

Coding Sheet

Introduction:

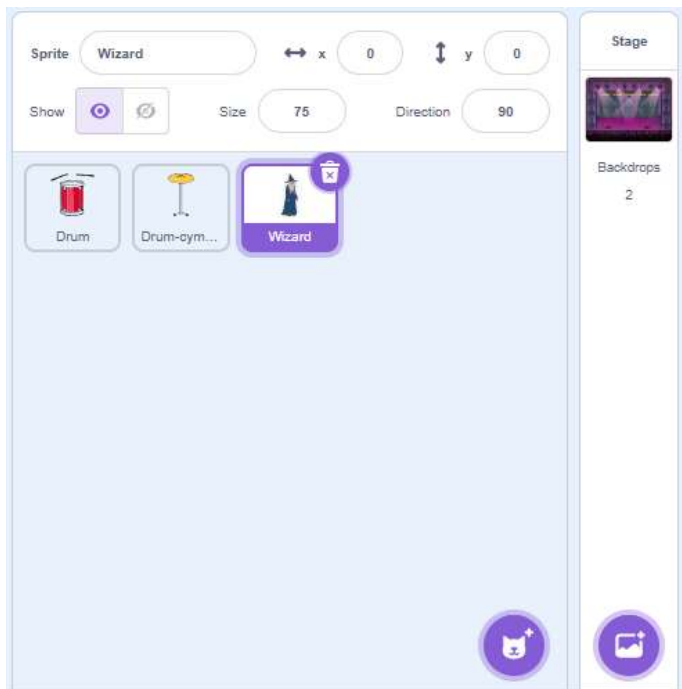
This document contains step-by-step instructions on how to code a sprite that reacts to the Makey Makey by producing sound using Scratch. This document starts at the point where you have created a new project in Scratch using the “Create” link on the upper left-hand side of the site.

A fully functional version of this code can be found by copying this URL into a browser.

<https://scratch.mit.edu/projects/1081745623>

Wizard Code:

First, have students add the three sprites they need by going to the bottom right-hand side of the screen and clicking on the purple circle with the cat inside. There, they will all choose **the drum, the drum-cymbal, and the wizard**.

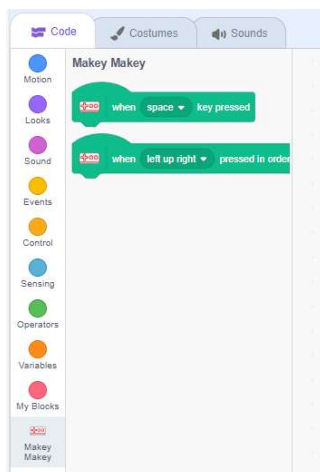


Arrange their sprites so they have the drum on the left, the wizard in the middle, and the drum-cymbal on the right-hand side.

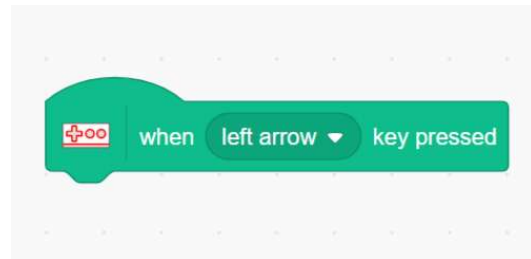


*Note: In the first picture, the wizard is highlighted with a purple border. Click on the wizard's icon so that the student's wizard is also highlighted. This ensures that the code we are going to be adding is linked to the wizard.

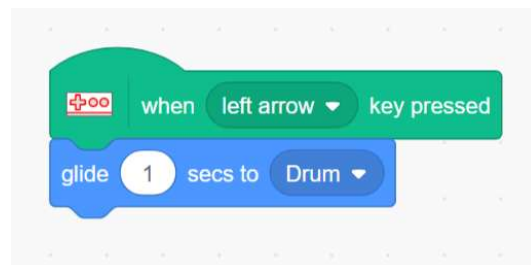
Add the Makey Makey extension for Scratch by going to the bottom left-hand side of your screen and clicking the purple **Add Extension** button. Once, there click on the **Makey Makey** option. Once added, you should see the Makey Makey option in your coding block categories. It should look like the image below.



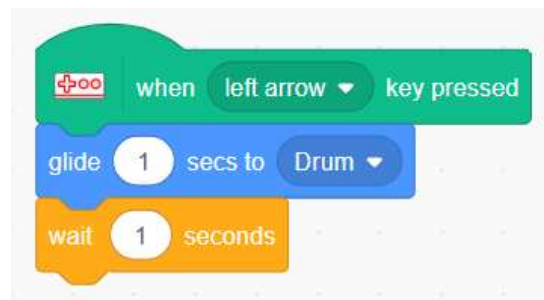
Now, we will code the **Wizard**. Click into the Makey Makey section and select the **When Space key pressed** block. Add it to your coding area. Now, change the block to say **When left arrow key pressed** by clicking into the block that says **space** and selecting **left arrow** from the dropdown menu.



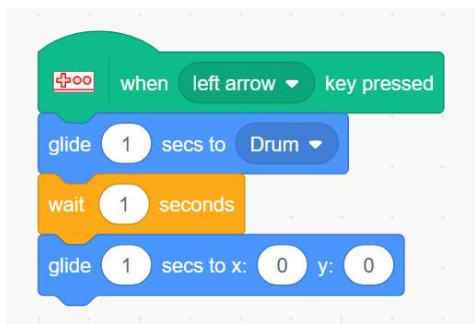
Next, we will go to the **Motion** section and pickup the **glide 1 secs to random position**. Attach that to the previous block you added. Once added, change the block to read **glide 1 secs to drum** by clicking into **random position** and select **drum** from the dropdown menu.



Then, go to the **Control** section and select the **wait 1 seconds block**. Attach it to your string of code.

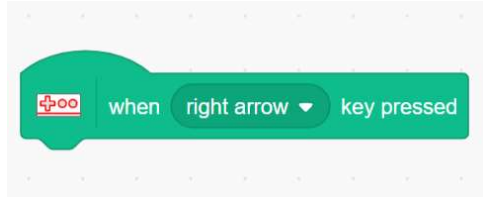


Once you have that, go back into the **Motion** section and select the glide 1 secs to X: _ Y: _. Add that to your string of code. Once you have that in your string, change the X and Y coordinates to both be 0. This will ensure that when the wizard goes to the drum, that it will return to the centre.

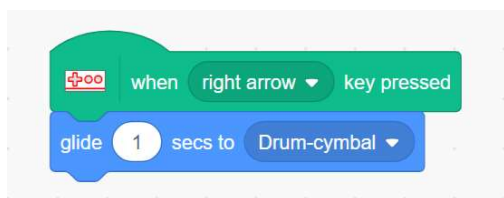


Now, we will repeat the same code, with some minor adjustments for the cymbal.

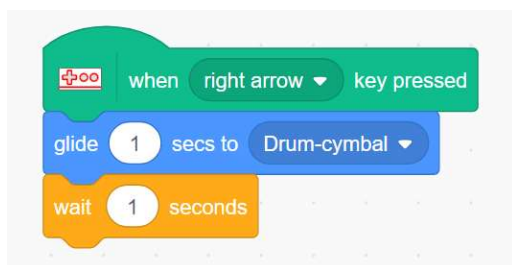
Click into the Makekey Makekey section and select the **When Space key pressed** block. Add it to your coding area. Now, change the block to say **When right arrow key pressed** by clicking into the block that says **space** and selecting **left arrow** from the dropdown menu.



Next, we will go to the **Motion** section and pickup the **glide 1 secs to random position**. Attach that to the previous block you added. Once added, change the block to read **glide 1 secs to drum-cymbal** by clicking into **random position** and select drum from the dropdown menu.

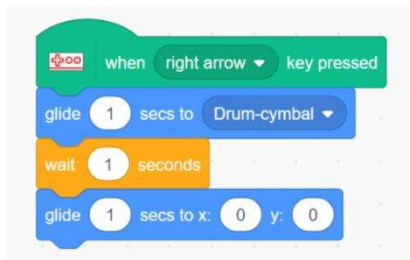


Then, go to the **Control** section and select the **wait 1 seconds block**.



Once you have that, go back into the **Motion** section and select the glide 1 secs to X: _ Y: _. Add that to your string of code. Once you have that in your

string, change the X and Y coordinates to both be 0. This will ensure that when the wizard goes to the drum, that it will return to the centre.

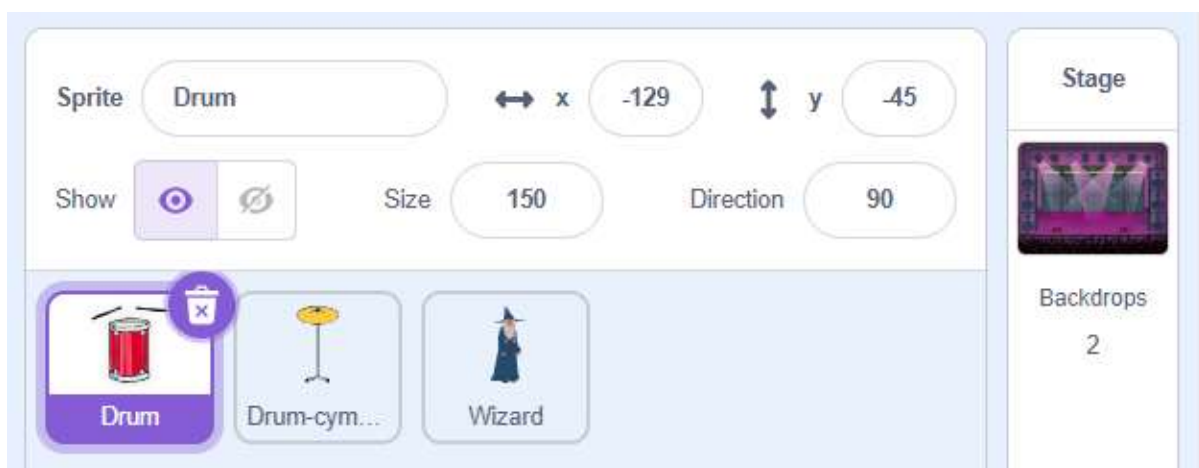


Your final code for the wizard should look like this:



Drum Code:

Now, we will code the **Drum**. To ensure the code we are adding is linked to the drum, we will click into the drum icon in the Sprites area so that it is highlighted in purple.



Click into the 'Makey Makey' section and select the **When Space Key pressed** block. Move the block into the coding area. Once there, change the block to read **'When left arrow key pressed'** by clicking into the block that says **space** and selecting **left arrow** from the dropdown menu.



Next, go into the **Control** section and select the **Wait until** block and attach it to your previous block. Once the block is attached, click the **Sensing** section and select the hexagon that says **touching mouse-pointer?**



Insert this block into the blank hexagon so the **Wait until** block reads **wait until touching mouse-pointer?** Now that both blocks are combined you can alter the **touching mouse-pointer?** To read **touching wizard** by clicking the oval that says **mouse-pointer?** and changing it to say **wizard** by clicking it from the dropdown menu.

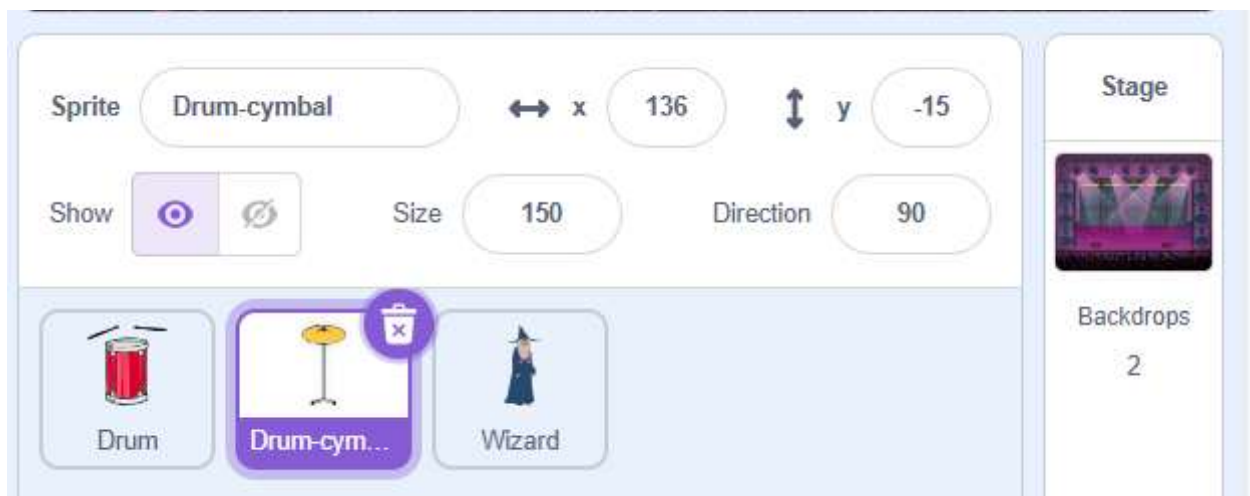


Next, we will go into the **Looks** section and select the **Switch costume to drum-b** and attach it to your string of code. Then, go into the **Sound** section and select the **Play sound high tom until done**, attaching it to your string of code. Lastly, you will go back into the **Looks** section and add the **switch costume to drum-a**.

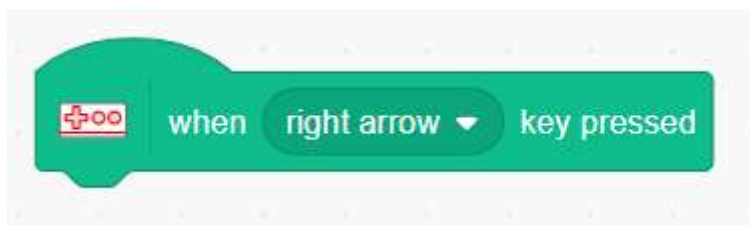


Cymbal Drum Code:

Now, we will code the **Cymbal Drum**. To ensure the code we are adding is linked to the drum, we will click into the drum icon in the Sprites area so that it is highlighted in purple.



Click into the 'Makey Makey' section and select the **When Space Key pressed** block. Move the block into the coding area. Once there, change the block to read '**When right arrow key pressed**' by clicking into the block that says **space** and selecting **right arrow** from the dropdown menu.



Next, go into the **Control** section and select the **Wait until** block and attach it to your previous block. Once the block is attached, click the **Sensing** section and select the hexagon that says **touching mouse-pointer?**



Insert this block into the blank hexagon so the **Wait until** block reads **wait until touching mouse-pointer?** Now that both blocks are combined you can alter the **touching mouse-pointer?** To read **touching wizard** by clicking the oval that says **mouse-pointer?** and changing it to say **wizard** by clicking it from the dropdown menu.



Next, we will go into the **Looks** section and select the **Switch costume to drum-cymbal-b** and attach it to your string of code. Then, go into the **Sound** section and select the **Play sound high tom until done**, attaching it to your string of code. Lastly, you will go back into the **Looks** section and add the **switch costume to drum-cymbal-a**.



How to Connect the Makey Makey:

Supplies:

- Makey Makey kit
- Scratch.mit.edu
- Laptop
- Power cord
- Three alligator clips
- 2 printed drums
- Copper tape

Connect an alligator clip to the **left arrow** and one to the **right arrow on the Makey Makey**.

Next, connect an alligator clip to one of the connectors on the **Earth** area. This will act as the drumstick.

Tape the copper tape to the drumhead (where students will hit the drum to play it). Ensure there is some copper tape at the edge of the paper.

Take the alligator clip attached to the **left arrow** and connect it to the **drum** where it is touching the copper tape.

Take the alligator clip attached to the **right arrow** and connect it to the **cymbal drum** where it is touching the copper tape.

Connect the power cord to the back of the Makey Makey. Connect it to the computer using the USB.

Now, click the green flag on your Scratch project so the program is running. Use the alligator clip connected to the Earth to make contact with the copper tape on the drums. The code should react, and you will hear the drums sound on your computer!

