Projects

Rock band

Learn how to code your own musical instruments
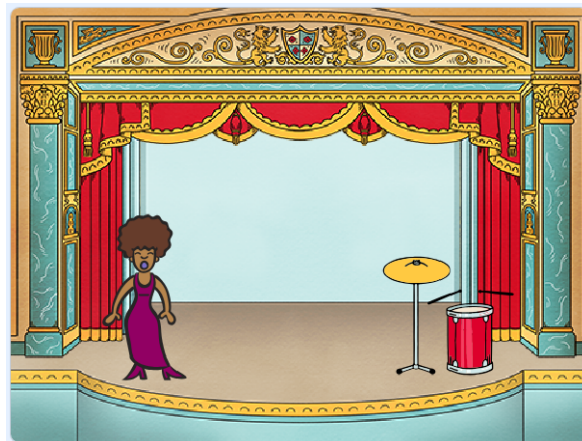

Step 1   Introduction

Learn how to code your own musical instruments!

What you will make

You will make a game where you can click on the singer or the drum to hear singing or drum sounds.

ⓘ **What you will learn**

- Use code to change a sprite's costume in Scratch
- Use code to make sprites react to input in Scratch
- Add sounds to a sprite in Scratch

ⓘ **What you will need**

Hardware

- A computer capable of running Scratch 3

Software

- Scratch 3 (either **online (http://rpf.io/scratchon)** or **offline (http://rpf.io/scratchoff)**)

Additional information for educators

You can find the **completed project here** (http://rpf.io/p/en/rock-band-get).

Step 2   Sprites

Before you can start coding, you'll need to add in a 'thing' to code. In Scratch, these 'things' are called **sprites**.
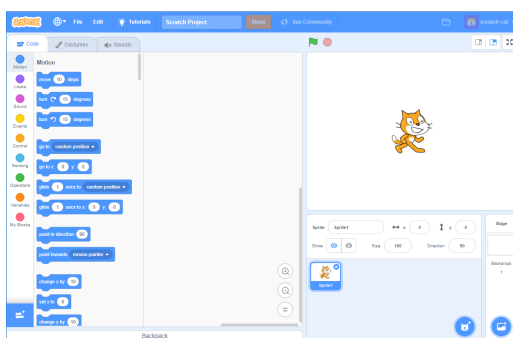
Open a new Scratch project.

Online: open a new online Scratch project at **rpf.io/scratch-new** [(http://rpf.io/scratch-new)](http://rpf.io/scratch-new).
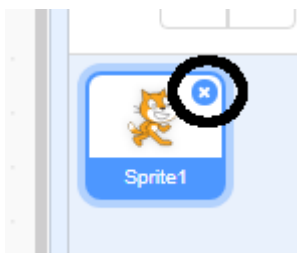
Offline: open a new project in the offline editor.

If you need to download and install the Scratch offline editor, you can find it at **rpf.io/scratchoff** [(http://rpf.io/scratchoff)](http://rpf.io/scratchoff).
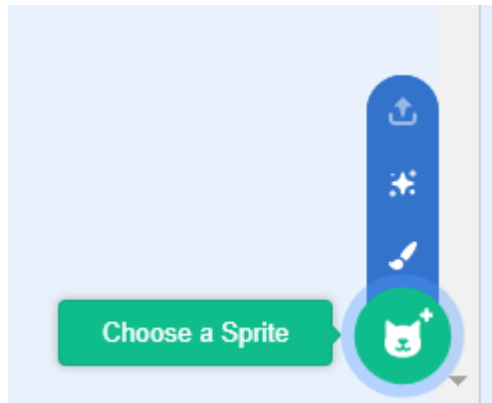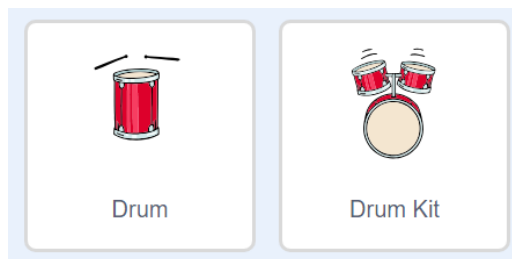
It looks like this:

The cat sprite that you can see is the Scratch mascot. You don't need it for this game, so get rid of it by right-clicking it and then clicking on **delete**.

Next, click on **Choose sprite from library** to open up a list of all the Scratch sprites.

Scroll down until you see a drum sprite. Click on a drum to add it to your project.

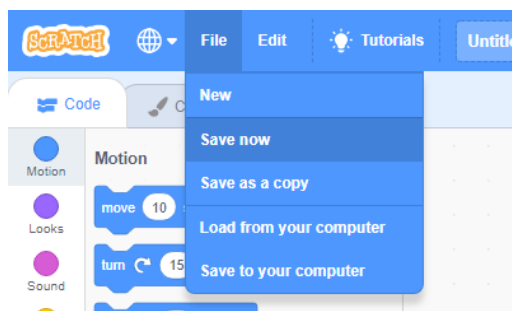Click and drag the drum to the bottom of the Stage.

Give your program a name by typing into the text box at the top.

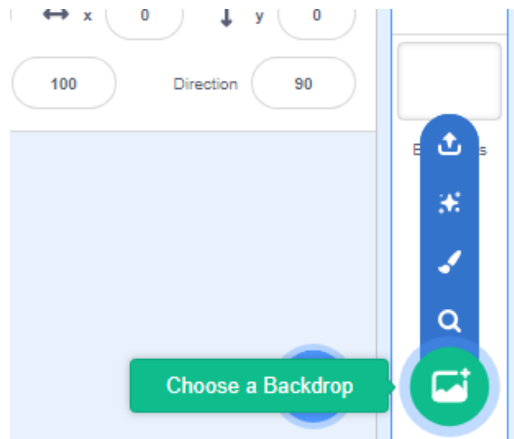Then click on **File**, and then on **Save now** to save your project.

If you are not online or don't have a Scratch account, you can save a copy of your project by clicking on **Save to your computer** instead.
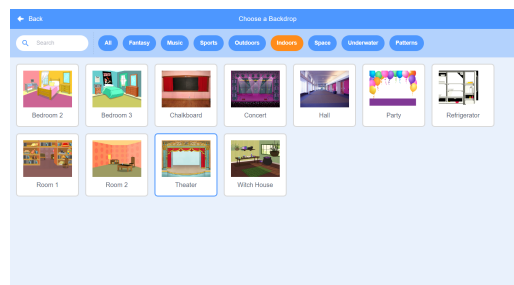
Step 3   The Stage

The **Stage** is the area on the right, and is where your project comes to life. Think of it as a performance area, just like a real stage!
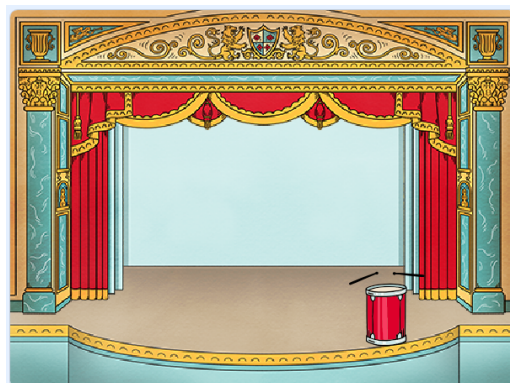
At the moment, the stage is white and looks pretty boring! Add a backdrop to it by clicking on **Choose a backdrop**.

Click on **Indoors** in the list at the top. Then click on a theatre backdrop.

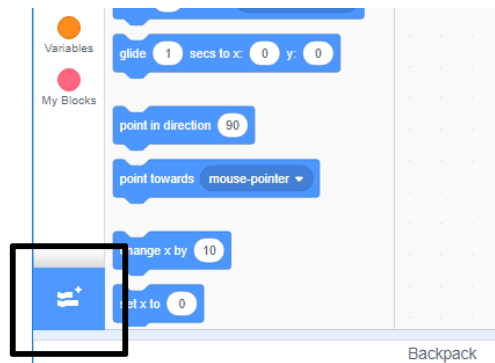Your stage should now look similar to this:

Step 4   Making a drum

Now you will add code to your drum so that the drum makes a sound when it's clicked.

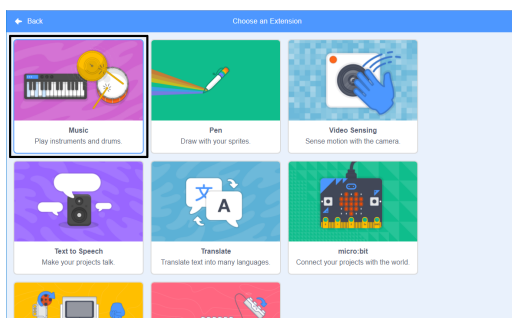You can find the code blocks in the Scripts tab, and they are all colour-coded!

First add the **Music** extension so you can play instruments.
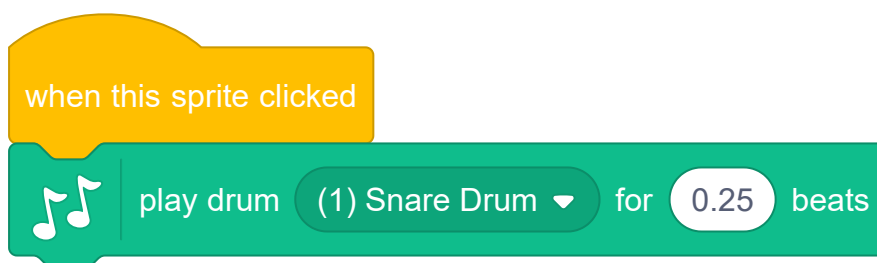
Click on the **Add extension** button in the bottom left-hand corner.

Click on the **Music** extension to add it.

Click on the drum sprite, and then drag these two blocks into the code area on the right:

Make sure that the blocks are connected together (like LEGO bricks).
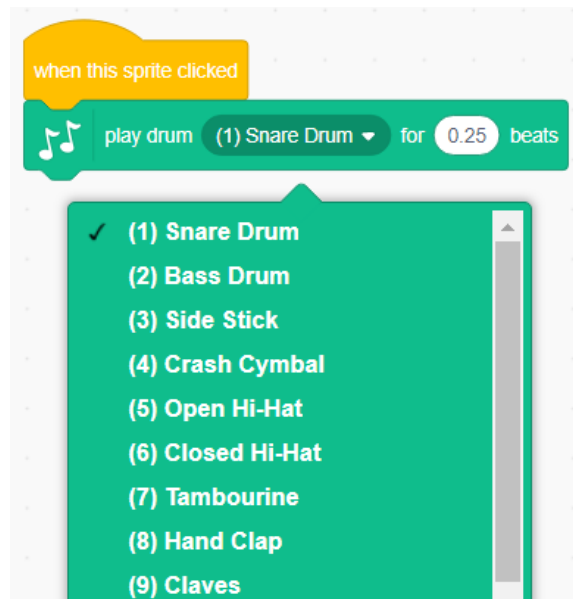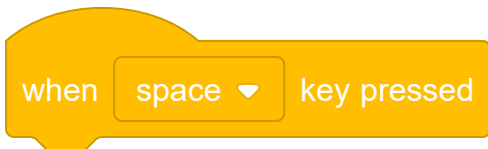
Click on the drum to try out your new instrument!

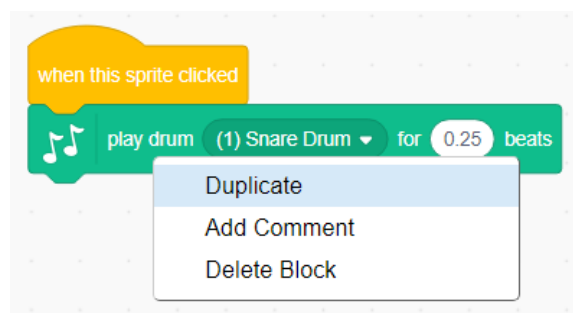**Challenge: improving your drum**

Can you change the sound that the drum makes when it's clicked?

Can you also get the drum to make a sound when the space bar is pressed? You'll need to use this event block:
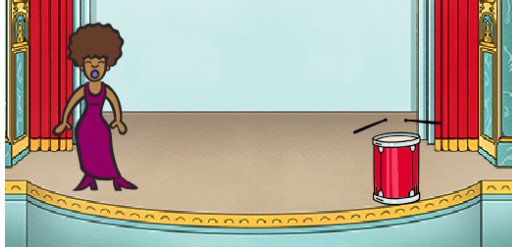

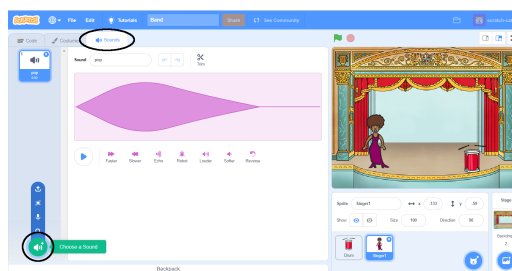If you want to copy your existing code, right-click on it and then click on **duplicate**.

Step 5   Making a singer
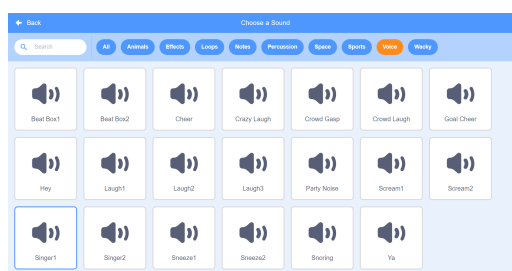
Now you will add a singer to your band!

Add a singer sprite to your Stage.

Before you can make your singer sing, you need to add a sound to your singer sprite. Make sure that you have selected your singer sprite, then click on the Sounds tab, and click on **Choose a sound**:

Click on **Voice** in the list at the top, and then choose a sound to add to your sprite.

To use the sound, add the following code blocks to your singer sprite:
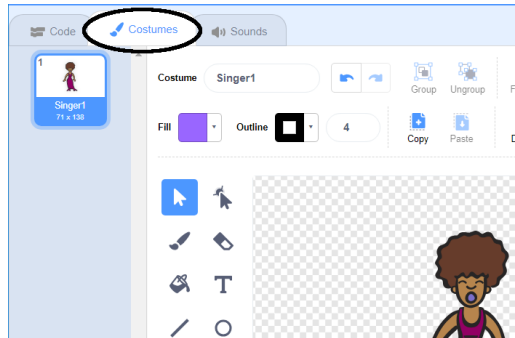
```
when this sprite clicked
play sound  singer1 ▼  until done
```

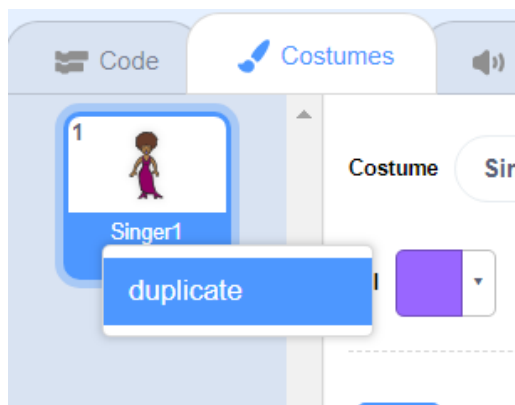Click on your singer on the stage and see what happens. Does she sing?

Step 6 Costumes

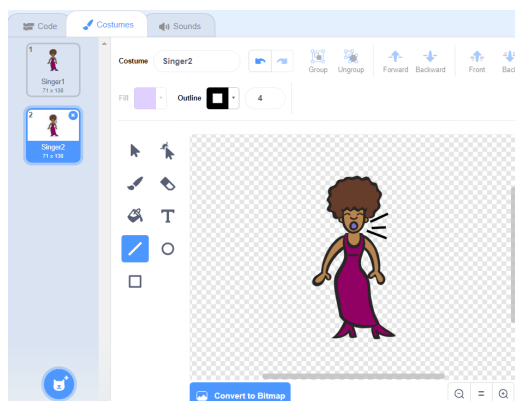Now you will make your singer look like she's singing!

You can change how your singer sprite looks when it's clicked by creating a new costume. Click on the Costumes tab, and you'll see the singer costume.
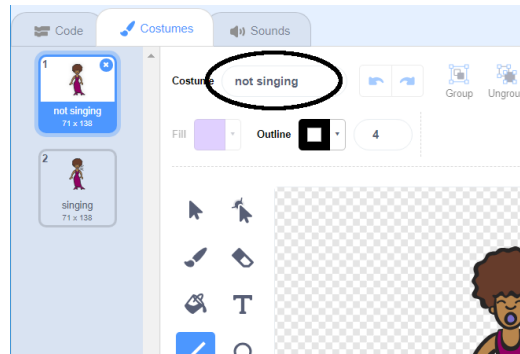

Right-click on the costume and then click on **duplicate** to create a copy of it.

Click on the new costume (called 'Singer2'), and then select the line tool and draw lines so it looks like your singer is making a sound.

The names of the costumes aren't very helpful at the moment. Type into the text boxes of the costumes to change their names to 'not singing' and 'singing'.

Now that you have two different costumes for your singer, you can choose which costume is displayed! Add these two code blocks to your singer sprite:
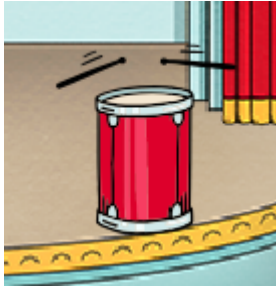

The code block for changing the costume is in the Looks section.

Click on your singer on the stage. Does she look like she is singing?

Now make your drum look like it's being hit!

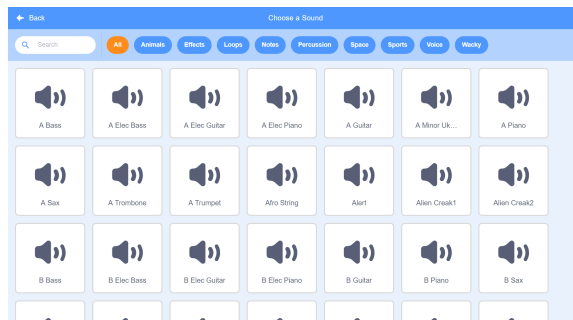- Use the instructions for changing your singer sprite's costume to help you.

Remember to test that your new code works!

Challenge: improve your band

Use what you've learnt in this project to make your own band! You can create any instruments you like — look at the available instrument sprites and sounds to get some ideas.
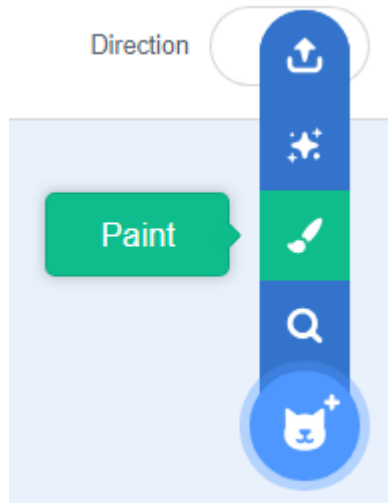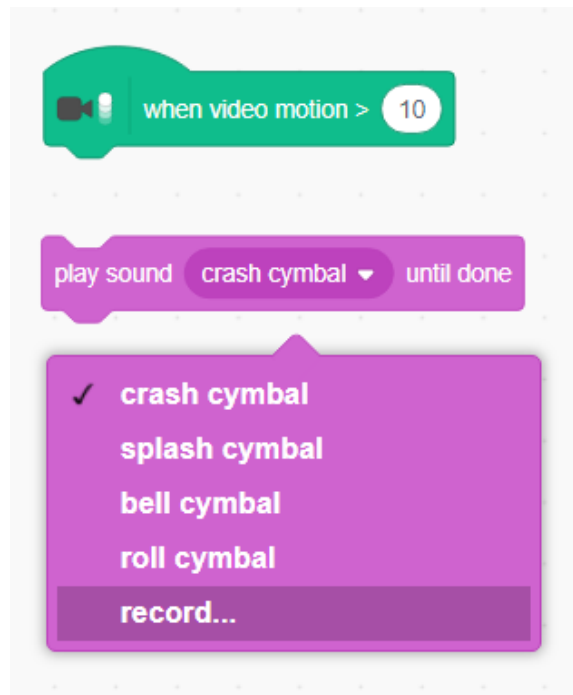

Your instruments don't have to be realistic though. For example, you could make a piano made out of muffins!

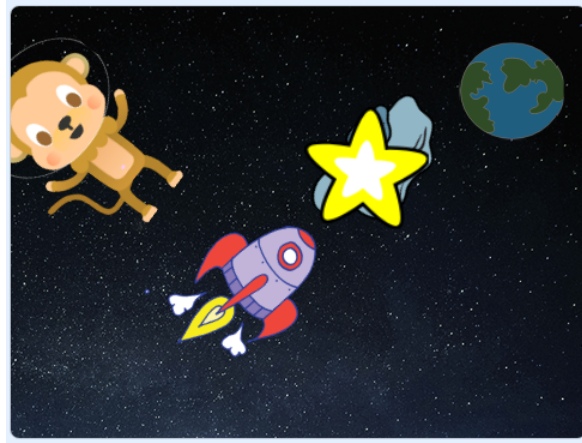You can use more sprites from the library, and you can also paint your own sprites!

If you have a microphone, you can record your own sounds, and you can even use a webcam to hit your instruments!

Step 7 What next?

Now that you've built your first Scratch project, why not take a look at the **Lost in space (https://projects.raspber rypi.org/en/projects/lost-in-space?utm_source=pathway&utm_medium=whatnext&utm_campaign=proj ects)** Scratch project?