



Title: *"Makey Makey - Simple Circuits"*

Using your Makey Makey board, you will complete some simple circuits by using conductive material, alligator clips and your fingers!

Student Objectives

- Using a Makey Makey board, students will apply their knowledge of electrical circuits and use various materials to create a complete circuit.
- Students will use a Scratch Project program or an open application (for a mouse click) to play a sound when the circuit is successful.

Teacher Technology Skills Needed

- Simple coding with blocks from Scratch <http://scratch.mit.edu>
- Recording sound with Scratch
- Making a simple circuit with a Makey Makey board, conductive material and alligator clips

Materials

- Makey Makey board with alligator clips
- Conductive material including foil, marshmallows, gummy bears, fruit
- Computer with Scratch Program open <http://scratch.mit.edu>
- Computer with application open for mouse click (sound file or video file play button)

Standards

- **3-PS2-3:** Ask questions to determine cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other.
- **4-PS3-2:** Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents.
- **HS-PS3-3:** Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.

Procedure

1. Review the idea of a simple electrical circuit, and the concepts of current, grounding and making a complete circuit.
2. Discuss (review) how to plug in a Makey Makey. It gets its power from the computer through the USB cable. Grounding is done with the Earth connection and one hand/fingers touching it. The circuit is complete through the human body as you touch an alligator clip coming from one of the output connections (this example uses the Click).
3. Attach one alligator clip to Earth, which is the ground. Hold the other end of this one by your fingers in your left hand.



4. Attach another clip to the “Click” input on the Makey Makey and lay the other end down in front of you. Explain how touching this end completes the circuit, which “fools” your computer into thinking that you have done a mouse click. What happened? Repeat this several times.
5. On your computer screen, show a video window or an audio file play button. Demonstrate how clicking the mouse here starts the video or plays the sound. Click it again and the video/sound will be paused.
6. Go to the Scratch website <http://scratch.mit.edu> and open the “Makey Makey Practice” Project. Press the spacebar on the computer to play the sound.
7. Now it is time to try some other ways to complete this circuit using various types of conductive materials. Attach the Click clip to these objects and then touch the objects with your right hand to do the clicking:
 - a. banana
 - b. Play Doh
 - c. foil strips
 - d. other fruit
 - e. someone else’s finger, etc.

Extension Activities

- Use multiple people to touch and create a circuit. How many students/people/objects can you connect together and still make your circuit work?
- Connect wires on the Makey Makey to the “Click” input location and use it to simulate a mouse click on a computer website to advance a slide in a presentation.