

# Introduction to MakeyMakey– Engineering Room

## Elementary

*Time: Approximately 45 min – 1 hour*

<b>Objectives</b>	<b>Materials</b>	<b>Standards</b>
<ul style="list-style-type: none"> <li>• To introduce the Think-Make-Improve design process</li> <li>• To create simple circuits, using conductive materials</li> <li>• To distinguish between conductive materials</li> </ul>	<ul style="list-style-type: none"> <li>• MakeyMakey</li> <li>• Alligator Clips</li> <li>• Assortment of conductive materials (may include fruits, play dough, aluminum foil, marshmallows, etc.)</li> </ul>	<p>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.</p> <p>4-PS3-2: Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents.</p> <p>MS-ETS1-2: Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.</p> <p>HS-PS3-1: Create a computational model to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known.</p> <p>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.</p> <p>*Note: These are the NGSS Standards. Common Core standards may also apply, depending how Scratch is implemented. This can be adapted for your classroom content.</p>

### **Procedure:**

1. Grand discussion – will ask students about their favorite video game (if they have one) and ask students to describe (or draw) the controller that they use. Will then ask students to create their controller with play dough (will be sitting out in preparation).
2. Show students the MakeyMakey. This will already be set up, so the students can see the wires and how they attach to the device. (ooh, ahh!) Plug the alligator clips to play dough

and display how the MakeyMakey is used with the computer. (Can use the piano or bongos for this example).

3. Next, ask for volunteer and do not hold the earth clip. Have students try to figure out why the MakeyMakey is no longer working when they try.
  - a. Students may or may not realize that you are no longer holding the earth clip.
  - b. If they answer it, then explain about how you have to be “grounded” to complete a circuit connection. This is a great science lesson besides creativity creation.
4. After the discussion, have the students create a bracelet either out of play-doh they have left over or from tin foil and then have them each connect their controller to the Makey Makey and play for a small bit. See who is the most inventive or who is the best player out of the group.
5. Students can connect to computers to test creations ---websites are posted above each computer in the Engineering room.