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#CSPDWeek2026

#CompSciNJ

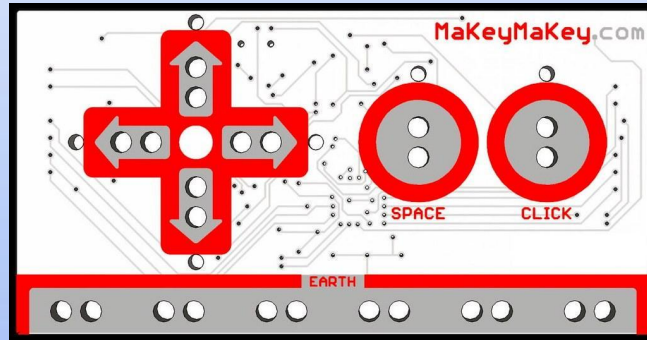
@csteachersorg



New Jersey CSPDWeek

This material is based upon work supported by the National Science Foundation under Award No. 2607763.

Teaching about Circuits & Makey Makey



Brought to you by
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Session Description

Welcome to the world of Makey Makey! We will begin with some basics of using Makey Makey by testing everyday items for conductivity and building simple circuits. We will proceed to incorporate project ideas that will get you thinking creatively, and end with how to integrate Scratch coding to level up your Makey Makey game.

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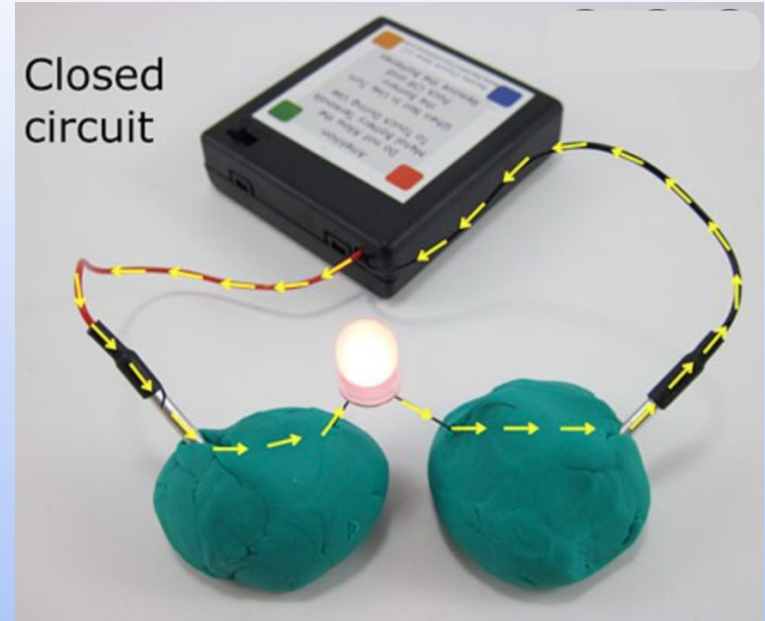
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Introduction to Circuits

What is a Circuit?

A circuit is a closed loop for electricity to travel through.

A closed loop is required for this LED bulb to light up.

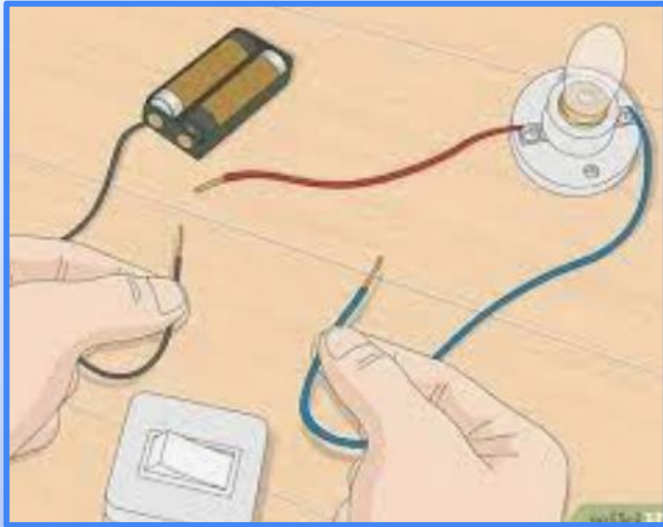


What is an LED Light?

LED light - a small bulb that lights up when electricity passes through it; LED stands for "light emitting diode."

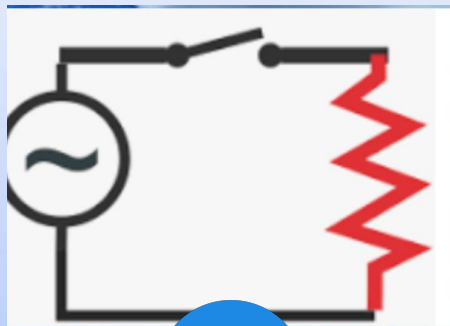


What Happens if the Circuit is NOT Closed?

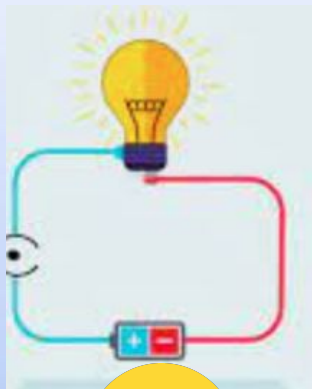


IF a circuit is not a closed loop, electricity can't travel through it. So, the LED bulb won't light up.

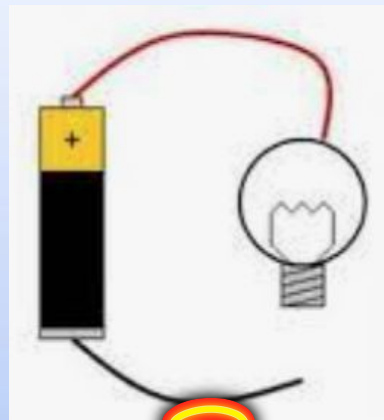
Open or Closed?



1

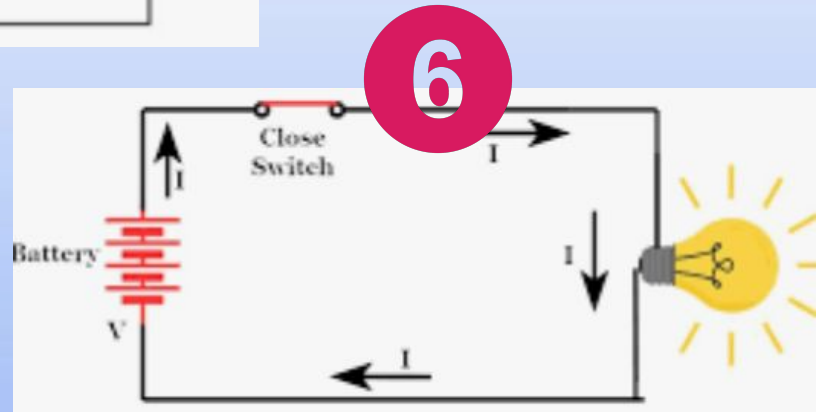
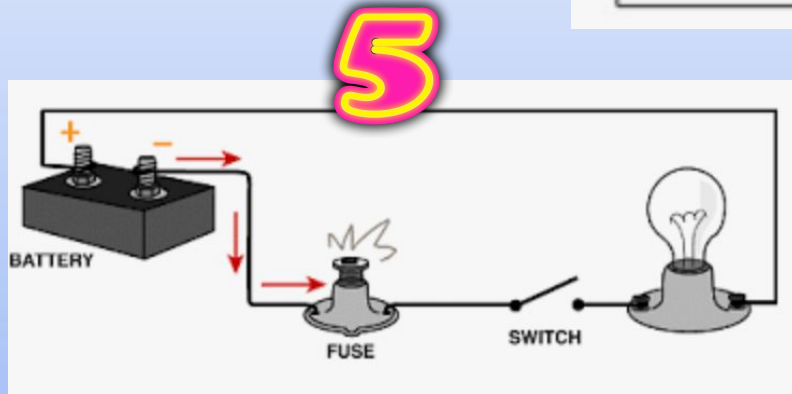
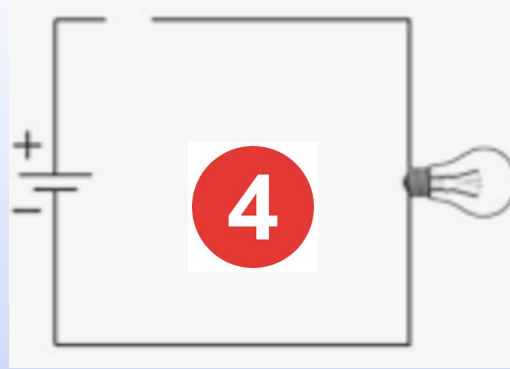


2



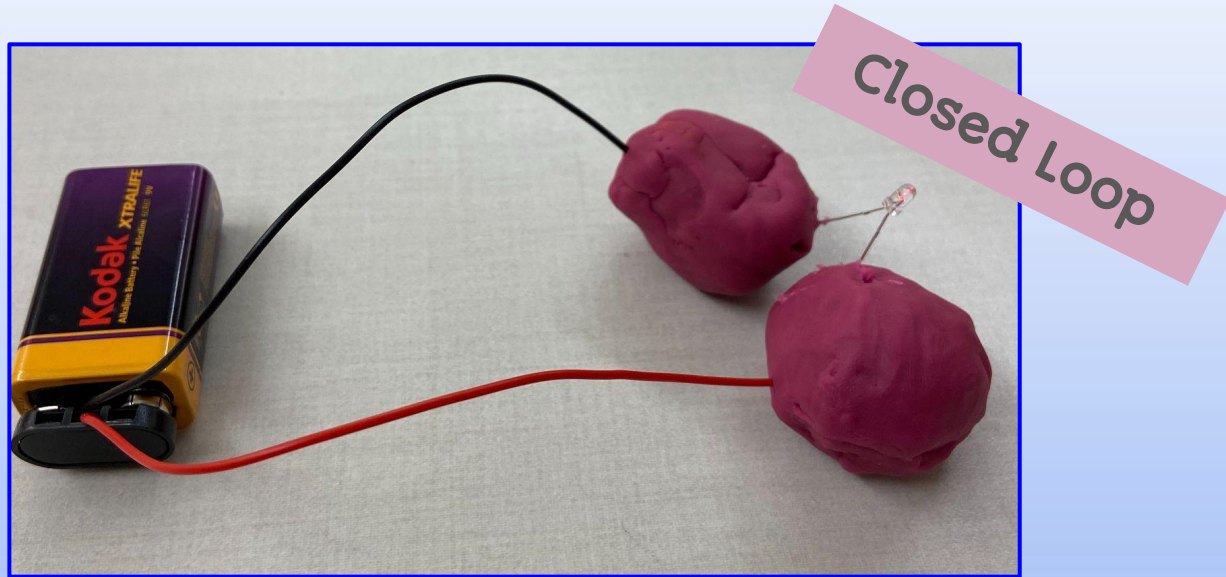
3

Open or Closed? Cont.



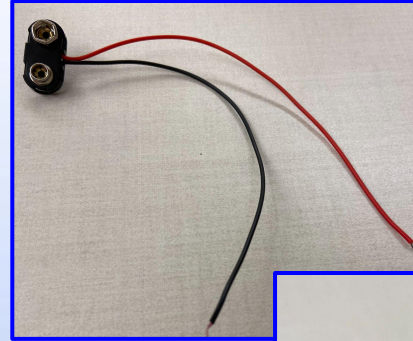
**Let's Build a
Squishy
Circuit!**

Let's Build a Squishy Circuit!



Squishy Circuit Supplies

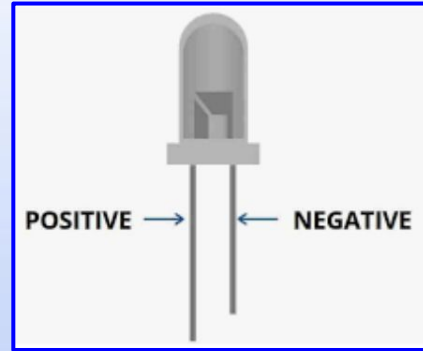
1. Battery clip snap
2. 9V battery (or battery pack)
3. Conductive playdough



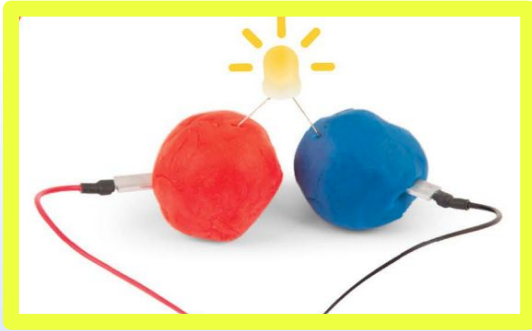
Squishy Circuit LED

LED light:

- long wire positive +
- short wire negative -



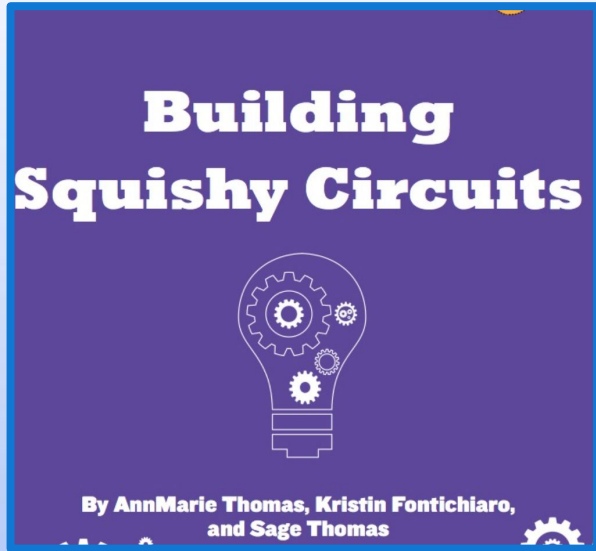
**The goal of this project
is to light our LED.**



Let's Build a Squishy Circuit!

1. Shape your playdough into **2 balls**
2. Put the red wire in one, and the black wire into the other.
3. Put the the **long leg** of the LED into the playdough ball with the **red wire** . This is the positive current.
4. Put the **short leg** of the LED into the playdough ball with the **black wire** . This is the negative current.

Circuits Teaching Resources



- What is a Circuit [Link](#)
- Squishy circuit [projects](#)
- *Building Squishy Circuits* by Kristin Fontichiaro, AnnMarie Thomas and Sage Thoms - Epic book [Link](#)
- The Power of Circuits!, Technology for Kids, SciShow Kids [video](#)

Introduction to Makey Makey

What is a Makey Makey?



- Makey Makey lets everyday things turn into a touchpad that works with a computer.
- Things attached to the Makey Makey become "buttons" that replace a keyboard or mouse.

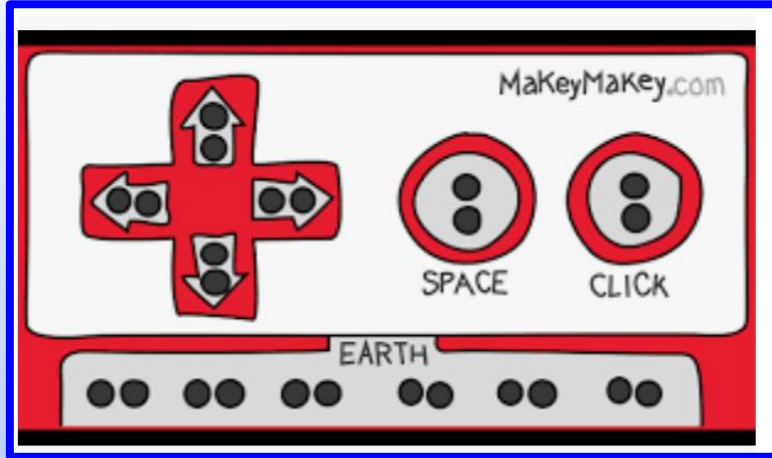
Why was Makey Makey Developed?



Creator Jay Silver talks about why he developed the Makey Makey. He was making and wants you to also!

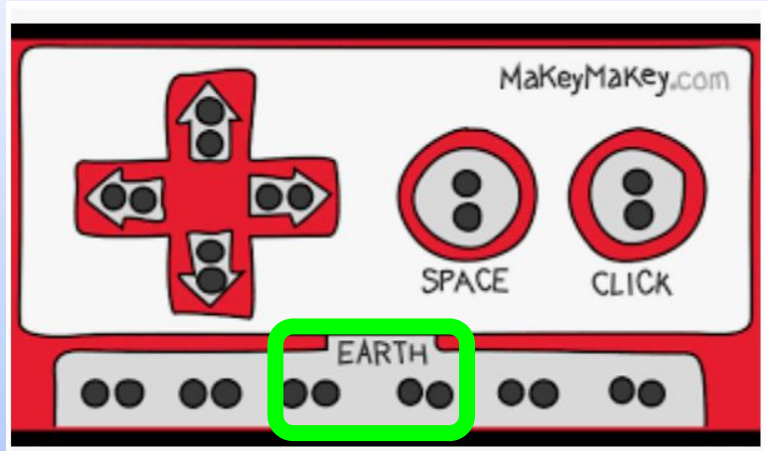
[LINK](#)

Basic Makey Makey Board



- This is the Makey Makey circuit board.
- All the holes and markings are **inputs**.
- When objects are connected to these **inputs** (including you!), they can be used to make a closed a circuit.

Basic Makey Makey Board Cont.

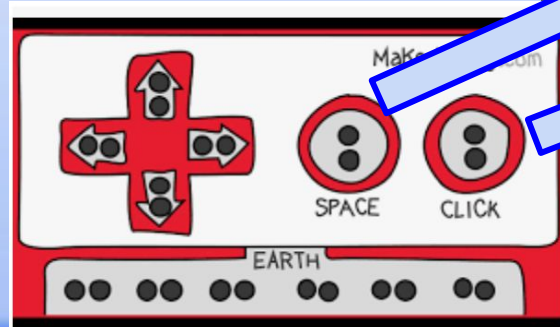


The Earth bar is the Makey Makey name for the ground. This is how you close your circuit.

Makey Makey Jobs

Space and click will have new jobs to perform as well as arrow keys.

Do you know where they are located on your computer?

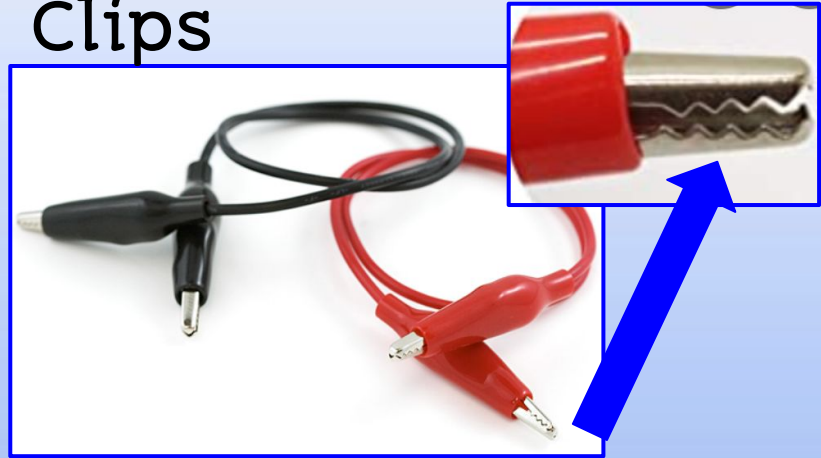


Other Makey Makey Accessories

USB Cable

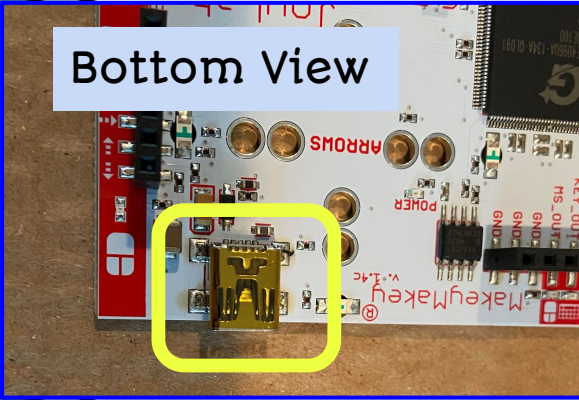


Alligator
Clips

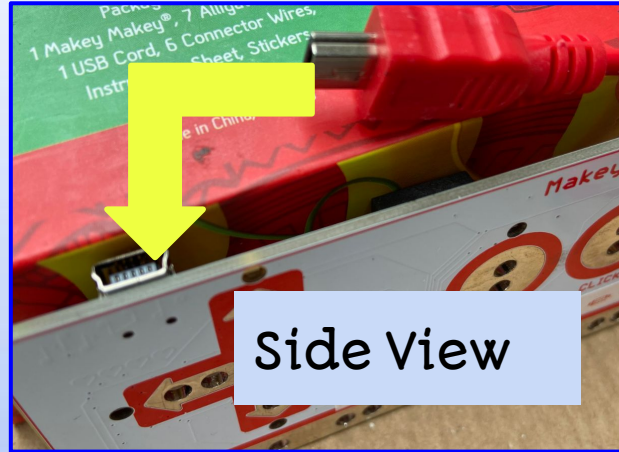


Connect the Cable to the Board

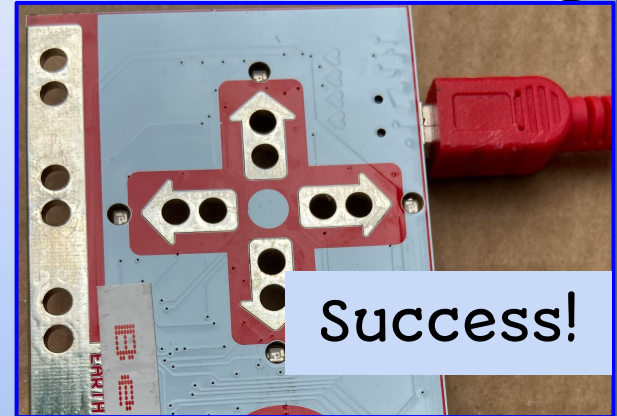
Bottom View



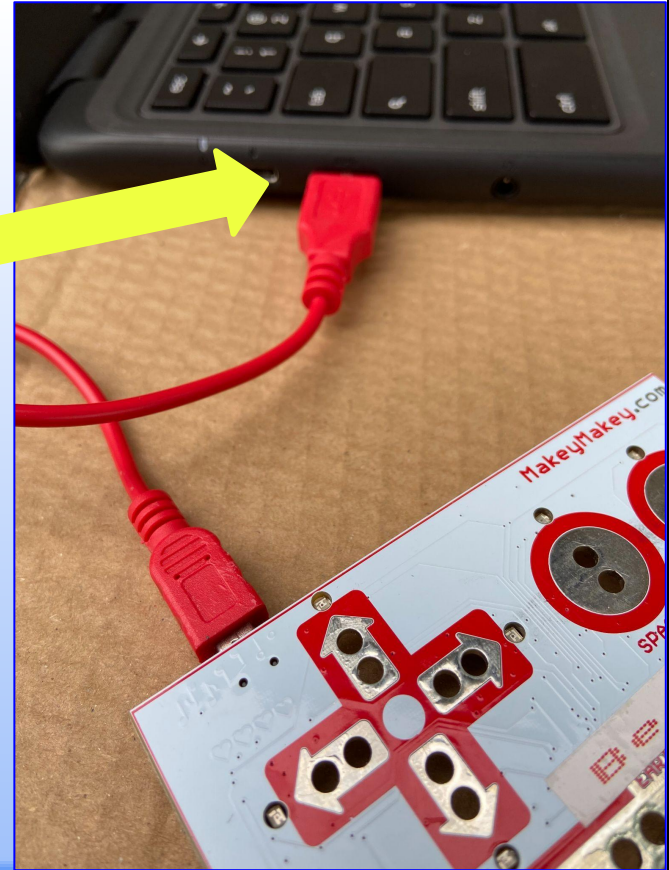
Side View



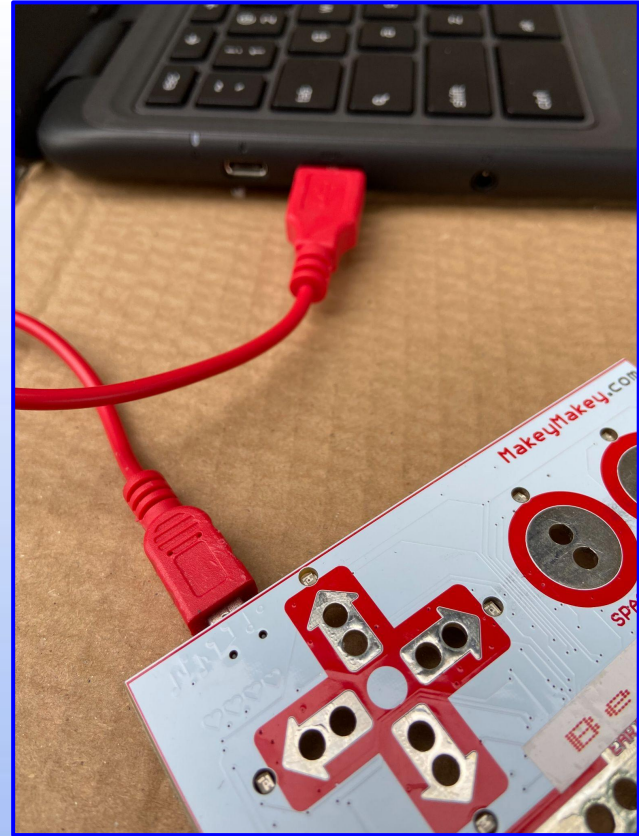
Success!



Connect USB to Chromebook/Compute



Connected Makey Makey



Makey Makey Student Prep Activity

Draw a diagram in your journal with the following:

- Chromebook
- Makey Makey
- Cable connecting the two
- Label each including an input

Makey Makey Activity 1 - Is it Conductive?

Makey Makey Activities

What Does Conductive Mean?

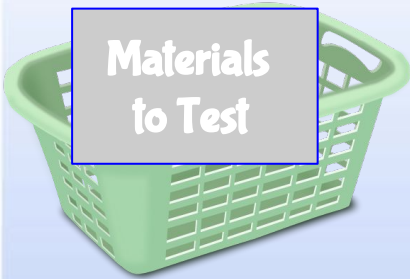
A **conductor** is any item that allows energy to flow through it.

If an item has any **conductivity**, Makey Makey will detect it. Most metals are great conductors!

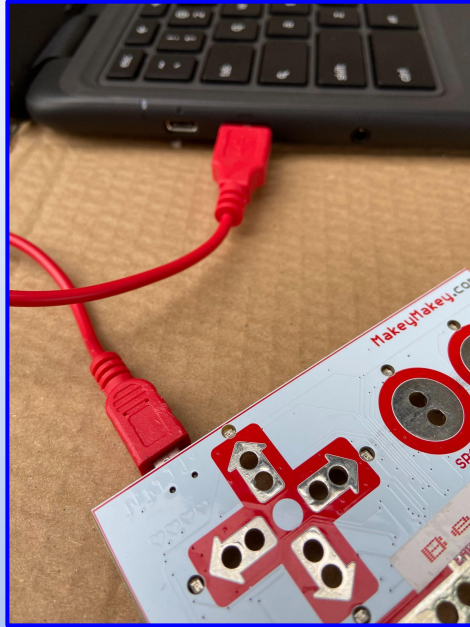
Let's see if there are other great conductors.

Is it Conductive 1

Materials
to Test



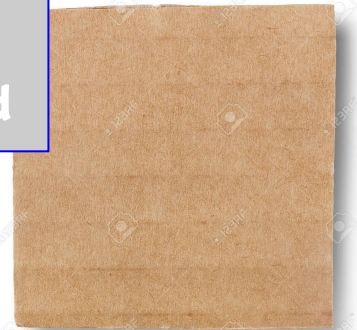
Two strips
of foil



2 alligator
clips



Piece of
cardboard



Is it Conductive 2

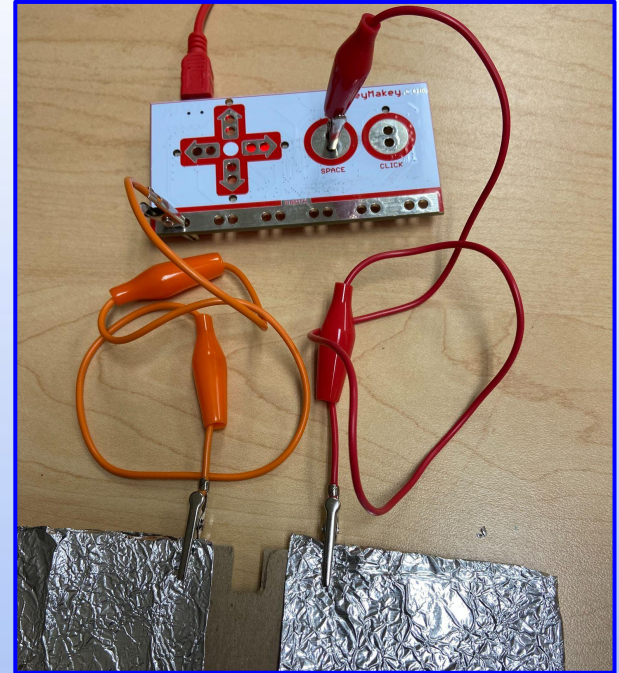
1. Glue down your 2 strips of foil on a piece of cardboard, folding the top over the back of the cardboard.



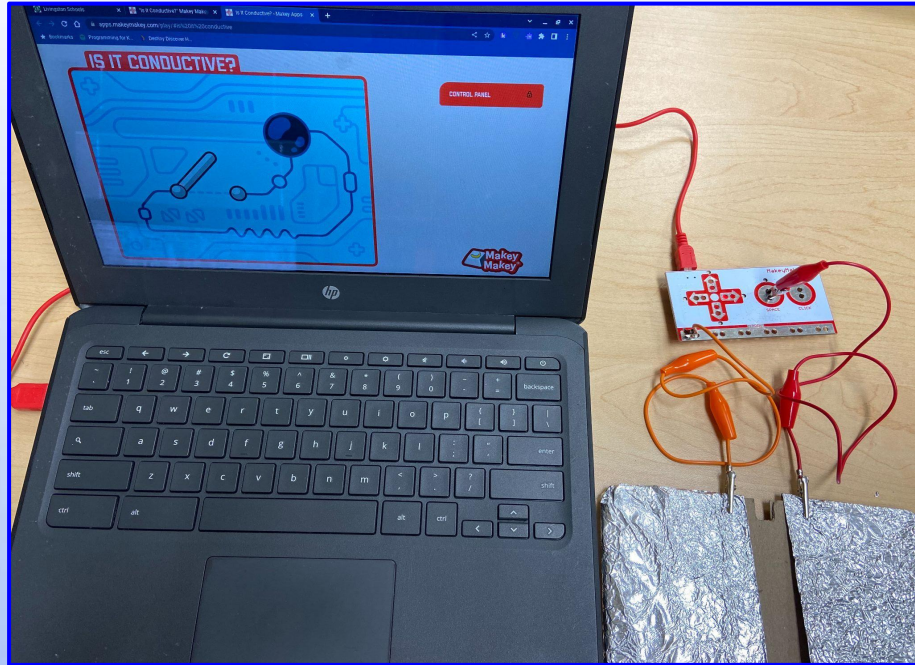
Is it Conductive 3

2. Plug the USB cable into your computer and into your Makey Makey.
3. Connect one alligator clip to the SPACE input and the other end to a foil strip.
4. Connect the second alligator clip to an EARTH input and the other end to a strip of foil.

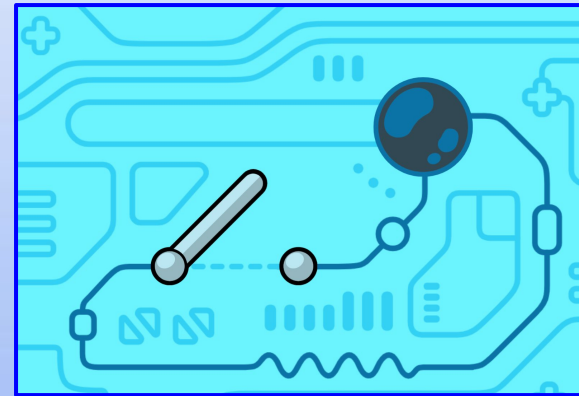
****Make sure the 2 strips of foil do not touch each other.****



Is it Conductive 4



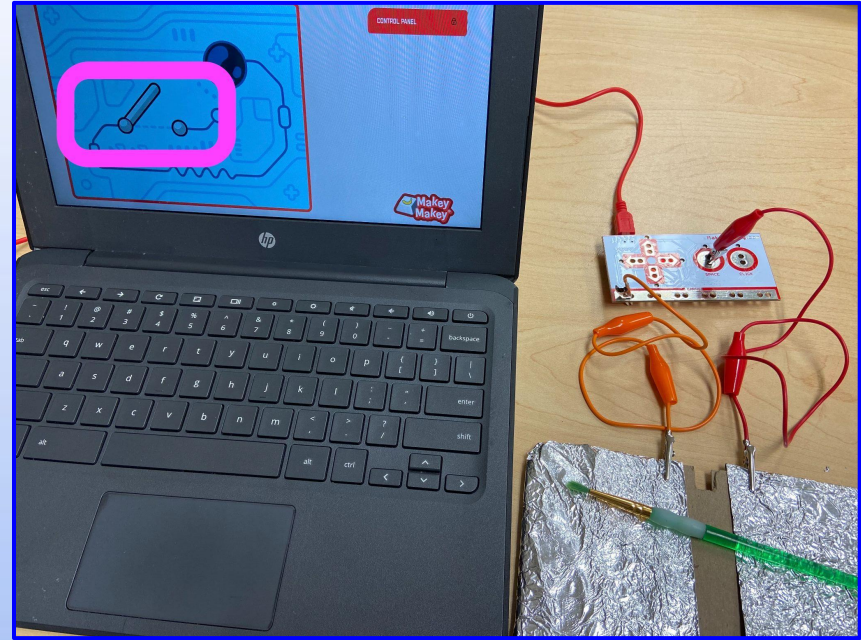
Open *Is it Conductive?*
website
[Makey Apps](#)



Is it Conductive 5

As you lay various items across the foil strips, the image will reflect an open or closed circuit, depending on whether the material is conductive.

Is a paintbrush conductive?





Is it conductive?

Test items for conductivity. Lay items across the tape tracks to see if they are conductive. List items on the chart below after testing.

Conductive	Non-conductive (Insulator)

Now what?

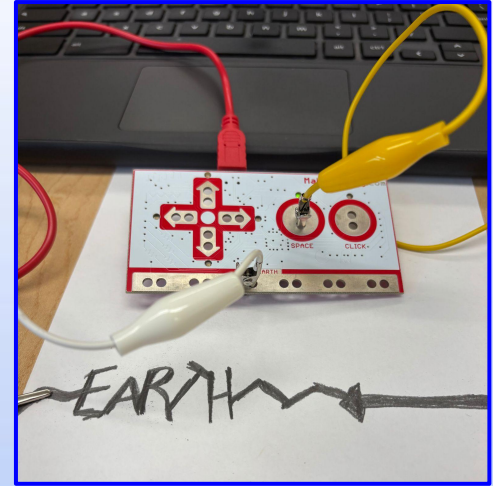
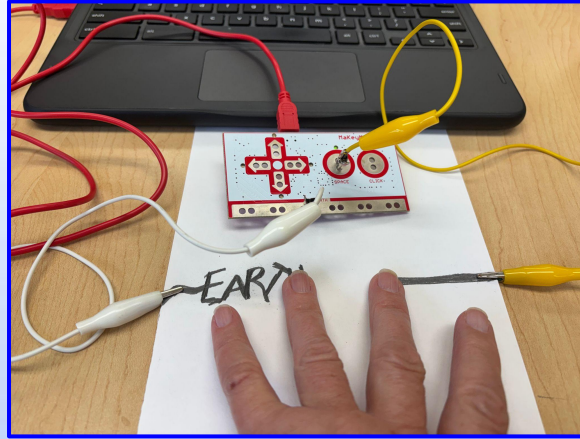
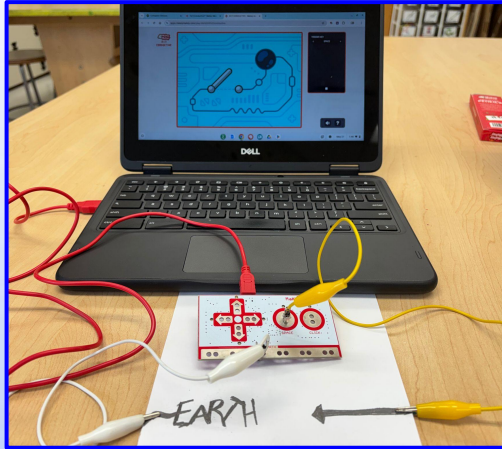
What conclusions can you draw from your material testing?

From "Tinkering with Circuits" Station Guide at MakeyMakey.com

Is it Conductive 6

Recording sheet
for students to
keep track of
their results [LINK](#)

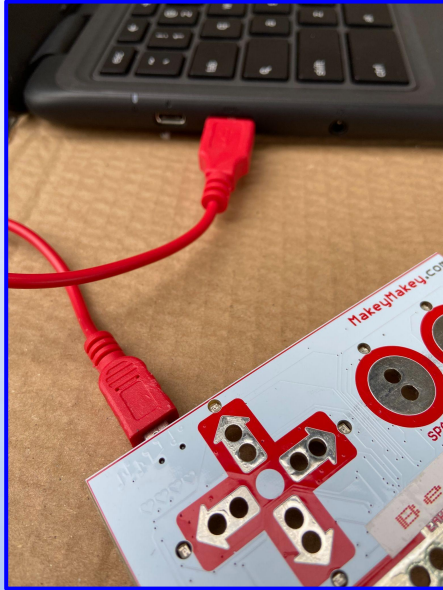
Is it Conductive 7



Alternate way to show connectivity and use the app. (Use of graphite pencil)

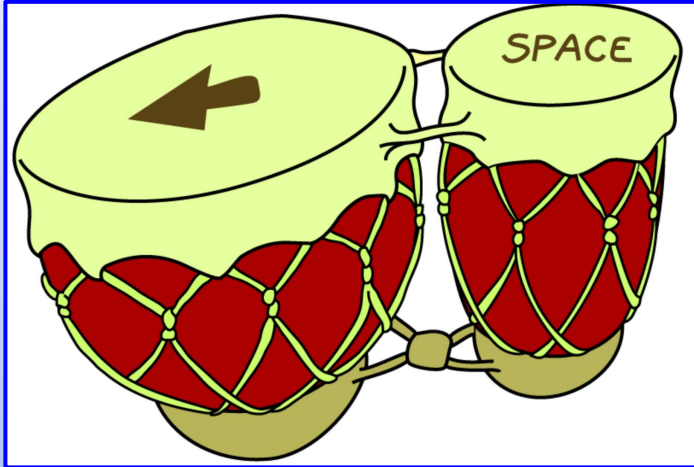
Makey Makey Activity 2 - Bongo Drums

Bongo Drums 1



**2 alligator
clips**

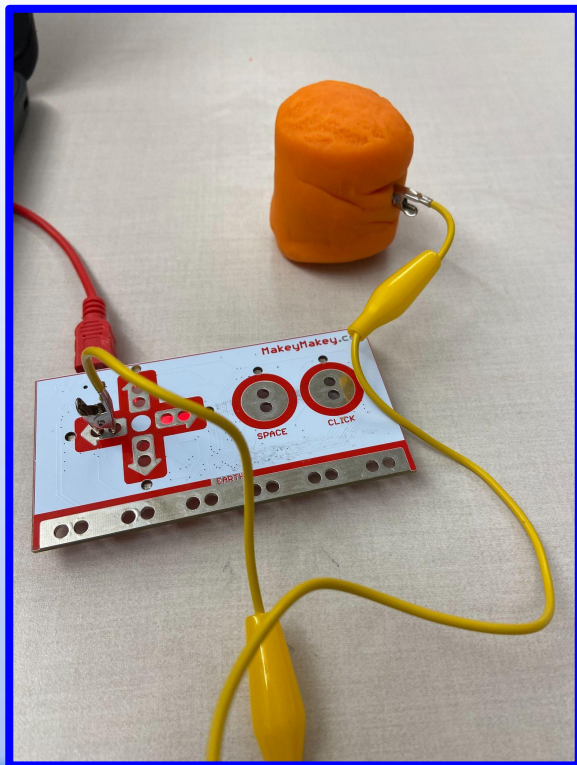
Bongo Drums 2



Make 2 playdough
bongo drums.

Open Makey Makey
Bongo Drum app

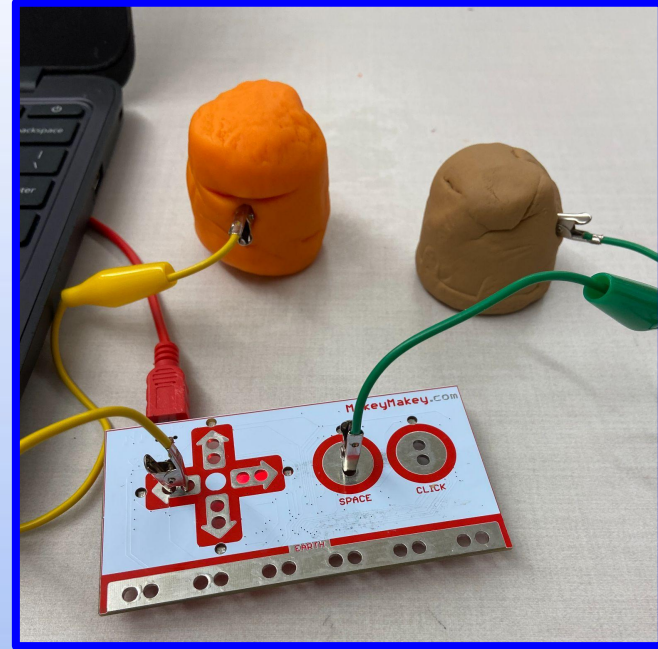
Bongo Drums 3



Clip one end of an alligator clip into the left arrow key and put the other end into the playdough drum.

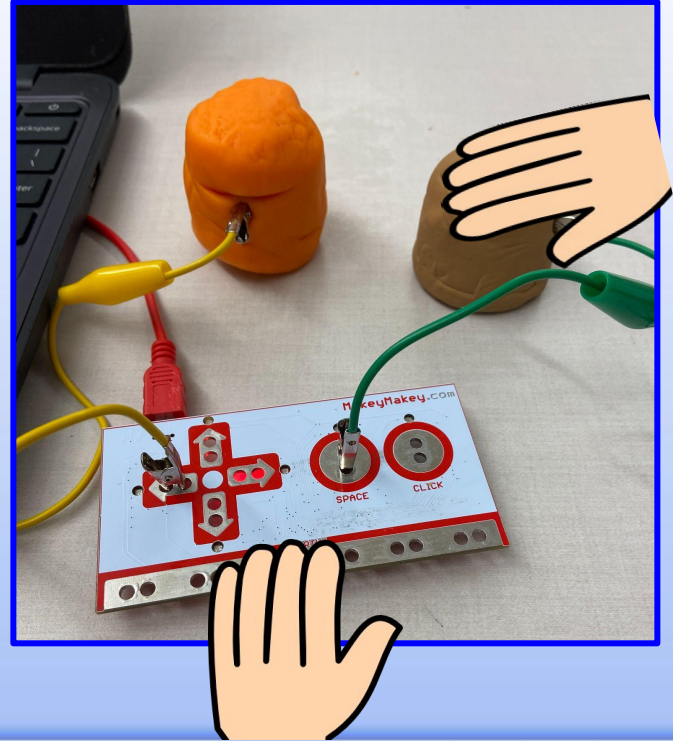
Bongo Drums 4

Clip one end of an alligator clip into the space bar and put the other end into the playdough drum.



Bongo Drums 5

Touch EARTH and tap the bongo drums. You are playing!

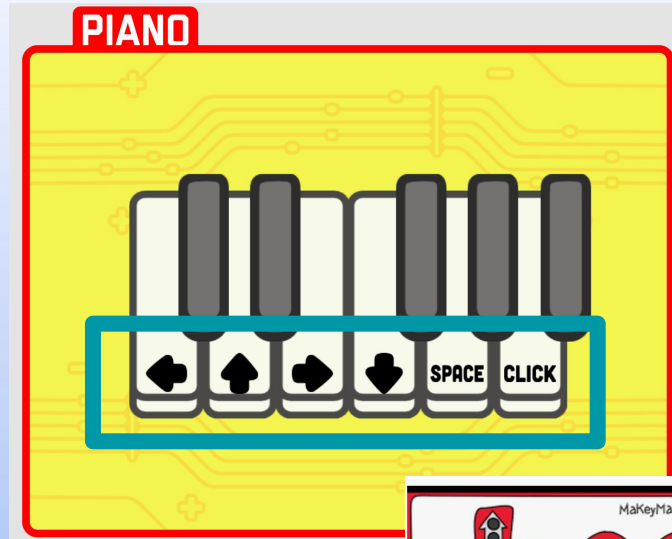


Makey Makey

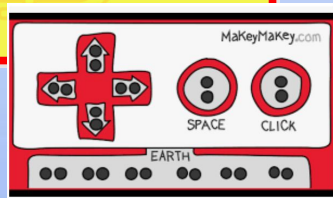
Activity 3 -

Piano App

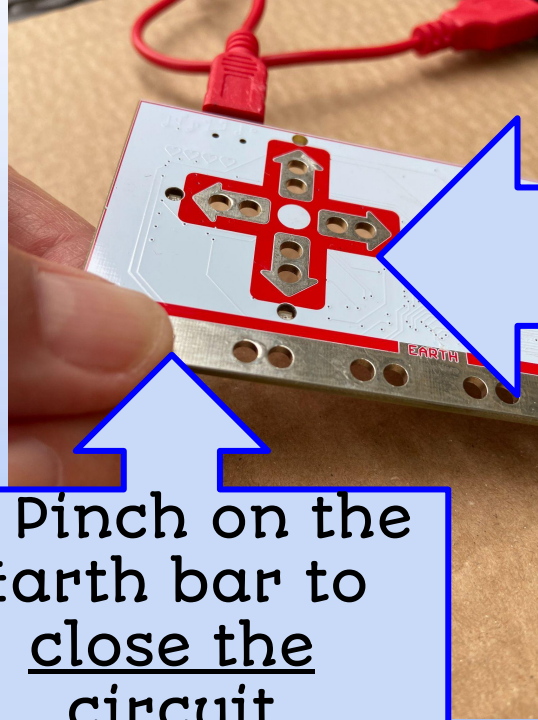
Piano App 1



Open the
Makey
Makey
Piano [App](#)



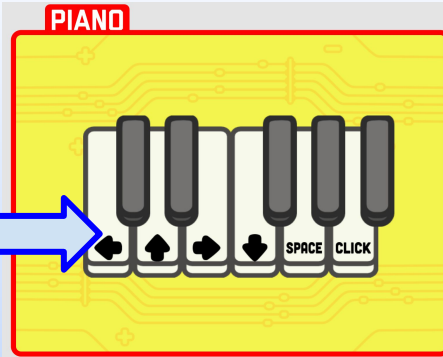
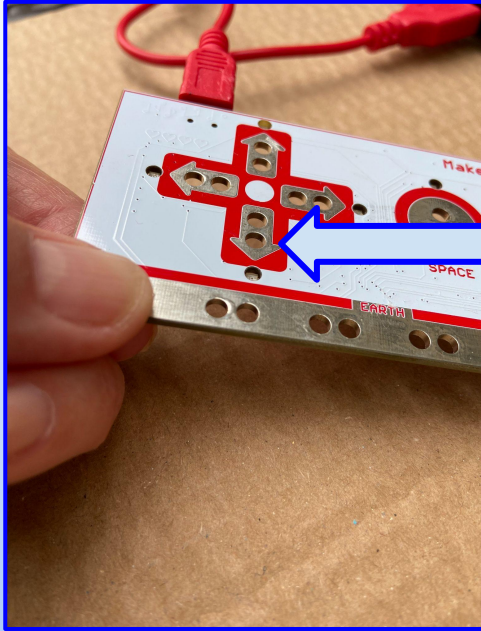
Piano App 2



1 – Pinch on the
Earth bar to
close the
circuit

2 – Press the
arrows on the
board (they
correspond to
arrows on keys),
the light turns
green, and that
note will play.

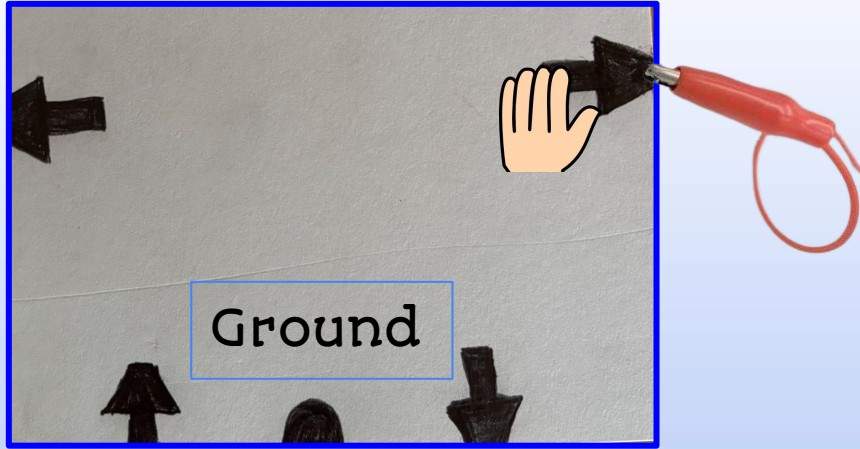
Piano App 3



- Can you play notes?
- Can you play a song?

→→→|→→→|→sp←↑→|
 ↓↓↓↓↓→→sp sp↓↑←
 Jingle bells Jingle bells Jingle all the way

Piano App 4



Try creating an illustration of the arrows, connecting alligator clips to each including the ground (earth) and your Makey Makey, hold Earth and tap each arrow to play that note.

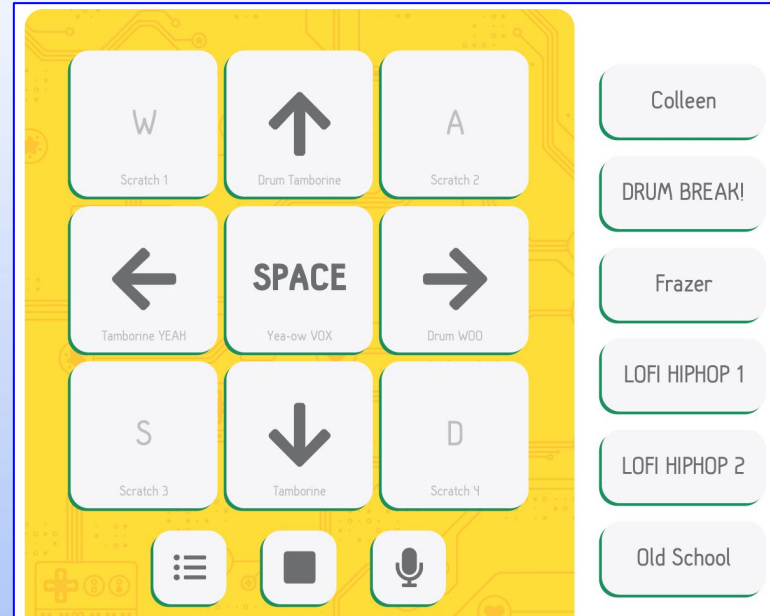
Makey Makey

Activity 4 -

Audio Sampler

Audio Sampler 1

Open the Makey
Makey Audio
Sampler [LINK](#)



Audio Sampler 2



Scratch Integration

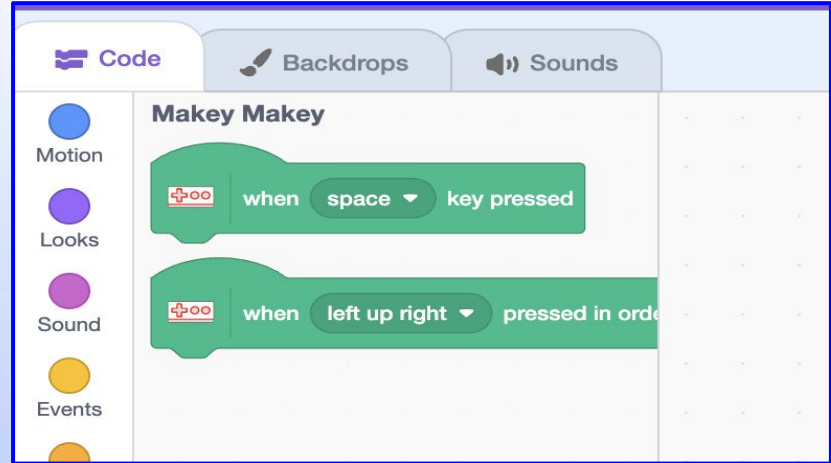
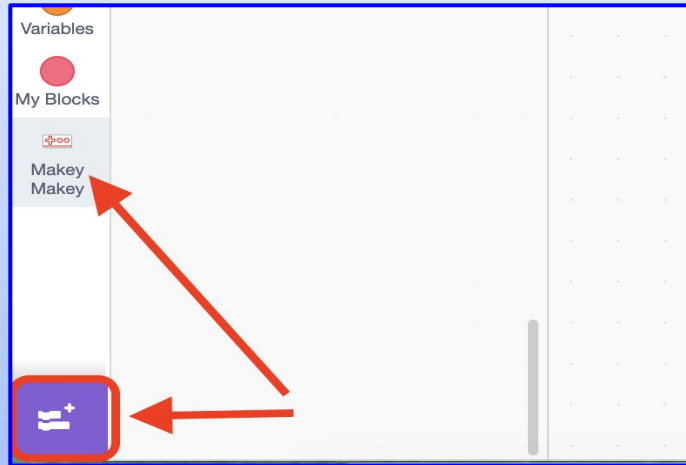
Note: this session will not teach you how to use Scratch; just the code relevant to Makey Makey and how to set up your activity.

Scratch Integration Projects

1. Add the extension
2. Makey Makey plus Scratch projects website
3. Intro - Try it out with sounds
4. Maze Ways
5. Story Retell

Add the Extension

1. Open a Scratch project
<https://scratch.mit.edu/>
2. Add the Makey Makey extension



Code blocks you will see

Makey Makey + Scratch projects

“JoyLabz and Makey Makey have always been a huge fan and partner with Scratch. Since the start, Scratch has been our go-to platform for learning to code and prototyping online applications. Even some of your favorite tried and true Makey Makey apps have their origins found in Scratch! So, we wanted to collect and share some of our favorite and most used apps to share with you in hopes that they inspire you to create your own.”

Website [Link](#)

Intro - Try it out with Sounds Activity

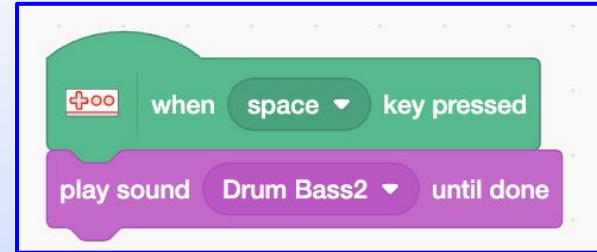
Intro - Try it out with Sounds 2



Intro - Try it out with Sounds 3



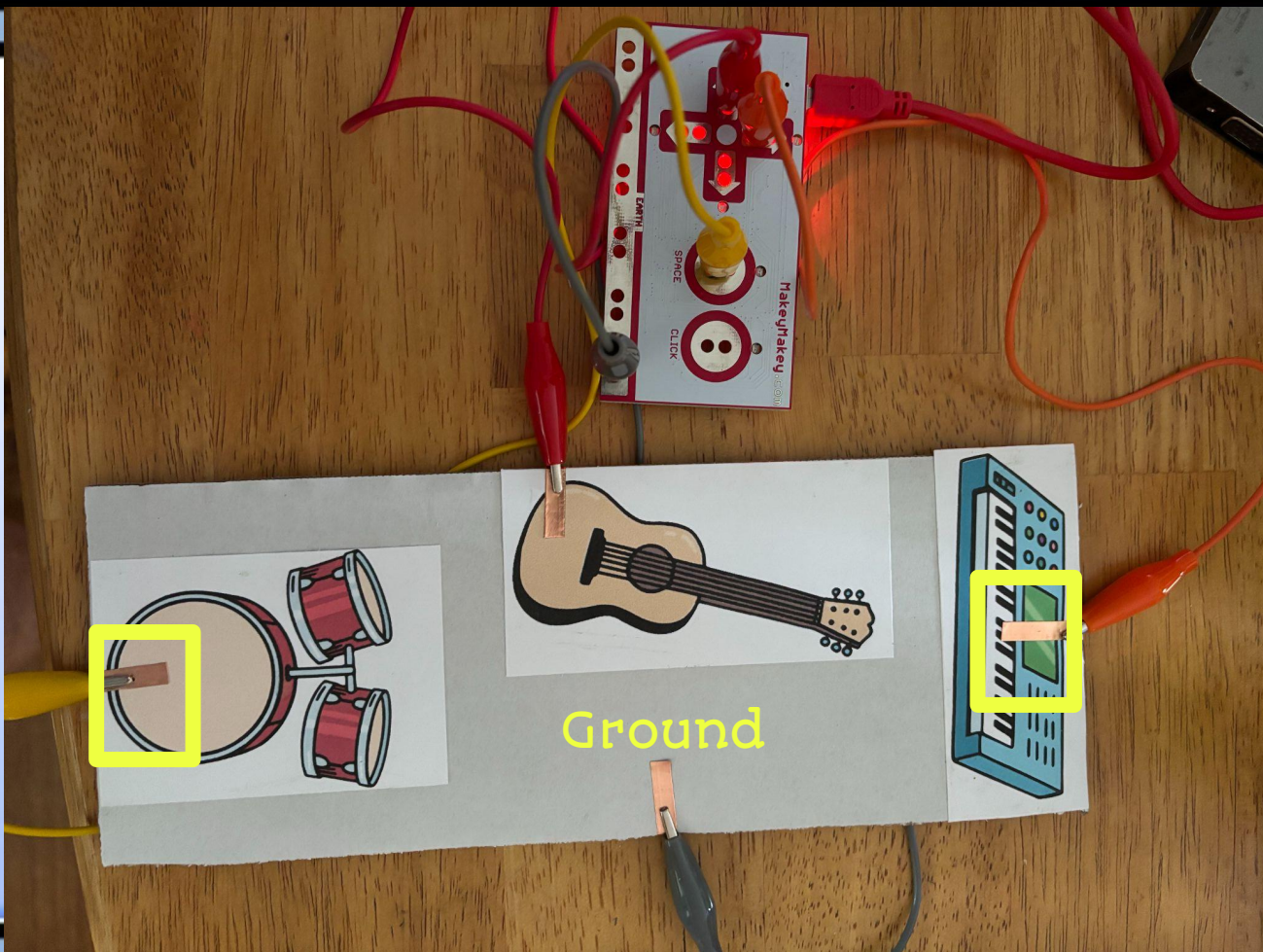
Keyboard



Drums



Guitar



Intro - Try it out with Sounds 5

Here is a summary of the steps to introduce integration of the Makey Makey and Scratch with sounds.

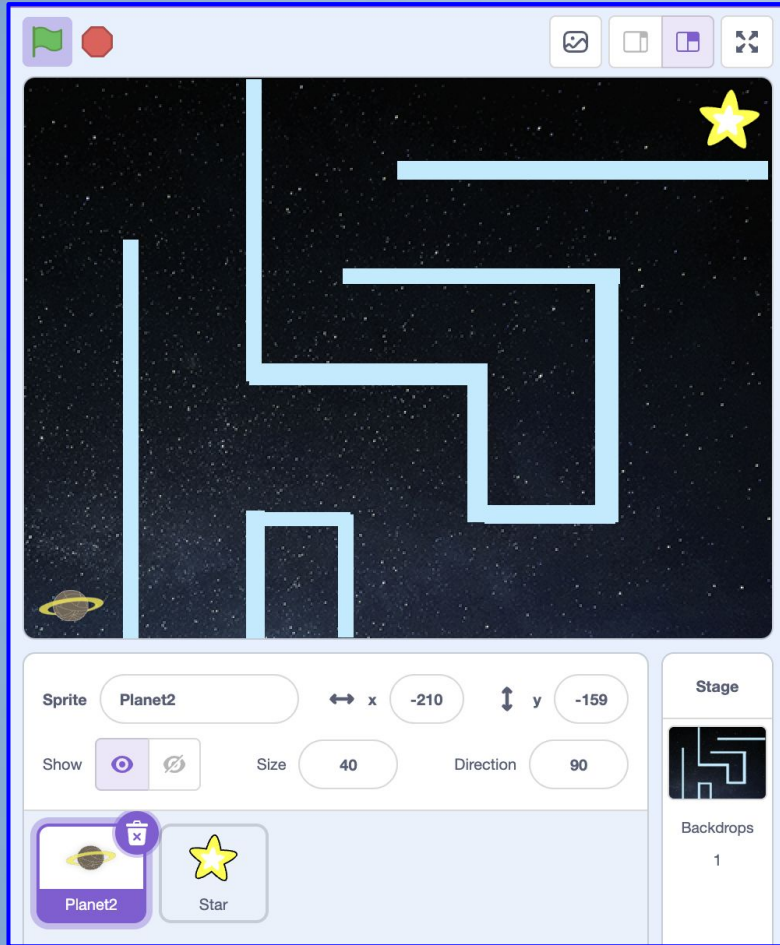
Website [Link](#)

Scratch Maze Ways Activity

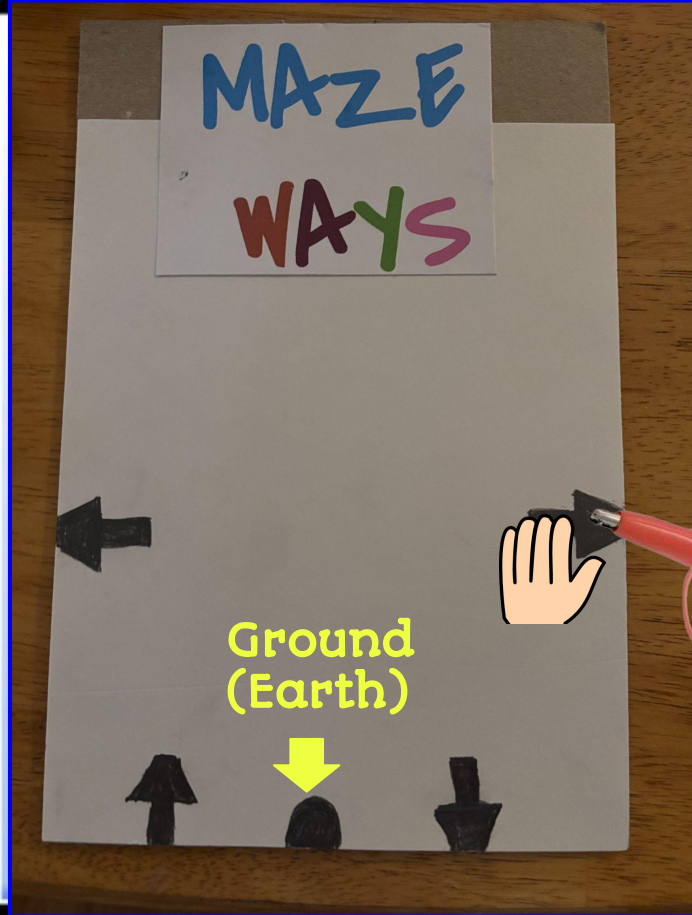
Scratch Maze Ways 1

In this project you navigate a sprite through a maze you have drawn, without touching the maze walls.

- If you touch the wall, it is back to the start for you!
- If you reach the star, your fans will go crazy!



Scratch Maze Ways 2



Scratch Maze Ways 3

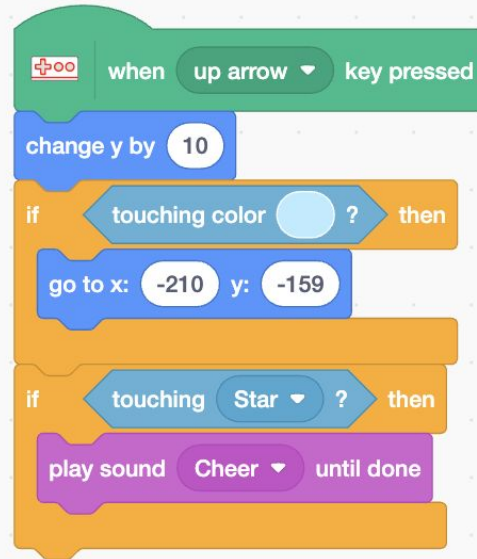
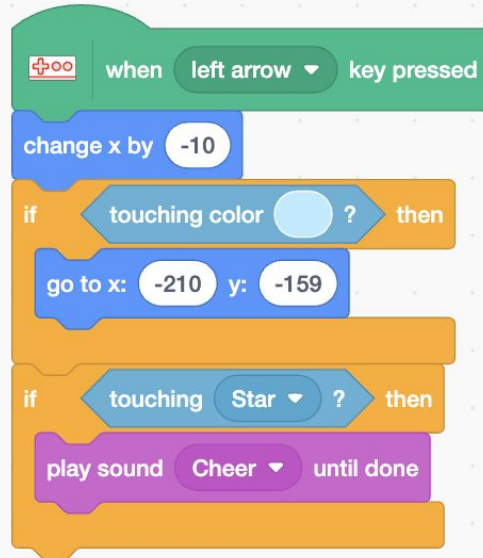
Create an illustration.
Your students will likely be more creative!

I used the graphite pencil provided.

Connect to Makey Makey using alligator clips.

Scratch Maze Ways 4

Code a function for each arrow, such as this:



Story Retell Activity

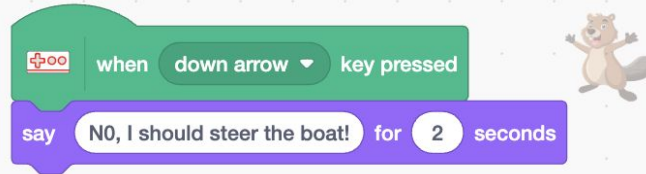
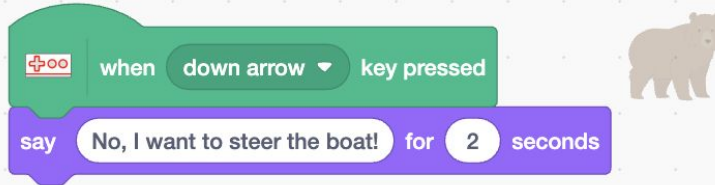
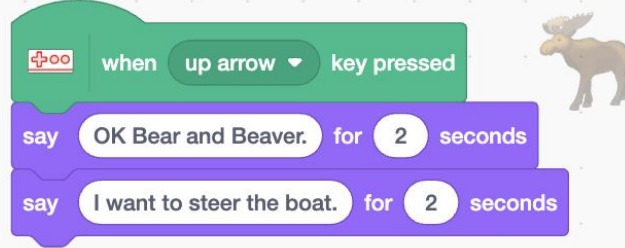
Story Retell 1

Up the Creek



Story Retell 2

There are 3 animals in the story. Each animal is assigned a key.



Add the script for each animal. Click the correct key to see their speech bubble.

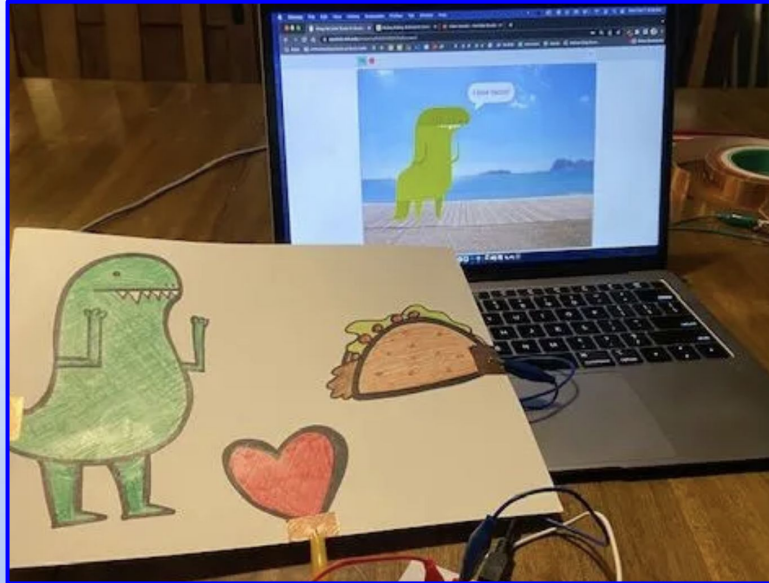
Story Retell 3

UP
THE
CREEK



Story Retell 4

Dragons Love Tacos via Instructables



www.instructables.com/Makey-Makey-Scratch-CodeArt-Storytelling/

Makey Makey Activities

Check out this link for additional Makey Makey activity ideas. Heads up that some require the purchase of additional packages and/or tools but the instructions are very thorough.

[Plug and Play Makey Makey Apps – Joylabz Official Makey Makey Store](#)

Thank You & Survey



Thank you so much for attending and adding to our experience of the day!

Please complete this survey, which is required by all participants

<https://forms.gle/KNwvhBPCFUsTwGRa8>

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#CSPDWeek2026

#CompSciNJ

@csteachersorg



New Jersey CSPDWeek

This material is based upon work supported by the National Science Foundation under Award No. 2607763.