PREMIUM KIT
30 SECOND QUICK START

1. CONNECT BATTERY AND CABLE TO BLUE MODULE.
2. TURN IT ON.
3. PINK MODULES AFFECT MODULES AFTER THEM.
4. GREEN MODULES DO SOMETHING.

let's go!
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.

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.

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)444-6577

You are a proud owner of the Premium Kit v1 from the Exploration Series. Over 600,000 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.

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!
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.

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 Bits modules that follow.

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

It all starts with power...
The roller switch is handy—it has a little lever with a wheel and activates when something presses it—just like inside your fridge. You can also flip the mode switch to make it turn off when the lever is pushed in.

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.

This is a touch-activated module; give its pad a little squeeze to activate it. Pressure sensors allow your game controller to know how hard you’re pressing. The more pressure you apply, the more current it sends out. Put it in front of your vibration motor and control how much it shakes!
The vibration motor is very similar to the device that makes your cellphone shake when you get a text. You can make anything vibrate and buzz. The vibeSnap helps you connect to paper, tin foil, a pipecleaner...

The long LED (or “Light-Emitting Diode”) is another lighting option. We call it the “long” LED because the light is tethered to the board by a cable. This lets you put the light in some interesting places.

The wire allows you to physically separate your littleBits. 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.

The branch gives you more options for connecting your littleBits: it lets you connect the output of a single module to as many as three others, oriented in different directions. It’s just like a power strip.

The vibration motor is very similar to the device that makes your cellphone shake when you get a text. You can make anything vibrate and buzz. The vibeSnap helps you connect to paper, tin foil, a pipecleaner...

The branch gives you more options for connecting your littleBits: it lets you connect the output of a single module to as many as three others, oriented in different directions. It’s just like a power strip.

The wire allows you to physically separate your littleBits. 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.

The vibration motor is very similar to the device that makes your cellphone shake when you get a text. You can make anything vibrate and buzz. The vibeSnap helps you connect to paper, tin foil, a pipecleaner...

The long LED (or “Light-Emitting Diode”) is another lighting option. We call it the “long” LED because the light is tethered to the board by a cable. This lets you put the light in some interesting places.
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.

 Yep, just what you’d think: a small electric fan tethered to a littleBits module. Use your little fan to create fluttering movement in your creations or just to keep yourself cool.
Your servo motor comes with a couple great arms to help you in your projects. Use a Phillips screwdriver* to change the arms.

You’ll find this little guy attached to your vibration motor. The vibeSnap helps you attach stuff – like paper or tin foil – to your vibration motor. Remember to keep it light!

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

This Kit contains a 9-volt alkaline battery and a cable to connect it to the power module. Connect it and then flip the switch to power all of your creations!

*not included

We recommend using littleBits brand 9-volt batteries, but standard alkaline or standard rechargeable batteries may also be used.
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.

PERSONAL FAN Chill out and feel the breeze.

- power
- slide dimmer
- fan

slide it
**EYEBALLS**
Branch out with two long LEDs

**BACK MASSAGER**
Keep calm and vibe on.

**MAKE SOME NOISE**
Transform sound into light.

**INTRUDER ALERT**
Create your own security system.

**INTRO TO SERVO**
Control your servo’s position.

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

**INSTRUMENTS**
Control your servo's position.

- **INTRO TO SERVO**
  - Control your servo's position.

- **ROBOT ARM**
  - Learn how to change the speed & angle of your servo.

- **INSTRUMENTS**
  - Control your servo's position.

- **EYEBALLS**
  - Branch out with two long LEDs

- **BACK MASSAGER**
  - Keep calm and vibe on.

- **MAKE SOME NOISE**
  - Transform sound into light.

- **INTRUDER ALERT**
  - Create your own security system.

- **INTRO TO SERVO**
  - Control your servo’s position.

- **ROBOT ARM**
  - Learn how to change the speed & angle of your servo.

- **INSTRUMENTS**
  - Control your servo's position.

- **EYEBALLS**
  - Branch out with two long LEDs

- **BACK MASSAGER**
  - Keep calm and vibe on.

- **MAKE SOME NOISE**
  - Transform sound into light.

- **INTRUDER ALERT**
  - Create your own security system.

- **INTRO TO SERVO**
  - Control your servo’s position.

- **ROBOT ARM**
  - Learn how to change the speed & angle of your servo.

- **INSTRUMENTS**
  - Control your servo's position.

- **EYEBALLS**
  - Branch out with two long LEDs

- **BACK MASSAGER**
  - Keep calm and vibe on.

- **MAKE SOME NOISE**
  - Transform sound into light.

- **INTRUDER ALERT**
  - Create your own security system.

- **INTRO TO SERVO**
  - Control your servo’s position.

- **ROBOT ARM**
  - Learn how to change the speed & angle of your servo.

- **INSTRUMENTS**
  - Control your servo's position.

- **EYEBALLS**
  - Branch out with two long LEDs

- **BACK MASSAGER**
  - Keep calm and vibe on.

- **MAKE SOME NOISE**
  - Transform sound into light.

- **INTRUDER ALERT**
  - Create your own security system.

- **INTRO TO SERVO**
  - Control your servo’s position.

- **ROBOT ARM**
  - Learn how to change the speed & angle of your servo.

- **INSTRUMENTS**
  - Control your servo's position.

- **EYEBALLS**
  - Branch out with two long LEDs

- **BACK MASSAGER**
  - Keep calm and vibe on.

- **MAKE SOME NOISE**
  - Transform sound into light.

- **INTRUDER ALERT**
  - Create your own security system.

- **INTRO TO SERVO**
  - Control your servo’s position.

- **ROBOT ARM**
  - Learn how to change the speed & angle of your servo.

- **INSTRUMENTS**
  - Control your servo's position.

- **EYEBALLS**
  - Branch out with two long LEDs

- **BACK MASSAGER**
  - Keep calm and vibe on.

- **MAKE SOME NOISE**
  - Transform sound into light.

- **INTRUDER ALERT**
  - Create your own security system.

- **INTRO TO SERVO**
  - Control your servo’s position.

- **ROBOT ARM**
  - Learn how to change the speed & angle of your servo.

- **INSTRUMENTS**
  - Control your servo's position.

- **EYEBALLS**
  - Branch out with two long LEDs

- **BACK MASSAGER**
  - Keep calm and vibe on.

- **MAKE SOME NOISE**
  - Transform sound into light.

- **INTRUDER ALERT**
  - Create your own security system.

- **INTRO TO SERVO**
  - Control your servo’s position.

- **ROBOT ARM**
  - Learn how to change the speed & angle of your servo.

- **INSTRUMENTS**
  - Control your servo's position.

- **EYEBALLS**
  - Branch out with two long LEDs

- **BACK MASSAGER**
  - Keep calm and vibe on.

- **MAKE SOME NOISE**
  - Transform sound into light.

- **INTRUDER ALERT**
  - Create your own security system.

- **INTRO TO SERVO**
  - Control your servo’s position.

- **ROBOT ARM**
  - Learn how to change the speed & angle of your servo.

- **INSTRUMENTS**
  - Control your servo's position.

- **EYEBALLS**
  - Branch out with two long LEDs

- **BACK MASSAGER**
  - Keep calm and vibe on.

- **MAKE SOME NOISE**
  - Transform sound into light.

- **INTRUDER ALERT**
  - Create your own security system.

- **INTRO TO SERVO**
  - Control your servo’s position.

- **ROBOT ARM**
  - Learn how to change the speed & angle of your servo.

- **INSTRUMENTS**
  - Control your servo's position.

- **EYEBALLS**
  - Branch out with two long LEDs

- **BACK MASSAGER**
  - Keep calm and vibe on.

- **MAKE SOME NOISE**
  - Transform sound into light.

- **INTRUDER ALERT**
  - Create your own security system.

- **INTRO TO SERVO**
  - Control your servo’s position.

- **ROBOT ARM**
  - Learn how to change the speed & angle of your servo.

- **INSTRUMENTS**
  - Control your servo's position.

- **EYEBALLS**
  - Branch out with two long LEDs

- **BACK MASSAGER**
  - Keep calm and vibe on.

- **MAKE SOME NOISE**
  - Transform sound into light.

- **INTRUDER ALERT**
  - Create your own security system.

- **INTRO TO SERVO**
  - Control your servo’s position.

- **ROBOT ARM**
  - Learn how to change the speed & angle of your servo.

- **INSTRUMENTS**
  - Control your servo's position.

- **EYEBALLS**
  - Branch out with two long LEDs

- **BACK MASSAGER**
  - Keep calm and vibe on.

- **MAKE SOME NOISE**
  - Transform sound into light.

- **INTRUDER ALERT**
  - Create your own security system.

- **INTRO TO SERVO**
  - Control your servo’s position.

- **ROBOT ARM**
  - Learn how to change the speed & angle of your servo.

- **INSTRUMENTS**
  - Control your servo's position.

- **EYEBALLS**
  - Branch out with two long LEDs

- **BACK MASSAGER**
  - Keep calm and vibe on.

- **MAKE SOME NOISE**
  - Transform sound into light.

- **INTRUDER ALERT**
  - Create your own security system.

- **INTRO TO SERVO**
  - Control your servo’s position.

- **ROBOT ARM**
  - Learn how to change the speed & angle of your servo.

- **INSTRUMENTS**
  - Control your servo's position.

- **EYEBALLS**
  - Branch out with two long LEDs

- **BACK MASSAGER**
  - Keep calm and vibe on.

- **MAKE SOME NOISE**
  - Transform sound into light.

- **INTRUDER ALERT**
  - Create your own security system.

- **INTRO TO SERVO**
  - Control your servo’s position.

- **ROBOT ARM**
  - Learn how to change the speed & angle of your servo.

- **INSTRUMENTS**
  - Control your servo's position.

- **EYEBALLS**
  - Branch out with two long LEDs

- **BACK MASSAGER**
  - Keep calm and vibe on.

- **MAKE SOME NOISE**
  - Transform sound into light.

- **INTRUDER ALERT**
  - Create your own security system.

- **INTRO TO SERVO**
  - Control your servo’s position.

- **ROBOT ARM**
  - Learn how to change the speed & angle of your servo.

- **INSTRUMENTS**
  - Control your servo's position.
PROJECTS - TRY THESE AND INVENT YOUR OWN

1 Cooling Campfire
2 Hypnotizing Wheel
3 Auto Greeter
4 Truck Crane
5 Funny Face
6 Drawer Alarm
7 Box Monster
8 Bristle Bot
9 Bubble Flute
10 Playful Pet

COOLING CAMPFIRE

PROJECT 1: Cool down and camp out.

TIME: 30 mins
DIFFICULTY: ★★★★★

You'll need:
- Power
- Pressure sensor
- Fan
- Battery and cable to power module
- Scissors
- Tape
- Tissue paper
- Colored tissue paper to look like flames

Start with this circuit:

1. Turn me on.
2. Feel which end air is coming out from, and attach tissue paper to that side using tape!

COOL OFF BY THE FIRE!

Plus tons more projects online
littleBits.cc/premium

Don't have any? Try tissues or feathers!
PROJECT 2: Create a simple machine to hypnotize your friends!

**HYPNOTIZING WHEEL**

1. **Start with this circuit**
   - Power
   - Sound trigger
   - Fan

2. **Draw a hypno circle on paper and then cut it out**

3. **Attach paper wheel to fan with tape (on the fan piece that spins)**

**YOU’LL NEED**
- Marker
- Scissors
- Tape
- Paper

**TIME:** 15 mins

**DIFFICULTY:** 00000

- Speak here
- Use a screwdriver to adjust sensitivity

**What other patterns do you find mesmerizing?**

**Hypnotize your friends!**

you are getting very sleepy...
PROJECT 3: How can you use a servo to imitate a human wave?

AUTO GREETER

1. Start with this circuit:
   - Power
   - Pulse
   - Servo

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.

TIME: 15 mins
DIFFICULTY: 🌟🌟🌟🌟

YOU'LL NEED:
- Marker
- Scissors
- Tape
- Construction paper

Wave to someone you love!
PROJECT 4: How can you use a servo to pick things up?

TRUCK CRANE

1. Start with this circuit:
   - Power
   - Slide dimmer
   - Servo (in swinging mode)

2. Rubber band the paperclip to the servo.

3. Bend the paperclip to make a hook.

4. Use slide dimmer to control the crane arm.

YOU'LL NEED:
- Rubber bands
- Paper clip
- Popsicle stick

TIME: 30 mins
DIFFICULTY: ★★★★

Rubber Band the stick to the servo

TRY TO USE:
- Paper clip
- Popsicle stick

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

PICK THINGS UP!
PROJECT 5: Make someone smile with this silly project.

FUNNY FACE

1. Start with this circuit:
   - power
   - pressure sensor
   - wire
   - long LED
   - vibration motor
   - branch

2. Draw a face on the plate and cut out holes for eyes and mouth.

3. Draw ears and tongue on paper and then cut them out.

TIME: 30 mins
DIFFICULTY: ★★★★★

NEED:
- marker
- scissors
- tape
- construction paper
- foam balls
- paper plate
- long LED
- pressure sensor
- vibration motor
- motor
- long LEDs
- branches
- scissors

TIP:
Don't have foam balls?
Try cotton balls!
4. Tape ear to pressure sensor on the back of the plate.

5. Use Vibesnap to attach the tongue.

4. This is what the back looks like.

5. Press ear tongue wags.

6. Eyes light up.

See this tutorial with video extras at littleBits.cc/premium.
PROJECT 6: How can you design a system to prevent someone from going through your things?

DRAWER ALARM

1. Start with this circuit diagram:
   - Power
   - Roller switch
   - Wire
   - Vibration motor

2. Insert the vibration motor into the jingle bell.

3. Tape the circuit to the inside of your drawer. Make sure the roller is above the drawer.

TIME: 30 mins
DIFFICULTY: ★★★★★

What material would make a loud noise?

What happens when you open your drawer?

Protect your things!
And now a brief intermission from the projects.

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

15 ways to make stuff move with the vibration motor... 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...
Find out why the wire is the second most important littleBit... Learn how to levitate with the fan... bitfeel™ + 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...
5 ways to make noise with the vibration motor... How many wires would it take to circle the globe? Find out!... plus lots more tips for how to use your littleBits!
BOX MONSTER

PROJECT 7: Talk to the hand!

1. Start with this circuit:
   - Power
   - Wire
   - Roller switch
   - Wire
   - Vibrator motor
   - Branch
   - Long LED

   STAY SAFE! Always use with an adult.

2. Find a box and cut it in half.
   - Cut three sides but NOT the fourth.
   - Cut a triangle on the side.
   - Make holes for the vibration motor and roller switch.

3. Poke holes for the long LEDs (eyes).
   - Make holes for the vibration motor and roller switch.

TIME: 60 mins
DIFFICULTY: 0000

YOU'LL NEED:
- Box
- Cutter
- Tape
- Foam balls
- Box
- Construction paper

ALWAYS CONNECT YOUR BATTERY TO THE POWER MODULE.

STAY SAFE! Always use with an adult.
4. Tape littleBits in place inside the box.

5. Decorate! Cut out a crazy tongue shape...

6. Slide on your styrofoam balls.

7. Open and close the box puppet and watch his tongue shake!

use markers, paint, glitter, colored paper and anything else you can think of to make your monster uniquely yours.

Can you think of anything else that would make good glowing eyes? Try ping pong balls.

Got some cool colors or decorating techniques? We want to see your Box Monster! Upload it here: littleBits.cc/upload
PROJECT 8: How can you make a robot from a toothbrush?

BRISTLE BOT

1. Start with this circuit:
   - power
   - slide dimmer
   - wire
   - vibration motor

   Always connect your battery to the power module.

2. Have an adult cut the head off a toothbrush.

3. Attach the vibration motor to the back side of the bristles.

4. Now, attach the bristles to the actual vibration module.

5. Draw and cut out your BristleBot design.

STAY SAFE! Always use with an adult.

TIME: 60 mins
DIFFICULTY: 🌟🌟🌟🌟

MATERIALS NEEDED:
- box cutter
- marker
- tape
- glue
- scissors
- rubber bands
- fuzzy balls
- cardboard
- toothbrush
- pipe cleaners

Use scissors or a box cutter to be careful.

Use a rubber band to move it.

Every BristleBot is different.

Always use with an adult.
6. Wrap the cardboard base around the bristles and glue or tape in place.

7. Glue the body to the base.

8. Make a control box.

9. Control your Bristle Bot buddy’s Buzzy Dance.

- Make sure the bristles stick out the bottom.
- Use a rubber band to connect your battery to your slide dimmer.
- Decorate him with pipe cleaners and fuzzy balls...
- Put the slide dimmer and battery inside here.
- Make your robot happy, sad, crazy, silly or whatever you want!
- Don’t forget to cut the slot for the slide dimmer.
PROJECT 9: Create bubbles with the sound of your voice.

BUBBLE FLUTE

1. Start with this circuit:
   - power
   - sound trigger
   - fan

   always connect your battery to the power module

   STAY SAFE! Always use with an adult.

   TIME: 60 mins
   DIFFICULTY: 🌟🌟🌟🌟🌟

   NEEDED: box cutter, duct tape, rubber bands, bubble solution, plastic cup, ruler

2. Cut a hole in the bottom of the cup.

3. Place fan on the hole you just made.

4. Tape in place.

   make sure no air escapes through the seal

   Always use with an adult.
Tape to the end of a ruler

Connect Bits modules to other end of the ruler with rubber bands

Use the screwdriver to adjust the sensitivity of the sound trigger to your liking

Dip the rim of the cup in a bowl with bubble solution

PRO TIP: Don't have bubble solution? Mix dishsoap with water

Blow into sound trigger and watch the bubbles come out

What other sounds make the bubbles blow? Try clapping, singing or stomping.
PLAYFUL PET

PROJECT 10: How can you use littleBits to create your own interactive friend?

1. Start with this circuit:

   - power
   - pressure sensor
   - wire
   - vibration motor
   - branch
   - long LED
   - servo
   - wire
   - pulse
   - long LED

   That’s one serious circuit you got there!

2. Find a box to be the dog’s body.

3. Cut piece of cardboard to be the dog’s head.

4. Put hot glue on the top of 4 cups.

   Place them under the box as feet!

   What else would make good feet?

STAY SAFE!
Always use with an adult.

TIME: 2.5 hrs
DIFFICULTY: ⭐⭐⭐⭐⭐

MATERIALS NEEDED:
- scissors
- box cutter
- hot glue
- glue
- tape
- plastic cup
- cardboard
- box
- construction paper
- bell
- foam balls
- string

-or-

x4
x2

That's one serious circuit you got there!
5. Insert littleBits into the dog’s body.

6. Decorate your dog!

7. Add styrofoam balls and bell.

8. Tie string with bell around neck.

9. Add spot of paper over pressure sensor and add tail.

10. Pet and see tail wag!

- Insert littleBits into the dog’s body.
- Back of the head:
  - Cut hole for pressure sensor.
  - Cut hole for the power switch.
- Front of the head:
  - Draw and cut out ears, nose, tail, and spots.
  - Long LEDs
  - Put LEDS into balls
  - Put vibration motor into the bell
- The behind:
  - Poke holes for the eyes and the tongue.
  - Glue ears
  - Glue nose
- The servo is the tail!
- The string will keep the bell in place.
- The string will keep the bell in place.
- The string will keep the bell in place.

- Cut hole for the power switch!

- Tap tail on servo.
- Tie string with bell around neck.
- Pet and see tail wag!

- Add styrofoam balls and bell.
- Add spot of paper over pressure sensor and add tail.

- Be careful when cutting!
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 PIGGY BANK www.littleBits.cc/piggy and TONS MORE PROJECTS at www.littleBits.cc/premium

Want More? You got it!
EXPLORATION SERIES

INDIVIDUAL BITS™ MODULES

MAKE MORE!
Some great additions to your Premium Kit

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