

Sound Glove

Use the inventive Makey Makey keyboard and the programming power of Scratch to create your own musical instrument. Design a one of a kind sound glove using thimbles, alligator clips, and an aluminum foil ball. Program your favorite tune and play your unique instrument for your friends!

TEKS:

6.4B: Plan and manage activities to develop a solution, design a computer program, or complete a project.
FCS.4E: Demonstrate coding proficiency in contemporary programming language by developing solutions that create stories, games, and animations.

Materials:

- 10 alligator clips (less if only using 3 finger thimbles)
- Aluminum foil
- Computer (with internet access)
- Makey Makey kit (<http://makeymakey.com/>)
- Rubber dishwashing glove
- Scratch account (it's really easy to make one if you don't have one and it's FREE: Go to <http://scratch.mit.edu/>, click [Join Scratch](#) and follow the instructions)
- Small ball
- Tape
- 3-4 thimbles

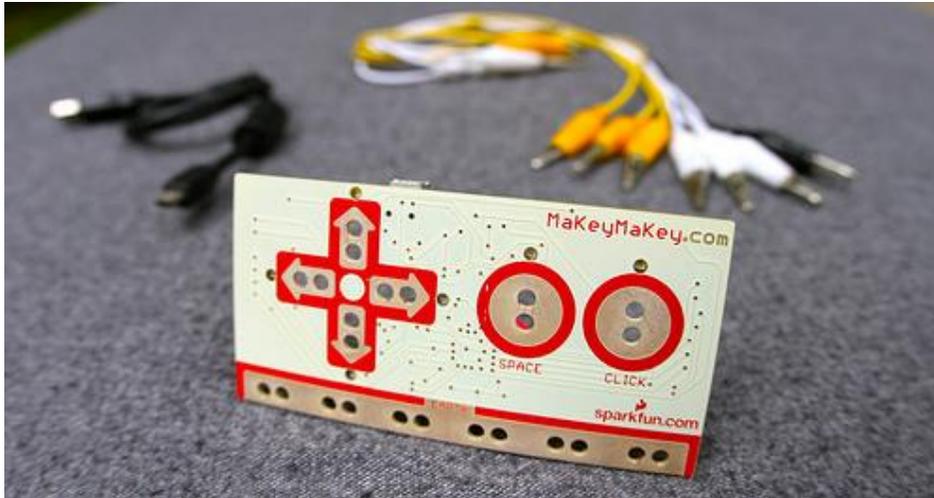
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How To:

Part 1: Create Sound Glove with Makey Makey



<http://makeymakey.com/>

1. Attach an alligator clip to each thimble. (You can choose to use either three or four thimbles, depending on how many notes you want to play. Each thimble will play one note.)
2. Place glove onto preferred playing hand.
3. Place thimbles with attached alligator clips on the glove fingers and use tape to secure them onto the glove. (Note: Make sure to connect enough alligator clips so that the wires can reach the Makey Makey board from your hand with ease.)
4. Connect the ends of the alligator clips to the right, left, up, and down areas on the Makey Makey.
5. After making the glove, create the conductive ball by wrapping the ball with a sheet of aluminum foil.
6. Attach another alligator clip from the aluminum foil ball to the Earth area on the Makey Makey.
7. Connect the Makey Makey to your computer.



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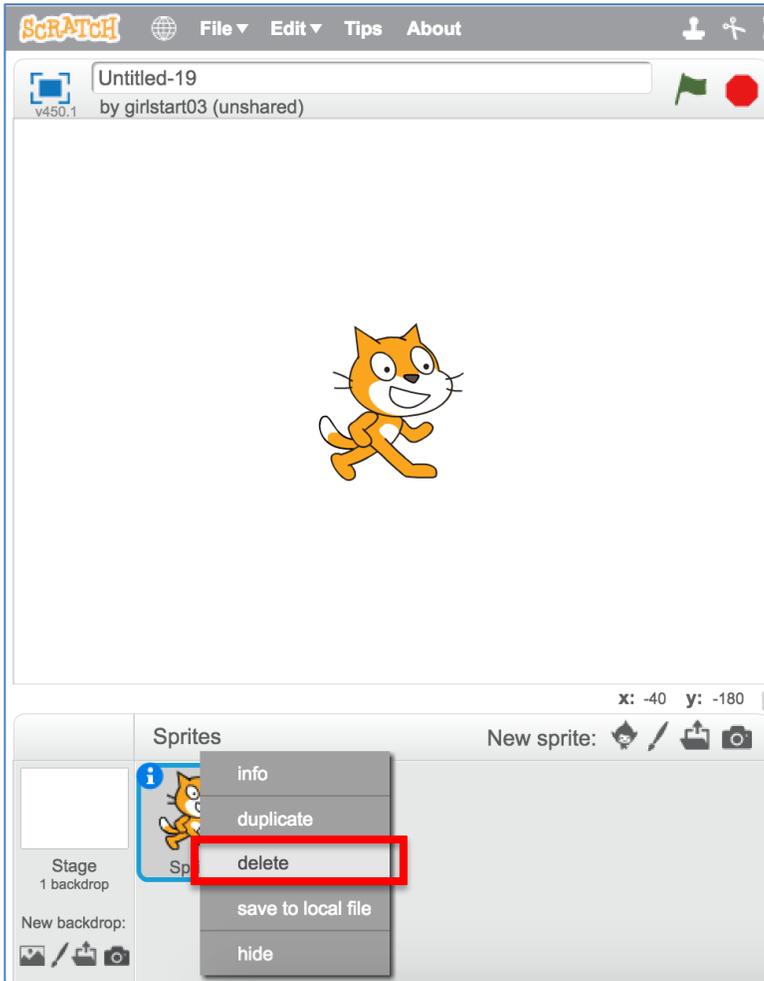
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Part 2: Create music program on Scratch

Create

1. Login to Scratch and click
2. Delete the current sprite on the screen by right clicking the picture of it at the bottom and clicking delete.



3. You will then want to add a new sprite, which will be your musical instrument at rest. To do this, either choose one from the library by clicking , or draw your own by clicking .

4. Now click on the  tab.

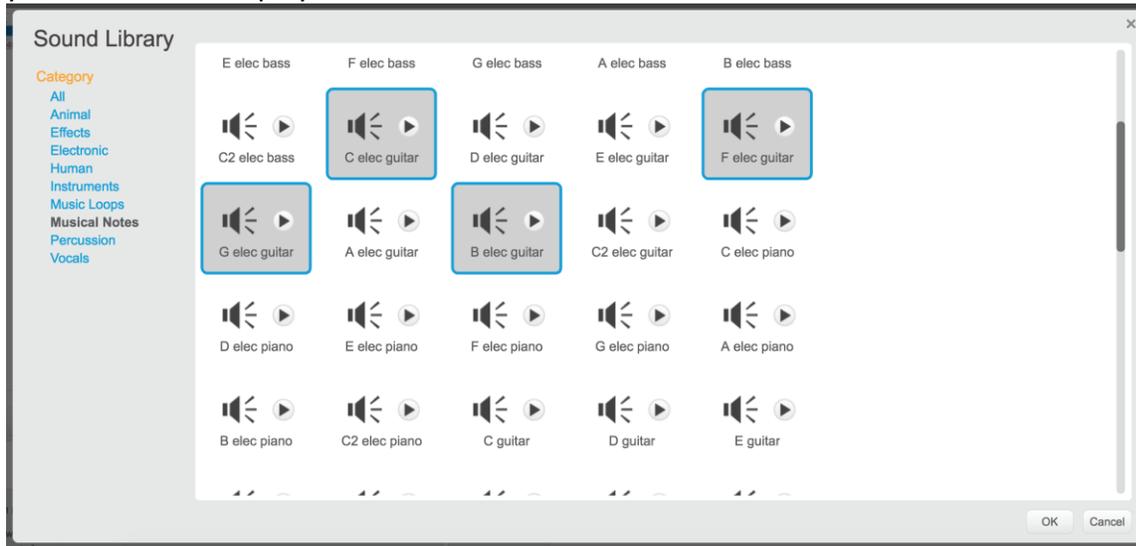
5. This is where we will begin programming. First grab and drag  under the  section.

6. Change where it says 'space' to one of the four arrow keys.

7. Click on the  tab.

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8. Make sure the the musical notes for your instrument are listed. If they are not, you will need to add four musical notes by clicking , then **Musical Notes**, and selecting which notes you want your instrument to play.

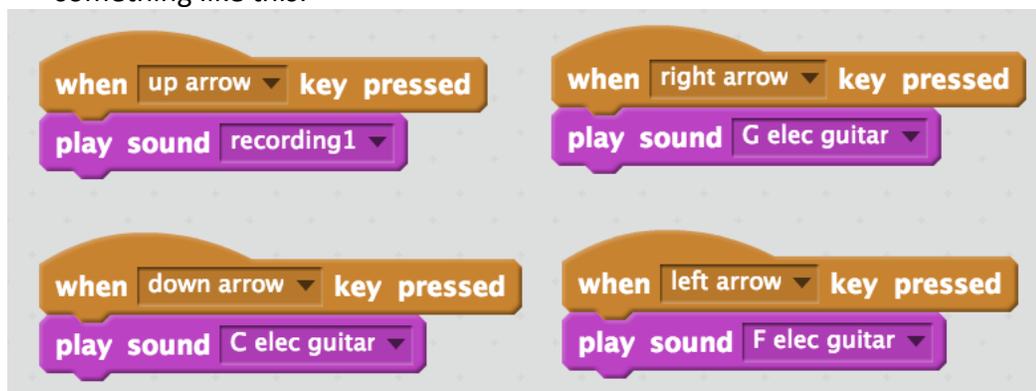


9. Click on the **Scripts** tab.

10. Then, under **Sound**, grab, drag, and attach **play sound recording1** in to the bottom of the block, as shown.



11. Change where it says 'recording1' to one of the musical notes.
 12. Repeat steps 5, 6, and 9 through 11, switching each arrow key and musical note you use each time, until you have a block batch for each arrow key. When you are through, your screen should look something like this:



Congratulations, you have now finished programming your musical instrument. Now you should be able to play music by touching the thimbles to the aluminum ball to switch between musical notes!

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STEM Explanation:

Scratch is a programming language used to design your own interactive stories, games, and animations. Aluminum is a conductor, meaning it is a material that allows electricity to flow. When your thimble touches the aluminum ball, you are creating a closed circuit that allows energy to be transferred through the wires. By allowing the energy to flow, your program will run smoothly and play music!

Career Connection:

Computer programmers write the instructions for software programs on computers. Once software developers and engineers create design specifications for a particular program, like an app or a game, computer programmers create directions for the program that the computer can understand. They will write code (the computer language), solve problems, debug, test, and rewrite the code until the program works effectively and efficiently. Some of the most common computer languages in existence include C++ and Python.

Resource:

<http://scratch.mit.edu/>

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