



AdaBox 009

Created by John Park

A large black rectangular area containing the text 'ADA' on the top line and 'BOX' on the bottom line, separated by a horizontal line. The text is in a bold, orange, blocky font.

ADA
BOX

<https://learn.adafruit.com/adabox009>

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Introduction

Hi there!

[If you're looking to subscribe to AdaBox, click here! \(https://adafru.it/tNC\)](https://adafru.it/tNC)

If you're here, it's because you were given the gift of electronics with an AdaBox! Perhaps you are a beginner who is getting started with your AdaBox. Or maybe you just want to relive what it's like being a beginner at electronics again. But most of all, you want to learn how to build and make creative, awesome stuff with electronics! ([If, rather than learn electronics, you'd like to look at pictures of cats instead, please check https://www.adafruit.com/galleries/cats-of-engineering \(https://adafru.it/oAd\)](https://www.adafruit.com/galleries/cats-of-engineering))

And, you're in luck: there's never been a better time. Seriously. We're not just saying that. It's bonkers how great a time this is for you to learn electronics!

Gone are the days where you need thousands of dollars of equipment and lots physics/math background. Nowadays, if you want to learn to work with electronics, and code microcontrollers you can jump right in for \$100 or less, and any sort of computer. And we're talking about learning a lot of electronics and interactive physical computing - from the basics of moving a servo, to creating long exposure light paintings! From PIR motion sensing, to displaying a creepy eyeball on a full-color screen! With a good pack of parts, you can build a base of knowledge that will take you from your first blinking LED to someone who can make the creative haunt props, costume accessories, and interactive projects of their dreams!

Who is this for?

Anyone who is interested in learning how to program and build interactive projects, and with access to a modern web browser. That's pretty much the minimum. Remember, this guide is specifically for people who have purchased or received an AdaBox subscription!

You don't need to know a lot of physics or math, and just like an Art Degree isn't required for making art and being creative, **you don't need to have a computer science or mechanical engineering degree**. It helps if you're comfortable using computers but that's a skill most people pick up through life.

If you know how to program already - great! If not, don't worry, we'll teach you enough to be dangerous.

Who isn't this for?

While you can follow along without an AdaBox, it will not make as much sense unless you have all of the components and more which either came as a gift or purchased yourself - remember, the goal is helping beginners!

This guide is also not for crows. Corvids are awesome, [but they prefer analog tools \(https://adafruit.com/CBC\)](https://adafruit.com/CBC).

If you're an expert, please visit our hundreds other tutorials and jump right in at [learn.adafruit.com \(https://adafruit.com/learn\)](https://adafruit.com/learn)

Who are you?

Great question. This is me:

I'm Ladyada, and I love to teach people how to build stuff and how they can be creative with technology.

So, are you ready?

Let's do this thing!

Want to buy past AdaBoxes?



[AdaBox001 - Welcome to the Feather Ecosystem](#)

Please note! This is NOT the subscription version of AdaBox! This is ONLY AdaBox001 that shipped out to AdaBox subscribers in September of 2016. This...

<https://www.adafruit.com/product/3193>



[AdaBox002 – Making Things Move](#)

AdaBox002 - Making Things Move with our Feather Bluetooth LE Mini Robot Rover is the perfect gift for folks who are just getting started in the...

<https://www.adafruit.com/product/3235>



[AdaBox003 – The World of IoT – Curated by Digi-Key](#)

AdaBox003 – The World of IoT (Curated by Digi-Key) is the perfect gift for folks who are just getting started in the world of DIY electronics. It's an...

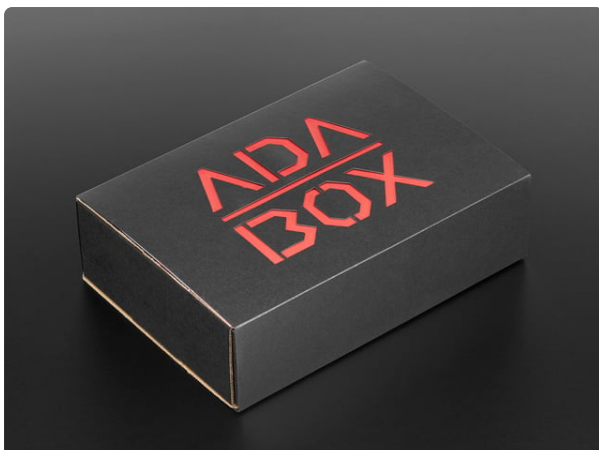
<https://www.adafruit.com/product/3268>



[AdaBox004 – Making Things Dance](#)

AdaBox004 – Making Things Dance is the perfect gift for folks who are just getting started in the world of DIY electronics. It's an excellent...

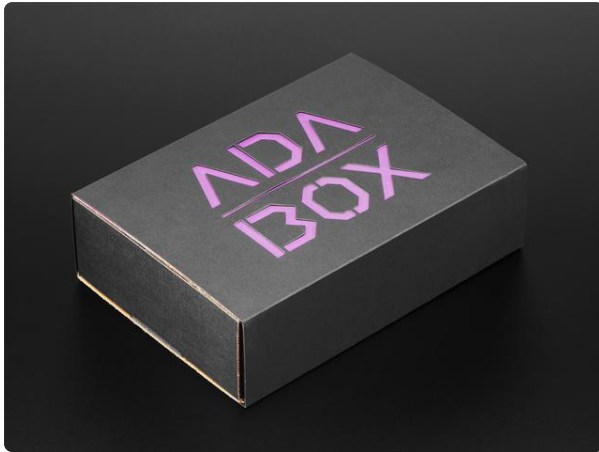
<https://www.adafruit.com/product/3370>



[AdaBox005 – Break for Pi](#)

AdaBox005 – Break for Pi is the perfect gift for folks who are just getting started in the world of DIY electronics. It's an excellent...

<https://www.adafruit.com/product/3644>



[AdaBox006 – CircuitPython](#)

AdaBox006 – CircuitPython is the perfect gift for folks who are just getting started in the world of DIY electronics. It's an excellent addition to our...

<https://www.adafruit.com/product/3697>



[AdaBox007 - SPY](#)

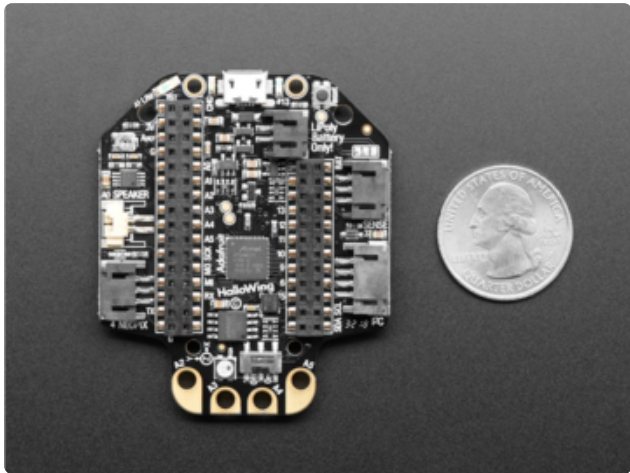
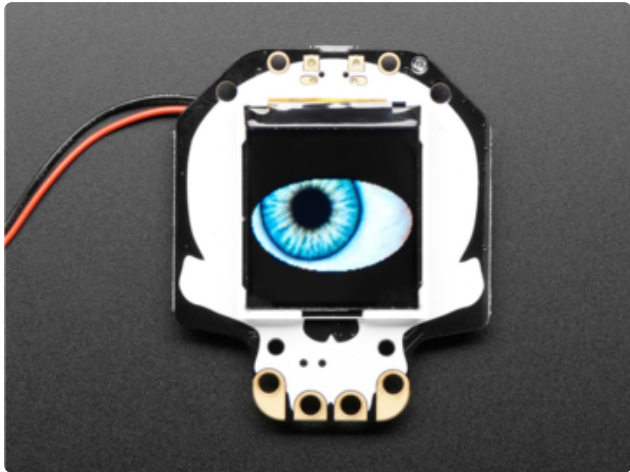
Discontinued - you can grab AdaBox...

<https://www.adafruit.com/product/3778>

Unboxing AdaBox 009

Are you the kind of person who doesn't like taking down the skeletons and spiders until after January? Well, we've got the ADABOX for you. This is electronics at its most spooky! ADABOX 009 is Halloween themed, for all of us who love scares, costumes, and (of course!) candy. OK, so we didn't fill this ADABOX with candy corn, but we did curate a collection of inspiring electronics to make your Halloween more electric. You might have so much fun, you'll celebrate it year round!

AdaBox 009 Contents

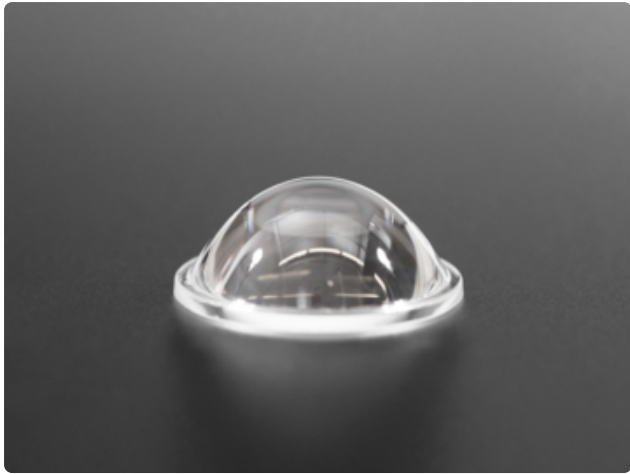


Adafruit HalloWing

Are you the kind of person who doesn't like taking down the skeletons and spiders until after January? Well, we've got the development board for you. This is electronics at its most spooky! The **Adafruit HalloWing** is a skull-shaped ATSAM21 board with a ton of extras built in to make for an adorable wearable, badge, development kit, or the engine for your next cosplay or prop.

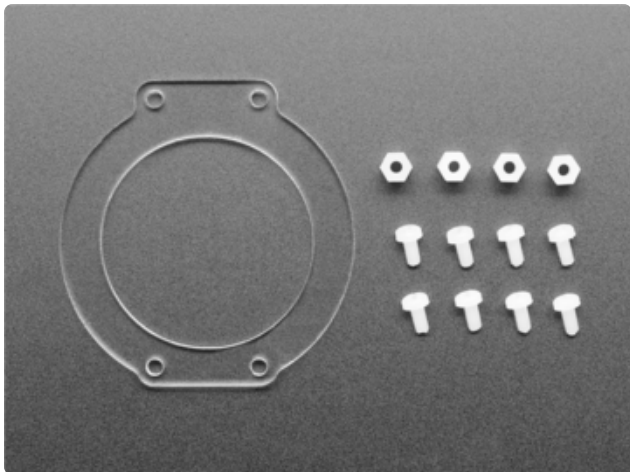
On the front is a cute **1.44" sized 128x128 full color TFT**. Our default example code has our spooky eye demo running but you can use it for anything you like to display in glorious color.

There's also 4 fang-teeth below the display, these are analog/capacitive touch inputs with big alligator-clip holes.



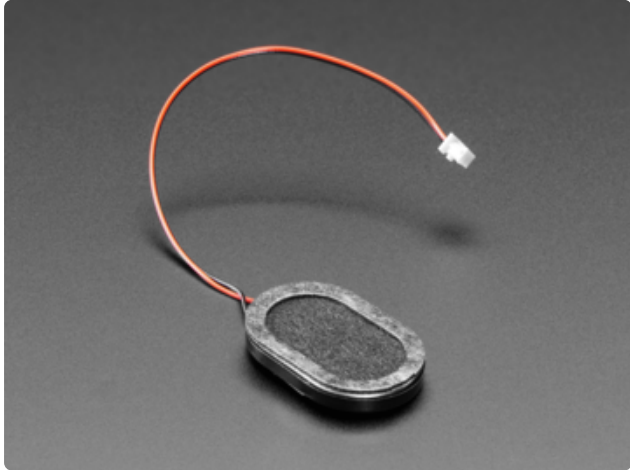
Convex Plastic Lens + Mounting Kit

The eyes have it! Add this little lens to make a big expression with our Spooky Eye demo. These are gorgeous lenses, with brilliant clarity and a nice convexity (is that a word?)



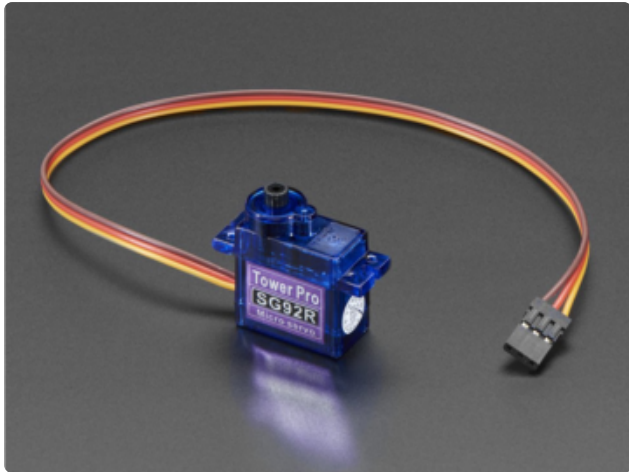
They've even got a lip-edge so you can mount them easily with the acrylic mounting kit and included M2.5 nylon screws and standoffs.

8 Ohm Speaker



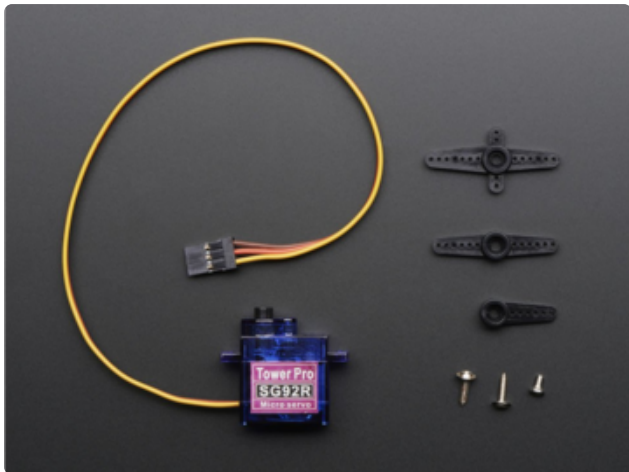
Hear the good news! This wee speaker is a great addition to any audio project where you need 8 ohm impedance and 1W or less of power. We particularly like this speaker as it is small and comes with nice skinny wires with a connector on the end. It has a handy "Molex PicoBlade" 1.25mm pitch 2-pin cable, which makes plugging into a board easy. Or you can cut off the connector and just solder/clamp onto the wires directly.

This speaker will work perfectly with our [HalloWing M0 Express \(http://adafru.it/3900\)](http://adafru.it/3900) - it even snaps into the speaker connector onboard. But you can also use it with any of our mono audio amps, such as the [PAM8302 \(http://adafru.it/2130\)](http://adafru.it/2130) or [MAX98357A \(http://adafru.it/3006\)](http://adafru.it/3006) mono class D amplifiers.



Micro Servo

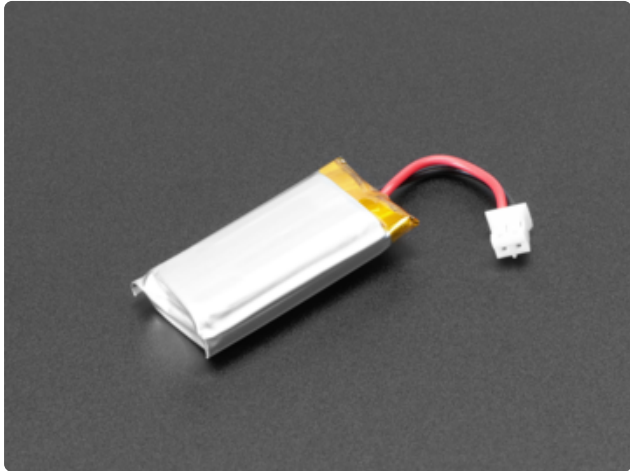
Tiny little servo can rotate approximately 180 degrees (90 in each direction), and works just like the standard kinds you're used to but smaller. You can use any servo code, hardware or library to control these servos. Comes with a few horns and hardware.



PIR Motion Sensor

PIR sensors are used to detect motion from pets/humanoids from about 20 feet away (possibly works on zombies, not guaranteed). This one has an adjustable delay before firing (approx 2-4 seconds).

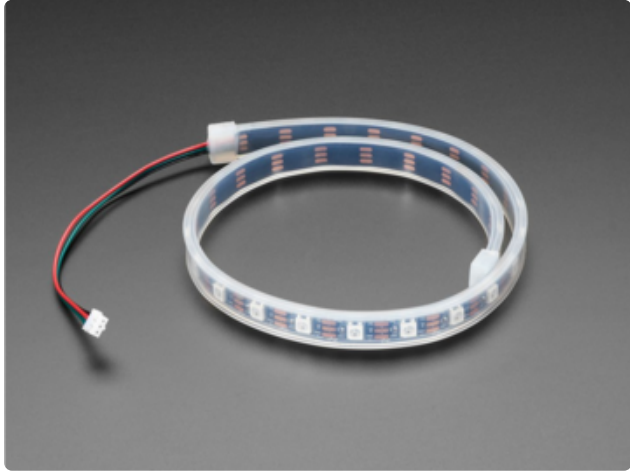
Li-Poly Battery



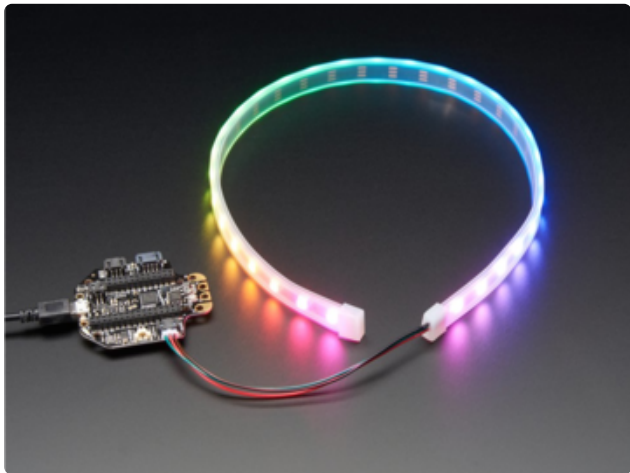
Lithium ion polymer (also known as 'lipo' or 'lipoly') batteries are thin, light and powerful. The output ranges from 4.2V when completely charged to 3.7V. This battery has a capacity of 400mAh for a total of about 1.5 Wh.

The batteries come pre-attached with a genuine 2-pin JST-PH connector as shown and include the necessary protection circuitry. Because they have a genuine JST connector, not a knock-off, the cable won't snag or get stuck in a matching JST jack, they click in and out smoothly.

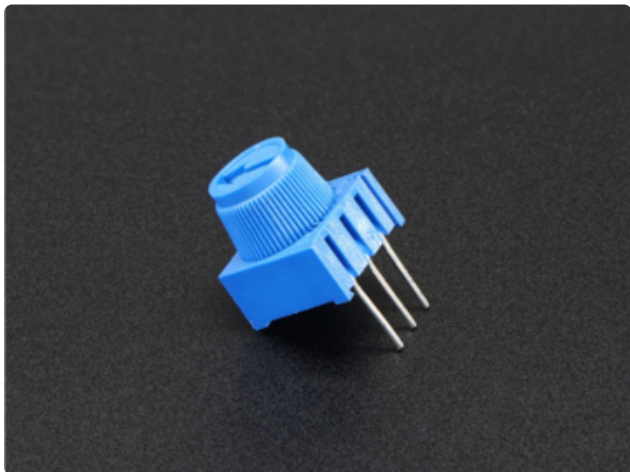
Adafruit NeoPixel LED Strip



Plug in and glow, this **Adafruit NeoPixel LED Strip with JST PH Connector** has **30 total LEDs** in a **"60 LED per meter"** spacing, and is 0.5 meters long, in classy Adafruit Black. It's not too long, but has lots of glowing action. [Perfect for use with a Hallowing \(http://adafru.it/3900\)](http://adafru.it/3900), or a custom design with a JST PH socket.

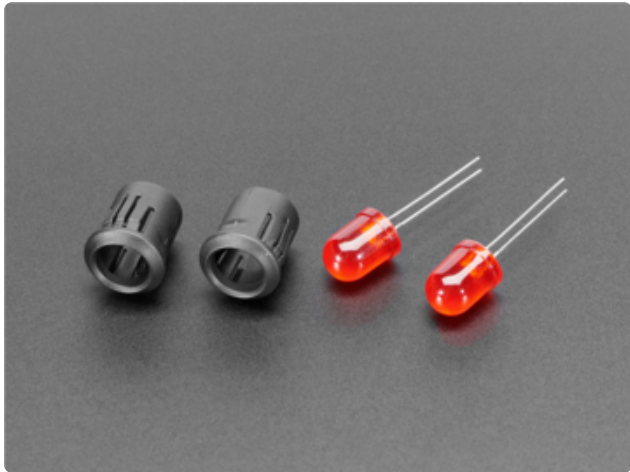


The strips come in a 0.5 meter reel with three 100mm long wires connected to a **JST PH 3-pin plug** which plugs right into the Hallowing's **NEOPIX** port. The other end is sealed. The wires are even nicely color-coded: black for ground, green for signal, red for 3-5VDC power. We use SK6812 LEDs on these strips so you don't need an inline resistor and they work down to 3V logic+power.

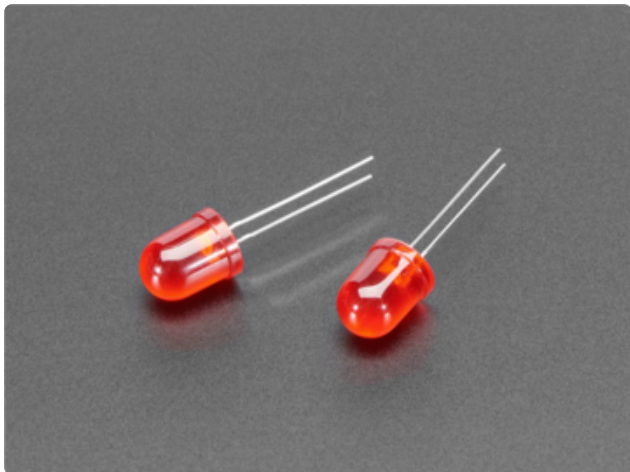


10K Potentiometer

These are our favorite trim pots, perfect for breadboarding and prototyping. They have a long grippy adjustment knob and with 0.1" spacing, they plug into breadboards or perfboards with ease.



2 x Diffused 10mm Red LEDs and Holders

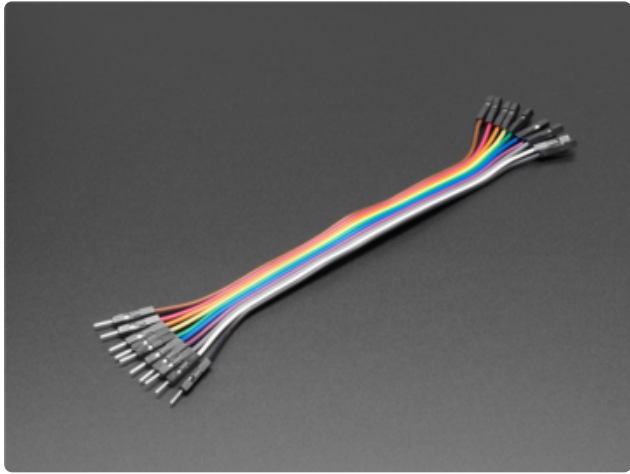


Need some big indicators? We are big fans of these huge diffused red LEDs. They are fairly bright so they can be seen in daytime, and from any angle.



Keep your **10mm** LEDs in place with these little plastic LED holders. These are handy for projects using individual LEDs as they look sleek, and your LED won't budge. Slot the LED through the opening and you'll get a nice *snap* into place.

Female/Male 'Extension' Jumper Wires



Handy for making wire harnesses or jumpering between headers on PCB's. These premium jumper wires are approximately 3" (75mm) long. They have 0.1" male header contacts on one end and 0.1" female header contacts on the other. They fit cleanly next to each other on standard-pitch 0.1" (2.54mm) header. You can always pull the ribbon wires off to make individual jumpers, or keep them together to make neatly organized wire harnesses.

JST 3PH to Female Header Cable



This cable will let you turn a JST PH 3-pin cable port into 3 individual wires with high-quality 0.1" female header sockets on the end. We're carrying these to match up with our HalloWing, for extending and connecting sensors or LEDs - and the wires are even color coded!

JST 3PH to Male Header Cable



This cable will let you turn a JST PH 3-pin cable port into 3 individual wires with high-quality 0.1" male header plugs on the end. We're carrying these to match up with our HalloWing, for extending and connecting sensors or LEDs - and the wires are even color coded!



Lanyard

This "badge length" lanyard is perfect for wearing your HalloWing proudly around your neck! Includes two clasps to connect to the HalloWing's mounting holes.



Adafruit Halloween Cards

Bonus spooky, yet fun Adafruit Halloween Cards!

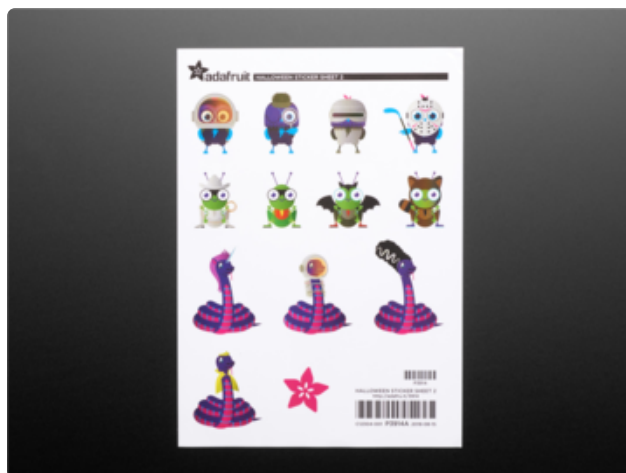




Adafuit Halloween Sticker Sheets

Around these parts, we love to dress up for Halloween! These sticker sheets prove it! You get lots of great stickers of some of your favorite Adafuit characters in their favorite dress up costumes!

You can stick them on your locker, thermos, synthesizer, pogo stick, monocle, moped, or divining rod.





Prank Cockroach

Eeew! It's a creepy, crawly cockroach! We included this so you can create your own scary props for Halloween. Or, simply name it and carry it around like your own very special pet.

Smore Magazine

Science like a girl! Feast your eyes on this super special anniversary edition of [Smore Magazine \(https://adafru.it/CwG\)](https://adafru.it/CwG), a science magazine for smart young girls who can't stop wondering about the world around them. We love Smore (or, Science-more!) for their fun and un-intimidating issues and for their dedication towards equal representation of women in STEM. Far more than a stereotypical "girly" magazine, Smore was created to inspire girls with fun, engaging content, and by sharing stories of successful women in STEM fields.



This issue features **Limor "Ladyada" Fried** with a fantastic write-up on how she got started in DIY electronics and building her own company. Scared by the idea of troubleshooting a project that doesn't immediately work right? In Limor's words, "To succeed, you have to get pretty comfortable with failing." We believe building resilience is a great life lesson for young girls, not just for electronics.

Introducing Adafruit HalloWing

[Introducing Adafruit HalloWing \(https://adafru.it/CwH\)](https://adafru.it/CwH)

HalloWing Badge Image Viewer

[HalloWing Badge Image Viewer \(https://adafru.it/CBh\)](https://adafru.it/CBh)

HalloWing Light Paintstick

[HalloWing Light Paintstick \(https://adafru.it/CwI\)](https://adafru.it/CwI)

HalloWing Spirit Board

[HalloWing Spirit Board \(https://adafru.it/CBi\)](https://adafru.it/CBi)

HalloWing Jump Scare Trap

[HalloWing Jump Scare Trap \(https://adafru.it/CJZ\)](https://adafru.it/CJZ)

HalloWing Lightsabers

[HalloWing Lightsabers \(https://adafru.it/CwJ\)](https://adafru.it/CwJ)

HalloWing All-Seeing Skull

[HalloWing All-Seeing Skull \(https://adafru.it/CwK\)](https://adafru.it/CwK)

HalloWing Minotaur Maze

[HalloWing Minotaur Maze \(https://adafru.it/CBj\)](https://adafru.it/CBj)

HalloWing Magic 9 Ball

[HalloWing Magic 9 Ball \(https://adafru.it/CK7\)](https://adafru.it/CK7)

Hocus Pokus Book

[Hocus Pokus Book \(https://adafru.it/CJ-\)](https://adafru.it/CJ-)

Milk Jug Glow Skull

[Milk Jug Glow Skull \(https://adafru.it/CwL\)](https://adafru.it/CwL)

Glowing Mirror Mask

[Glowing Mirror Mask \(https://adafru.it/CBk\)](https://adafru.it/CBk)

Last-Minute Halloween Accoutrements with HalloWing

[Last-Minute Halloween Accoutrements with HalloWing \(https://adafru.it/CK0\)](https://adafru.it/CK0)

Stop Motion Animation Basics

[Stop Motion Animation Basics \(https://adafru.it/CK1\)](https://adafru.it/CK1)

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