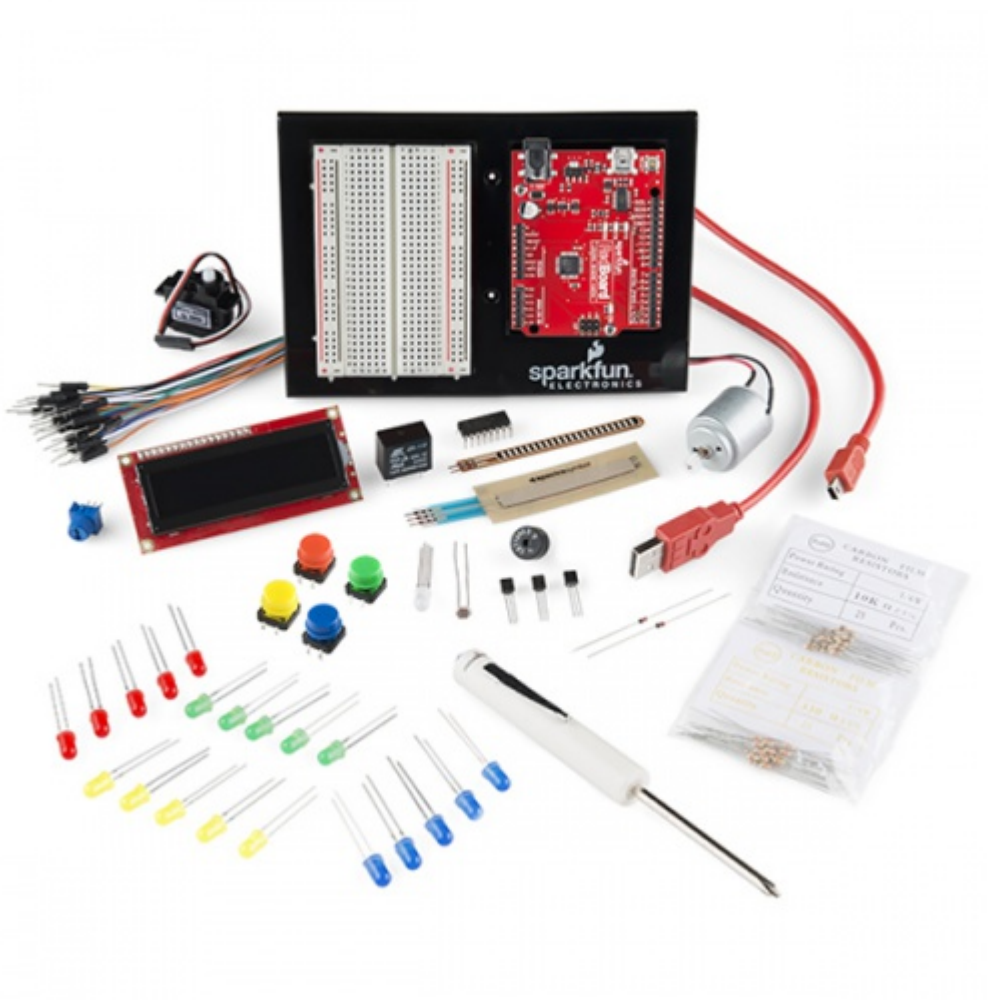
McMath has 10 Sparkfun Inventors Kits for students to check out and use at the library makerspace The SparkFun Inventor's Guide is your map for navigating the waters of beginning embedded electronics. This guide contains all the information you will need to explore the 16 circuits of the SparkFun Inventor's Kit for Arduino V3.2. At the center of this guide is one core philosophy - that anyone can (and should) play around with electronics. When you're done with this guide, you'll have the know-how to start creating your own projects and experiments. Now enough talking - let's get inventing!

This guide is also available as a downloadable PDF, if you prefer. Click here for the download.

For Starter Kit for RedBoard - Programmed with Arduino users: For those who have Starter Kit for RedBoard - Programmed with Arduino, you are able to follow through experiments 1, 2, 3, 6, 7, 9, 10, and 11.

SparkFun Inventor's Kit - V3.2



Here is all the parts in the SparkFun Inventor's Kit for Arduino:

- **SparkFun RedBoard - Programmed with Arduino** - The SparkFun RedBoard, fully assembled and tested
- **Arduino and Breadboard Holder** - A nice holder for your RedBoard and breadboard
- **SparkFun Inventor's Kit Guidebook** - A printed manual that you follow along through all the experiments
- **Breadboard** - Excellent for making circuits and connections off the Arduino.
- **Carrying Case** - Take your kit anywhere with ease
- **SparkFun Mini Screwdriver** - To help you screw on your RedBoard to the holder
- **16x2 White on Black LCD (with headers)** - This is a basic 16 character by 2 line display with a snazzy black background with white characters.
- **74HC595 Shift Register**- Simple shift register IC. Clock in data and latch it to free up IO pins on your RedBoard.
- **2N2222 Transistors** - This little transistor can help in your project by being used to help drive large loads or amplifying or switching applications.
- **1N4148 Diodes** - This is a very common signal diode - 1N4148. Use this for signals up to 200mA of current.
- **DC Motor with Gear** - It works well for basic things like making a fan or spinning something pretty fast without much resistance.
- **Small Servo** - Here is a simple, low-cost, high quality servo for all your mechatronic needs.
- **SPDT 5V Relay** - This is a high quality Single Pole - Double Throw (SPDT) sealed relay. Use it to switch high voltage, and/or high current devices. This relay's coil is rated up to 12V, with a minimum switching voltage of 5V.
- **TMP36 Temp Sensor** - A sensor for detecting temperature changes.
- **Flex sensor** - As the sensor is flexed, the resistance across the sensor increases.
- **Softpot** - By pressing down on various parts of the strip, the resistance linearly changes from 100Ohms to 10,000Ohms allowing you to very accurately calculate the relative position on the strip.
- **SparkFun USB Mini-B Cable** - This 6' cable provides you with a USB-A connector at the host end and mini-B connector at the device end.
- **Male to Male jumper wires** - These are high quality wires that allow you to connect the female headers on the Arduino to the components and breadboard.
- **Photocell** - A sensor to detect ambient light. Perfect for detecting when a drawer is opened or when night-time approaches.
- **Tri-Color LED** - Because everyone loves a blinky.
- **Red, Blue, Yellow, and Green LEDs** - Light emitting diodes make great general indicators.
- **Red, Blue, Yellow, and Green Tactile Buttons** - Go crazy with different colored buttons
- **10K Trimpot** - Also known as a variable resistor, this is a device commonly used to control volume, contrast, and makes a great general user control input.
- **Piezo Buzzer** - Use this to make sounds and play songs
- **330 Ohm Resistors** - Great current limiting resistors for LEDs, and strong pull-up resistors.
- **10k Ohm Resistors** - These make excellent pull-ups, pull-downs, and current limiters.

What is the RedBoard platform?

The DIY Revolution

We live in a unique time where we have access to resources that allow us to create our own solutions and inventions. The DIY revolution is composed of hobbyists, tinkerers and inventors who would rather craft their own projects than let someone do it for them.

A Computer for the Physical World

The RedBoard in your hand (or on your desk) is your development platform. At its roots, the RedBoard is essentially a small portable computer. It is capable of taking inputs (such as the push of a button or a reading from a light sensor) and interpreting that information to control various outputs (like a blinking LED light or an electric motor).

That's where the term "physical computing" is born - this board is capable of taking the world of electronics and relating it to the physical world in a real and tangible way. Trust us - this will all make more sense soon.

The SparkFun RedBoard is one of a multitude of development boards based on the ATmega328. It has 14 digital input/output pins (6 of which can be PWM outputs), 6 analog inputs, a 16 MHz crystal oscillator, a USB connection, a power jack, an ISP header, and a reset button. Check out our RedBoard Hookup Guide, to get yourself familiar with the RedBoard.