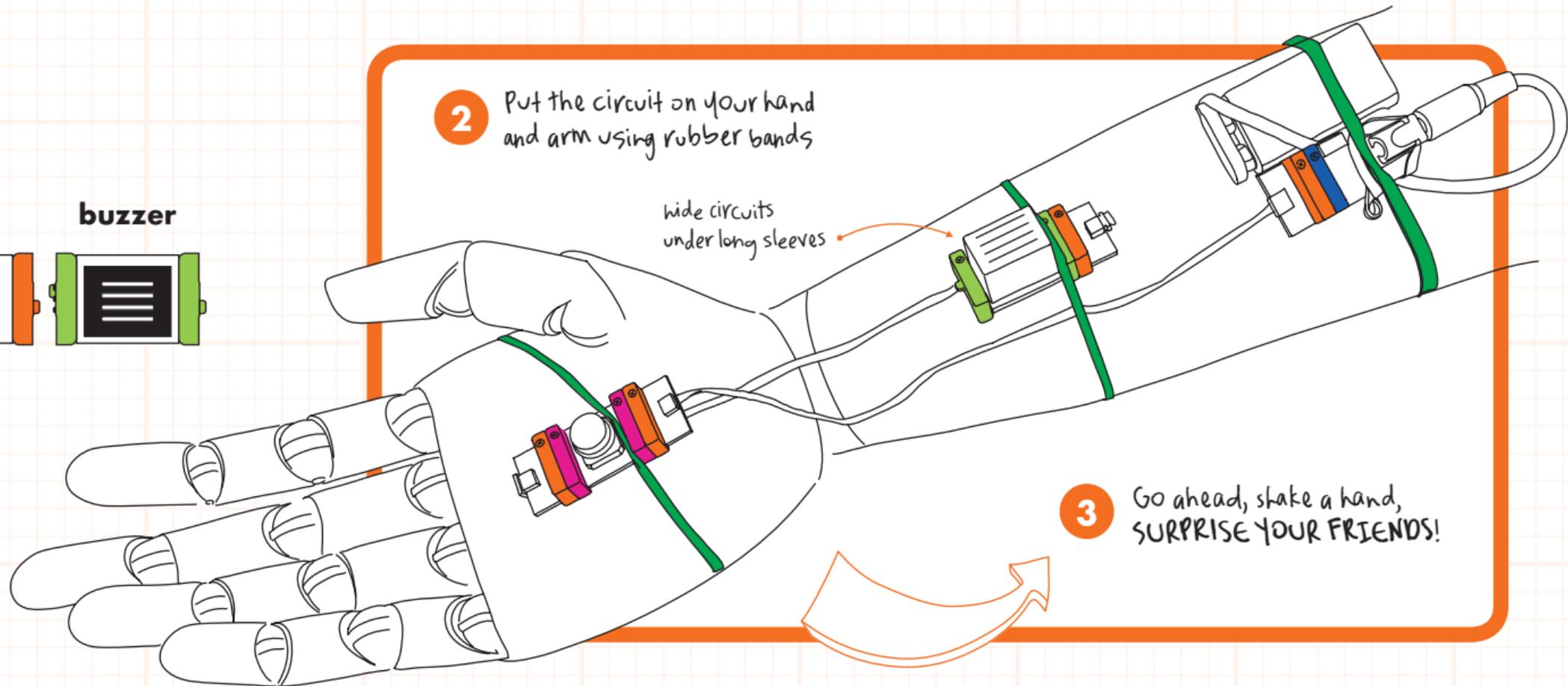
YOU'LL NEED



Rubber bands

How else can you surprise your friends using littleBits?

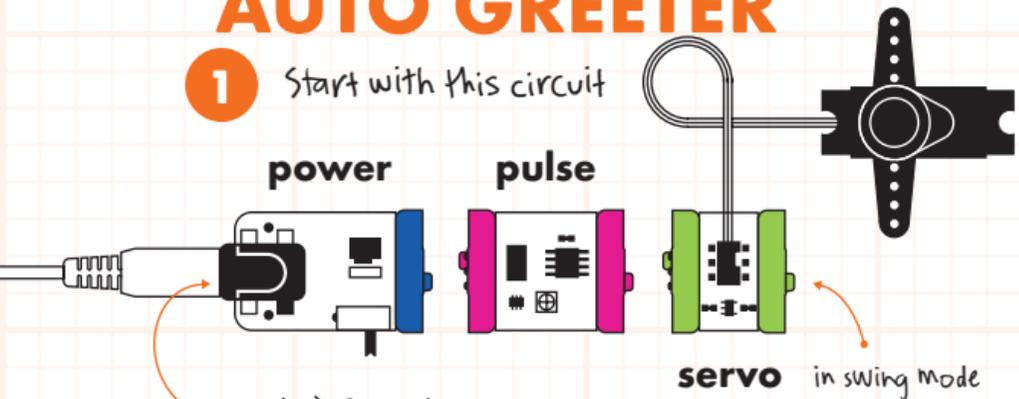
2 Put the circuit on your hand and arm using rubber bands



PROJECT 3: How can you use a servo to imitate a human wave?

AUTO GREETER

1 Start with this circuit



don't forget to connect your battery to the power module

TIME: 15 mins

DIFFICULTY: ●○○○○

YOU'LL NEED



marker



scissors

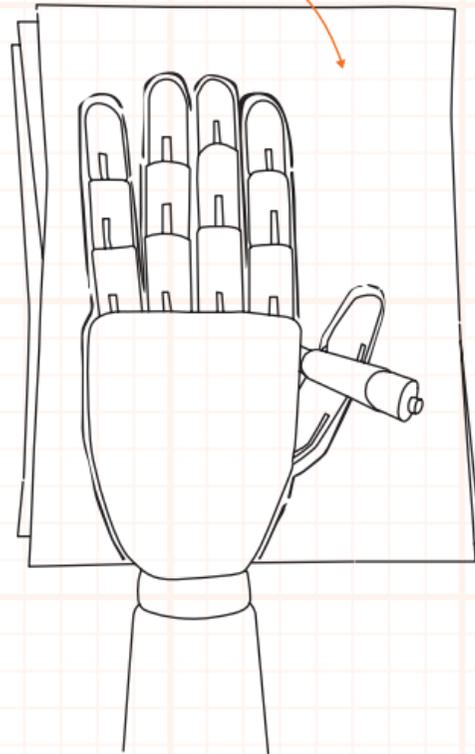


tape

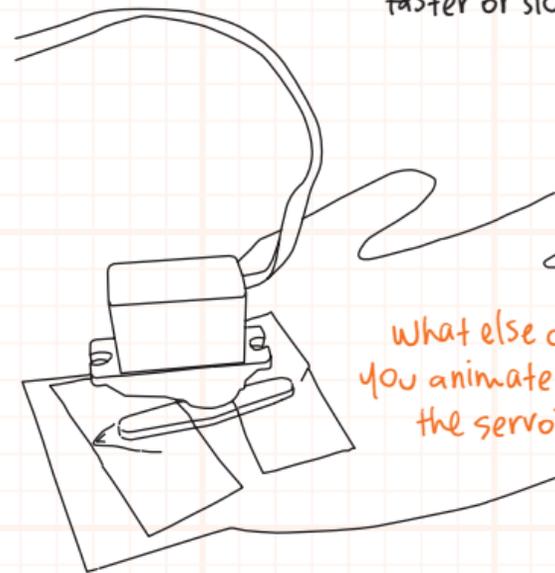


construction paper

2 Trace hand on paper and cut it out

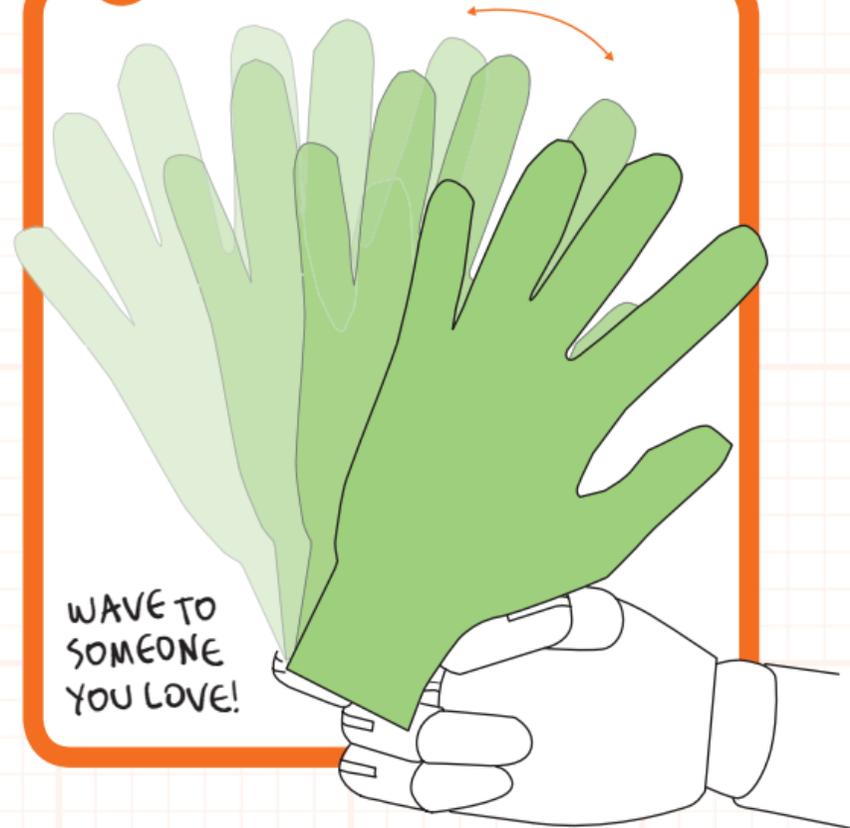


3 Tape paper hand to servo



4 Use a screwdriver to adjust pulse if you want to wave faster or slower

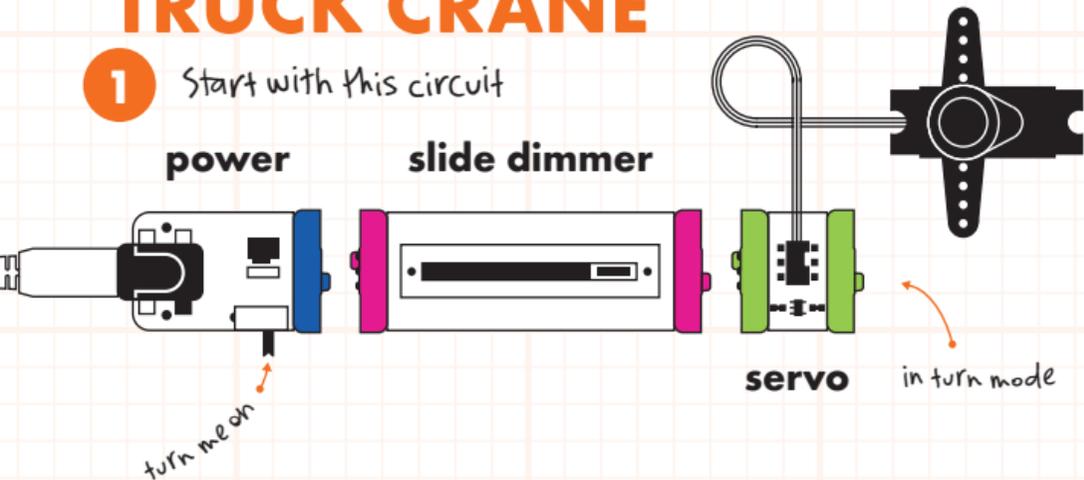
5



PROJECT 4: How can you use a servo to pick things up?

TRUCK CRANE

1 Start with this circuit



TIME: 30 mins
DIFFICULTY: ●●○○○

YOU'LL NEED



rubber bands

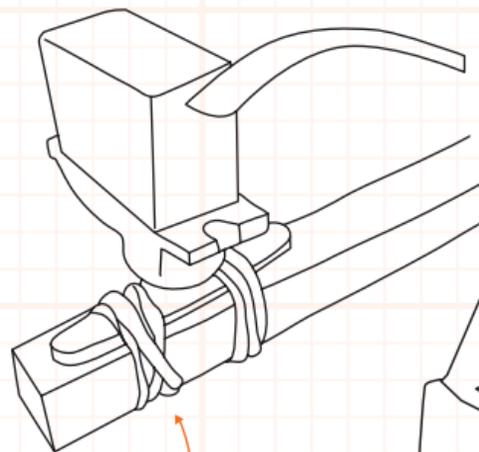


paper clip



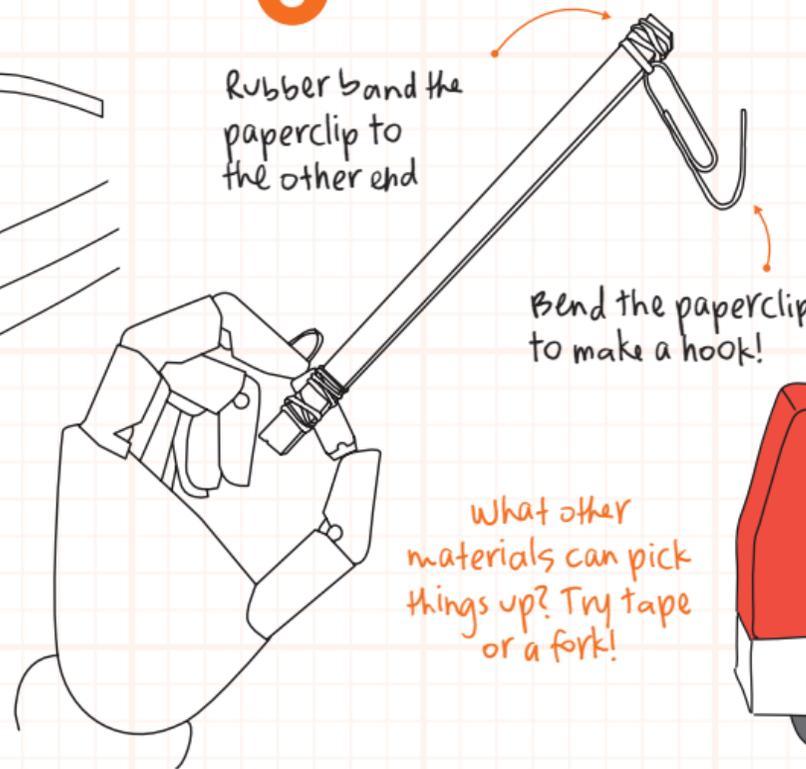
popsicle stick

2



Rubber band the stick to the servo

3



Rubber band the paperclip to the other end

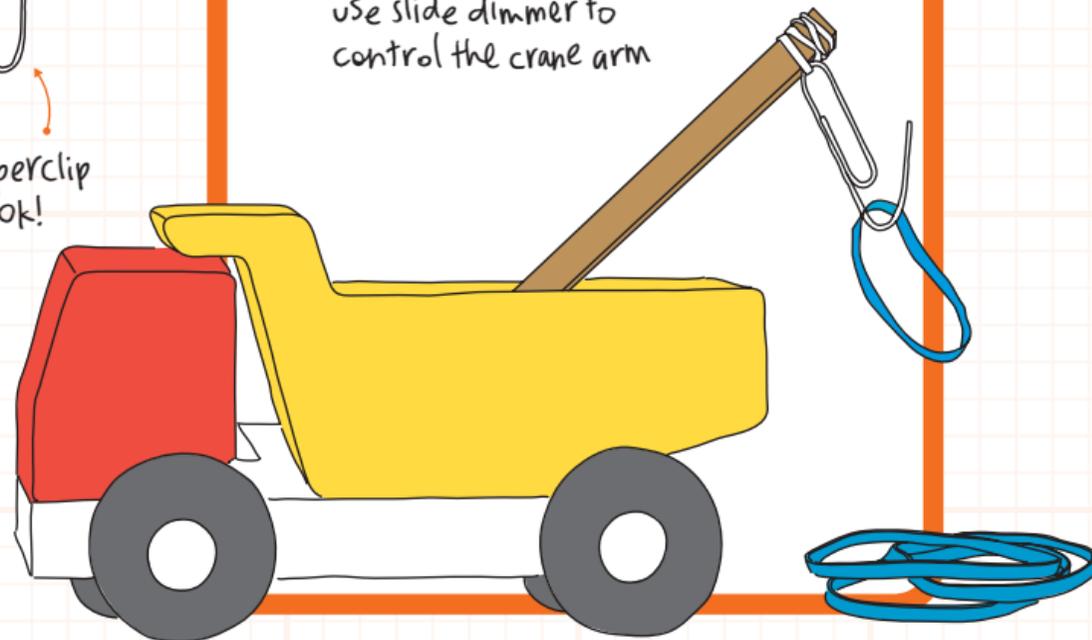
Bend the paperclip to make a hook!

What other materials can pick things up? Try tape or a fork!

4

PICK THINGS UP!

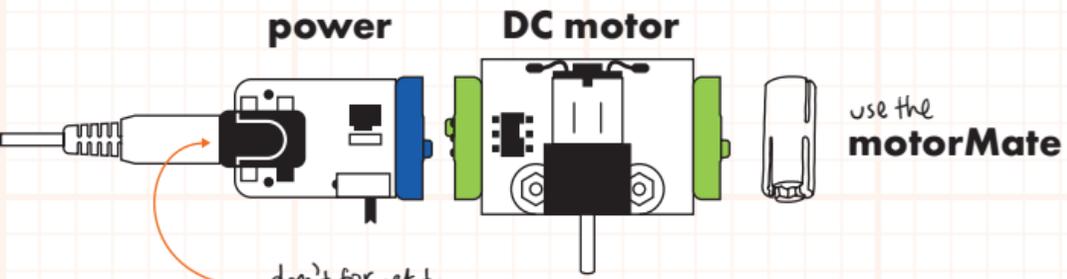
use slide dimmer to control the crane arm



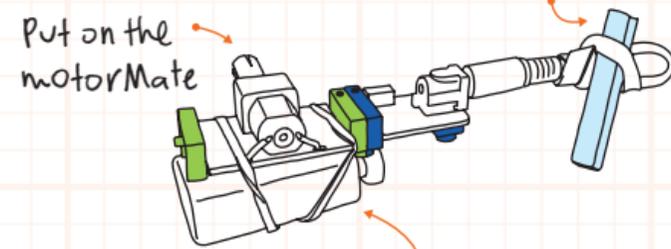
PROJECT 5: How can you build a device to draw for you?

ART BOT

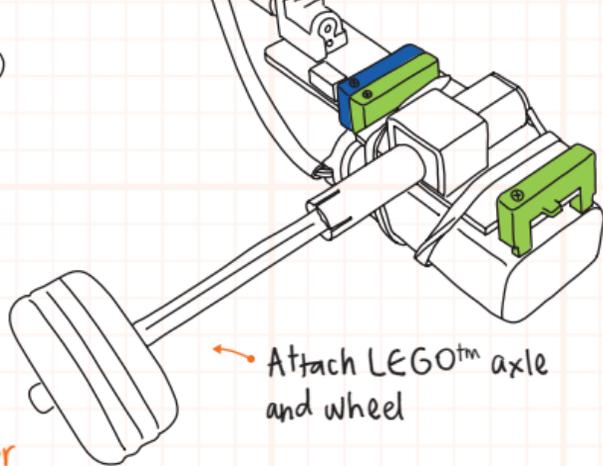
1 Start with this circuit



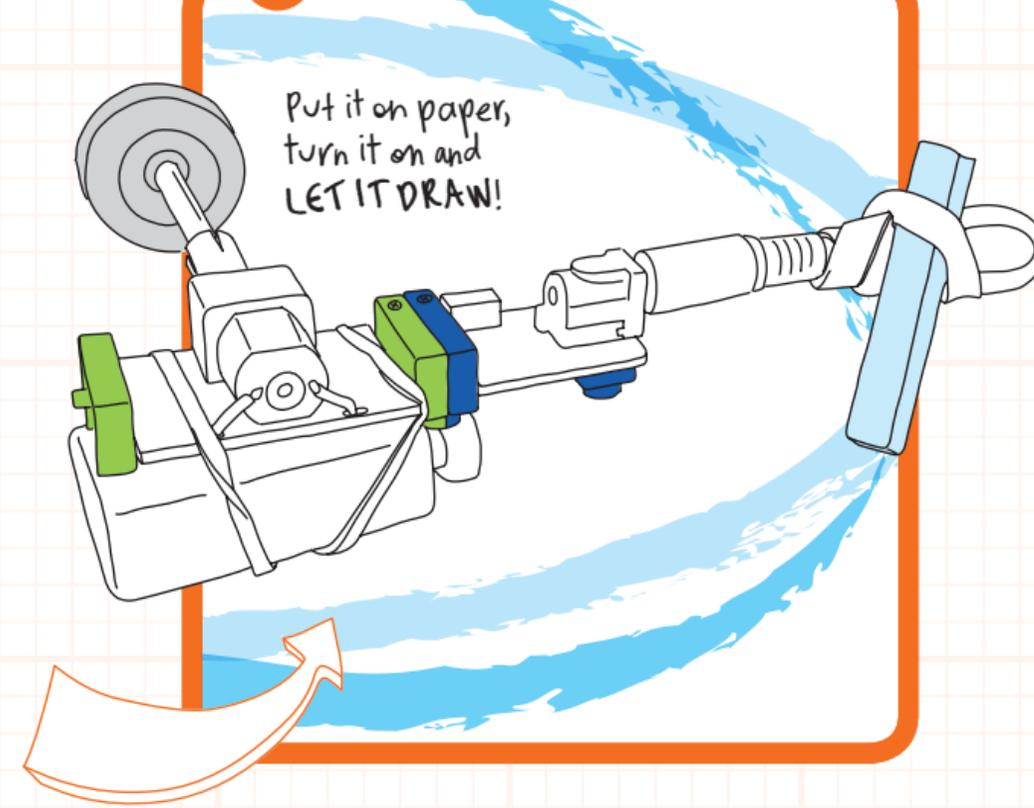
2 Rubber band together battery cable and insert your charcoal or marker



3 What other tools can you draw with?



4



TIME: 30 mins
DIFFICULTY: ●●○○○

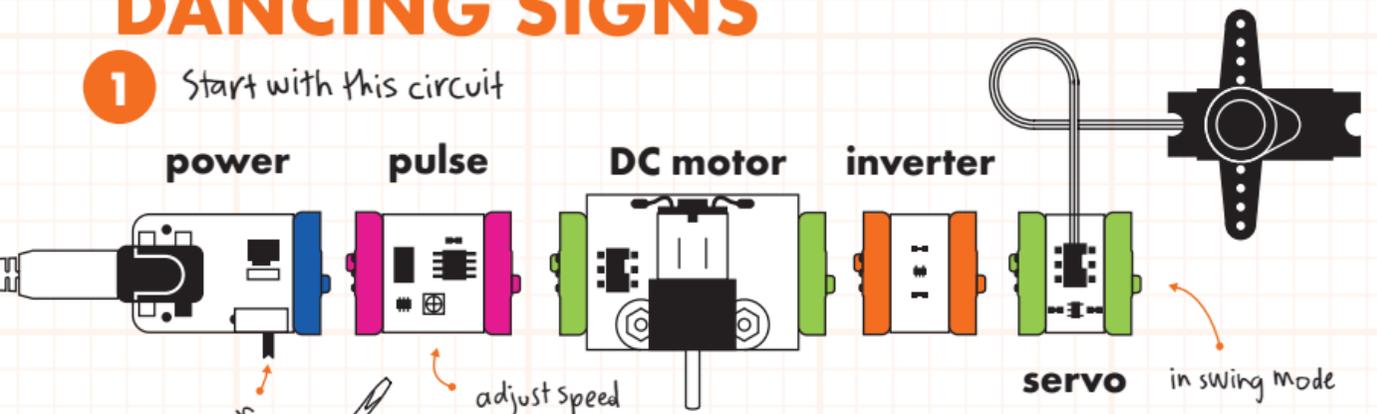
YOU'LL NEED

- marker
- charcoal
- any kind of marking device is fine
- rubber bands
- LEGO™ axle
- wheel

PROJECT 6: How can you use the inverter to activate two different and opposite motions?

DANCING SIGNS

1 Start with this circuit



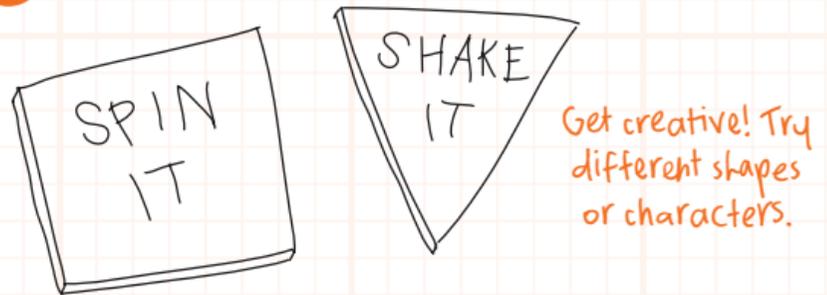
TIME: 30 mins
DIFFICULTY: ●●○○○

YOU'LL NEED

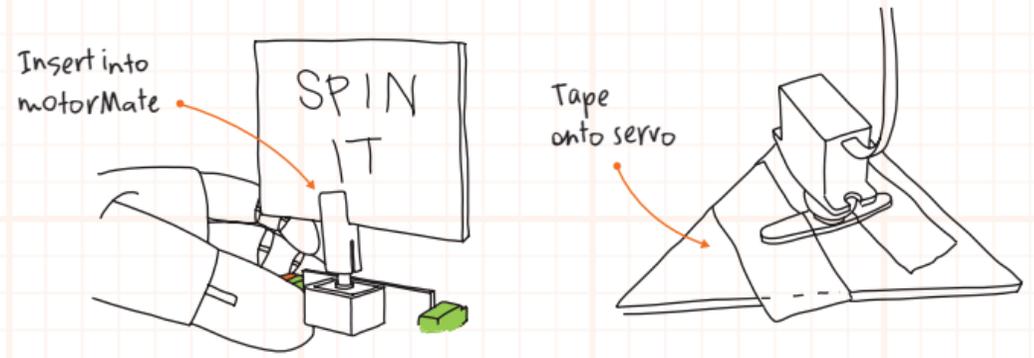
- marker
- scissors
- tape
- construction paper

plus the motorMate

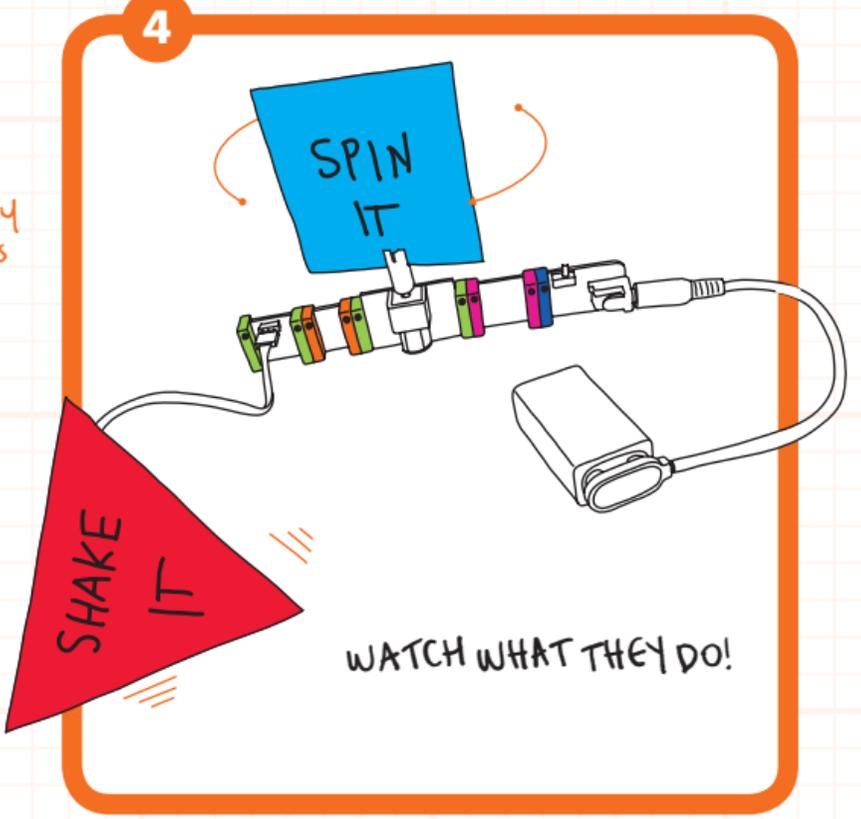
2 Make 2 signs out of paper



3 Attach the signs to the Bits modules



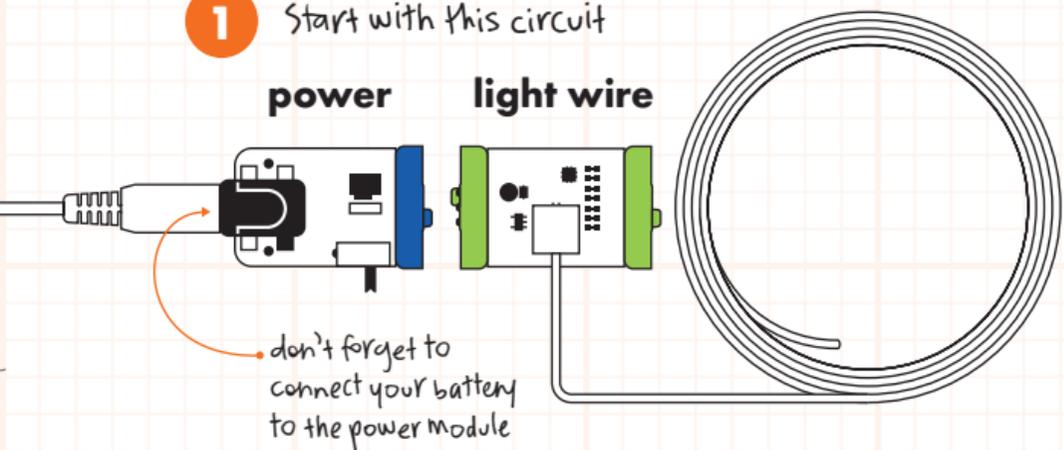
4



PROJECT 7: How can you brighten up your bike for night rides?

GLOWING HANDLEBARS

1 Start with this circuit



TIME: 30 mins
DIFFICULTY: ●●○○○

YOU'LL NEED



rubber bands

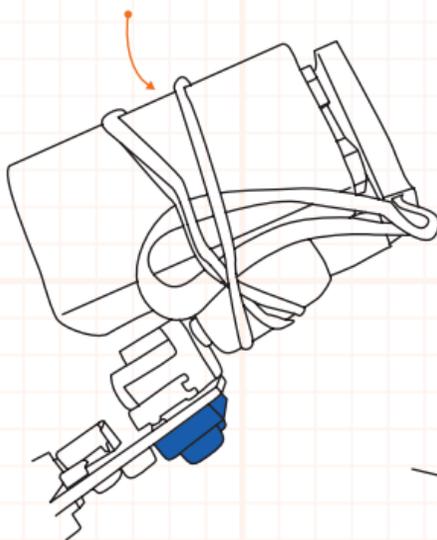


string

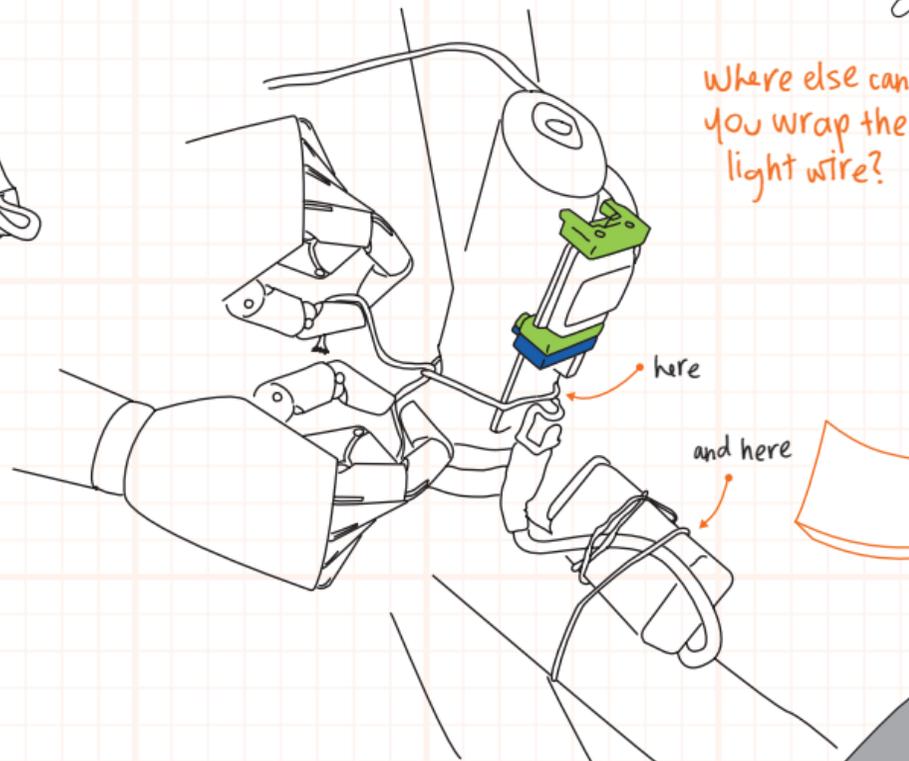


bike

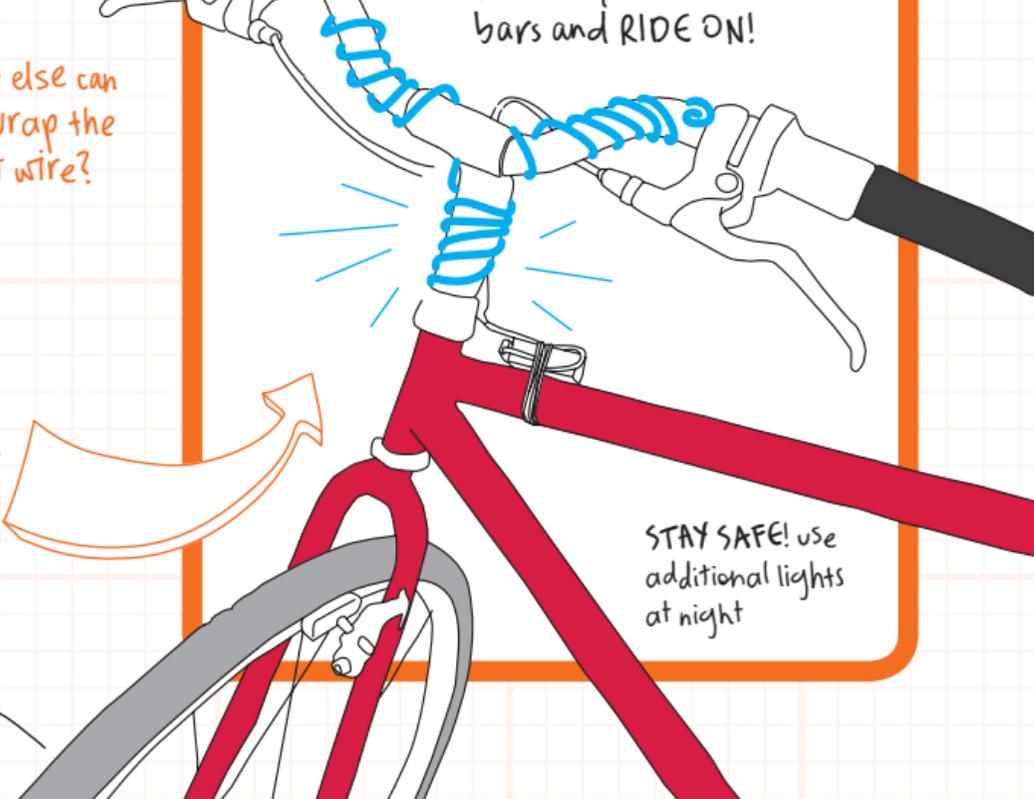
2 Rubber band battery cable around the battery



3 Tie the battery and circuit to your front handlebar post with string



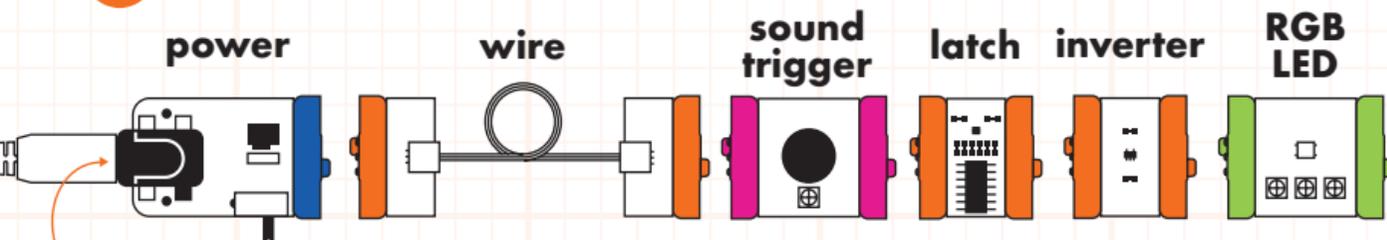
4 Wrap the light wire around your handlebars and RIDE ON!



PROJECT 8: Create an electronic alternative to the classic birthday candle.

BIRTHDAY CANDLE

1 Start with this circuit



always connect your battery and turn me on

adjust sensitivity

change colors

TIME: 30 mins

DIFFICULTY: ●●○○○

YOU'LL NEED



rubber bands



tape



scissors



popsicle stick



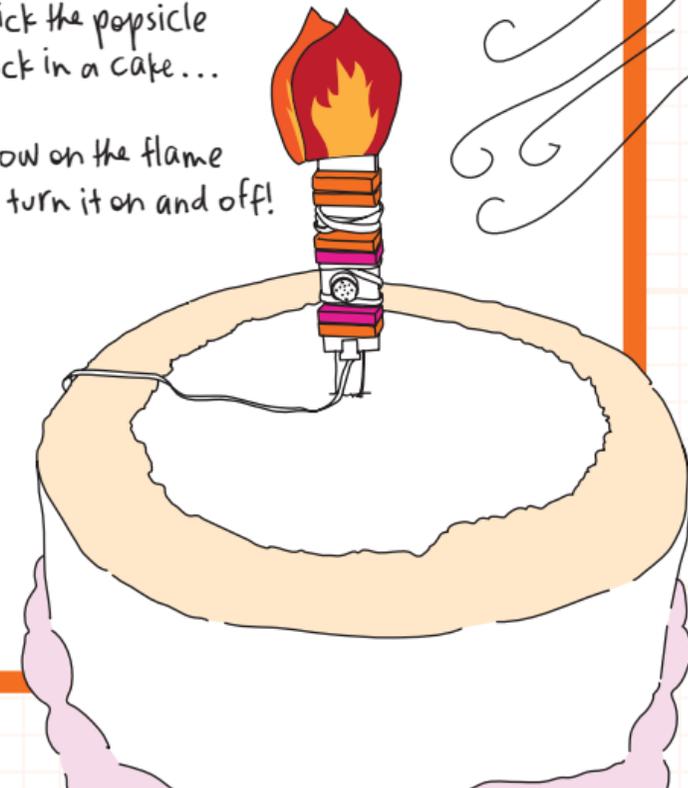
tissue paper

2 Use rubber bands to connect a popsicle stick to the back of the littleBits

3 Cut out tissue paper in the shape of a flame
Tape the flame to the front of the RGB LED

How old are you?
Create a custom candle shape.

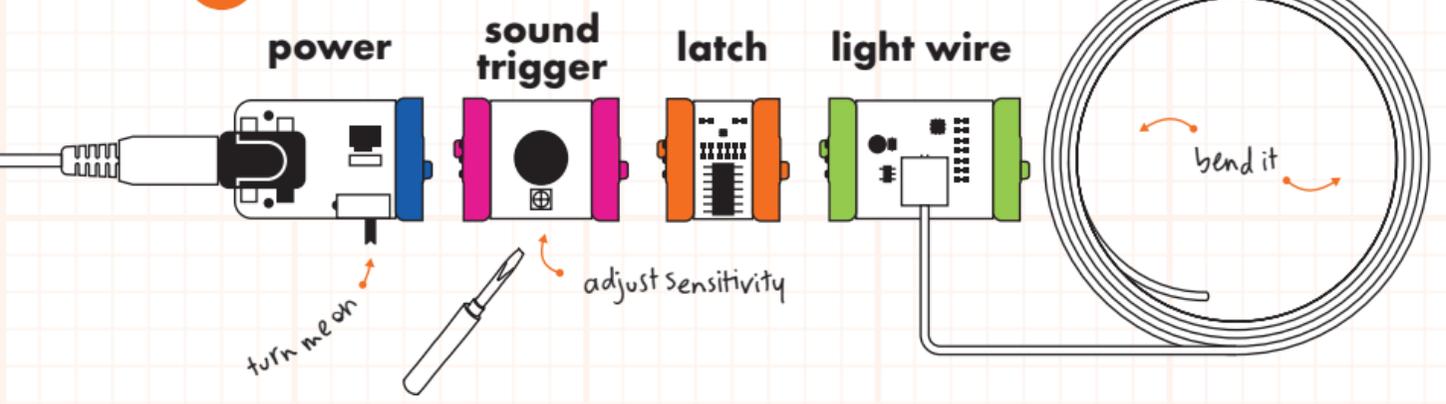
4 Stick the popsicle stick in a cake...
Blow on the flame to turn it on and off!



PROJECT 9: Going to a dance party? Create a fun accessory!

STOMPING SHOES

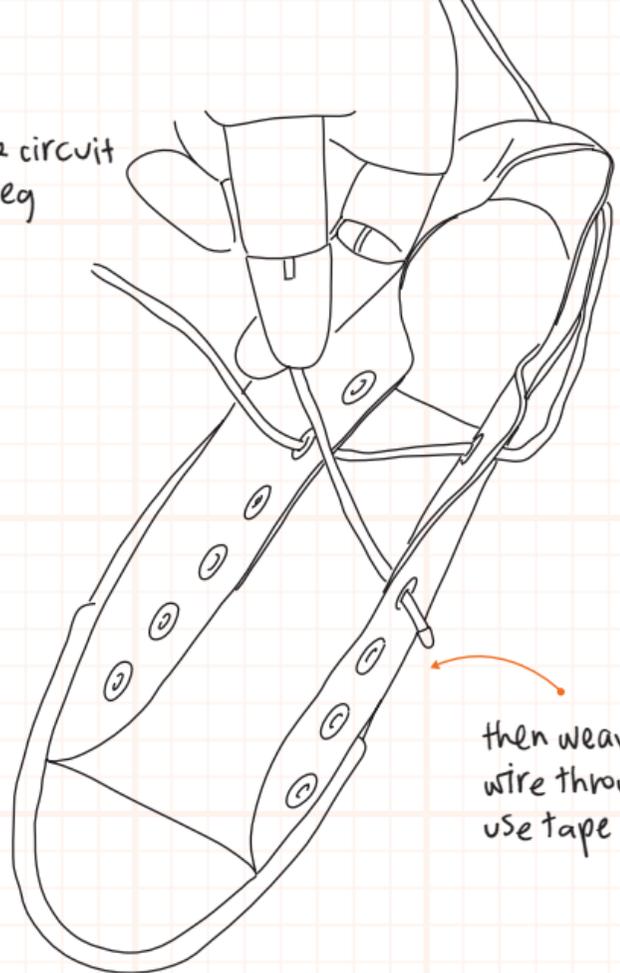
1 Start with this circuit



TIME: 60 mins
DIFFICULTY: ●●○○○

- YOU'LL NEED
-  rubber bands
 -  tape
 -  shoes

2 Rubber band the circuit to your lower leg



What other clothing can you attach the light wire to?

then weave the light wire through the holes, use tape when needed

3



PROJECT 10: Throwing a surprise party? Use the timeout!

SURPRISE PARTY

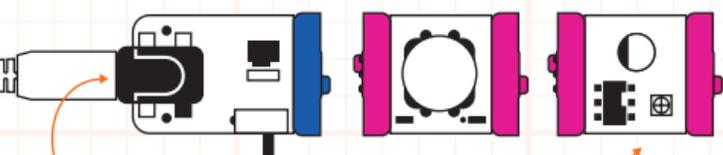
fork

wire

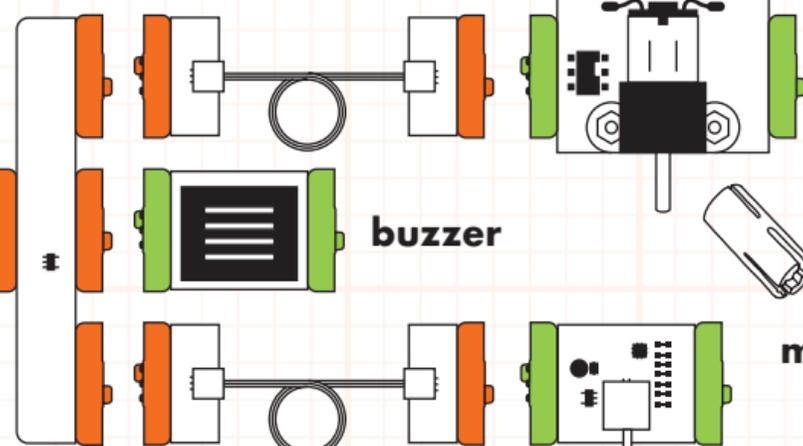
DC motor

1 Start with this circuit

power button timeout



adjust time



buzzer

plus the motorMate

light wire

TIME: 60 mins
DIFFICULTY: ●●○○○

YOU'LL NEED



marker



scissors



tape



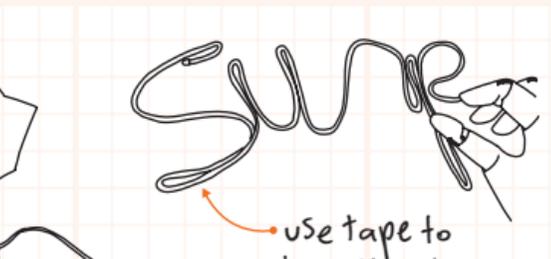
construction paper

wire

2 Decorate and cut out a sign



3 Bend light wire into the shape of the message

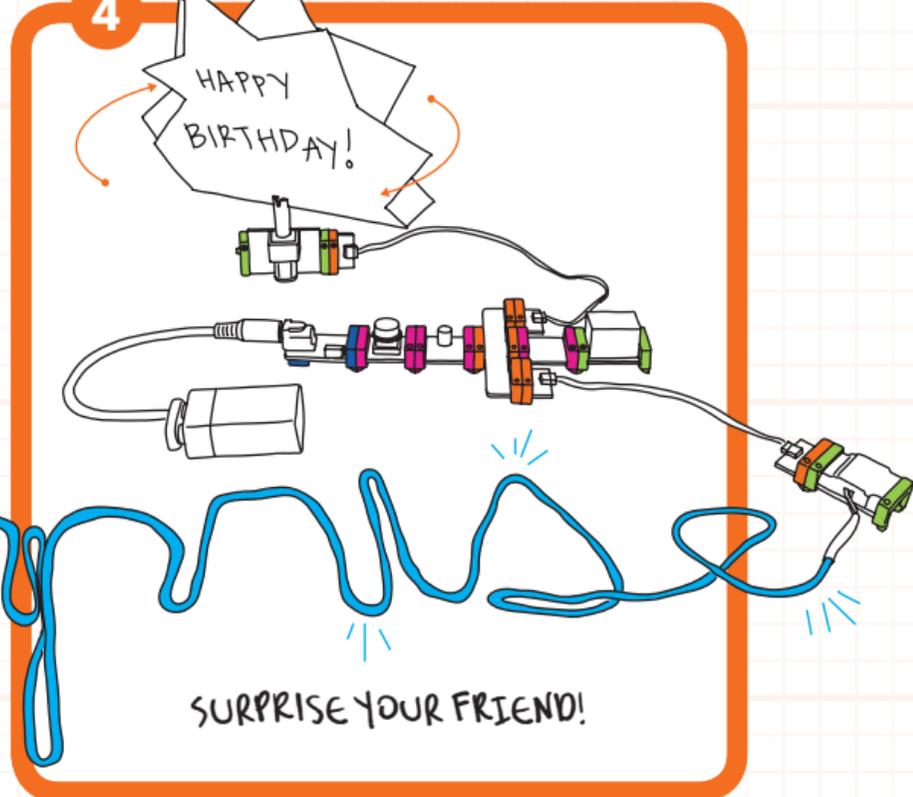


Put sign in the motorMate



Create a custom message. Try writing a friend's name with the light wire.

4



And now a brief intermission from the projects.

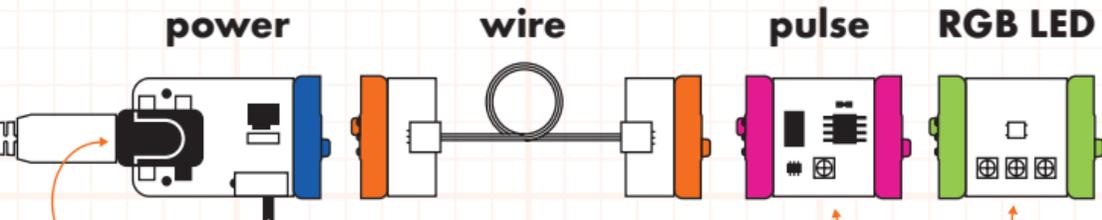
VISIT US AT LITTLEBITS.CC/TIPS FOR SOME AMAZING TIPS & TRICKS

10 coolest ways to wear the light wire ... Find out why the pulse is the life of the party ... 5 ways to attach materials to the servo motor ... 10 techniques for creating the goofiest eyeballs ... 6 things you didn't know about the button ... Find out why the wire is the second most important littleBit ... You are a musician! Learn the mystical art of playing the buzzer ... bitFeet™ + cardboard - 5 different attachment techniques ... Don't throw that away! It could transform your next project ... What household item enhances any lighting project? We'll show you ... 7 fun ways to set off the sound trigger ... Play with your food by attaching it to the DC motor ... How many wires would it take to circle the globe? Find out! ...

PROJECT 11: How can you use littleBits to imitate a flame?

FLICKERING LANTERN

1 Start with this circuit



always connect your battery to the power module

adjust speed of flicker

adjust color

STAY SAFE! Always use with an adult.

TIME: 60 mins

DIFFICULTY: ●●●○

YOU'LL NEED



box cutter



glue



cardboard



plastic cup

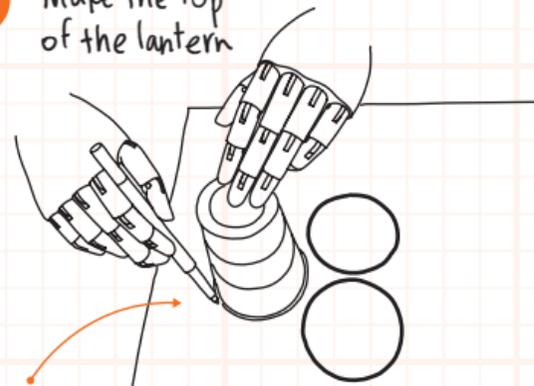


marker



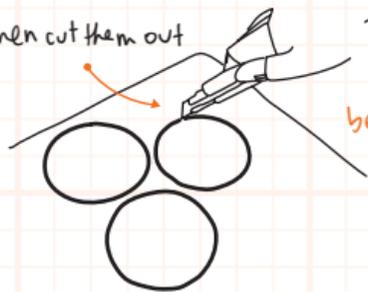
pipe cleaners

2 Make the top of the lantern



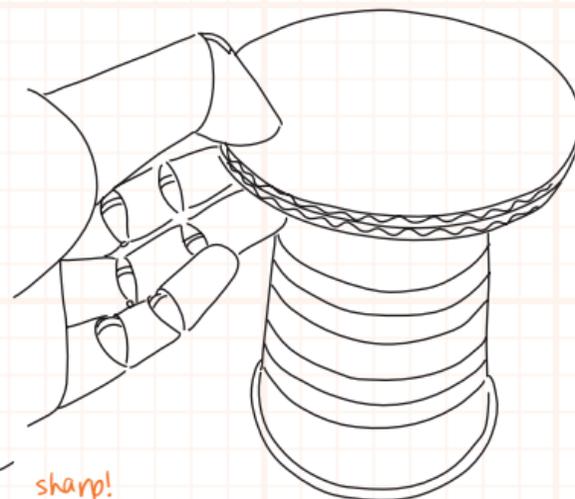
Trace big side of cup on cardboard 3-4 times

then cut them out



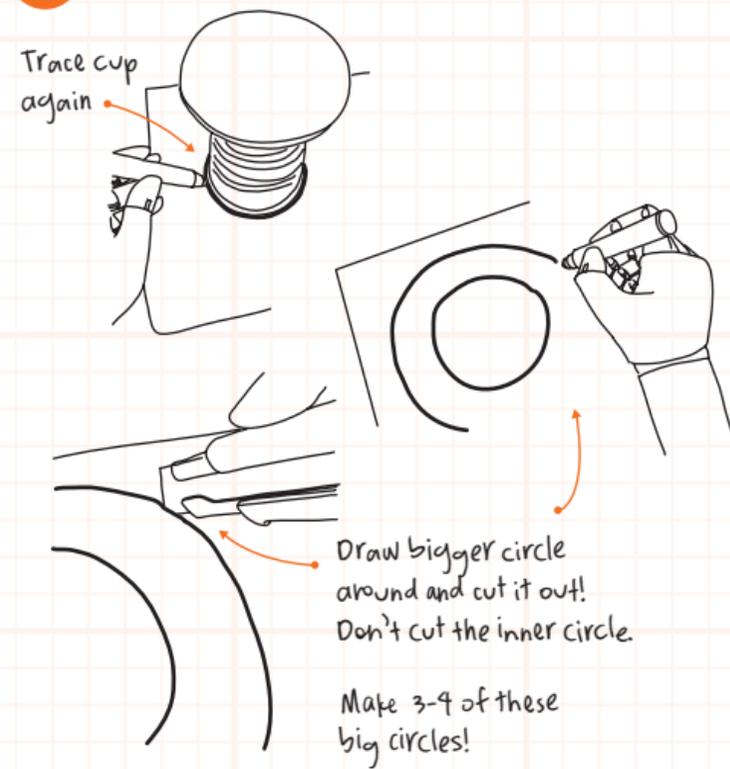
sharp! be careful!

3 Glue circles on top of cup

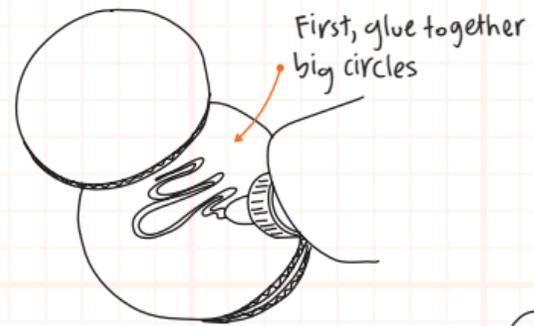


open end

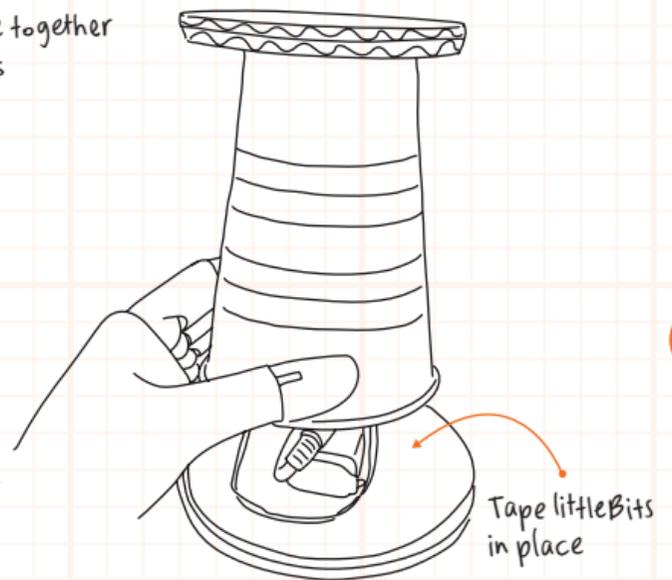
4 Make bottom of lantern



5 Put littleBits in lantern

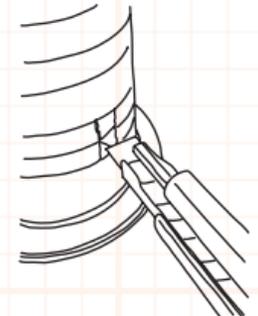


6 Put top of lantern on cardboard base

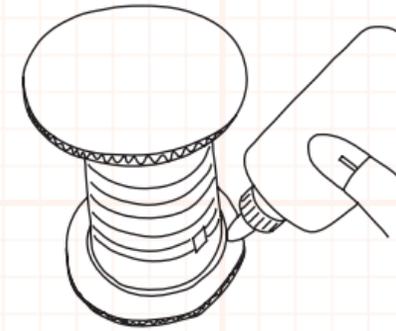


Do you want a blue strobe or red blinking light? Use the screwdriver to experiment.

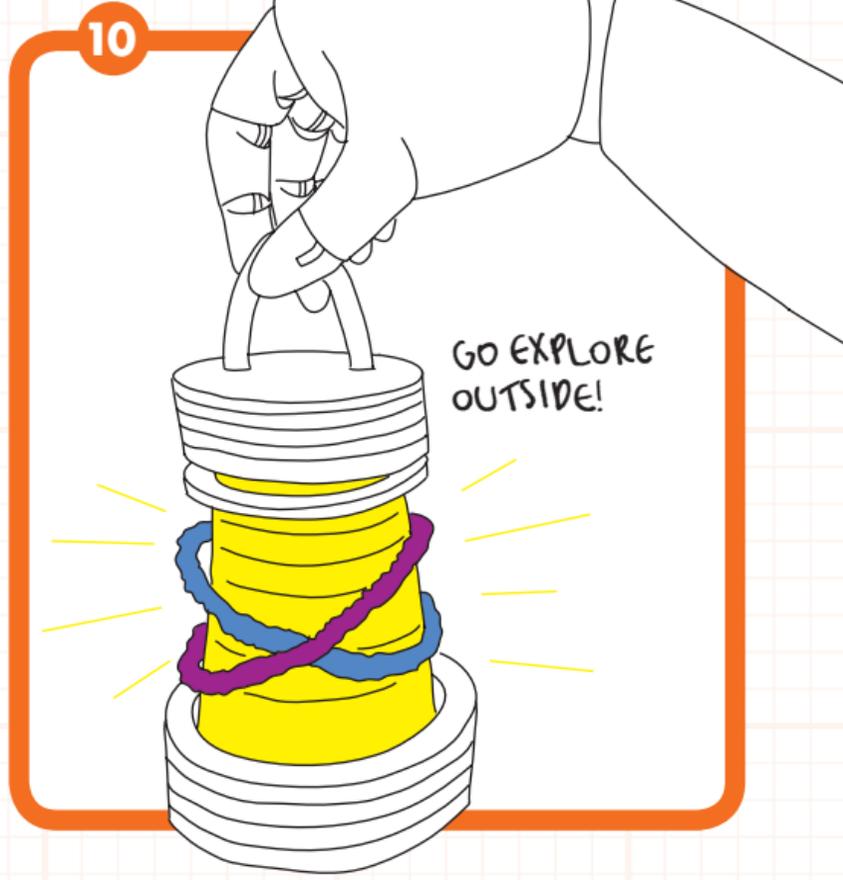
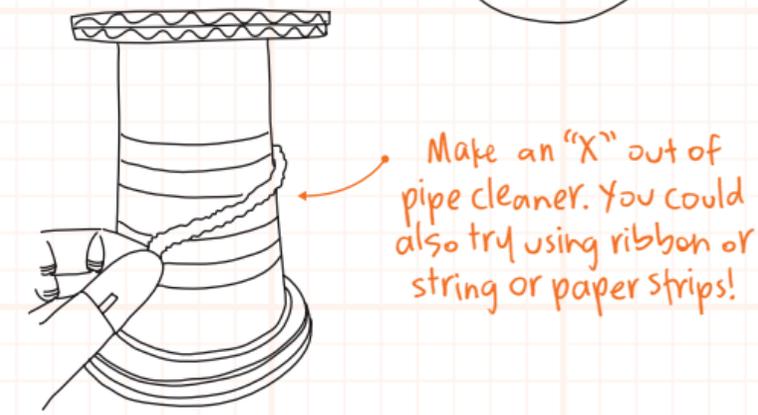
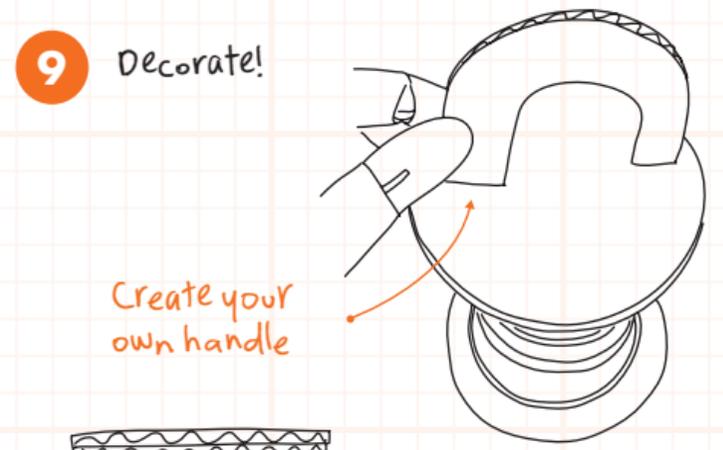
7 Cut hole to reach the power switch



8 Glue or tape cup to base



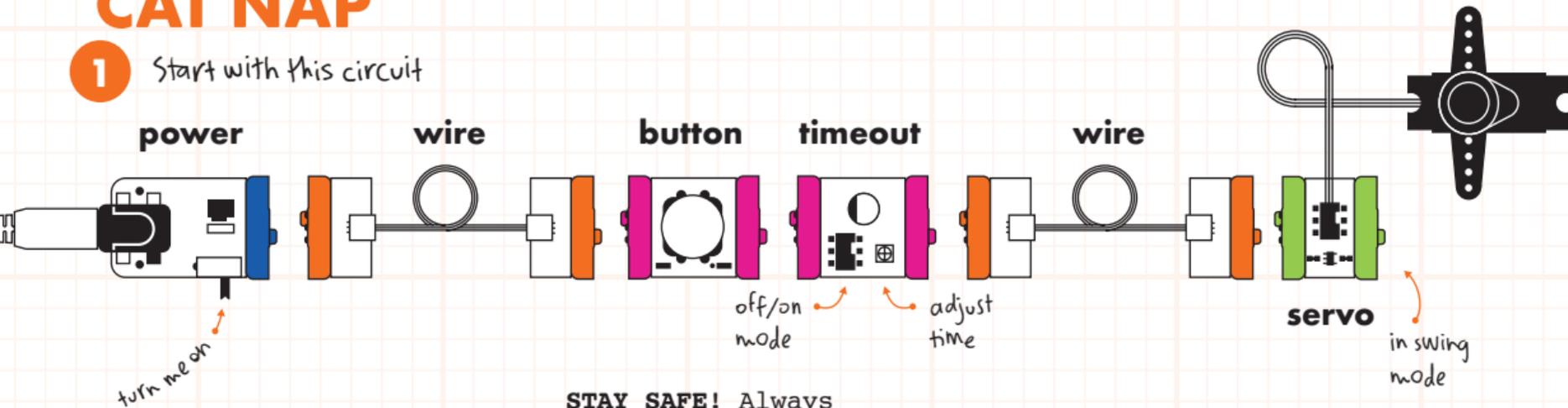
9 Decorate!



PROJECT 12: How can you use littleBits to create an alarm without sound?

CAT NAP

1 Start with this circuit



STAY SAFE! Always use with an adult.

TIME: 60 mins
DIFFICULTY: ●●●○

YOU'LL NEED



box cutter



scissors



tape



rubber bands



pen



box



feathers



[popsicle sticks

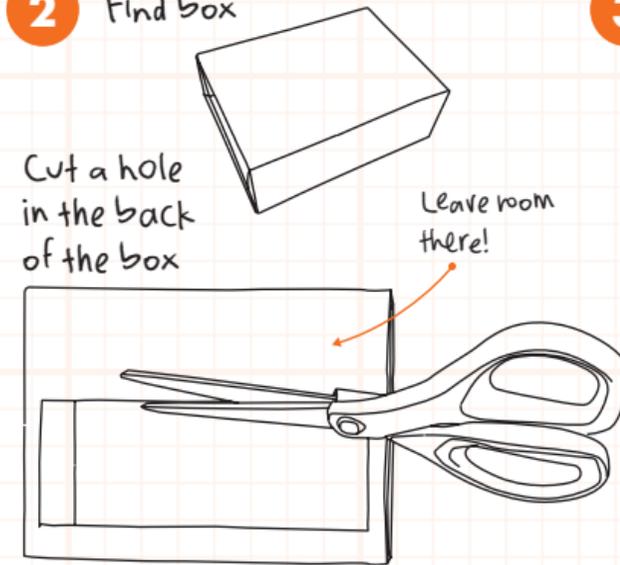


string

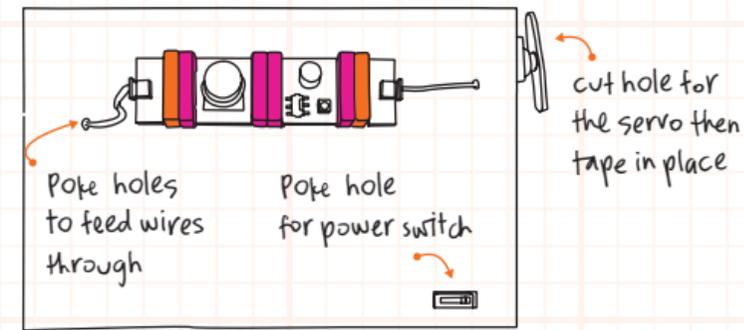


push pin

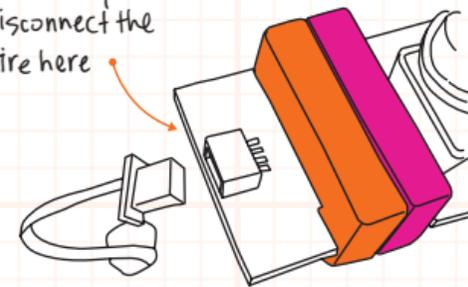
2 Find box



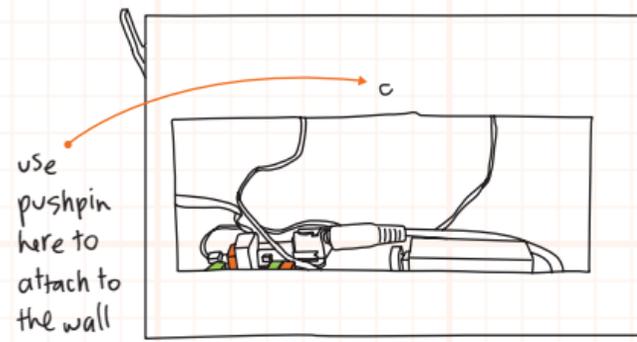
3 Place these littleBits on the front of the box



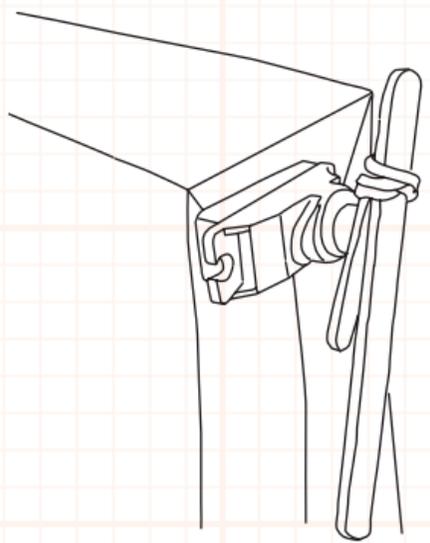
PRO TIP: you can disconnect the wire here



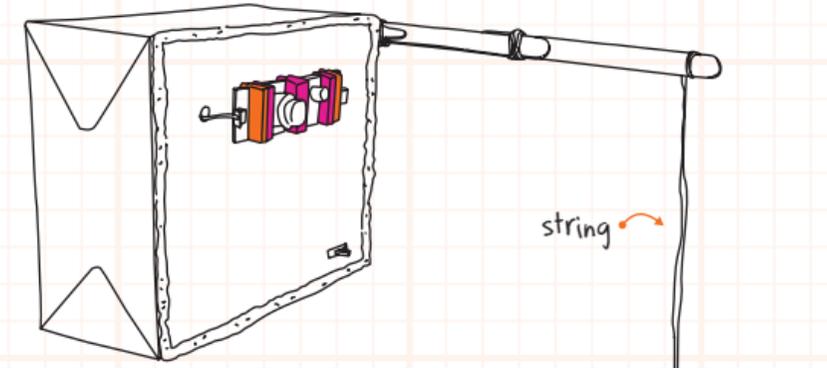
4 Place the other little bits inside the back of the box



5 Rubber band the servo to the popsicle stick



6



Put "Alarm Feathers" on the servo

What other material can wake you up?



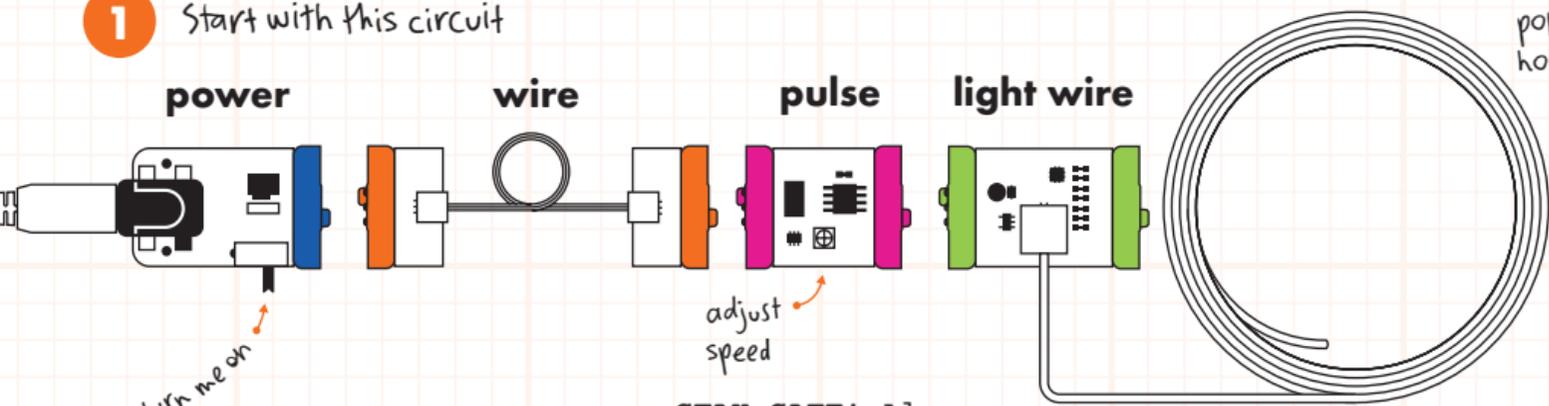
7



PROJECT 13: Invent a magical accessory for nighttime bike riding.

UNIHORN HELMET

1 Start with this circuit



STAY SAFE! Always use with an adult.

TIME: 2.5 hrs
DIFFICULTY: ●●●●○

YOU'LL NEED



box cutter



tape



bike helmet



cardboard



colored paper

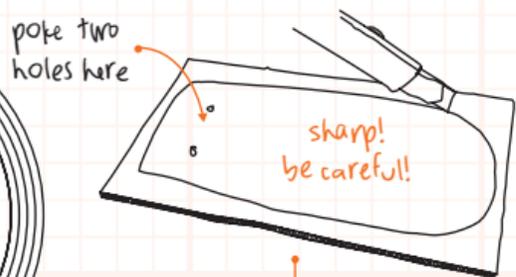


tissue paper

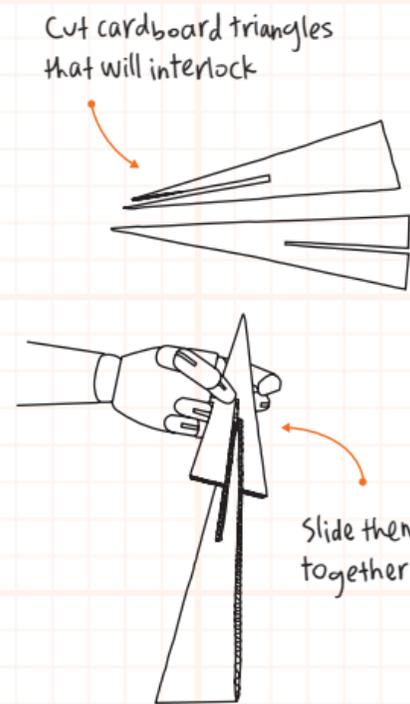


pipe cleaners

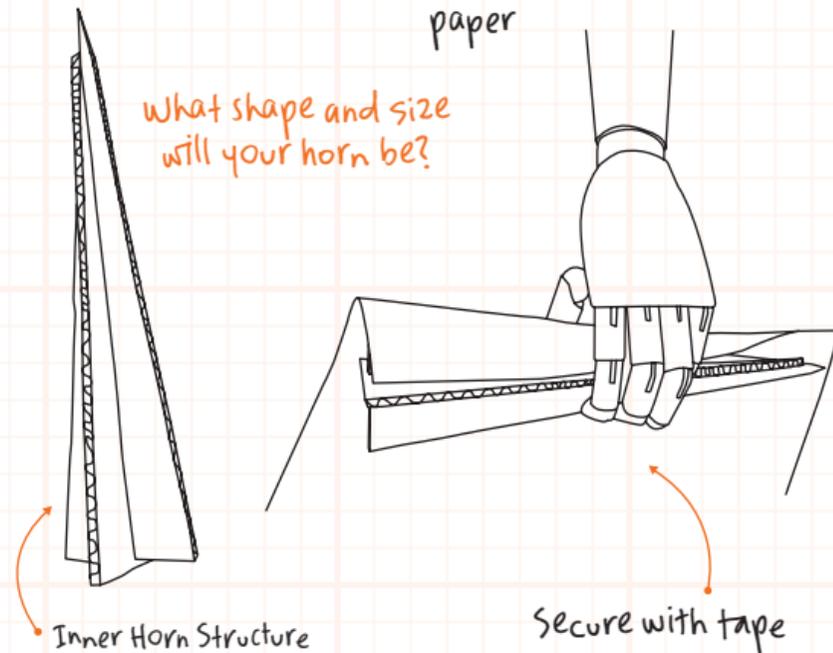
2 Measure and cut a piece of cardboard to fit along the top of your helmet



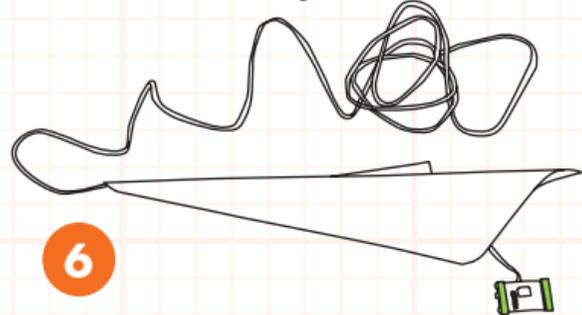
3 Make the inner horn structure



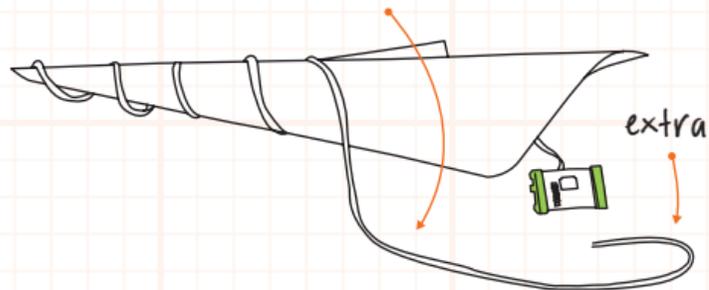
4 Roll the inner horn structure in colored paper



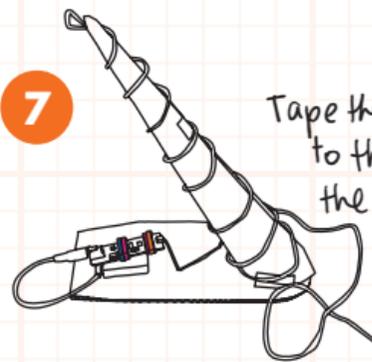
5 Feed light wire up through the base of the horn and out through the top



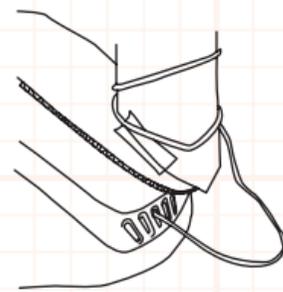
6 Wrap the light wire down and around the horn, leave some extra at the end



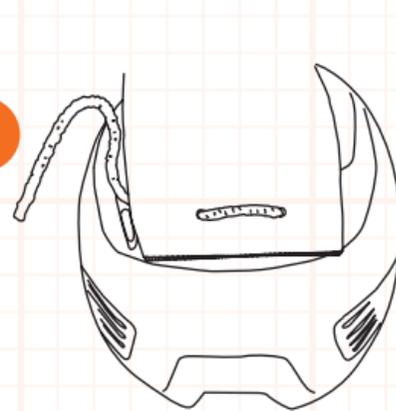
7 Tape the base of the horn to the cardboard and tape the rest of the Bits modules as well



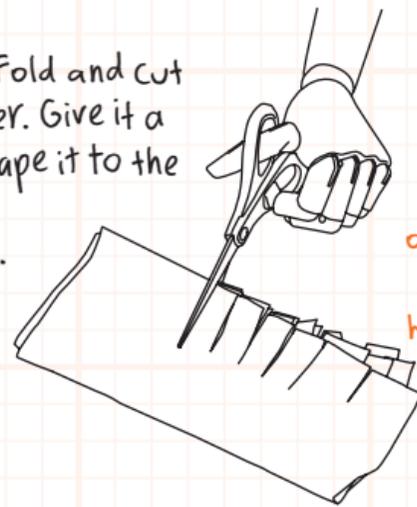
8 Use the excess light wire to secure the cardboard to the helmet at the front



9 Tie the back of the cardboard down with a pipe cleaner

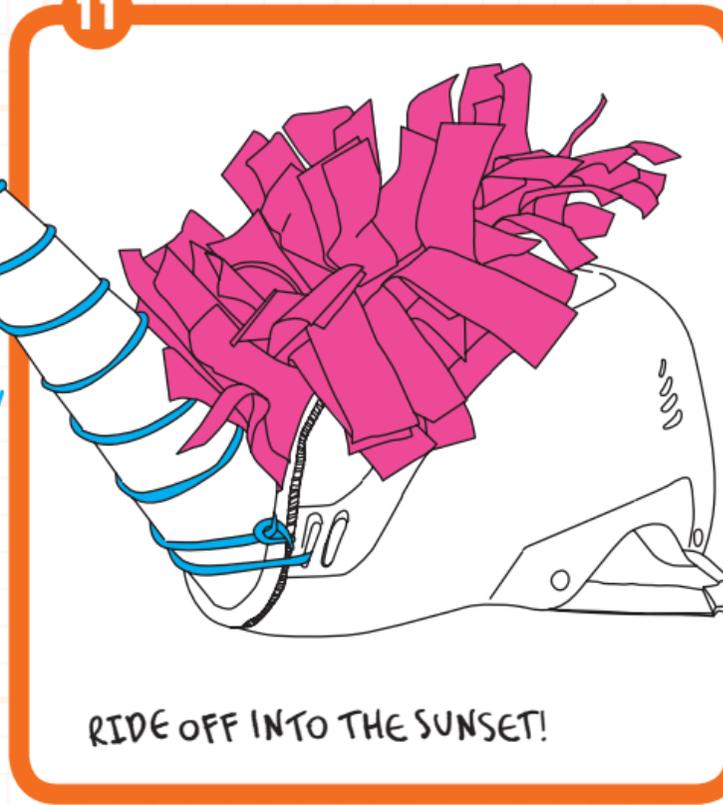


10 Add hair! Fold and cut tissue paper. Give it a fluff and tape it to the top of the cardboard.



Make your own creature. How many horns does it have?

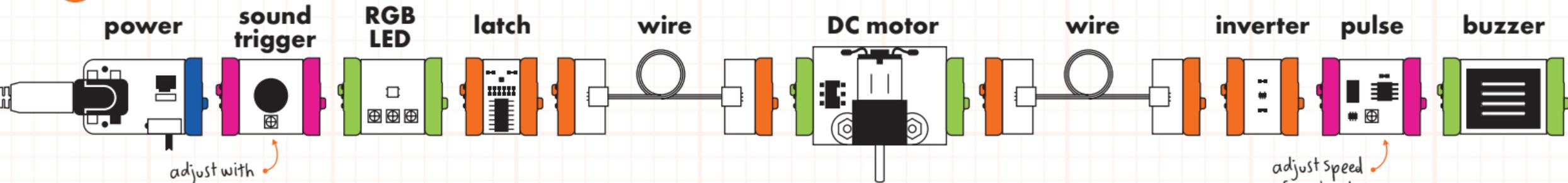
11 RIDE OFF INTO THE SUNSET!



PROJECT 14: Build an intelligent vehicle with multiple functions.

HONKING TRICYCLE

1 Start with this circuit



adjust with screwdriver to be less sensitive

adjust speed of the honk

STAY SAFE! Always use with an adult.

TIME: 2 hrs
DIFFICULTY: ●●●●○

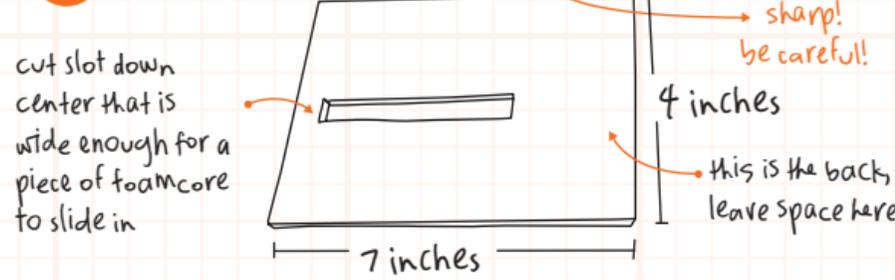
YOU'LL NEED

- box cutter
- hot glue
- wood grill skewers
- tape
- marker
- ruler
- hole-puncher
- plastic cup
- foamcore
- colored paper
- popstick sticks

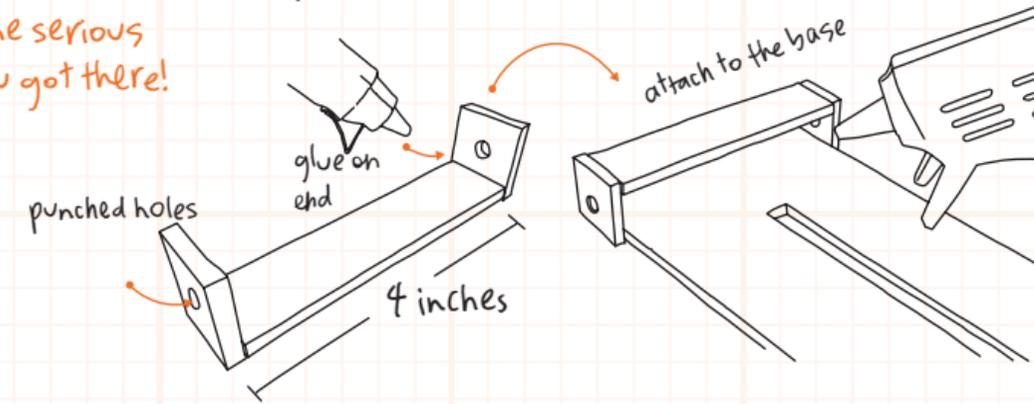
plus the motorMate

that's one serious circuit you got there!

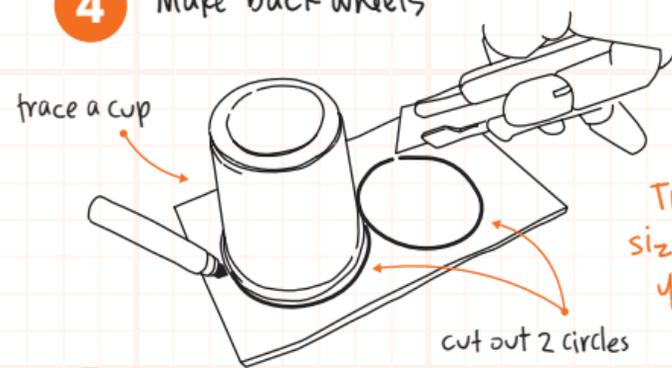
2 Cut foamcore base using cutter and ruler



3 Make axle holder with foamcore and glue to the back of the base

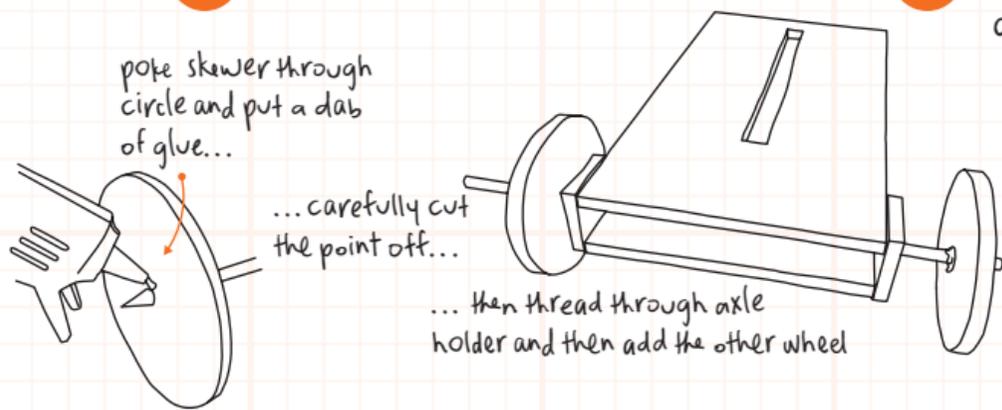


4 Make back wheels

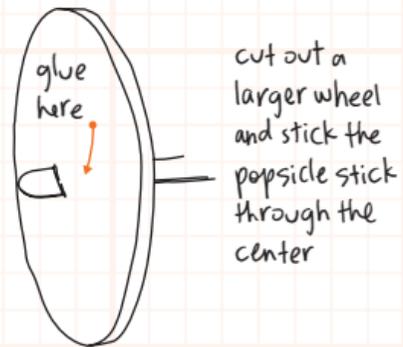


Try different sized circles for your wheels

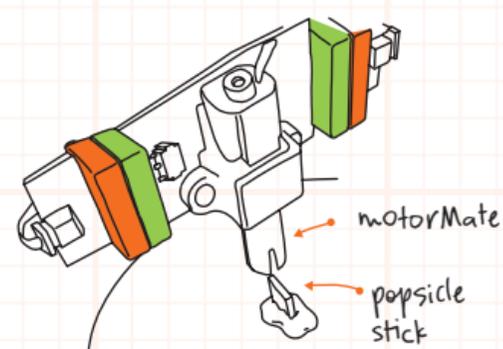
5 Make the back axle



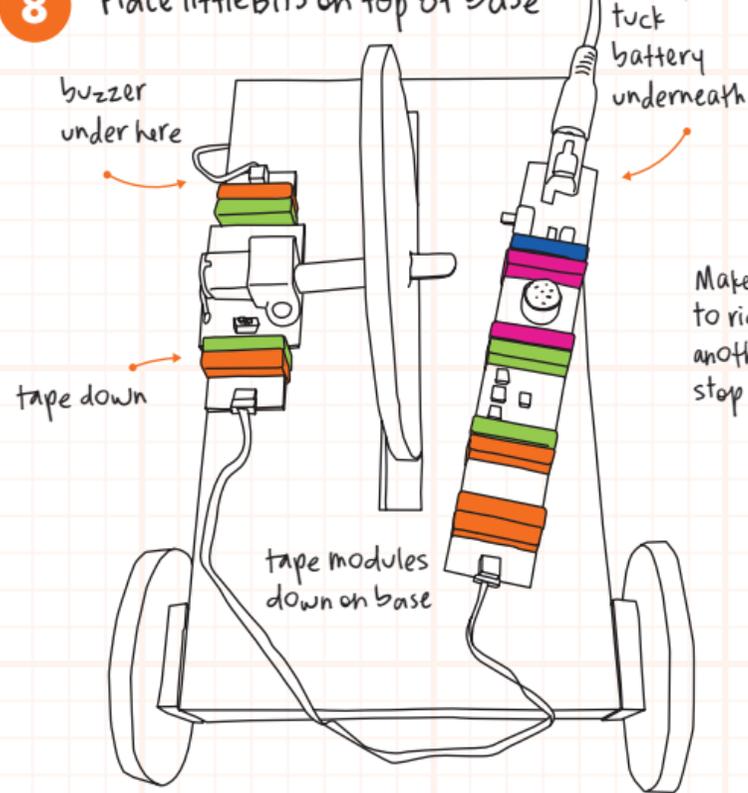
6 Make and mount the front wheel



7 Cut off end of popsicle stick, then attach wheel to motorMate



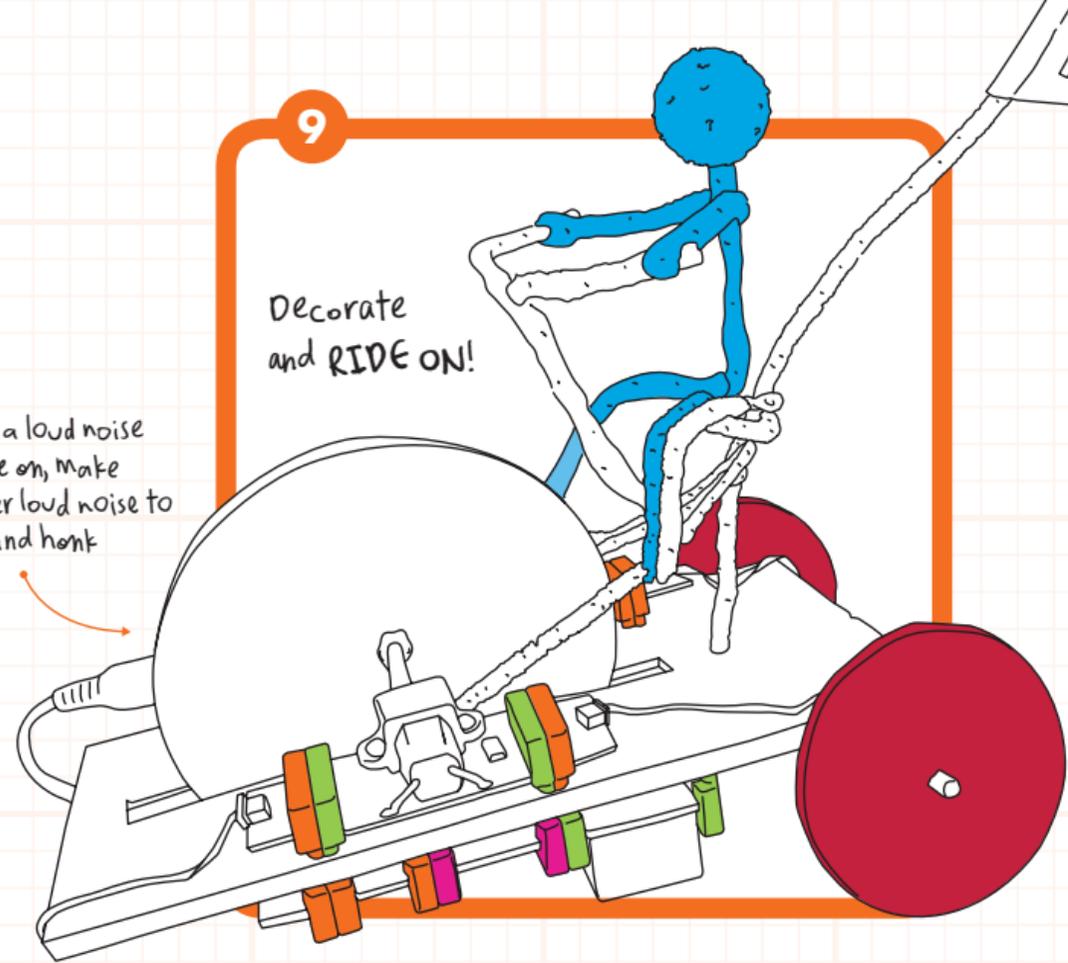
8 Place littleBits on top of base



9

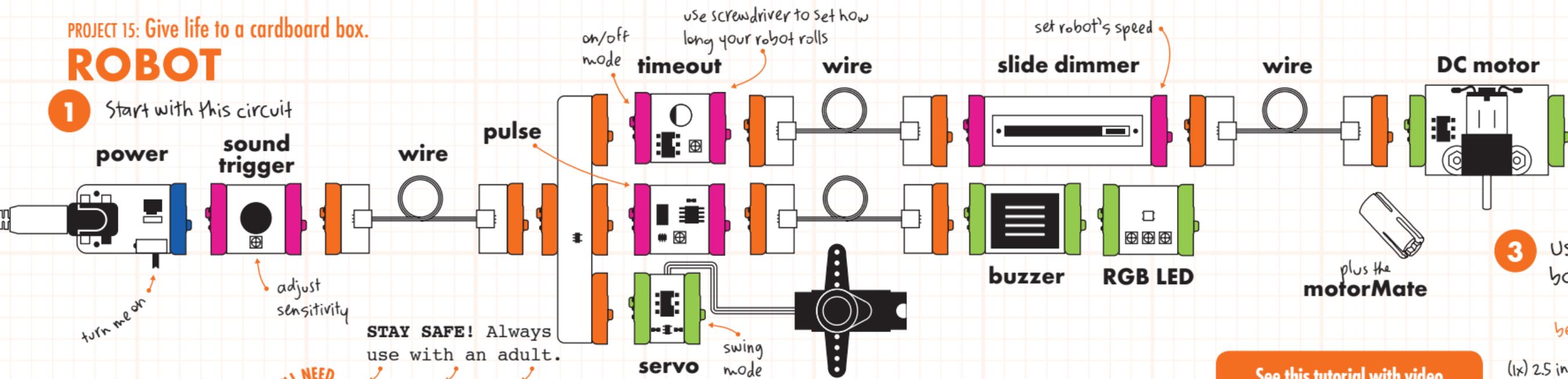
Decorate and RIDE ON!

Make a loud noise to ride on, make another loud noise to stop and honk

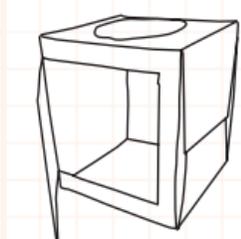


PROJECT 15: Give life to a cardboard box.
ROBOT

1 Start with this circuit

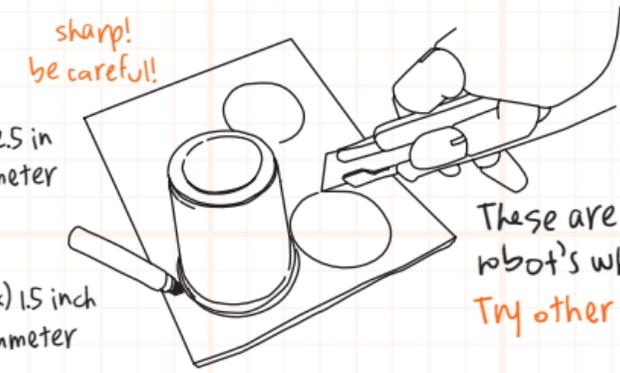


2 Cut a flap in the back of a box.



We used a tissue box. What do you have at home?

3 Use a small cup to trace 3 circles on cardboard. Mark the center and cut them out.



(1x) 2.5 in diameter

(2x) 1.5 inch diameter

These are your robot's wheels! Try other sizes!

TIME: 2 hrs
 DIFFICULTY: ●●●●○

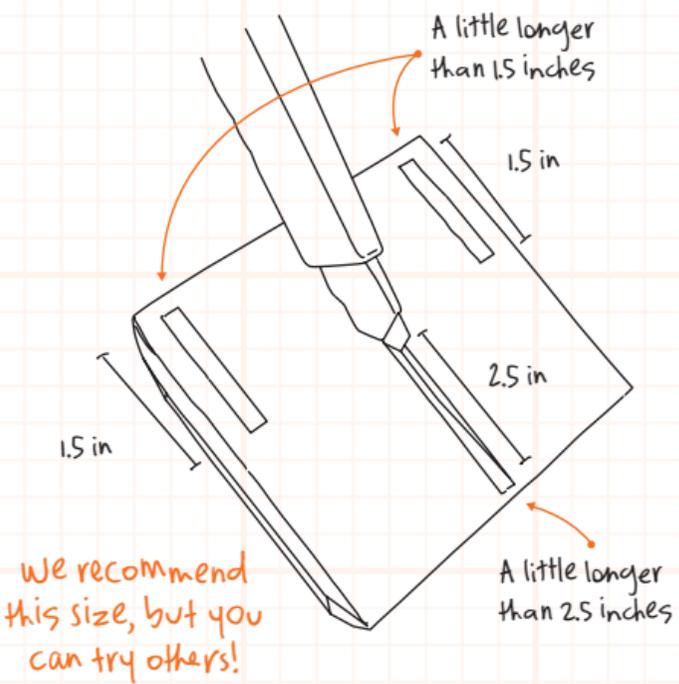
YOU'LL NEED

- box cutter
- hot glue
- wood grill skewers
- tape
- ruler
- plastic cup
- box
- cardboard
- paper
- popsicle sticks

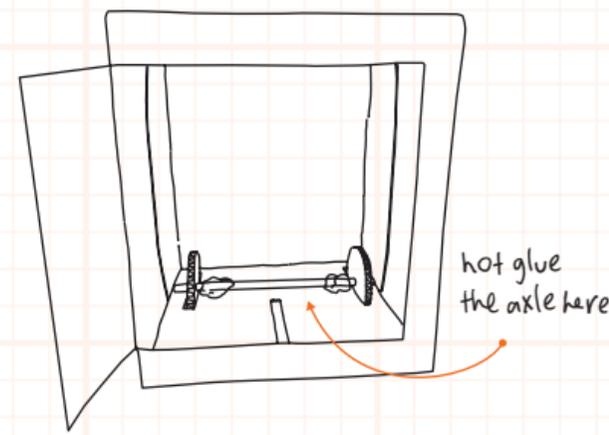
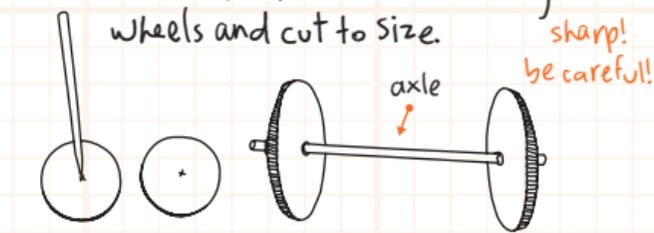
STAY SAFE! Always use with an adult.

See this tutorial with video extras at littleBits.cc/deluxe

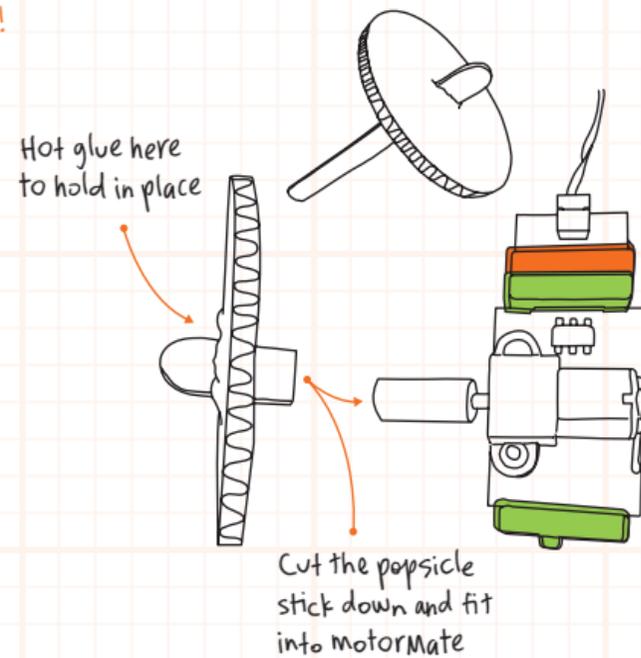
4 Cut slots for cardboard wheels in base of the box



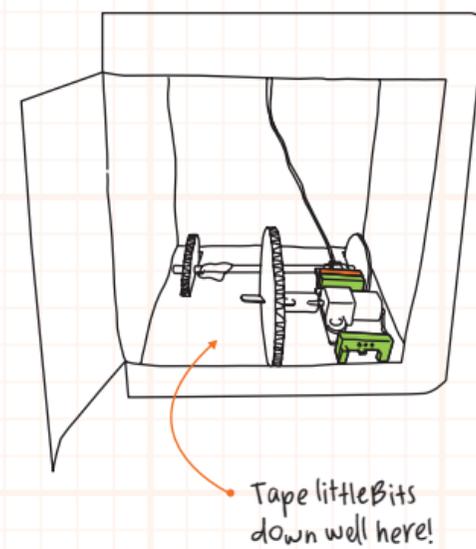
5 Poke holes in center of smaller wheels. Stick the skewer through wheels and cut to size.



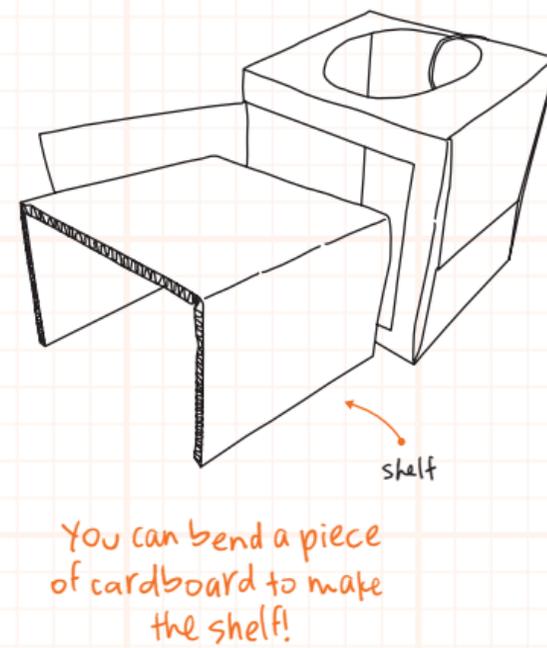
6 Stick a popsicle stick through the center of the 2.5 inch cardboard wheel



7 Place motor with MotorMate and wheel in the center slot of the box base

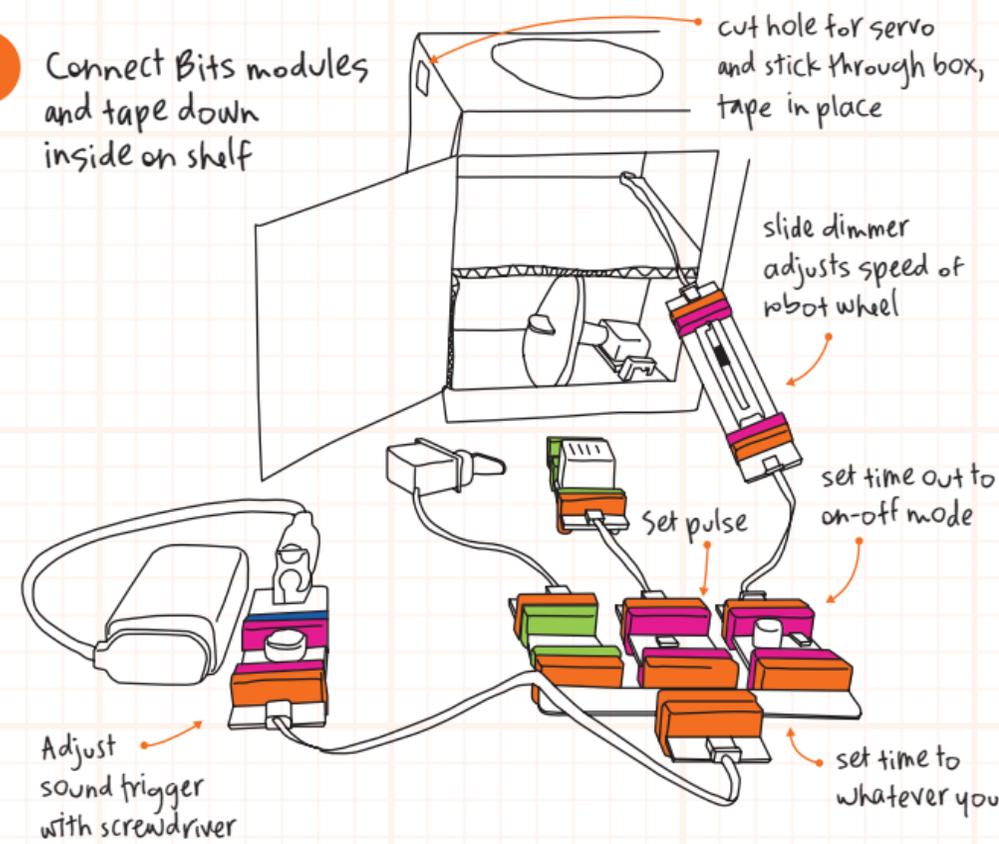


8 Place a cardboard shelf inside box.



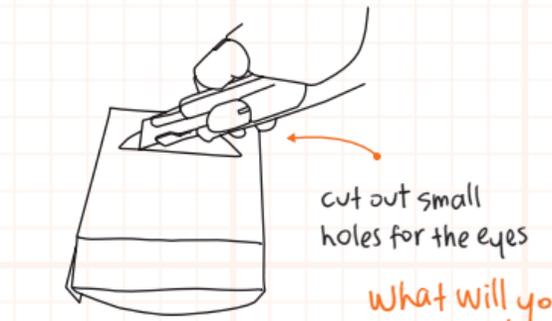
9

Connect Bits modules and tape down inside on shelf



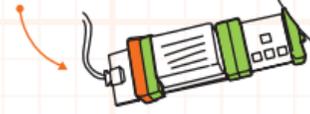
10

Use a smaller box to make the robot head

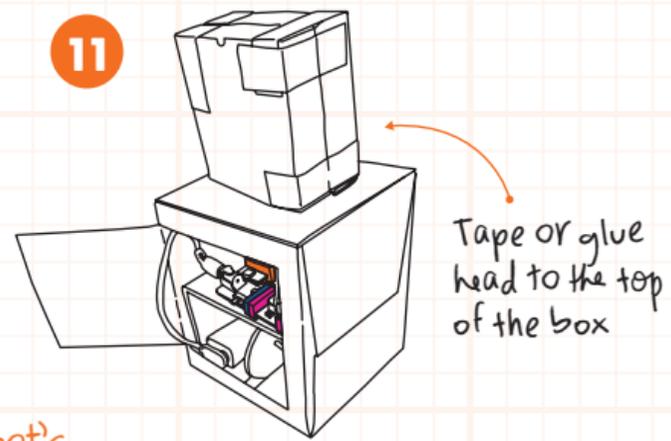


What will your robot's eyes look like?

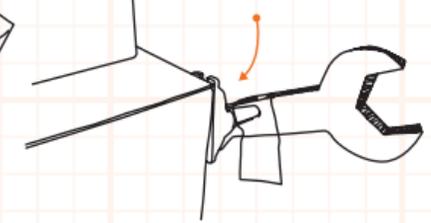
feed buzzer and RGB LED through top of large box, then stick inside small box and tape down



11

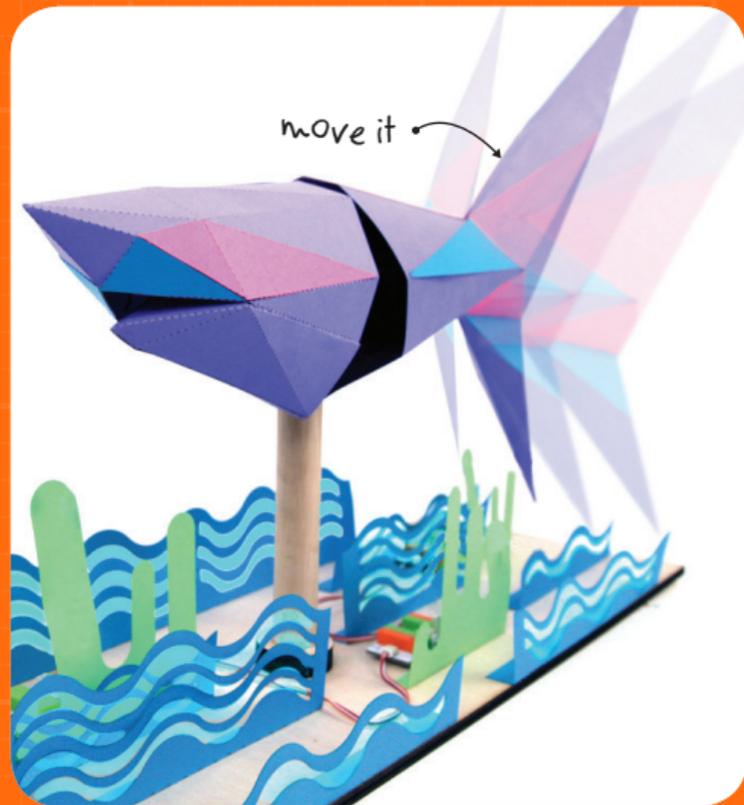


Make 2 arms and tape to servo and other side of the box



12





This booklet's over but the fun's not done.

LITTLEBITS.CC/UPLOAD

Upload your project and you may be handsomely rewarded. We regularly feature awesome community projects and send out exclusive gifts.

Visit us online where we've got tons more projects and tips and tricks for every Bits module. Check out other littleBits in the expanding library.

Online we'll show you how to make this great **SWIMMING SHARK**
www.littleBits.cc/shark

and
TONS MORE PROJECTS at
www.littleBits.cc/deluxe

Want More? You got it!

EXPLORATION SERIES



Base Kit



Premium Kit

INDIVIDUAL BITS™ MODULES



pressure sensor

motion trigger

bargraph

fan

*MAKE MORE!
Some great additions
to your Deluxe Kit*

plus littleBit Bundles & Boost It Packs. . . available here www.littleBits.cc/products