Maker SHED

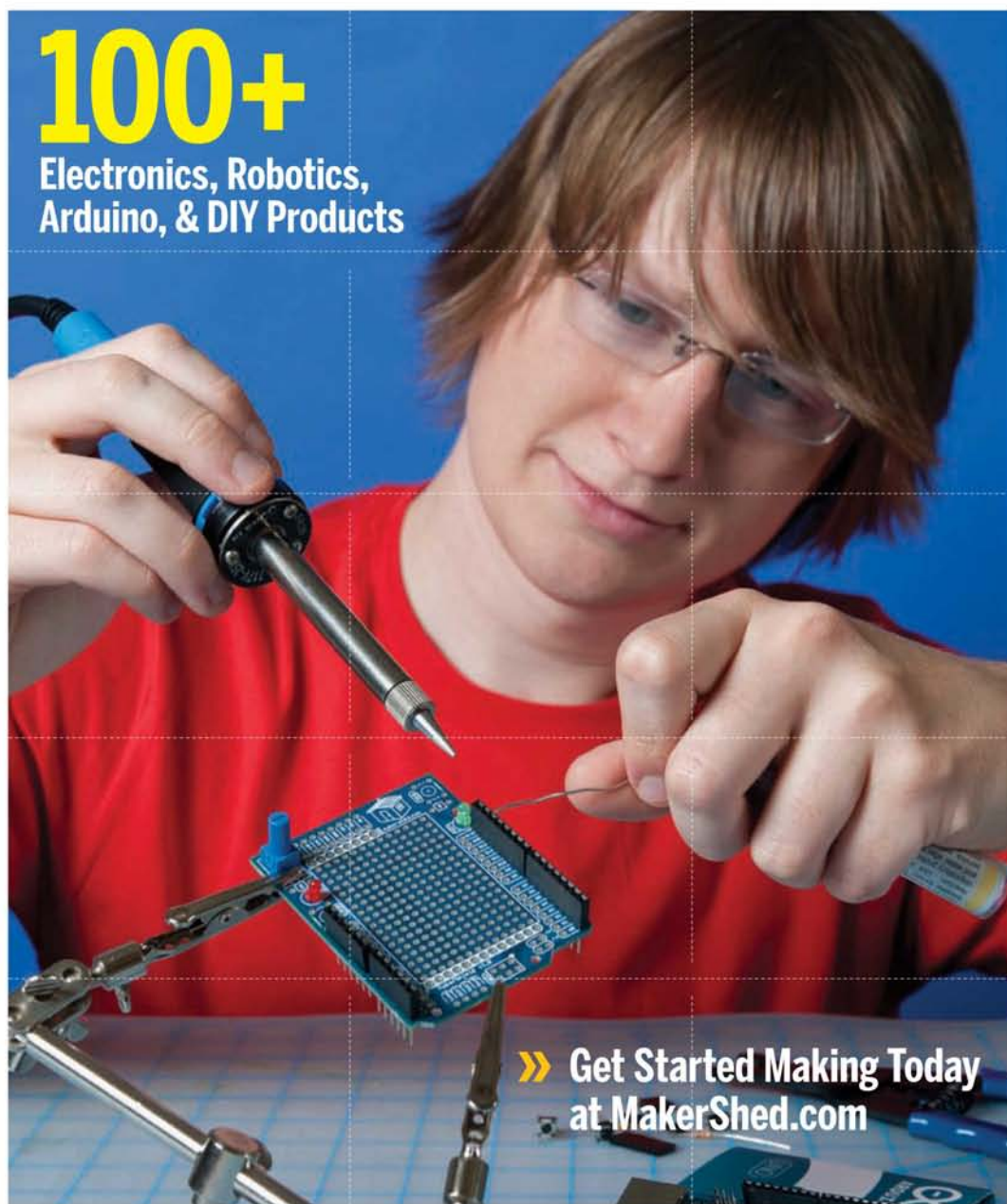## DIY KITS + TOOLS + BOOKS + FUN

100+

Electronics, Robotics, Arduino, & DIY Products

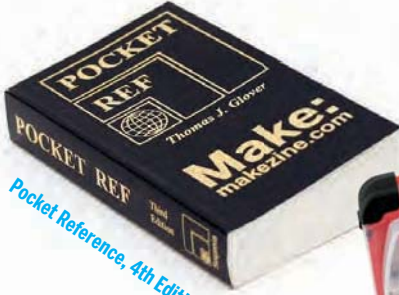» **Get Started Making Today at MakerShed.com**

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Make:
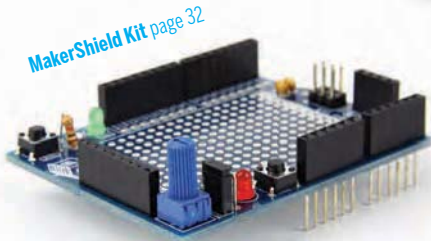**makezine.com**

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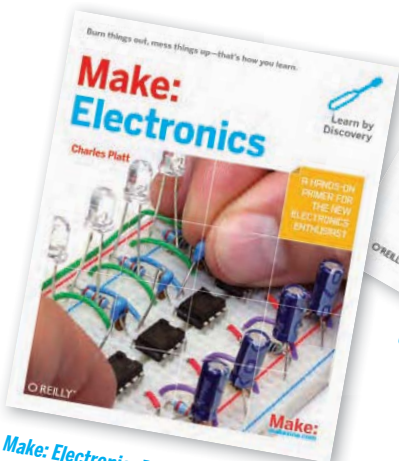
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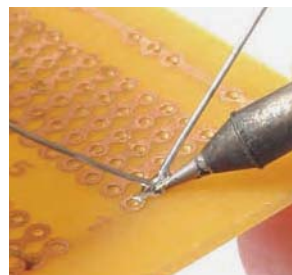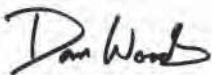
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Welcome
to the Maker Shed!

Our mission at MAKE is to inspire, inform, and engage makers of all ages by showing how much fun it is to make things. At our annual Maker Faires, we bring all kinds of makers together to share what they make and learn new things. In the Maker Shed, which began as our store at Maker Faire, we want to help you get started making. We have a wide variety of fun kits that are great ways to learn to make cool things.

Get Started Making Today at MakerShed.com

- **Learn to Solder—**The Maker Shed Learn to Solder LED badge (page 9) is the perfect gateway kit for the novice maker. Buy these badges in bulk and have a Learn to Solder party. See the Learn to Solder primer from MAKE Volume 01 on page 10.
- **Join the Arduino Revolution—**The popular Getting Started with Arduino Kit (page 26) includes the Arduino Uno board. It's designed as a companion to the new second edition of the introductory book written by Arduino co-founder Massimo Banzi. We carry a complete line of Arduino products as well as Arduino-compatible devices and new Arduino books.
- **Arduino and iPhone Together—**What if you could connect an iPhone to an Arduino? Now you can! The Redpark Breakout Pack (page 34) makes it possible to interface the Arduino and any iOS device.
- **Learn Electronics by Doing Electronics—**The best-selling *Make: Electronics* book (page 7) by Charles Platt is a terrific way to learn electronics through hands-on experiments. The Make: Electronics Component Packs (page 6) source hundreds of parts you'll need to do all the experiments in the book. You'll be building projects, breaking things, and learning electronics in your first hour.
- **Launch Rockets—**The popular Compressed Air Rocket Kit (page 4) is based on Rick Schertle's project in MAKE Volume 15. Launch paper rockets over 300' from your backyard. This is a great platform for launching lots of inexpensive homebuilt rockets. Perfect for schools and birthday parties.
- **Build Robots—**Fun entry-level kits are the BrushBot (page 42) and the Beetlebot (page 4). Also, the Robot Bundle (page 4) features four different robots from the pages of MAKE magazine, including Mousey the Junkbot. The SolarSpeeder Kit (page 36) is a fun solar-powered BEAM robot racer.
- **Just for Fun—**Spend hours with the Useless Machine (page 5), which once appeared on *The Colbert Report.* It's fun and addictive.
- **Popular Kits from Top Makers—**If you're into timepieces, check out the new Bulbdial Clock Kit from Evil Mad Scientist Laboratories (page 17) and the Solder: Time Watch Kit from Spikenzie Labs (page 16). If you're into hacker extraordinaire Mitch Altman, check out the TV-B-Gone or the Brain Machine kits (page 12).
- **Get MAKE T-Shirts, Notebooks, and More—**Let people know you are a maker. Tell them you void warranties (page 22), show them your Maker's Notebook (page 3) or pull out a handy MAKE-branded pocketknife (page 20) at just the right time. If you're missing back issues of MAKE, you can find them only at MakerShed.com.

The Maker Shed provides all kinds of resources to help you improve your skill level and tackle your own dream DIY project.

Dan Woods
Associate Publisher, MAKE
General Manager, Maker Shed

P.S. If you have feedback on our catalog, please write to us at catalog@makezine.com.

From the Pages of Make:

MAKE: The Complete Collection (PDF)

Every issue of MAKE ever published, in convenient, DRM-free PDFs. A total of 28 issues—that's seven years! Also available bundled with a MAKE subscription [MSBUN19].

Product: EMKCC01 Price: $199.99

MAKE Subscription

One year (four issues) of MAKE magazine delivered directly to you. We pack each issue with nearly 200 pages of projects, ideas, and inspiration. Makes a great gift for another maker. Also available bundled with MAKE PDFs [MSBUN19].

Product: MAKESUB
Price: $34.95

Back Issues, Box Sets, and Slipcovers

Visit makershed.com/backissues for the latest available back issues (in print and PDF), box sets featuring each year packaged in a collector's case, and slipcovers for protecting your MAKE magazine collection.

The Best of MAKE

Put together by popular demand, *The Best of MAKE* features 75 of our favorite projects. It's the perfect gift for anyone with a passion for tinkering, hacking, and creation.

Product: 059651428X
Price: $34.99

Maker's Notebook

Everything we wanted in a notebook, from 150 pages of engineering graph paper to 20 bonus pages of reference material, including electronics symbols, resistor codes, weights and measures, basic conversions, and more.

Product: 9780596519414
Price: $19.99

From the Pages of Make:

Compressed Air Rocket Kit

Build a PVC launcher that shoots simple paper rockets hundreds of feet in the air. Just assemble the kit, pump it up with a bicycle pump, and press the trigger. This kit is simple to build and perfect for individuals, small groups, or science classes. Once you build the launcher, additional rockets can be made for just pennies each. From MAKE Volume 15.

Product: MKRS1
Price: $49.99

Beetlebot Bundle

The bits and parts for one of our favorite bots—the Beetlebot—packaged with a copy of MAKE Volume 12, with instructions for building the bot.

Product: MKSB018   Price: $18.00

Galvanic Skin Response (GSR) Kit

What happens when someone asks you a question, or when you laugh? Make a truth meter circuit to find out. Try it on your friends, acquaintances, or adversaries. From MAKE Volume 26.

Product: MSGR01   Price: $19.99

Real Time Clock Parts Bundle

Get creative with the custom casing you provide to house this complete bundle of parts to make your own digital clock from MAKE Volume 09.

Product: JMBUN01   Price: $39.95

Robot Bundle

All electronic parts for four bots featured in MAKE: Mousey the Junkbot (Volume 02), Trimet and Solarroller (Volume 06), and Beetlebot (Volume 12).

Product: MKSB005
Price: $69.95

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Popular Projects from Our Premier DIY Magazine

Mini Fume Extractor Parts Bundle

If you prefer not to sniff solder, why not build a mini fume extractor? From MAKE Volume 19.

Product: JMBUN07   Price: $39.95

Cracker Box Guitar Amp Bundle

A surprisingly loud, clear-sounding, battery-powered guitar amp that fits in a cracker box. Achieve a range of sounds by playing with the volume and gain knobs. From MAKE Volume 09.

Product: JMBUN03   Price: $39.95

NEW!
Beginner

Useless Machine Kit

What does this machine do? It turns itself off when you turn it on. You turn it on again, it turns itself off again. Great for hours of useless fun for the whole family. From MAKE Volume 23.

Product: MKSB023   Price: $25.00

NEW!

Pendulum Kit

This game kit features 15 LEDs arranged in an arc. Can you stop the pendulum at the bottom? From MAKE Volume 26.

Product: MSPC01   Price: $19.99

Make: Electronics

Make: Electronics Components Packs

Make: Electronics Components Pack 1 and Components Pack 2 are designed as companion packs to our best-selling *Make: Electronics* book. Together, they cover all of the experiments from the book, with Components Pack 1 designed for the first two sections (experiments 1–11) of the book and Components Pack 2 adding additional parts for experiments 12+. In total, they contain nearly 300 parts, from resistors to potentiometers to switches to LEDs. With these parts, you'll be able to build working devices that demonstrate fundamentals such as voltage, amperage, resistance, inductance, and capacitance, then tackle more complex electronics concepts, including analog/digital conversion, logic gates, and integrated circuits. We've spent (many!) hours sourcing these parts so you don't have to.

Make: Electronics Components Pack 1
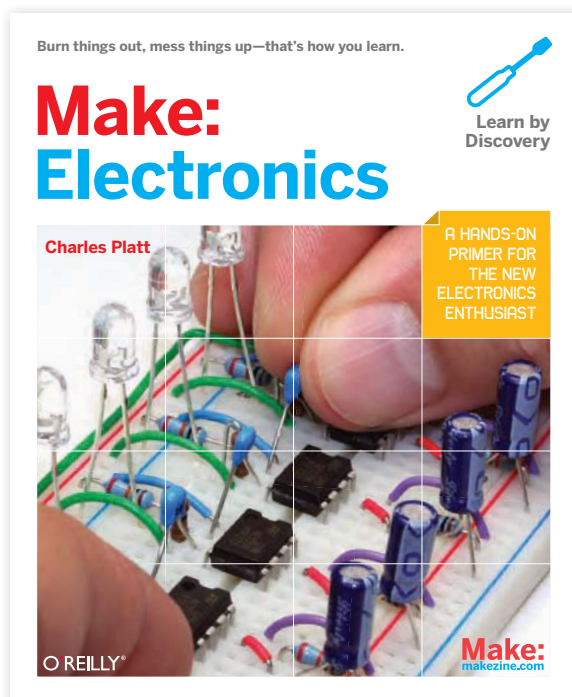Product: MECP1   Price: $109.99

Make: Electronics Components Pack 2
Product: MECP2   Price: $129.99

Learning by Discovery

Make: Electronics Book

Learn the fundamentals of electronics in a fun and experiential way with this unique, hands-on book. With *Make: Electronics*, you'll learn about all of the basic electronic components and important electronic principles through a series of "learn by discovery" experiments. Follow step-by-step instructions to build the circuits first, then learn the theory behind them. You don't need to know a thing about electricity to get started!

Product: 9780596153748   Price: $34.95

Burn things out, mess things up—that's how you learn.

Make:
Electronics

Charles Platt

A HANDS-ON PRIMER FOR THE NEW ELECTRONICS ENTHUSIAST

Learn by Discovery

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Make: makezine.com

Make: Electronics Deluxe Toolkit

This kit has the right tools for the job, with everything you need to get started with electronics and soldering. Includes more than 20 tools, from a soldering iron to a multimeter to pliers—even a handy carrying case to store them all.

Product: MKEE1
Price: $110.00

Big Bad Beetlebot Kit

The Beetlebot is the simplest true robot you can build—and best of all, no soldering is required. Use only a screwdriver to put it together, then watch it zoom and smartly bounce off things in its way. Available in red or blue.

Product: MKSB019   Price: $39.95

LED Art Kit

Create an LED art display as hypnotic as a lava lamp. This easy-to-assemble kit uses color-changing LEDs that slowly cycle through combinations of red, green, and blue light to create endlessly evolving patterns. No soldering required.

Product: MKKM2   Price: $19.95

Mintronics: Survival Pack

You never know when you'll find yourself in a MacGyver moment. It can happen anywhere, at any time. Wouldn't it be easier to hack those electronics with some real components instead of a rubber band and a paper clip? The Mintronics: Survival Pack contains over 60 useful components for making, hacking, and modifying electronic circuits and for repairs on the go. This jam-packed mint tin might not make your breath smell better, but it will make your next escape a whole lot easier!

Product: MSTIN2   Price: $19.99

Drawdio Fun Pack

Drawdio is an electronic pencil that lets you make music while you draw. It's a very simple musical synthesizer that uses the conductive properties of pencil graphite to create different sounds. Make a musical instrument out of paper, people, anything! Completely assembled; no soldering required. Also available: kit version [MKAD12].

Product: MKAD20   Price: $24.99

Electronics

Learn to Solder Kit

Soldering skills rusty or nonexistent? Become a soldering pro with this kit, which includes a 30W soldering iron, lead-free solder, wire cutters, and a practice kit. Builds a flashing European-style siren. Soldering required.

Product: MKEL4   Price: $14.95

Learn to Solder Merit Badge Kit

Wear your soldering skills on your sleeve (or anywhere else) with our exclusive Solder Merit Badge. Soldering required.
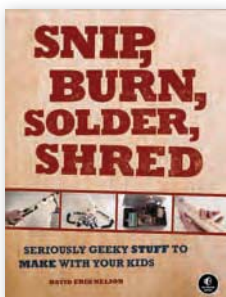
Product: MKLS01
Available in packs of 10+

Snip, Burn, Solder, Shred

Packed with projects, from building a steam-powered milk-carton boat to styling kites from FedEx envelopes. Each project costs $10 or less to make and is suitable for anyone.

Product: 9781593272593
Price: $24.95

MintyBoost USB Charger Kit

Recharge almost any USB-powered device with the MintyBoost and a couple of AA batteries. This kit builds a portable USB charger that works with almost any device you plug into a USB port, from phones to cameras to music players. Soldering required.

Product: MKAD2B   Price: $19.99

Wee Blinky Kit

The Wee Blinky is a simple LED flasher kit. It's tiny, it blinks, and it's a great kit to hone your soldering skills since it's cheap too. Soldering required.

Product: MKDW3   Price: $7.99

Tiny Cylon Kit

Begin your path to world domination by building a mini-robot army. Start with just one, or grow a tiny fleet. Available assembled or as a kit.

Product: MKDW1   Price: $10.00

Lux Spectralis Kit

The Lux Spectralis is a completely open source deluxe LED blinky with more than 30 different high-intensity color modes, from a simple night light to strobes. Soldering required.

Product: MKDW2   Price: $10.00

Soldering

Solder a resistor to a circuit board.

This simple example shows the step-by-step process to solder a through-hole component to a printed circuit board (PCB). Used here are a piece of prototype PCB and a single resistor.

START »

1. Bend and insert the component leads into the desired holes on the printed circuit board (PCB). Flip the board to the other side. Slightly bend the lead you'll be soldering to prevent the component from falling out when the board is turned upside down.
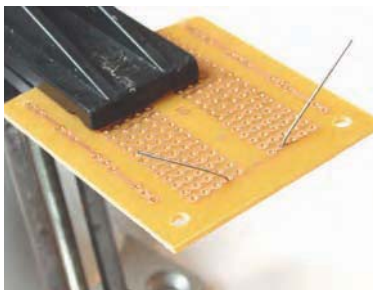

Resistor inserted into PCB.

2. To begin the actual soldering process, allow the tip of your iron to contact both the component lead and the pad on the circuit board for about one second before feeding solder to the connection. This will allow the surface to become hot enough for solder to flow smoothly.
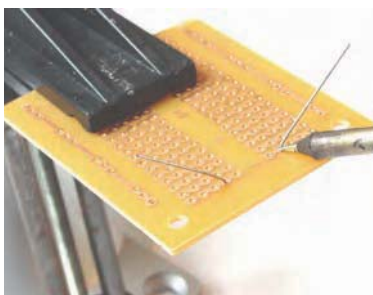
Heat the desired solder connection.

3. Next, apply solder sparingly and hold the iron in place until solder has evenly coated the surface. Ensure that the solder flows all around the two pieces (component lead and PCB pad) that you are fastening together. Do not put solder directly onto the hot iron tip before it has made contact with the lead or pad; doing so can cause a cold-solder joint (a common mistake that can prevent your hack from working properly). Soldering is a function of heat, and if the pieces are not heated uniformly, solder may not spread as desired. A cold-solder joint will loosen over time and can build up corrosion.
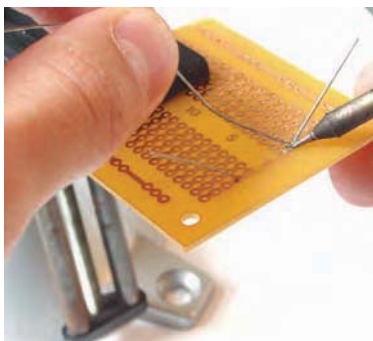

Apply heat and solder to the connection.

TIP: Every so often during any soldering process, use a wet sponge to lightly wipe the excess solder and burned flux from the tip of your soldering iron. This allows the tip to stay clean and heat properly. Proper maintenance of your soldering equipment will also increase its life span.

DANGER It's important to consider safety precautions. Improper handling of the soldering iron can lead to burns or other physical injuries. Wear safety goggles and other protective clothing when working with solder tools. With temperatures hovering around 700°F, the tip of the soldering iron, molten solder, and flux can quickly sear through clothing and skin. Keep all soldering equipment away from flammable materials and objects. Be sure to turn off the iron when it's not in use and store it properly in its stand.

»

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4. When it appears that the solder has flowed properly, remove the iron from the area and wait a few seconds for the solder to cool and harden. Do not attempt to move the component during this time. The solder joint should appear smooth and shiny, resembling the image at right. If your solder joint has a dull finish, reheat the connection and add more solder.
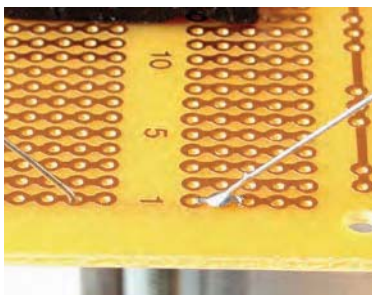

Successful solder joint.

5. Once the solder joint is in place, snip the lead to the desired length. Usually, you will simply cut the remaining portion of the lead that is not part of the actual solder joint. This prevents any risk of short circuits between leftover component leads on the board.
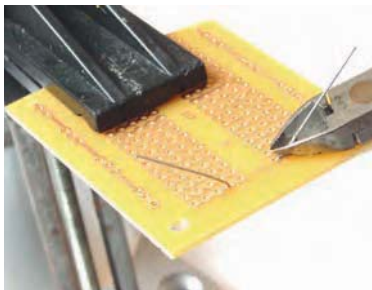
Snip off the remaining component lead.

6. Here's a completed soldering example.
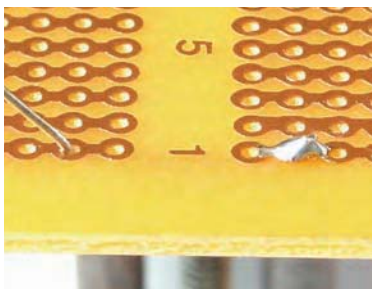
Completed soldering example.

FINISH ☒

Tools of the Trade

Make: Electronics Deluxe Tool Kit:
[MKEE1] $110.00
We've sourced all the parts you need to get started, from a soldering iron to solder to screwdrivers, wire cutters, and a multimeter—all in a handy carrying case.

Soldering Station: [JM146595] $49.95
Includes iron, stand, adjustable power from 5–40W and temperature control from 350–850°F.

Solder: [JM209075] $36.95
Thin gauge (0.031" diameter).

Needlenose Pliers, and Wire Cutters: [JM152055] $16.95
These common tools will make your job easier.

Vise: [MKPV] $28–$92
or Helping Hands: [MKHH1] $6.95
These help hold your project in place for easier soldering.

Maker Profile

Mitch Altman, Cornfield Electronics

What got you started making?

Did I really have a choice? I dreamed about it when I was a little kid (really!). And it was only a question of time before I started putting things back together again, and then making my own things, after taking apart so many of my parents things.

How did you get into the kit business?

I love teaching people to make cool things! After teaching people to solder at my second Maker Faire using other peoples' kits, I thought it would be fun to put some of my ideas into kit form, so that others can learn from them.

What's your primary goal when you make a kit? What makes a "good" kit?

My goal (and what makes a good kit for me) is to make kits that are intriguing enough so that people who have never made anything ever before (as well as experts) want to make them. My kits are also simple enough so that everyone, regardless of age or skill level, can complete them successfully. They are very well documented, so that people can learn how I do what I do, and so that anyone can hack my designs.

What's your favorite kit so far and why?

I like all of my kits (otherwise I wouldn't make them). But the TV-B-Gone Kit is nearest and dearest to my heart. It's simple, educational, practical, and fun!


TV-B-Gone

Turn any TV off (or on) with a click of the button! Even the newest TVs aren't safe. Free yourself from background TV in public spaces, or prank your friends. Features include instant reactivation, extended battery life, and an optional flashing LED that indicates the unit is sending out its signal. Fully assembled. Also available: TV-B-Gone Pro [MKCE3] and TV-B-Gone Kit version [MKAD4].

Product: MKCE1   Price: $19.99

Brain Machine

Ride your own brain waves! You don't have to be a Buddhist monk to meditate, or Sleeping Beauty to sleep well. Achieve these altered states of consciousness, and others, with this simple microcontroller device. Soldering required. Also available assembled [MKCE6].

Product: MSBM   Price: $34.99
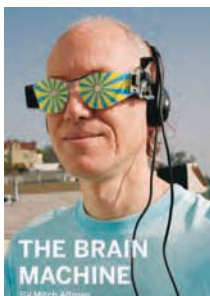
Beginner

Trippy RGB Waves Kit

Imagine a bunch of little lights on a table, each about the size of a chess piece, each independent of the others. Arrange them any way you want. Each one continually, slowly changes colors on its own—but when you wave your hand over them, they create waves of colors that follow your hand. Trippy! Great intro kit. Soldering required.

Product: MKCE4   Price: $10.00

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Electronics

Mignonette Kit

Mignonette is a do-it-yourself electronic game console. It comes preprogrammed with Munch—eat the green dots before the yellow dot eats you! You can also reprogram the firmware to enjoy your own games. Experiment with micro-controllers and game programming. Soldering required.

Product: MKCE5   Price: $34.95

Loud Objects Noise Toy Kit

Bzzzzrrrreeeeepehkhkhkhhhhhhhk! Plug in your headphones and glitch out, or jack into an amp and play it as an instrument. Kit includes a custom-printed circuit board, a noise-generating microchip, two buttons for modulating the sound, headphone jack, and battery. Soldering required.

Product: MKLOK   Price: $19.95

Simon Kit

This DIY game kit is tons of fun. All components are through-hole, making it a great kit for first-time solderers. Soldering required.

Product: MKSF7   Price: $24.95

Game of Life Kit

This easy electronics kit plays a mathematical game that simulates "colonies" that grow or die based on how crowded or lonely they are, creating a beautiful organic display out of randomness. Make one kit and keep it on your desk, or attach multiple kit modules together to create a large display. Soldering required.

**Product: MKAD3
Price: $19.99**

Povard POV Kit

The Povard is a large handheld "persistence of vision" (POV) device. A POV tricks your eyes into seeing a full image when only part of the image is visible. As you move the Povard you see one slice of each letter at a time. Your brain assembles all the slices together for you to see a complete word or image. Soldering required.

Product: MKSKL5   Price: $29.95

MiniPOV—An Inexpensive Persistence of Vision Kit

Make a message appear out of thin air! This "persistence of vision" kit flashes LED lights super fast as you swing the gadget through the air, making them appear like hundreds of lights displaying a message. Perfect for beginners who want to learn how to solder or program microcontrollers. Because the program-mer is built into the kit, you don't need a special microcontroller programmer—just a PC or Mac.

Product: MKAD1   Price: $17.99

Maker Profile

Adam Wolf and Matthew Beckler, Wayne & Layne

Have you always tinkered with electronics?

We've been friends since middle school. Sometime in that timeframe we bought a microcontroller in kit form, and had Adam's dad solder it up. We didn't do much with it, but we had a relay and some LEDs and some buttons on a breadboard. I can't even imagine what we could have accomplished if we'd had access to the community that's available online now.

How did you get into the kit business?

After graduating from college, we started working with microcontrollers for fun. We set up a shared site for us to post code and schematics and found we were spending more and more of our spare time building small projects. Before long, we realized we could try to sell kits as a way to pay for our hobby.

What's your primary goal when you make a kit? What makes a "good" kit?

We try to make our kits a good value, use parts in interesting ways, and be backed by a lot of easy-to-understand diagrams and documentation.

What's your favorite kit so far and why?

AW: Part of what keeps me doing this is that my favorite kit is always the one we're going to release next! But of all the kits we've released so far, the Blinky Grid [MKWL04] is my favorite. It's an array of 56 LEDs that can display messages and simple animations. It's reprogrammable by holding the kit up to a screen displaying our website, where we have an interactive page that will transmit your animation or message to the kit through blinking squares, picked up by two light sensors on the kit.

MB: My favorite kit is the Video Game Shield [MKWL02], which lets you make and play classic video games on your TV with an Arduino. We were able to do some really great things with the custom circuit board cutouts to provide a solid connection for the Wii Nunchuck controllers.

NEW!

Blinky Grid Kit

It's time to get your blink on! Blinky Grid has 56 LEDs that can display text and animations in a variety of ways. It's easy to program over the internet—just hold it up to your monitor. Open source kit. Soldering required.

Product: MKWL04   Price: $25.00

NEW!
Beginner

Blinky POV Kit

Blinky POV is a reprogrammable LED kit that uses persistence of vision to create the illusion of text or a small picture floating in the air. You can change the message by going to a website and simply holding the Blinky POV up to your monitor. Open source kit. Soldering required.

Product: MKWL03   Price: $16.00

Electronics

LED Micro-Readerboard Kit

This fun little open source kit will spell out preprogrammed messages one letter at a time on its alphanumeric LED display. Send your message to the world, one letter at a time.

Product: MKEMS1 Price: $14.00

PumLantern Kit

Meet the PumLantern—a solar-charged, night-activated light-pulsing lantern! This kit charges all day from the SCC3733 solar cell, and lights the four ultra-mega-super-bright LEDs to cast artistic silhouettes against the walls of the lantern. Everything you need to build this kit is included. Colors vary. Soldering required.

Product: MKSB009 Price: $29.95

Monochron Clock Kit

This ultra-hackable open source clock kit comes pre-programmed with a hypnotic retro game. When the ball misses the paddle in one direction, it adds a minute. When it misses the other way, it adds an hour. If you want to change it up, code is available for several different clock faces, or you can program your own. Features include battery backup, alarm, snooze alarm, and open source firmware. Soldering required.

Product: MKAD17 Price: $95.00
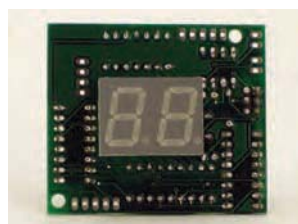
DayCounter Kit

This kit comes preprogrammed with software that counts up one day at a time, or counts down one day at a time from a set number. How many days is it until your birthday? Counting days has never been this much fun!

Product: MKWD04 Price: $16.00

MintyTime Binary Clock Kit

Like binary numbers? Like knowing what time it is? Like mints? If you answered "Yes!" to any of those questions, then the MintyTime Clock Kit is the perfect project for you. Soldering required.

Product: MKWD03 Price: $23.00

Maker Profile

Mark Demers, Spikenzie Labs

What got you started making?

I never really started making, it's just something that I have always done. Growing up, I was surrounded by the culture of makers, which was just normal to me. My father made model ships, built furniture, and even made his own bullets! My mother is a maker also; she made dresses, super comfortable mittens for the winter, and some great dinners. Then there was my brothers, uncles, babysitter, neighbors, grandparents—all makers!

What's your primary goal when you make a kit? What makes a "good" kit?

It has to work and it has to look good. I spend a lot of time while designing a kit trying to imagine how other people will interact with it. I ask myself, "Is it easy to understand? Where can people building it make mistakes?" Then I choose parts that make it easier or fit together better, and if there is still something about it that is a bit tricky, I'll post detailed notes and photos on the instructions pages of our website. To maximize the aesthetic qualities of the kits, I trace the circuit boards by hand rather then letting the PCB software autoroute the circuit.

What's your favorite kit so far and why?

Tough choice! For beginners I really like the Dice Kit; I even keep one on my desk and bang it every few hours. But maybe my favorite kit so far is the Solder: Time Watch Kit. What I like so much about it is how it brings together so many different elements: you solder it like a kit; it has an everyday real-world usefulness; the acrylic case has a great aesthetic quality to it; and it has plenty of "geek cred."

NEW!
Beginner
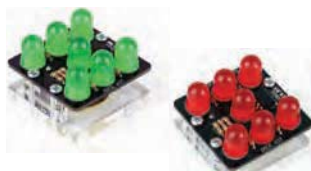
LED Dice Kit

Designed for beginners, the Dice Kit comes with everything you need to make your own electronic die. Tap the completed kit on the table and up to six LEDs will light up. After a short while, the LED die goes into sleep mode, until the next time it's tapped. Soldering required.
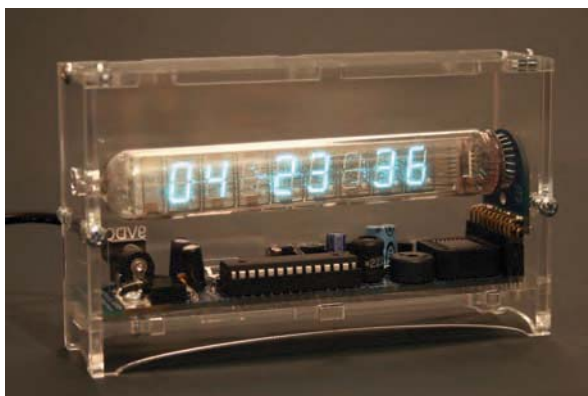
Product: MKSKL09   Price: $19.95

NEW!

Solder: Time Watch Kit

A fun watch kit in a stylish casing, this is a true conversation starter that looks great and is completely functional. Take through airport security at your own risk. Soldering required.

**Product: MKSKL12
Price: $35.00**

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Ice Tube Clock Kit

Modern open source hardware meets last century's Russian technology in this beautiful Ice Tube Clock. The centerpiece of this clock is a Russian-made, 9-digit, vacuum florescent display (VFD). These types of displays were typically used in electronics from the late 1960s through the mid-80s. The kit includes everything you need to build a complete clock, which features an alarm with a snooze function and adjustable brightness—perfect for your nightstand. Soldering required.

Product: MKAD16   Price: $85.00

Bulbdial Clock Kit with Laser-Cut Case

This clock kit is a real standout. It works like an indoor sundial, but with three shadows of different length. You tell time just like you would on a normal clock, by reading the positions of the hour, minute, and second hands. This clock kit comes complete with everything you need, even a laser-cut acrylic case. Soldering required.

Product: MKEMS8   Price: $90.00

Components

Mintronics: Survival Pack

Contains over 60 useful components for making, hacking, and modifying electronic circuits and repairs on the go.
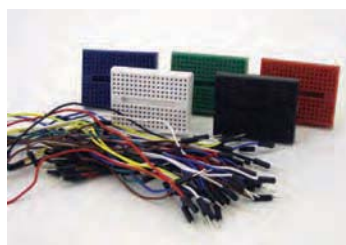
Product: MSTIN2   Price: $19.99

MAKE Project Tin

The ideal enclosure for small electronics projects, this mint tin is branded with our MAKE motto: "If you can't open it, you don't own it."
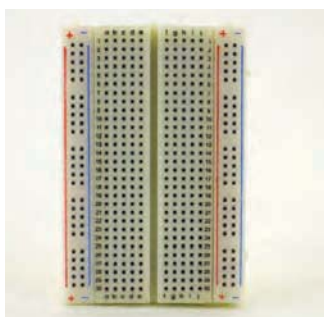
Product: MSTIN1   Price: $5.00

Mini Breadboard Bundle

Five mini breadboards, one in each color. Great for tiny projects, each breadboard has an adhesive back and fits snugly on top of our MakerShield [MSMS01].

Product: MSBR1   Price: $20.00

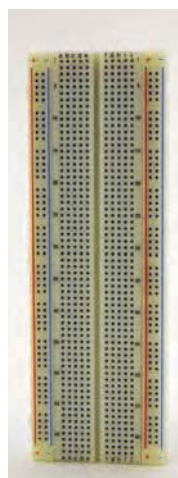## Half-Size Breadboard

This half-size solderless breadboard with adhesive backing is perfect for prototyping.

Product: MKKN2   Price: $4.50

Solderless Breadboard

This larger solderless breadboard with adhesive backing is excellent for prototyping bigger projects. Also available: Transparent Breadboard [MKKN3].

Product: MKEL3 Price: $7.95

Plug-In Breadboard Power Supply

A very simple kit that takes power from a DC wall wart and outputs a select-able 5V or 3.3V regulated voltage. The bottom-mounted headers make it easy to plug directly into your breadboard. Pins labeled VCC and GND plug directly into the power lines.

Product: MKSF5   Price: $13.95

Deluxe Breadboard Jumper Wires

The set includes 65 high quality, flexible jumper wires that can be used over and over again. Each stranded jumper wire has a molded barrel and a ⅜" (approx 1cm) stripped end.

Product: MKSEEED3   Price: $8.99

Alligator Test Leads—10pc

Five different-colored 14" test leads paired with mini alligator clips.

Product: MKEL16   Price: $6.00

Discover DIY, tools, books, and more ⫸ makershed.com

Essential Parts for Your Projects

USB Infrared Toy

An assembled USB infrared remote control receiver/transmitter. Use it as a remote control with your computer, view infrared signals on a logic analyzer, capture and replay infrared signals, and play IR codes.

Product: MKSEEED9 Price: $19.99

BlinkM Smart LED

Have you wanted an LED that can fade from deep red to bright purple? Flash like a police light? Flicker like a candle? That's BlinkM. Also available: MaxM [MKTNC2] and MinM [MKTNC4].

Product: MKTNC1 Price: $13.95

LinkM Smart USB LED Controller

LinkM is a USB adapter that enables you to program BlinkMs without setting up a separate I/O board, such as an Arduino. It lets you program or control multiple BlinkMs simultaneously.

Product: MKTNC3 Price: $29.95

Standard LCD 16 x 2

Standard HD44780 LCDs are useful for creating standalone projects. They are really easy to use with an Arduino, thanks to the LCD libraries that are available to download. The white text on blue background gives high visibility.

Product: MKAD15 Price: $12.00

Pixel Qi Display

This one-of-a-kind, plug-and-play 10.1" display offers two modes: an easy-to-read, real color, multimedia mode or a crisp, low power e-reader mode. The sunlight-ready, e-reader mode makes it easy to use outdoors. Check website for compatibility with your netbook.

Product: MKPQ01 Price: $275.00

2-Axis Joystick

This 2-Axis Joystick can be used to add analog input to your next project. It contains two independent potentiometers (one per axis) for reporting the joystick's position, with wiring options for voltage or resistance outputs.

Product: MKPX10 Price: $4.99

ShapeLock Design Plastic

Prototype your invention now using ShapeLock, hot water, and your bare hands! When heated, you can easily mold the plastic into custom parts, prototypes, molds, servo brackets, robot housings, sculptures, science projects, and more. When it cools you'll have an amazingly tough, rigid part! A Maker Shed favorite.

Product: MKSHL1 Price: $14.95

Tools

Make: Circuit Breaker

Laser engraved with "Make: Circuit Breaker." Available in ES4 (wire strippers) and PS4 (pliers).

Product: MKLTM3   Price: $36.00

Make: Warranty Voider

Laser engraved with "Make: Warranty Voider." Available in PS4 (pliers).

Product: MKLTM1   Price: $36.00

Make: Bomb Defuser

Laser engraved with "Make: Bomb Defuser." Available in ES4 (wire strippers).

Product: MKLTM2   Price: $36.00

The Switch

The Switch is the ultimate modular pocketknife. With 18 different attachments you can easily customize which and how many tools you need for every adventure. Includes a complete set of body covers, axles, and 18 high-quality stainless steel tools.

Product: MKQRK1   Price: $79.00

Get-A-Way Driver

Tackle almost any job with this keychain tool, which features a variety of driver bits plus an LED flashlight, wrenches, and pry bar.

Product: MKCRKT1   Price: $19.99

26-Piece Driver Set

Features 26 different bits, from Phillips to hex to Torx to star, plus magnetized driver—all in a pocket-sized package.

Product: MKIF1   Price: $14.99

54-Piece Driver Set

This kit takes the MAKE motto ("If you can't open it, you don't own it") seriously. It's never met an electronic screw it can't handle.

Product: MKIF2   Price: $19.99

Magnetic Tripod

Super strong magnetic feet and flexible legs allow this tripod to cling to virtually any surface. Also available with LED torch [MKJB02].

Product: MKJB01   Price: $24.95

Discover DIY, tools, books, and more ➥ makershed.com

The Right Tools for the Job

Helping Hands

The helping hands are a solderer's best friend. Clip your work, turn it to any angle, and examine it with the magnifying glass.

Product: MKHH1   Price: $6.95

Panavise Jr. 201

Product: MKPV01   Price: $28.00

Standard Panavise 301

Product: MKPV02   Price: $50.00

Panavises are the ideal workbench companions, clamping items in place. They come in a range of sizes and styles.

DSO Nano Pocket Oscilloscope

The DSO Nano is a digital storage oscilloscope equipped with 320 x 240 color display, SD card capability, USB connection, and rechargeable batteries.

Product: MKSEEED11   Price: $109.99

Panavise Electronic Work Center 324

Product: MKPV03   Price: $92.00

Multi-Purpose Work Center 350

Product: MKPV04   Price: $95.00

Make: Electronics Deluxe Toolkit

This kit has the right tools for the job, with everything you need to get started with electronics and soldering. Includes more than 20 tools, from a soldering iron to a multimeter to pliers—even a handy carrying case to store them all.

Product: MKEE1   Price: $110.00

Gift Ideas

Gift Guides

Find dozens more thoughtful ideas for all of the makers on your gift list at makershed.com/gifts.

3D Christmas Tree Kit

Build a cool, flashing, multi-colored LED Christmas Tree in eight simple soldering steps.

Product: MKVN2   Price: $12.95

Deluxe LED Menorah Kit

A modern, flame-free version of the traditional Hanukkah candelabrum. Light an additional "candle" each night. Soldering required.

Product: MKEMS6   Price: $15.00

TV-B-Gone

Turn any TV off (or on) with a click of the button! Keychain-sized gadget offers peace on Earth. No TV is safe. Fully assembled. Also available: Pro [MKCE3] and Kit [MKAD4].

Product: MKCE1   Price: $19.99

Mini Weapons of Mass Destruction

Your guide to cubicle-sized siege weapons. If you have access to binder clips, rubber bands, ballpoint pens, and plastic utensils, then you have the components needed to build an impressive, if somewhat miniaturized, arsenal.

Product: 9781556529535
Price: $16.95
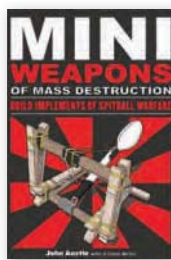
MintyBoost USB Charger Kit

Build a portable USB charger that works with almost any device you plug into a USB port, from phones to cameras to music players. Soldering required.

Product: MKAD2B   Price: $19.99

Pocket Reference, 4th Edition

All the information you never realized you wanted to know is at your fingertips in this handy pocket-sized guide. Find something new every time you open it, from hand signals to joist spans.

Product: MKSQ1   Price: $12.95

MAKE Motto T-Shirt

Featuring a small MAKE logo on the front and our Maker's Bill of Rights motto, "If you can't open it, you don't own it," on the back.

Product: TSMK2   Price: $16.00

MAKE Void Your Warranty T-Shirt

"Make: Void your warranty, violate a user agreement, fry a circuit, blow a fuse, poke an eye out…"

Product: TSMK1   Price: $20.00

Gift Ideas from the Staff of Make:

Mintronics: Survival Pack

Over 60 useful components for making, hacking, and modifying electronic circuits and repairs on the go, jam-packed into a handy tin.

Product: MSTIN2   Price: $19.99

NEW!
Beginner

LED Dice Kit

Designed for beginners, the Dice Kit comes with everything you need to make your own electronic die. Tap the completed kit on the table and up to six LEDs will light up. After a short while, the LED die goes into sleep mode, until the next time it's tapped. Soldering required.

Product: MKSKL09   Price: $19.95

Gift Certificates

Can't decide which gift to get? Let your recipient make the choice. Gift certificates for makershed.com are available in any amount.

Product: GFT   Price: Any

NEW!
Beginner

Useless Machine Kit

What does this machine do? It turns itself off when you turn it on. You turn it on again, it turns itself off again. Great for hours of useless fun for the whole family. From MAKE Volume 23.

Product: MKSB023   Price: $25.00

Make: Warranty Voider

Nine handy tools in a keychain-sized package. Laser engraved with "Make: Warranty Voider." Also available: Bomb Defuser [MKLTM2] and Circuit Breaker [MKLTM3].

Product: MKLTM1   Price: $36.00

NEW!

Solder: Time Watch Kit

A fun watch kit in a stylish casing, this is a true conversation starter that looks great and is completely functional. Take through airport security at your own risk. Soldering required.

Product: MKSKL12
Price: $35.00

26-Piece Driver Set

Get 26 different bits, from Phillips to hex to Torx to star, plus magnetized driver—all in a pocket-sized package. Also available: 54-Piece Bit [MKIF2].

Product: MKIF1   Price: $14.99

Microcontrollers

Introduction to Microcontrollers

Microcontrollers are a fun and easy way to make your projects smart, letting them reach out and interact with their world. Microcontrollers are cheap, versatile, and user-friendly enough to have found their way into cool projects of staggering diversity.

A microcontroller (or MCU) is basically a computer on a single chip. The processor, memory, clock, and input/output capabilities are all stuffed into one integrated circuit. Some are single-purpose chips and have all of these components and their programs baked in. These are found in things like household appliances, car electronics, and high-tech toys.

Programmable microcontrollers usually come on a printed circuit board that breaks out many functions of the chip and makes it easier to connect power, programming cable, motors, sensors, and other devices. A programmable MCU can take an input signal from a variety of sensors (light, motion, sound, temperature, etc.) or from the internet, then process that data (using a program that you write on your computer and download onto it) and output a signal to control components, such as motors, buzzers, lights, solenoids, and computers.

One of the most popular lines of hobby/prototyping micro-controllers is the Arduino. Hailing from Italy, the Arduino was developed by artists for artist, hobbyists, students, and others who want a versatile and powerful system that doesn't require a degree in computer science to fully utilize.

MAKE and the Maker Shed have become leaders in the Arduino community, in publishing projects and tutorials on this technology, developing innovative new hardware and tools, and selling a premier line of Arduino boards, Arduino-compatible systems, accessories, and best-selling books. We're in love with this sexy Italian hardware and the physical computing revolution it has sparked, and we think you will be too. Join the revolution!
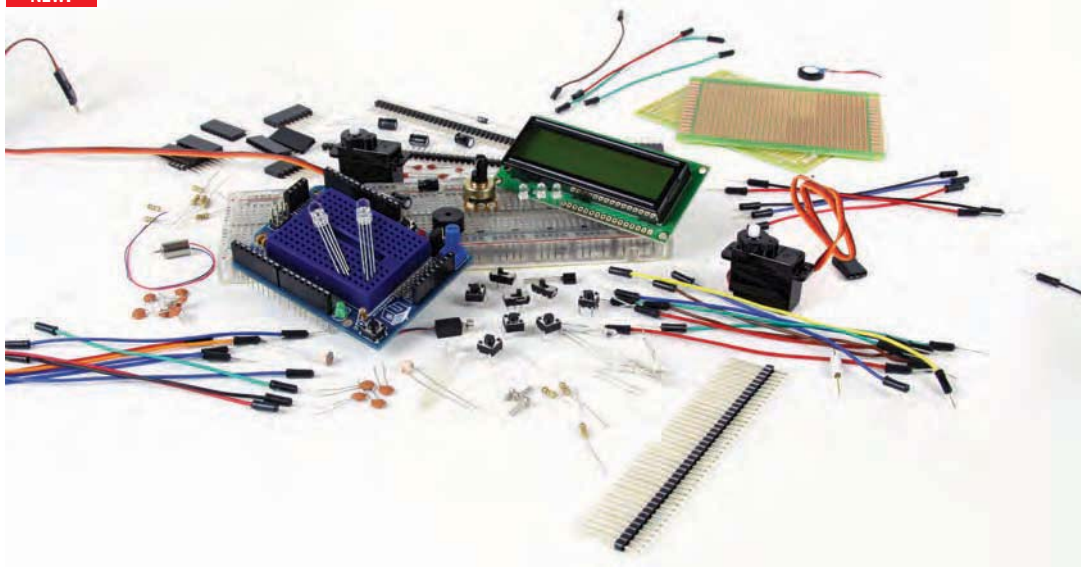
We also carry the Netduino line. It is an open source electronics platform that uses the .NET Micro framework and is pin-compatible with Arduino accessory boards (known as "shields").

Sense and Control the World Around You

Ultimate Microcontroller Pack

This pack contains everything the staff of MAKE wanted for our own microcontroller projects. The 100+ components include the basics, like breadboards, resistors, capacitors, LEDs, and jumper wires, as well as the fun stuff, like servos, switches, sensors, buttons, motors, a buzzer, a potentiometer, and an LCD screen. It has everything you need to dive right into the world of microcontrollers, allowing you to complete nearly any project or online tutorial without having to source individual parts. Everyone from beginners to advanced users will appreciate all that the Ultimate Microcontroller Pack has to offer. Available by itself, or you can add an Arduino Uno, Netduino, or Netduino Plus. This really is the ultimate parts assortment!

Product: MSUMP   Price: $120.00
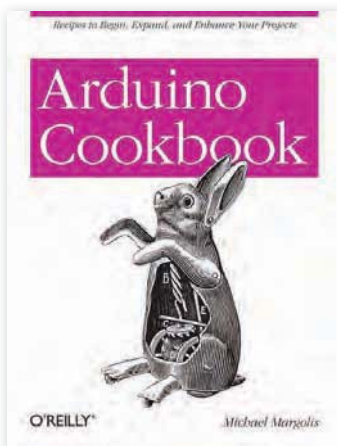
Arduino Cookbook

Create your own robots, toys, remote controllers, alarms, detectors, and many other projects with Arduino-compatible devices. With this book, you can experiment with more than a hundred tips and techniques, no matter what your skill level is. You'll find the examples and advice you need to begin, expand, and enhance your projects right away.

**Product: 9780596802486
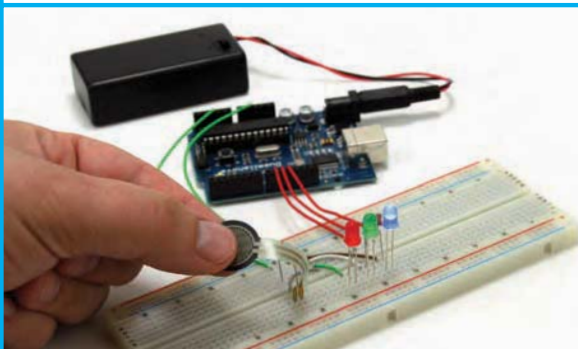Price: $44.99**

Make: Arduino Bots and Gadgets

Want to build robots, turn your ideas into prototypes, control devices with a computer, or make your own cellphone applications? It's a snap with this book. You'll gain the know-how and experience you need to invent your own gadgets.

**Product: 636920010371
Price: $34.99**

Beginner

Make:

GETTING STARTED WITH
Arduino Kit

LEARN HOW TO MAKE ELECTRONICS THAT INTERACT WITH THE PHYSICAL WORLD

KIT INFORMATION

» **Some Soldering Required**

» **Skill Level: Beginner**

» **Perfect For Ages 12 & Up**

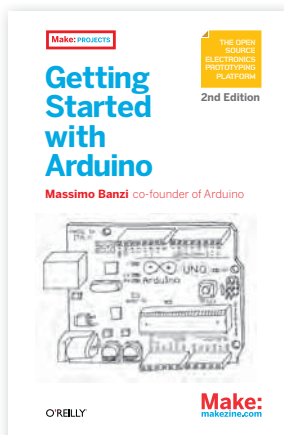Our *Getting Started with Arduino* book is the perfect companion

Maker SHED
DIY KITS + TOOLS + BOOKS + FUN
makershed.com

Getting Started with Arduino Kit

If you're wondering what this whole Arduino thing is all about, this kit is here to answer your questions. Designed as a companion to our *Getting Started with Arduino* book by Massimo Banzi, one of the co-founders of the Arduino project, it includes all the parts you need to follow along with the projects in the book. Kit contents include: an Arduino Uno, power source, breadboard, USB cable, jumper wires, LEDs, resistors, and more. Ease into the world of Arduino with this amazing kit.

Product: MSGSA   Price: $64.99

NEW!

Make: PROJECTS

Getting Started with Arduino

THE OPEN SOURCE ELECTRONICS PROTOTYPING PLATFORM

2nd Edition

Massimo Banzi co-founder of Arduino

O'REILLY

Make:
makezine.com

Getting Started with Arduino, 2nd Edition

This valuable little book from the co-founder of the Arduino project offers a thorough introduction to Arduino. You'll learn all about Arduino hardware and software, how to prototype, and how to read (and draw) schematics, then you can follow the simple projects in the book to make an LED blink!

Product: 9781449309879   Price: $14.99

Arduino continually updates their line of open source hardware based on community feedback; check for the latest at makershed.com.

Arduino Uno

Arduino is an open source physical computing platform based on a simple yet powerful microcontroller board and development environment for writing software for the board. The Uno is the latest model in the Arduino lineup and comes assembled and ready for your next project. Based on the ATmega328, the Arduino Uno has 14 digital input/output pins (of which six can be used as PWM outputs), six analog inputs, a 16MHz crystal oscillator, a USB connection, a power jack, an ICSP header, and a reset button. It measures 2.7"x2.1" and contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started.

Product: MKSP4   Price: $34.99

Arduino Mini

This tiny Arduino board packs a punch with an ATmega168. Ideal for use in breadboard prototyping or any project in which space is at a premium.

Product: MKSP2   Price: $36.99

Arduino Mega

The Arduino Mega is the Uno's mightier sibling. It has 54 digital input/output pins (of which 14 can be used as PWM outputs), 16 analog inputs, 4 UARTs (hardware serial ports), a 16MHz crystal oscillator, a USB connection, a power jack, an ICSP header, and a reset button. Despite its slightly larger form factor (4"x2.1"), it's compatible with most shields designed for the Uno.

Product: MKSP5   Price: $65.00

Arduino Mini USB Adapter

Connects directly to the Arduino Mini or other microcontroller, allowing them to talk to the computer by converting a USB connection into 5-volt, GND, TX, and RX lines.

Product: MKSP3   Price: $19.99

Making Things Talk, 2nd Edition

With 33 easy-to-build projects, *Making Things Talk* shows you how to get your microcontollers, PCs, servers, and smart phones to communicate with each other, your surroundings, and you.

Product: 9781449392437
Price: $34.99

Arduino Ethernet Board

The new Arduino Ethernet Board integrates an Arduino Uno with the Ethernet Shield. Using the Adruino Ethernet library, you can network-enable your projects! Also, the board now includes an SD card slot for memory expansion, data logging, etc. Use an FTDI breakout board like the FTDI Friend [MKAD22] for programming.

Product: MKSP9   Price: $58.00

Arduino Mega ADK Kit

The Arduino Mega ADK board integrates a USB host controller and an Arduino Mega2560, making it Google ADK-compatible. Open the doorway to new and exciting projects by combining the processing power and connectivity of your Android phone with the physical computing versatility of Arduino. Interface with the outside world and display sensor data on your phone.

Product: MKSP8   Price: $85.00
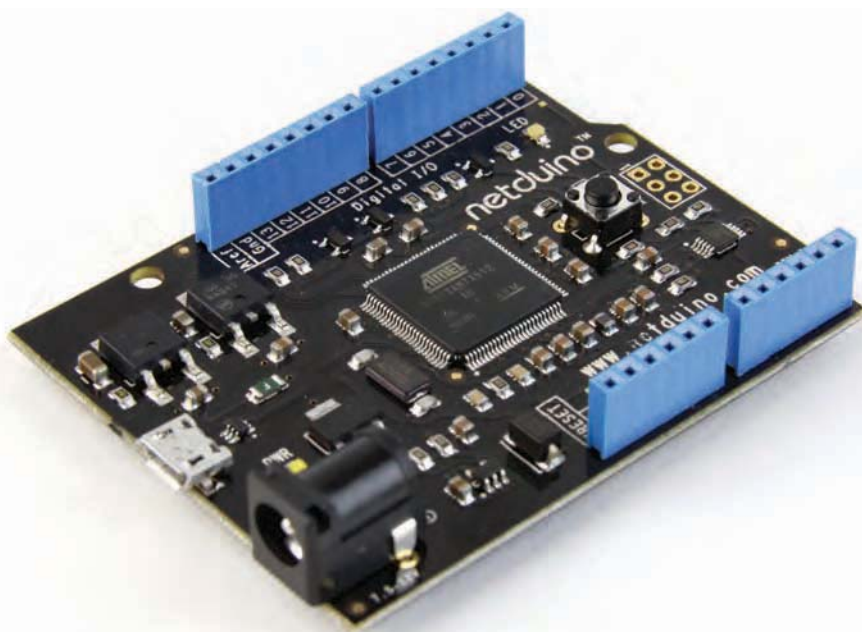
Netduino

Netduino is an open source electronics platform that uses the .NET Micro framework. The Netduino board features a 32-bit microcontroller, making it a perfect solution for engineers and hobbyists alike. It has 20 digital and analog input/output pins, making it easy to interface with switches, sensors, LEDs, serial devices, and more. Plus Netduino is pin-compatible with Arduino shields. And the .NET Micro Framework combines the ease of high-level coding and the features of microcontrollers, so you can enjoy event-based programming, multi-threading, line-by-line debugging, breakpoints, and more.

Product: MKND01   Price: $34.99
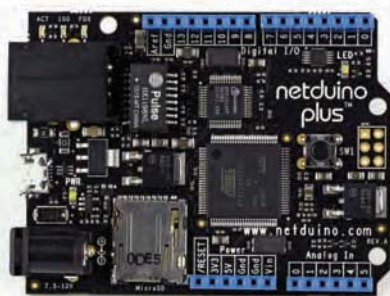
Netduino Plus

The Netduino Plus offers the power and flexibility of the Netduino with the bonus of on-board networking (Ethernet) and storage (a micro-SD slot) added—all in the same petite (2.8"x2.1"x0.5") form factor.

Product: MKND02   Price: $59.99

Netduino Mini

The Netduino Mini offers the same 32-bit microcontroller as the Netduino plus 16 digital and analog pins in a teeny tiny footprint—just 1.2"x0.6"x0.3".

Product: MKND03   Price: $29.99

## Mintronics: MintDuino

The world's first do-it-yourself microcontroller—in a tin! This kit includes everything you need to build your very own ATMega-based microcontroller on a breadboard. It's perfect for anyone interested in learning (or teaching) the fundamentals of how microcontrollers work. Building the MintDuino demonstrates the specific relationship between the wires, resistors, capacitors, and integrated circuits that enables you to program the microcontroller from your computer. After building the MintDuino, you'll have a much better understanding of how microcontrollers work, and how electronics can interact with the physical world. An FTDI programmer like our FTDI Friend [MKAD22] is required to upload code to the MintDuino. No soldering required.

Product: MSTIN3   Price: $24.99
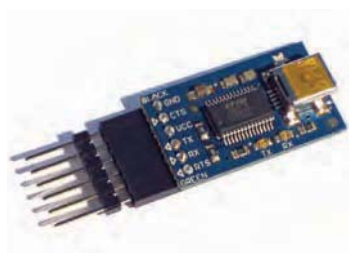
FTDI Friend

The FTDI Friend is a tweaked out FTDI FT232RL chip adapter that lets you transfer your everyday serial data from a microcontroller to a computer. Can be either 3.3V or 5V. No soldering required.

Product: MKAD22   Price: $15.00

Arduino-Compatible Electronic Brick Starter Kit

A convenient, solder-free, plug-and-play way to experiment with microcontrollers, this starter kit allows you to connect Arduino-compatible boards easily to various extension modules like potentiometers, sensors, relays, servos, buttons, and more! Just add an Arduino and plug and play. No soldering required.
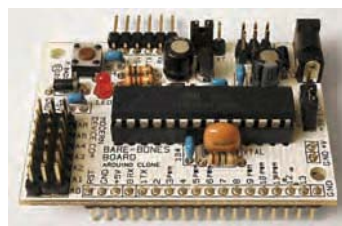
Product: MKSEEED12   Price: $49.99

NEW!
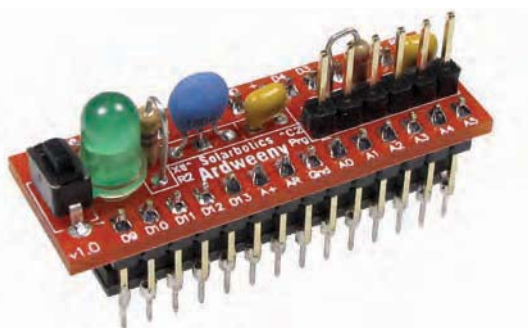
Ardweeny Kit

Looking to build the smallest, handiest, breadboard-friendly Arduino-compatible? The Ardweeny fits on the back of the included ATmega328, taking up no more valuable breadboard space than the microcontroller itself!
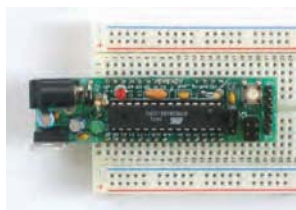
Product: MKSB012 Price: $9.95

Bare Bones Kit

The Bare Bones is a convenient, effective, and low-cost hardware solution. The USB communications chip is not on the board, saving space and money. Use a USB-BUB [MKMD4] or FTDI cable to program. Soldering required.

Product: MKMD3 Price: $19.99

DC Boarduino Kit

Designed especially for use with an electronics breadboard, Boarduino sports a standard DC jack for power and can be programmed with a USB-TTL serial cable. Did we mention that it plugs right into a breadboard? Sweet!

Product: MKAD9 Price: $17.50

Freeduino SB Kit

The Freeduino is compatible with standard expansion shields, has onboard USB port (like the standard Arduino), and is fully compatible with add-on shields. It also looks pretty darn cool! Soldering required.
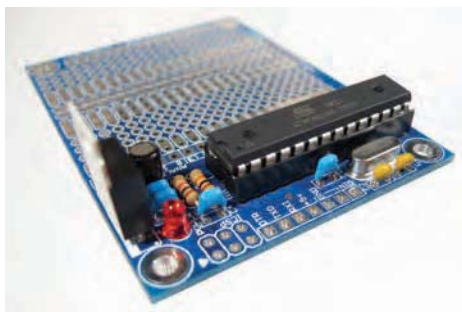
Product: MKSB013 Price: $26.00

Seeeduino

Seeeduino is an Arduino-compatible board which is completely compatible with its existing program, shield, and IDEs. On the hardware side, Seeeduino offers increased flexibility, including the option of 3.3V or 5V levels.
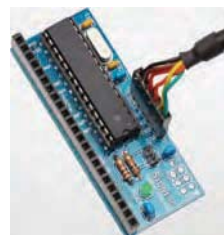
Product: MKSEEED2 Price: $22.99

Prototino Kit

The Prototino is an Arduino clone with a built-in prototyping area. It's designed to make a permanent version of your project once you have perfected it on a breadboard, without the expense of embedding your original Arduino into your project.
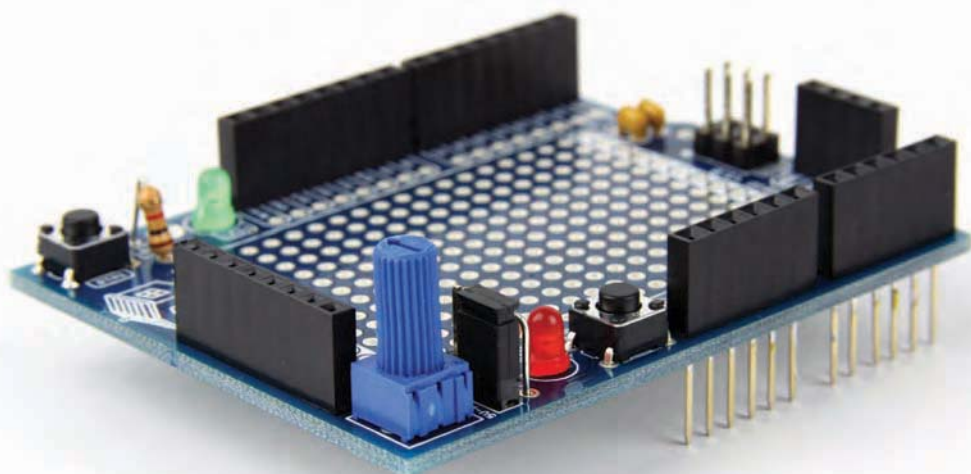
Product: MKSKL4 Price: $23.95

Sippino Kit

The Sippino is a miniature Arduino-compatible microcontroller board (2.35"x0.95"). This kit is extremely flexible, with four different header options (SIP, DIP, standalone, and freestyle). The SIP option, with its single line of pins, makes it really easy to use with a breadboard. Soldering required.

Product: MKSKL6 Price: $17.25

MakerShield Kit

We designed the MakerShield kit to be the ultimate open source prototyping shield for Arduino and Netduino microcontrollers. Unlike other prototyping shields on the market, all of the major components and pins of the MakerShield are user-assignable. You can design circuits the way you want, and easily make as many changes as needed without any additional soldering. Plus, it's 3.3V and 5V compliant. Soldering required.

Product: MSMS01 Price: $16.95

SB-Protoshield Kit

Compatible with Arduino and Freeduino, the SB-Protoshield offers handy 4-switch, 4-LED, servo, and XBee proto-typing space. Soldering required.

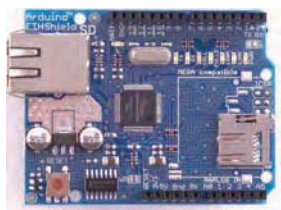**Product: MKSB014   Price: $12.50**

MotorShield Kit

This shield makes building robots with Arduino really easy. It's a full-featured motor board that can power many simple to medium-complexity projects. Soldering required.
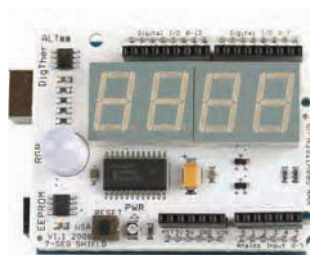
**Product: MKAD7
Price: $19.50**

Plug-In Functionality for Microcontrollers

Arduino Ethernet Shield

Connect an Arduino to the internet with a standard Ethernet cable. This shield can be stacked with another shield for increased flexibility. Includes a micro-SD card slot which can read and write files over the network. Fully assembled; no soldering required.

Product: MKSP7 Price: $54.99

7-Segment Shield

This shield has tons of cool features, from a 4-digit, 7-segment display to a temperature sensor to a programmable RGB LED. Fully assembled and tested; no soldering required.

Product: MKGR2 Price: $49.99

Audio Player Shield Kit

Add high quality audio to an Arduino project via an SD card. This shield can play up to 22kHz, 12-bit uncompressed audio files of any length. Volume can be controlled with the onboard thumbwheel potentiometer. A great low-cost, easy-to-make kit. Soldering required.
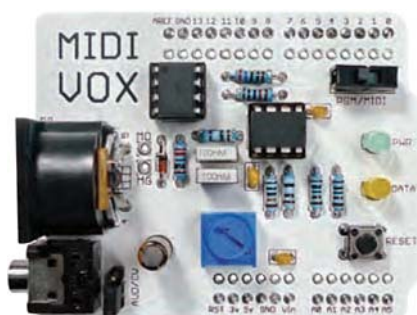
Product: MKAD11 Price: $21.95

Voice Shield Kit

An analog audio shield for Arduino-compatible boards that allows you to play audio sound bytes. It could be used to make a talking clock, Arduino talking GPS, robot, alarm, or just about any other project where sound is required.

Product: MKSKL3 Price: $45.95

MidiVox Kit

Transform an Arduino into a programmable MIDI synthesizer! Provides an isolated MIDI input jack along with a single-channel, 12-bit, digital audio output. Any MIDI keyboard with a DIN-5 output can be used to control the shield. Soldering required.

Product: MKNB1 Price: $23.00

Data Logging Shield Kit

This shield is easy to assemble and customize, and comes with great documentation and libraries. Works with any FAT16 or FAT32 formatted SD card. Soldering required.
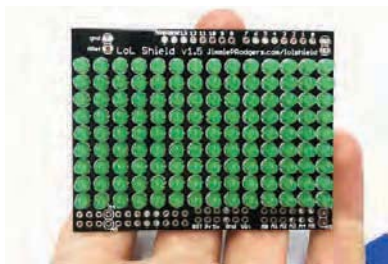
Product: MKAD18 Price: $19.50

Video Game Shield

The Video Game Shield is an Arduino add-on shield to make your own video games, including graphics, text, sound effects, and music. Connects directly to Wii Nunckuck or Classic controllers. Soldering required.

Product: MKWL02 Price: $22.50

Microcontrollers

LoL Shield

The LoL Shield is a charlieplexed LED matrix for the Arduino. The LEDs in the 9x14 grid are individually addressable, so you can use them to display anything from text to images, anywhere from a picture frame to a belt buckle. Soldering required.

Product: MKJR3 Price: $25.00

GVS Shield

GVS stands for the ground/voltage/signal standard. The GVS shield lets you easily connect servo and sensor accessories to your Arduino. Soldering required.

**Product: MKSB015 Price: $13.95**

64-Button Shield

The 64-Button Shield allows you to connect up to 64 buttons to your Arduino. Make custom musical instruments, attach a lot of inputs, design cool computer interfaces, or build a game. Limited only by your imagination. Soldering required.

Product: MKSKL11 Price: $22.95

DrinkShield

An open source breathalyzer kit for the Arduino, the DrinkShield was originally designed for hackerspace parties. Works as a standalone breathalyzer or you can connect it to a computer to interact directly with the results. Note: The DrinkShield is for entertainment purposes only.

Product: MKGX01 Price: $27.99
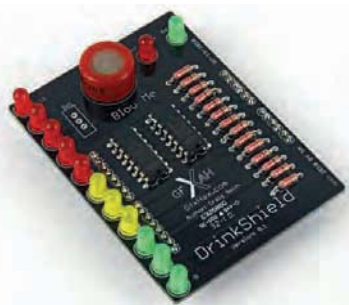
NEW!

Redpark Breakout Pack for Arduino and iOS

Exclusively in the Maker Shed, the Redpark Breakout Pack for Arduino and iOS makes interfacing your iPhone, iPad, or iPod touch with the real world easy! This bundle includes the Redpark Serial Cable for iOS [MSRP01], Modern Device P4 Serial Breakout [MKMD2], and our Mintronics: Survival Pack [MSTIN2]. The Redpark Serial Cable for iOS is the first and only cable approved by Apple for connecting your iOS device to almost anything using serial communication. Use external sensors in your iOS apps! Talk to an Arduino with your iPhone! The possibilities are unlimited.

Product: MSRP02 Price: $79.99

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PowerSwitch Tail

The PowerSwitch Tail allows you to safely control a standard wall outlet (120V AC) device with almost any microcontroller.

Product: MKPSO1   **Price: $18.95**

Arduino 9V Battery Case

Make your Arduino project portable with this case for a 9V battery, with sliding cover and switch. Easy assembly required.

Product: MSBAT1   **Price: $4.00**

9V Wall Adapter Plug

This high-quality switching wall wart AC-to-DC 9V 650mA power supply regulates the output to 9V—a perfect match for the Arduino.
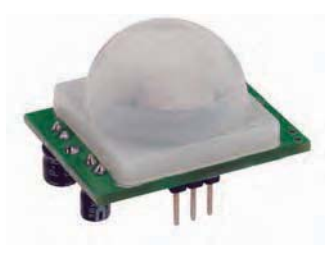
Product: MKSF3   **Price: $6.50**

Ping Ultrasonic Sensor

Measure distance using sonar. An ultrasonic pulse is transmitted from the unit and distance-to-target is determined by measuring the time required for the echo return.

Product: MKPX5   **Price: $29.99**

PIR Sensor

The PIR Sensor detects motion up to 20 feet away by using a Fresnel lens and infrared-sensitive element. Easily interfaces with microcontrollers to make motion-activated projects.
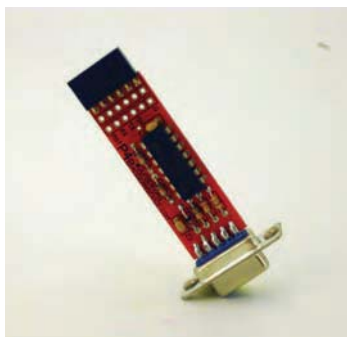
Product: MKPX6   **Price: $9.99**

Memsic 2125 Dual-Axis Accelerometer

An easy-to-use, dual-axis thermal accelerometer capable of measuring tilt, acceleration, rotation, and vibration with a range of +/-2 g.

Product: MKPX7   **Price: $29.99**

P4 Adapter/Serial Cable

Serial adapter with DTR support for those who have an RS232 port.

Product: MKMD2   **Price: $7.00**

USB BUB Board

The USB BUB board has been engineered to be an affordable, flexible USB-to-TTL connector with lots of applications. Great for programming microcontrollers like the MintDuino!

Product: MKMD4   **Price: $15.00**

4WD Arduino Compatible Mobile Platform

So you want to get mobile with your microcontroller? This 4WD robotic platform includes geared motors, wheels, and a rugged aluminum alloy body. Also available: 2WD [MKSEEED7].

Product: MKSEEED8   **Price: $59.99**

Robots

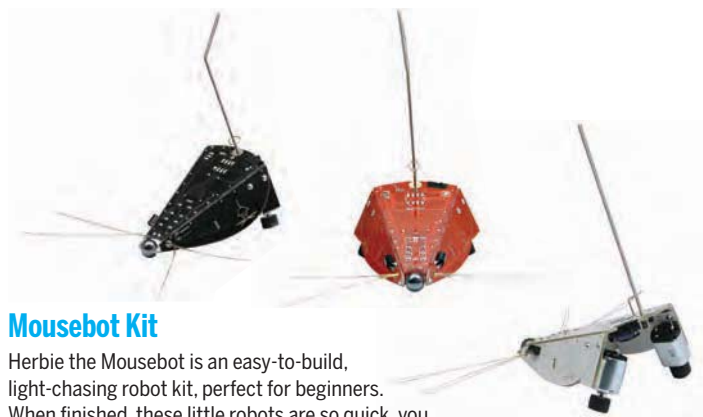### Mechamo Crab Kit

Give life to a remote-controlled "Meka-Crab" of your very own. It sidles sideways, legs in parallel, and raises only the tips of its legs to go over obstacles—just like a real crab!

Product: MKGK2 Price: $69.99

Mousebot Kit

Herbie the Mousebot is an easy-to-build, light-chasing robot kit, perfect for beginners. When finished, these little robots are so quick, you have to run to keep up with them. Soldering required.

Product: MKSB001 Price: $39.95

Mechamo Inchworm Kit

Make a remote-controlled "Meka-Inchworm" robot with this fun, no-soldering-required kit. You've got to love a machine that moves like a bug!

Product: MKGK3 Price: $69.99

SolarSpeeder Kit

Build a solar speed demon! Inspired by SolarRoller racing at the BEAM Robot Games, the SolarSpeeder can cover 10 feet in under 40 seconds in direct sunlight. Soldering required.

Product: MKSB004 Price: $25.00

Many more robot kits are available at makershed.com/robots. If you're ready to design your own, check out our micro-controllers section.

Robotic Arm Kit

Grab and grip, rotate and release with the Robotic Arm. Control wrist motion of 120°, an extensive elbow range of 300°, base rotation of 270°, base motion of 180°, 15" vertical reach, 12.6" horizontal reach, and lifting capacity of 100g. Be the master of the candy bowl!

Product: MKOW03 Price: $54.99

Beginner

Co-Robot Kit

This award-winning little robot is tough! Run by a single motor, he walks with a determined pace. If he falls over, he picks himself up again.

Product: MKGK15 Price: $29.99

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Gakken

Stirling Engine Kit

This stunning Stirling engine kit is as majestic as a piece of art. With its high quality components, you can try three different experiments: the generator, the fan, and the car. Learning the basics of thermodynamics has never been more stylish.

Product: MKGK5   Price: $129.99

Edo-Style Clock Kit

Build your own beautiful Edo period Japanese double-foliot mechanical clock. The clock face plate represents the 12 animals from the Chinese calendar. You can hack your clock with the optional leaf switch, which lets you connect a microcontroller. Finished clock measures 6"x3"x3".

Product: MKGK29   Price: $49.99

Poulsen's Wire Recorder Kit

Use a wire and the power of magnetism to record your own voice! Record and play back sound on almost any metal that can be magnetized—a wire, scissors, a knife, an escalator? Try it!

Product: MKGK22   Price: $39.99

Karakuri Somersault Doll

Employing a centuries-old secret technique collected from real Edo-period figures, this kit includes everything you need to create your own acrobatic doll (even the screwdriver!), plus a festive traditional kimono and a stylish tiered pedestal for performances.

Product: MKGK26   Price: $74.99

Beginner

Cross Copter EX Kit

This hand-dynamo cross-rotor helicopter offers three build options you can switch between to test their aerodynamics. Each design has two contra-rotating rotors. It's driven by a small electric motor that's connected via a cord to the hand-powered generator, so crank it up and take your helicopter for a walk.

Product: MKGK24   Price: $37.99

Music

DIY Musical Instruments

Build a guitar, bass, mandolin, or banjo to your own specs. Our instrument kits come with a solid basswood body, maple neck, fretted rosewood fingerboard, and detailed instructions for easy assembly.

Product: MKSG
Price: $149.00–$349.00

Tactile Metronome Kit

This kit is a tap-controlled or tap-tempo metronome and beat looper. Soldering required.

Product: MKWL1 Price: $24.95

Gakken Mini Electric Guitar

This sweet, mini, 4-string electric guitar features a built-in amp and speaker plus a standard ¼" jack to plug in to a real amp and get really loud! Easy to assemble, fun to play.

Product: MKGK25 Price: $59.99

Box Amplifier Kit

A great-sounding, loud amplifier kit designed to easily fit in almost any box. It goes from solder station to stage in under 60µF! Soldering required.

Product: MKCG3 Price: $29.95

Vacuum Tube Amp Kit

Build your own retro, vacuum tube-based amplifier for your iPod or other portable music player.
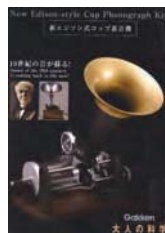
Product: MKGK12 Price: $144.95

SX-150 Analog Synthesizer Kit

This cool little synth kit is easy to assemble, requires no soldering, and is fun to hack.
Product: MKGK8 Price: $54.99

New Edison-Style Cup Phonograph Kit

This replica phonograph kit uses Edison's technology, replacing his waxed pipe and stylus with a plastic cup and a needle. You record your own voice on a plastic cup—and play it back.

Product: MKGK4 Price: $39.99

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Technology That Sings

Mini Theremin

It's the musical instrument you play without touching it! Proximity to the metal antennas causes radio frequency interference that's transformed into musical tones, for that creepy 50s B-movie vibe. Easy to build and play!

Product: MKGK10
Price: $29.99

555 Noisemusick Kit

The 555 timer is a classic integrated circuit, and a natural for electronic music experiments in noise! The 555 Noisemusick Kit utilizes two 555s and your fingertips to generate crazy sounds.

Product: MKAS1 Price: $20.00

Thingamagoop 2

Make, mod, hack, and bend your own analog noise monster to create audio madness! Arduino compatible.

Product: MKBL1   Price: $110.00

Doomsday Sound Kit

At the heart of the circuit is a Motorola MC14001 U Quad Gate. Various spots on the board have been found to cause nice variations in the resulting sound.

Product: MKGLF1   Price: $24.95

Atari Punk Console Kit

A simple and fun sound generator, named because the sounds it makes are similer to an Atari 2600. The original circuit was developed by Forrest M. Mims III.

Product: MKJR2   Price: $25.00

Premium Berliner Gramophone Kit

Create an actual working gramophone recorder/player. Record onto many different types of materials, like old unwanted CDs (yes, we're talking about your Wham collection) or any hard, smooth surface material you can cut a groove in.

Product: MKGK28
Price: $119.99

Vacuum Tube Radio Kit V2.0

This high quality kit allows you to put together a real, functional, vacuum-tube radio.

Product: MKGK7   Price: $145.95

Craft

Fashioning Technology

Fashioning Technology offers jargon-free primers and lots of how-to projects that will have you making—and even wearing—functional works of art. This book demonstrates how to blend sewing and assembly techniques with traditional electronics to assemble simple circuits using conductive thread, snaps as solder joints, and buttons as switches. With the sewing machine as a viable substitute for the soldering iron, you can craft a new generation of objects that are interactive, quirky, and fashion-conscious.

Product: 9780596514372   Price: $29.99

Beginner

LED Sewing Kit

This kit was designed by Becky Stern, who has posted easy-to-follow instructions for stitching your own electronic embroidery piece. It's a great way to get started with soft circuits.

Product: CSTL1   Price: $15.00
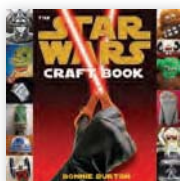

Beginner

Wool Pets

These adorable and adorably packaged kits are designed for needle-felting beginners, or for more experienced felters who love animals and new techniques. Clear instructions will have you felting a woolly friend right away.

**Product: CWP1
Price: $16.00**

NEW!

The Star Wars Craft Book

Give in to the power of the crafty side. Chewbacca Sock Puppets. Ewok Flower Vases. AT-AT Herb Gardens. Bring the best of the galaxy far, far away into your own home with this fully illustrated guide full of fun and original projects.

**Product: 9780345511164
Price: $20.00**

Beginner

Recycled Paper Press

Recycle your scrap paper, old newspapers, and tissue paper into beautiful hand-crafted paper. Experiment with different paper fibers and add pigment tablets to change the color of your paper.

Product: MKTK22   Price: $13.95

Beginner

Sunprint Kit

Capture images using only sun, water, and a bit of imagination. This light-sensitive paper captures the image of whatever you place on it. Contains 12 4"x4" sheets.

Product: MKCT04   Price: $7.00

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Kits for Crafty Makers

Subversive Cross-Stitch

In this wicked little book, Julie Jackson reinvents the age-old craft of cross-stitch, giving modern stitchers the chance to say what's really on their minds. Stitch up "Bitch in Kitchen" for a heartfelt housewarming gift. Spread cheer with the ever-festive "Bite Me." Or whip up "This Place Sucks" for a cherished co-worker.

Product: 9780811853477
Price: $14.95
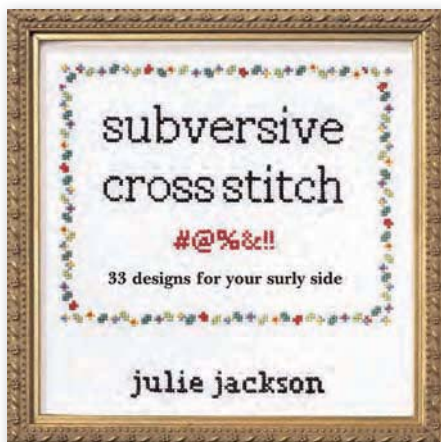
Subversive Cross-Stitch Kit: Curses!

Secret passive-aggressive code for the worst word you can think of. Makes a great gift. This deluxe kit includes: cross stitch fabric, thread, pattern, instructions, embroidery hoop, and two needles.

Product: CSCS3 Price: $20.00

Knit Kit

The perfect accessory for the knitter on the go, the Knit Kit offers seven essential accessories in the perfect size for your project bag. This kit has it all: a durable locking row counter, 5' tape measure, crochet hook, thread cutter, TSA-compliant scissors, point protectors, and three different-sized stitch markers.

Product: CKK1
Price: $19.95

`Beginner`

Eye Can Art Kits

These award-winning kits include everything you need, including an easy-to-follow instruction booklet. Eye Can are wonderful kits for kids and adults to explore together. They're available in Print Making, Wax Drawing, Brush Painting, and Book-in-a-Box. Kid-tested!

Product: CECA
Price: $24.00

`Beginner`

Sock Monkey Kit

You need a monkey made of socks and you need it bad. This creative starter kit will have you making a "Finnoola Peach" or "Eenie Mo Blue" monkey faster than you can say "eek eek." Kit includes socks, button eyes, and instructions.

Product: CMSM1 Price: $12.00

Kids

BrushBots

Build your own scuttling, vibrating robot with toothbrushes and a pager motor. BrushBots are easy to make and fun to personalize. Plus they might even clean your teeth! [Note: We do not recommend sticking them in your mouth.] Each kit makes four bots. No soldering required.
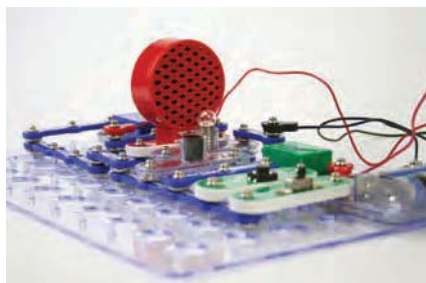
Product: MSBB   Price: $14.99

Need Advice?

We're here for you. See what our staff recommends at makershed.com/kids.
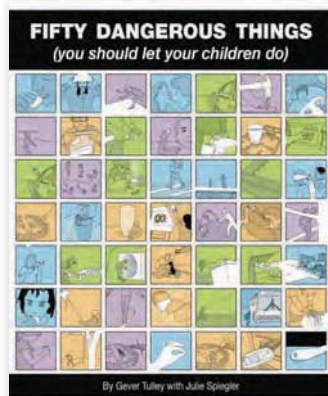
Fifty Dangerous Things (You Should Let Your Children Do)

With projects, activities, experiences, and skills ranging from "Superglue Your Fingers Together" to "Play with Fire," along with 48 other great ideas, the book is a manifesto for kids and parents alike to reclaim childhood. Teach kids to be kids with adventures from slingshots to dishwasher cooking.

Product: 9780984296101
Price: $25.95

Snap Circuits Jr. Kit

Curious young minds can learn the basics of electronics as they build more than 100 projects with this award-winning kit. No soldering required; pieces just snap together. Also available: Snap Circuits Flying Saucer [MKEL7], SnapTricity [MKEL5], and Snap Circuits Pro [MKEL11].

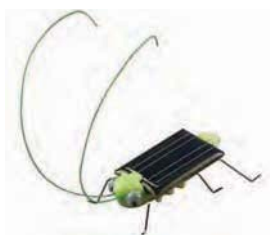**Product: MKEL6   Price: $29.95**

Getting Started with Making

Throwing a Party?

Maker Faire Party Packs are here!

Kits for all ages and skill levels selected, packaged, and priced for birthday parties, team-building events, makerspaces, and pretty much any group gathering.

makershed.com/party

Solar Grasshopper Kit

This little grasshopper is small, but he's an attention-getter. He shivers and shakes in the sun. Perfect for first-time experimenters with little or no experience.

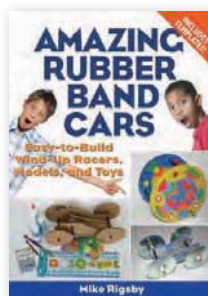**Product: MKOW02   Price: $11.99**
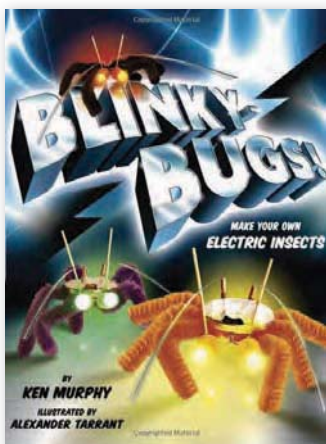
Amazing Rubber Band Cars

Construct fantastic racing cars with only rubber bands, cardboard, and glue. By exploring wheels, bearings, and friction, you will learn not only how to make speedy racers, but also the science that makes the process work.

**Product: 9781556527364
Price: $12.95**

Blinkybugs

These simple, little electro-mechanical insects respond to movement, wind, and vibrations by blinking their LED eyes. Each richly illustrated how-to book includes the parts for three bugs. Great fun for all ages, and addictive too. No soldering required.

**Product: 9780811871402
Price: $19.99**

Papertronics

These paper toys have electronic circuits in them. Fold up the paper circuits and set the lunar landers in their bases to light them up. No soldering required.

Product: MKSL2   Price: $16.00

6-in-1 Educational Solar Robotic Kit

Use the 21 snap-together parts (no tools required) to build any of six different working models, including an airboat, car, windmill, puppy, and two different airplanes. Solar power drives the small motor. No soldering, tools, or batteries required!

Product: MKOW01   Price: $19.99

Kids

Brew It Yourself Root Beer Kit

Brew your own root beer at home. Make up to four gallons of delicious, old-fashioned, naturally carbonated root beer at home in your own soda bottles.

Product: MKCT01   Price: $16.00

Discover Electronics Kit

Harness the power of the electron! Create games, toys, and contraptions with fundamental electronic components while learning electrical theory and how to read schematics. Follow the easy instructions and online video course to make a light detector, LED flasher, noisemaker, and more. Great introduction to electronics for all ages.

Product: MKSL1   Price: $49.99
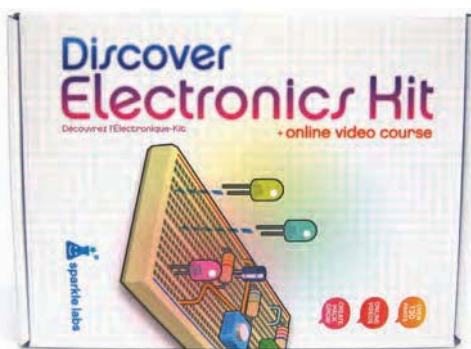
Glux Super Putty

These amazing putties have all the classic putty skills, like bouncing and peeling images from a newspaper, but with some added scientific powers. Glow Glux [MKCT03] glows in the dark, sucking up sunlight and brilliantly radiating it back to you. Thermochromic [MKCT02] changes color from bright yellow to deep orange depending on its temperature. Made in the USA.

Product: MKCT03 [Glow] or MKCT02 [Thermo]   Price: $6.00

Instant Winter Year-Round Snow

Surprise someone with a snowball year-round, indoors or out, with this "snow" made of the same stuff they use on movie sets.

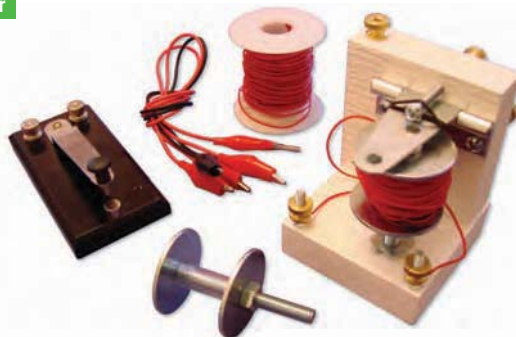**Product: MKCT05   Price: $5.00**

Reinventing Edison: Build Your Own Lightbulb Kit

Build a working light bulb by recreating the experiments that led to the development of the first real light bulb. Kit includes safety vacuum chamber and a variety of filament materials.

Product: MKHE01   Price: $59.95
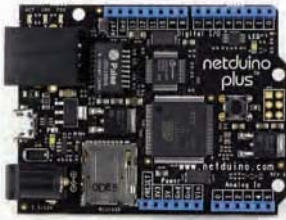
Reinventing Morse: Build Your Own Telegraph Kit

Build your own working telegraph with a device designed to work as a sounder, a buzzer, or a relay. Learn Morse code and electromagnetism.

Product: MKHE02   Price: $59.95

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Mintronics: MintDuino page 30

Arduino Uno page 27

Redpark Breakout Pack for Arduino and iOS page 34

Shopping at MakerShed.com

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For Kit Makers and Aspiring Kit Makers

Breaking into a market through traditional retail channels can be daunting for makers. We love to help new makers get started with kit making and bringing their DIY kits to market. We're willing to take risks on small runs of promising new project kits, often hand-assembled by makers in their own workshop. This is how we started, how we built our business, and what keeps us different. If you have a kit you're about to launch or even a kit design you're not sure how to develop and you'd like to chat with us, we'd love to hear from you. Send us a note to kits@makezine.com.

For Hackerspaces and DIY Cooperatives

If you're a hackerspace and would like to carry our kits or buy them for events or group builds, send us a note at hackerspaces@makezine.com. Every group is different in size, skills, and interests, so we don't offer a general solution, but we promise to always give you our best possible pricing on whatever you're interested in.

For Teachers and Schools

We realize a good many of our readers and customers are involved with education and schools, either formally or informally. Please know that we do whatever we can to make it possible to bring our kits into the classroom and to after-school programs. We accept P.O.'s and extend terms to schools and school districts, and we offer discounted pricing whenever possible. If you would like more information about out educational programs and terms, please write to us at schools@makezine.com.

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LED Dice page 16

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