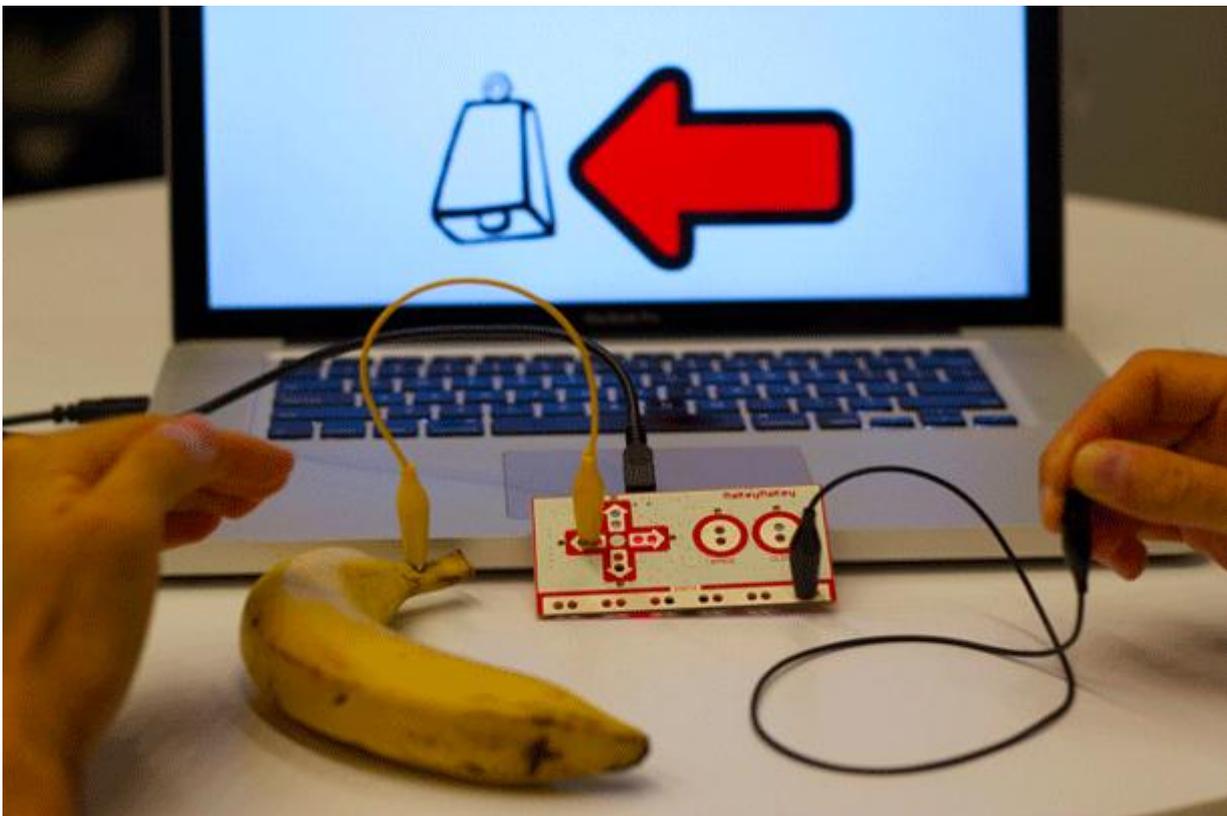


# Equipment List/Costs/Suppliers (per Banana Piano)

MakeyMakey	1	\$ 64.95	<a href="http://www.buyraspberrypi.com.au/shop/makey-makey/">http://www.buyraspberrypi.com.au/shop/makey-makey/</a>
Arduino	1	\$ 119.00	Jaycar
Alligator clip pack	1	\$ 35.85	Jaycar
Mini USB cable	1	\$ 7.75	Jaycar
Jumper wire pack WC6021 / 6022	1	\$ 3.95	Jaycar
Bananas	4	\$ 5.00	Supermarket



# Activity

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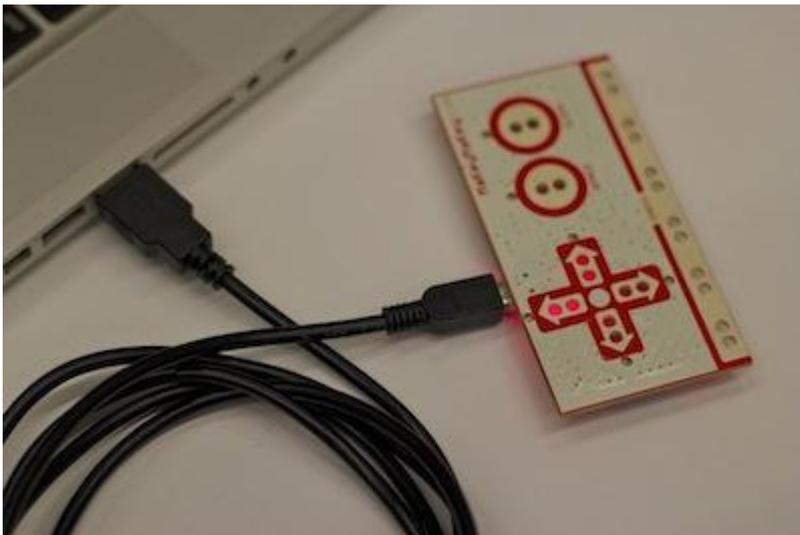
## MaKey MaKey Quick Start Guide

[Setup](#) | [Materials](#) | [Software](#) | [Troubleshooting](#)

### Setup

#### 1) Plug in USB

Small side of USB cable plugs into MaKey MaKey, big side plugs into computer.

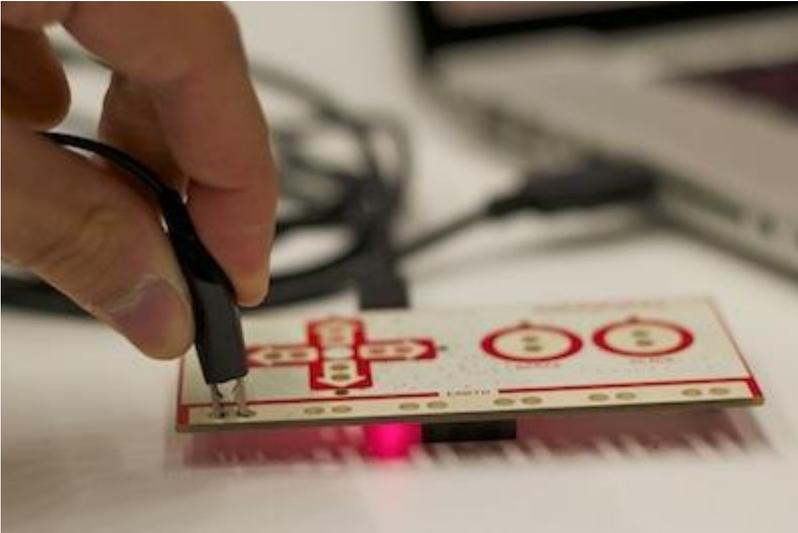


#### 2) Close Popup Window

Your computer may ask you to install drivers or do other setup. You can click cancel or close the window.

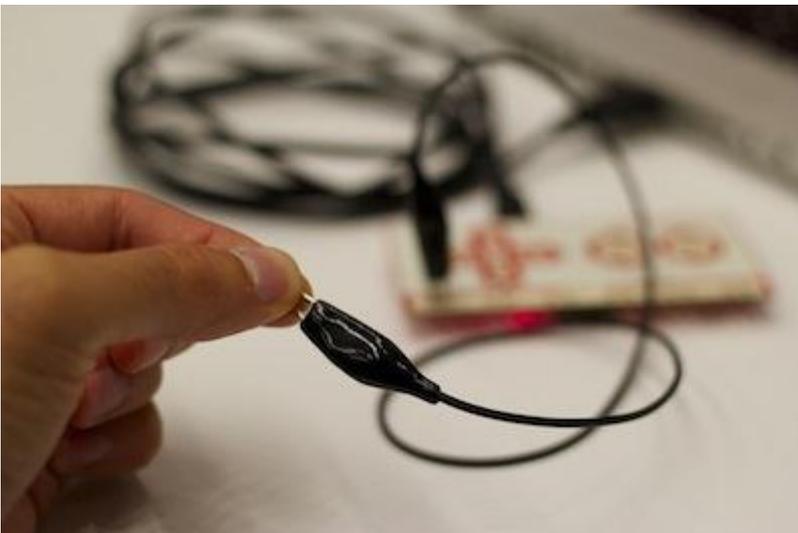
#### 3) Connect to Earth

Connect one end of an alligator clip to "Earth" on the bottom of the front side of MaKey MaKey.



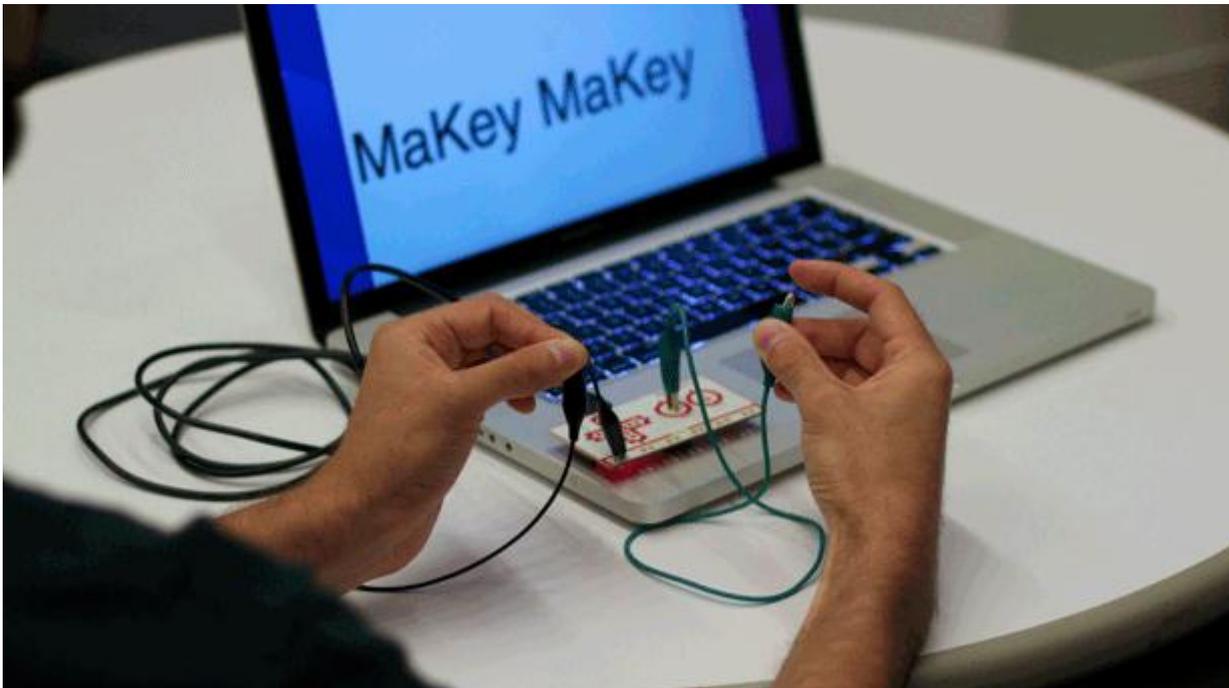
#### 4) Connect to Yourself

Hold the metal part of the other end of the alligator clip between your fingers. You are now "grounded."



#### 5) Connect to "Space" and Try It

While you're still grounded, touch the round "Space" pad on the MaKey MaKey. You should see a green light on the MaKey MaKey, and your computer will think the space bar was pressed. If you click in the text area below, you can make the cursor move. You can also complete the circuit by connecting another alligator clip to Space.



## 6) Connect Stuff

Now you can try making your own drums out of anything. How about a banana cowbell, a watermelon bass drum, or a crash cymbal sound when you high-five your friend?



## Try Out Different Materials

Make anything into a key! You can make a connection through anything that's even a little bit conductive. You can also create inventions that combine conductive and non-conductive parts.

### Conductive Materials

Here are a few things to try:

- Most fruits and vegetables work great.
- Lots of other foods work too. We've tried marshmallows, gummy candies, macaroni and cheese, cupcakes, shrimp, and lots of other things.
- Plants can work too. Try some leaves or flowers, but nothing too dry.
- Play-Doh, Model Magic and other clays work very well as long as they stay moist.
- People are conductive! Connect one person to ground, and another to an input, and you can trigger sounds when they high-five.
- Graphite from a pencil can work. Make thick, dark lines, and be sure to draw on a smooth surface.
- Foil and other metal objects will work. Try out coins, magnets, nuts and bolts, forks and knives, or pots and pans.

### Craft Materials

When you're inventing, anything goes! Here are a few things we have enjoyed using:

Inflatable beach balls, paper plates, cardboard boxes, various types of soft and rigid foam, lego bricks, plastic storage boxes, stuffed animals and other toys, funny hats and other pieces of clothing, sheets of fabric, string, yarn, elastic, and paper.

It's also important to have around some tools for cutting, like scissors and exacto knives, and ways to stick things together, like hot glue, superglue, various kinds of tape, and clips or clamps.

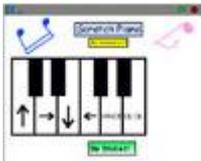
# Try Out Software

MaKey MaKey works with any software that uses the keyboard or mouse. Here are some ideas to get you started:



### Canabalt

This is a running game, with just one button: press the space bar to jump, or invent your own way.



### Scratch Piano

This is a piano you can play with the arrow keys. It was created using Scratch, an easy-to-use graphical programming language, so you can remix it and make your own version.



### Tetris

You can play this Tetris game with the arrow keys... or make your own custom controller.



### Sound Effects

This page turns your keyboard into a sound effects machine. By connecting to the letters on the back of your MaKey MaKey, you can create your own way to trigger sounds.



### Flash Flash Revolution

Make your own pads so you can play this dancing game with your feet instead of the arrow keys... or invent a totally new way to play.



### ArtCopyCode Connect

Designed just for MaKey MaKey: games, art, music, and some surprises! In order to use each webpage you can ignore their instructions and try the arrows, space, click, or wasdfg to see what works  
Thanks ArtCopyCode!

That's just 5 of millions of software apps out there. Go find them, browse the internet, browse [Scratch](#), go make them.

You can also try out interacting with:

- Powerpoint
- Photobooth
- Music Players
- Video Players (including YouTube)

Here are some good music apps we know of:

- Soundplant
  - Drag and drop sounds onto keys on a keyboard, then press the keys to play them. Try it with the example keymap we made with drum and marimba sounds for mac or windows.
- Garage Band
- Virtual Piano

Here are some good one button games we know of:

- Blog Post with 1-button games
- Flabby Physics

And some awesome multi-button game:

- Nintendo Emulator Site (Remember to customize the controllers)
- Crazy Taxi
- Pac Man

## Troubleshooting

### I can't get a key to press!

- Make sure your MaKey MaKey is plugged into the computer.
- The MaKey MaKey should have a red light on the back showing that the power is on. Is it lit? If not something is wrong with the computer, the USB cable, or the circuit board.
- If the USB connector on your computer is blue, it's USB 3.0, and may not work with MaKey MaKey. Try using a USB 2.0 port.
- Try making a connection in the simplest way you can. One way is to connect an alligator clip to "earth" and then touch other end to "space."
- When you make a connection, you should see an LED light up on the front of the MaKey MaKey
- When you are making a connection using everyday materials they need to be at least a little bit conductive. For example, play-doh, a banana, your skin, or aluminum foil should work, but plastic, most fabrics or paper will not work directly. You can always combine materials, for example by wetting the paper or putting play-doh onto the plastic.

### **One of the keys won't stop pressing over and over! What should I do?**

- Try unplugging the MaKey MaKey from your computer, then plug it back in again
- Disconnect all of your alligator clips from the MaKey MaKey, then start reattaching them one by one
- If your stuck key is still pressing, have a look at your connections. They might be touching accidentally somehow. Try taking things apart and putting them back together again.
- Perhaps one of the things that you are using as an insulator (or non-conductor) isn't insulating enough. Try using a different material.
- If one of the objects connected to the MaKey MaKey is your own body, then perhaps you are "grounded" to the earth via touching your computer's metal case, or by not wearing shoes. Take a step back and see what you are touching.
- Perhaps one of the objects connected to the MaKey MaKey that you think is well insulated is not. For example, if you connect a banana to your MaKey MaKey and it's sitting on a wooden cutting board, is that cutting board moist or dry? If it's moist then perhaps all of your bananas on the cutting board are connected to each other through the cutting board. Try a dry table instead.
- Is it raining? Is it extremely humid- are you in a rainforest? This can sometimes cause porous materials, such as paper or clothing, to become conductive.

### **It works sometimes, but not other times. :(**

- Your materials might not be conductive enough. For example, if you are making a connection with your fingertip, it can help to moisten your skin by licking it.
- If you are using a drawn graphite line from a pencil, make sure the line is heavy and dark. Draw your line on a hard smooth surface, such as a table without any grain in it. Take care in folding the paper, because it can sometimes break the graphite connection. Once you are expert at drawing the lines, you don't have to follow any rules, but if you can't get it to work try the tips mentioned.



2013