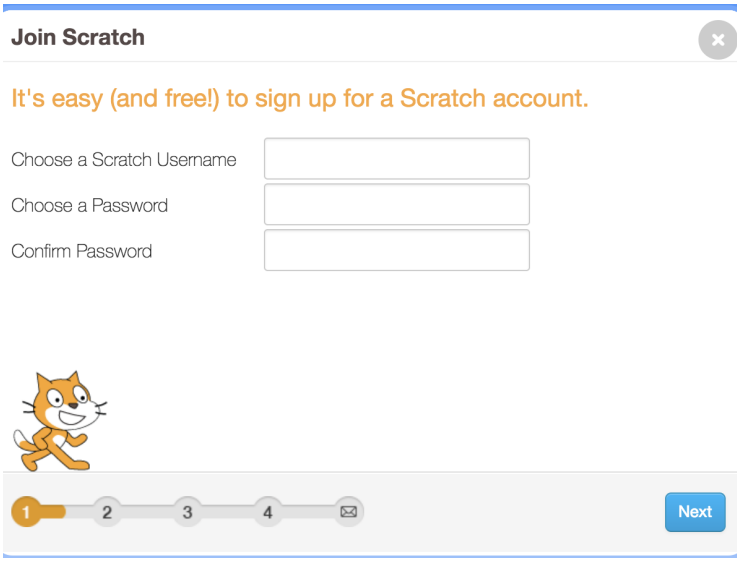
# Introduction to Scratch

Scratch 3.0 is the latest version, replacing Scratch 2.0 Running Scratch 3.0 requires a relatively new web browser:
Chrome 63 or higher, Edge 15 or higher, Firefox 57 or higher, Safari 11 or higher, Mobile Chrome 63 or higher, Mobile Safari 11 or higher. Internet Explorer is NOT supported. Navigate to Scratch 3.0 at scratch.mit.edu. Play the Introduction to Scratch 3.0 video linked to from the Scratch home page (or at https://scratch.mit.edu?wvideo=joal01i8b1)

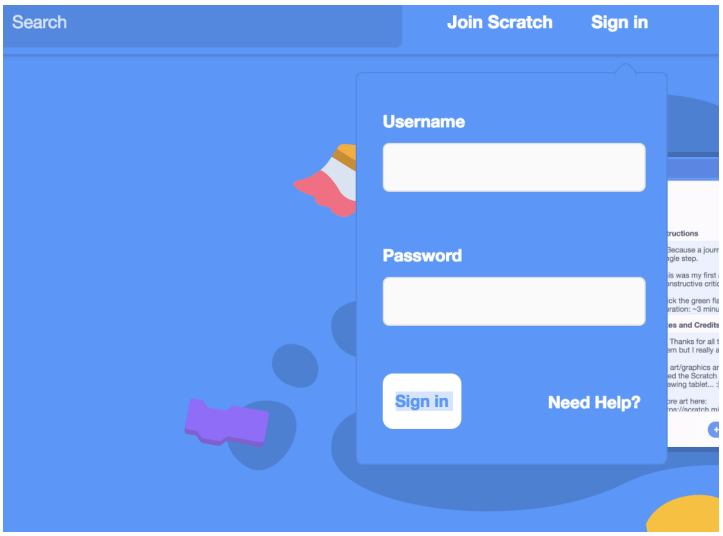
The Scratch community puts a strong emphasis on collaboration and sharing work. The scratch.mit.edu website contains millions of projects created by users around the world. You can join this community by creating a Scratch account. Some teachers ask children to create individual accounts. However, others create a single class account.

Click on “Join Scratch” to sign up for a Scratch account if you don’t have one already. An email address is required to sign-up.

Teachers can apply to have their account converted to a “Teacher Account” by clicking on “For Educators” under the “About” section on scratch.mit.edu. There is also a bank of resources available, including printable coding cards, available on this page.



If you have an account already click on “Sign In”.




Click “Create” to navigate to the Scratch programming environment. This is how to access the Scratch 3.0 online programming environment. Take some time to explore the scratch.mit.edu website (Click on Scratch, Create, Explore, Ideas and About menu options)

**New Features in Scratch 3.0**

Here are some of the new features in Scratch 3.0: This information is taken from the Scratch FAQ page. https://scratch.mit.edu/info/faq#scratch3

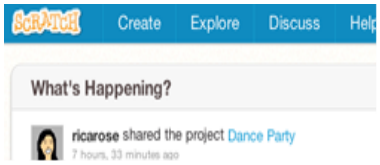
The new features are being highlighted for participants that are familiar with Scratch 2.0

**Scratch 3.0 introduces some new blocks:**

New "sound effect" blocks
New operators that make it easier to work with text (strings)
New pen blocks, including support for transparency
New glide block to move easily to a sprite (or random point)
Many new capabilities through "Scratch Extensions"

**Community Features**

1. On the homepage, you can see what others have shared recently and scroll to see many more projects.





2. When viewing a project, click 

to see how it works and experiment with the code.

3. Inside any project, click 

to save your own version and make changes. After you share it, the project page will highlight the original creators and links to their projects.

4. Click your username or icon to go to your **Profile** page, where you can feature one of your projects and tell others what you're working on.

5. People can post comments on your Profile page and 

your Scratch account to see updates.

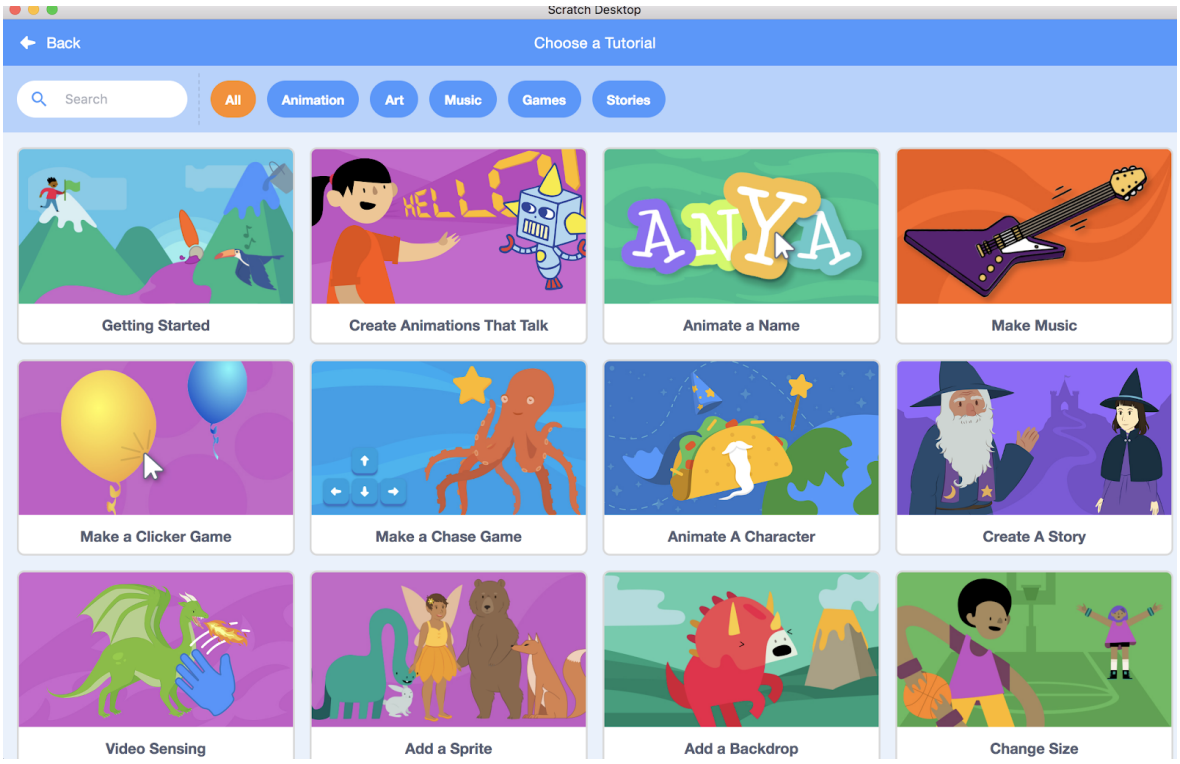
We will now prepare to use the Scratch Desktop.

# Scratch Desktop

This course will use the Scratch 3.0 online editor. However, you may wish to use the offline editor, Desktop in schools. This will work on computers that are not connected to the internet. If you wish to install the offline version of Scratch 3.0, follow the instructions on http://scratch.mit.edu/scratch2download/ . The Scratch Desktop editor is offline which means it is not dependent on a fast broadband connection.

# Getting Started with Scratch

Once the offline editor is installed, start it and click on Tutorials. There are a series of video tutorials here to guide you through Scratch.




These tutorials introduce fundamental programming concepts and allow participants become familiar with the Scratch programming environment.

### Participant Activity

Participants are now ready to complete some project work using resources on www.scratch.ie. This website is the home of Scratch in Ireland. It provides regular updates about training and the National Scratch Competition. It also contains a large bank of lesson plans for both primary and post-primary schools. To avail of the lesson plans it is necessary to register.

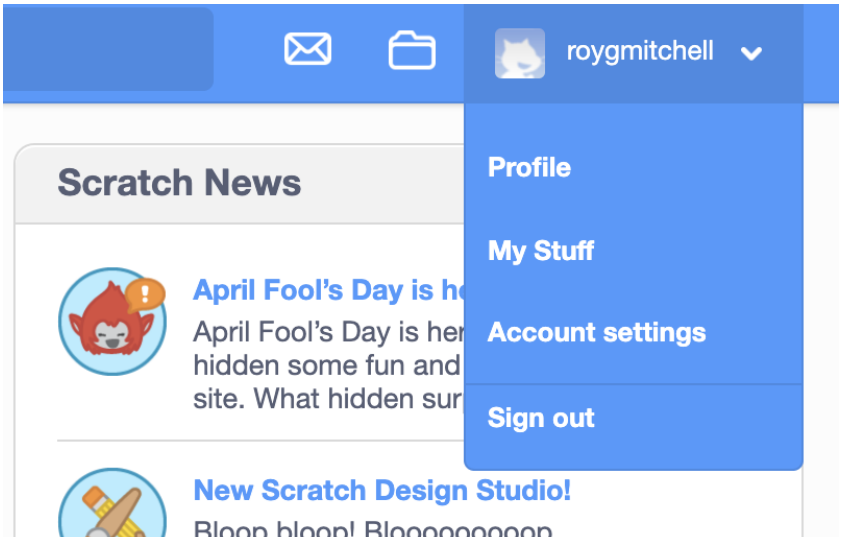
1. Go to www.scratch.ie.
2. Click on “Resources”, “Primary Resources”, “Lesson Plans”.

3. Click on “Register Here” and fill in your details. You will need an email address to register.
4. A password will be emailed to you that will enable you to access all lesson plans.
5. When you register, you will receive updates on Scratch in Ireland. If you wish, you may opt out of these email updates.

Click on http://scratch.ie/primary/resources. Choose Lesson 1 – Under the Sea. Complete Challenge Time 1. If you feel confident in this task, and if time allows, continue onto Challenge Time 2, and the Ultimate Challenge.

To save your project, click on “File” “Save to your computer” and give the project a meaningful name. This will save the project within the selected folder.

If you are ready to share your project online, go to scratch.mit.edu, sign in, and under your username, click on “My Stuff”. Click on “New project”, then on “File” and then “Load from your computer”.




**Shared projects**

By default, when you create a project on scratch.mit.edu or if you upload a project from the offline editor it will not be shared publicly. To share the project you need to open it online and click on the ‘share’ button.

**Comments**

Once a project is shared, another user can add comments to your project. You

can turn off the functionality by click “Turn Off Commenting” if you do not want users to comment on your project.


**Studios**

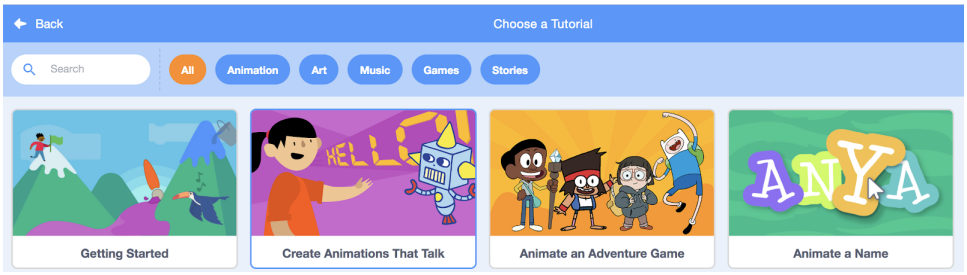
You can add projects to studios by clicking “+ New Studio”, decide if you want to “allow anyone to add projects” and then click on “Add Projects” to add projects to your studio. Your tutor will create a studio where the group can share work they have created this week. Sharing and explaining projects is a vital element of Scratch in the classroom. Use the studio URL to identify the studio.

**Languages**

Scratch is available in many different languages. The language can be changed by clicking on the globe icon at the top bar of the editor.


**Costume Changes**

Costume enables users to create very effective animations quite easily. Click on Tutorials and view the videos on animation.



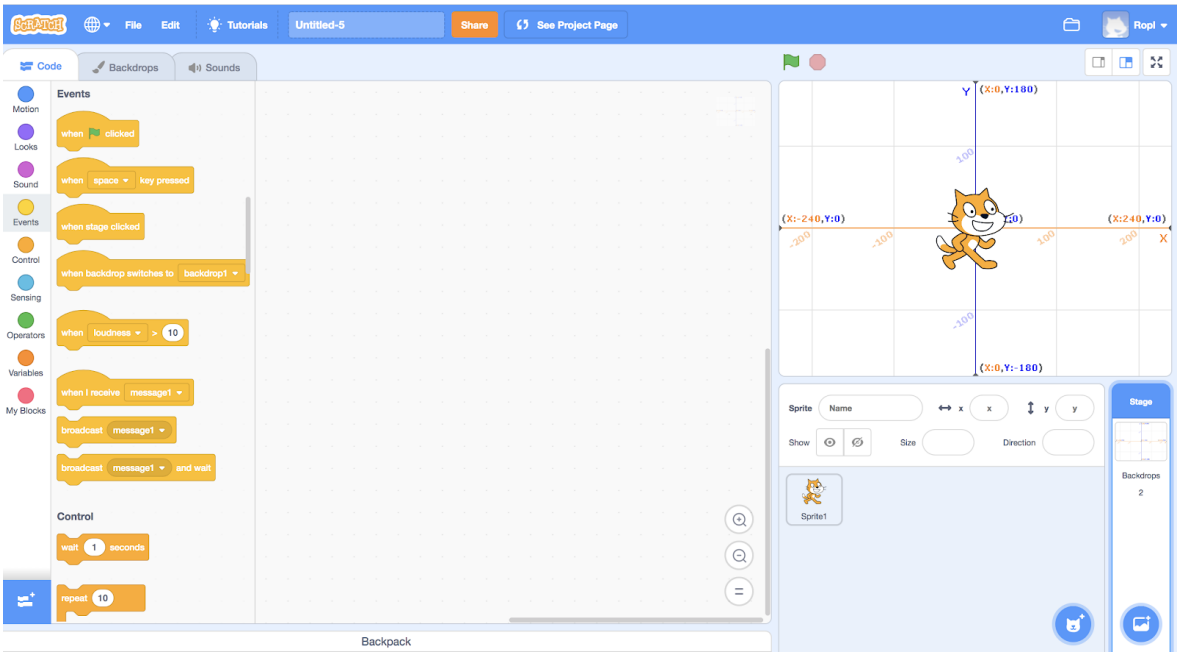
## Coordinates and directed numbers in Scratch

The following is taken from the Mathematics curriculum:

The child should be enabled to:

- Identify positive and negative numbers
- Add simple positive and negative numbers on the number line

One of the default backgrounds in Scratch is an XY Grid. Import this background into Scratch and it will show the XY position of your sprite.




Note the X and Y coordinates of the cursor position are shown at the bottom of the window.

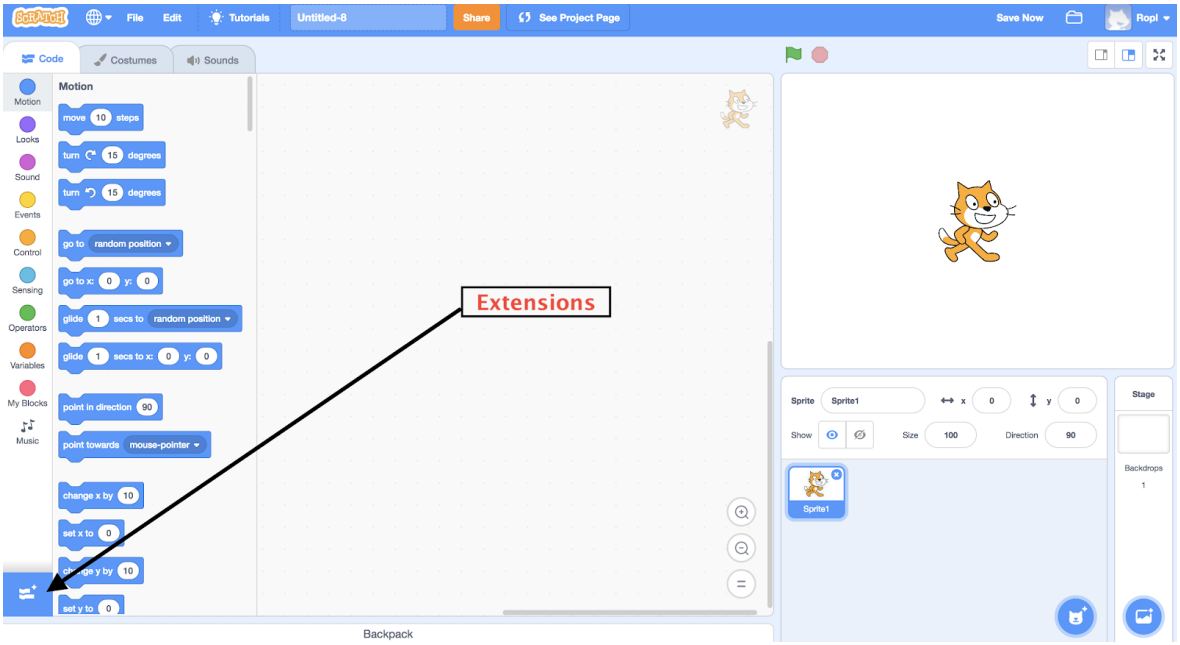
## Participant Activity

Write a Scratch programme that moves a sprite into each of the four quadrants of the XY Grid. Extend the activity by getting the sprite to say his position.

**Extension Activity:** We will be looking at changing the background later in the course but could you create a project that links to the geography curriculum? Perhaps you could take a sprite on a tour of Ireland, Europe or the world?

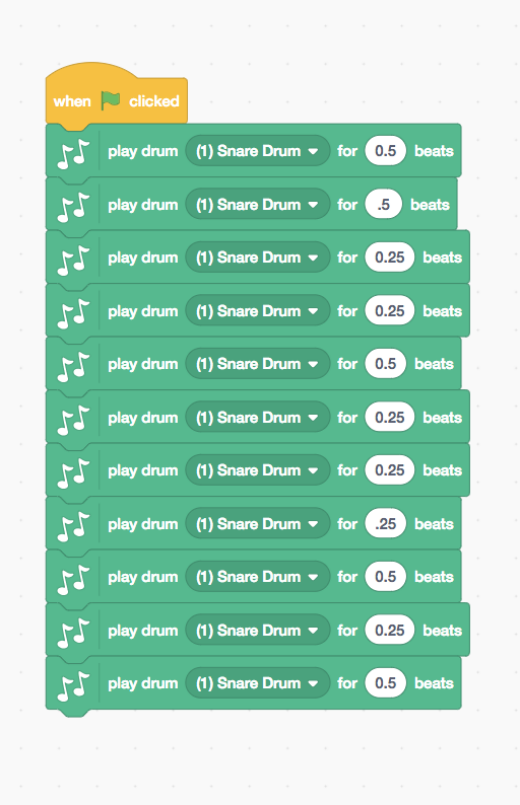
# Sound in Scratch

To use sound/music in Scratch you will need a set of speakers or headphones. Click on the “Extensions” button as shown below and then click on “Music” Extension to access music extensions.



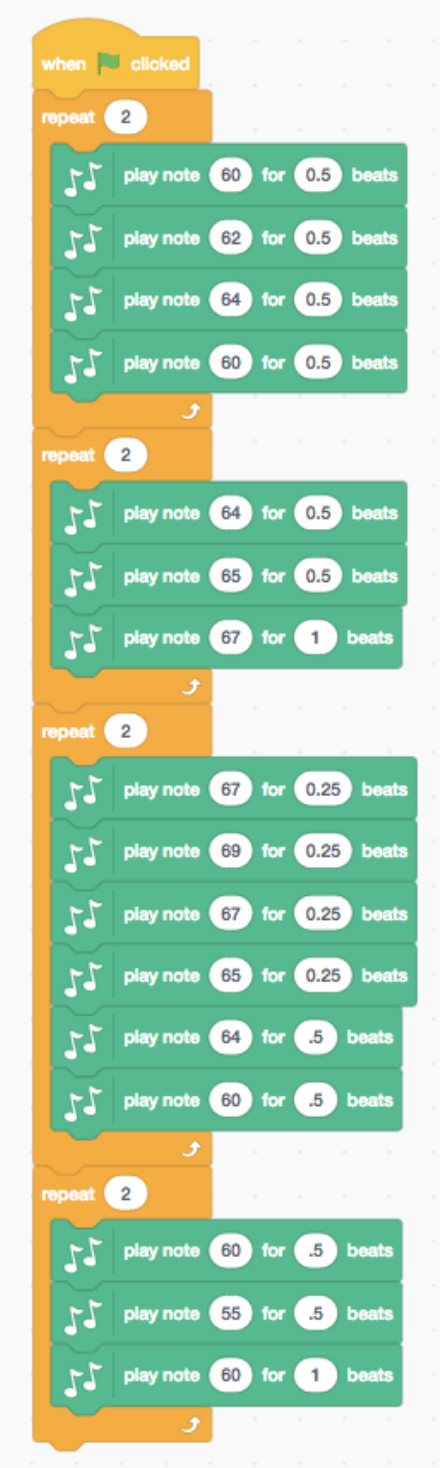

<u>Drum Beat</u>

- Drag out the “play drum (1) Snare Drum for 0.25 beats” block.
- Use the drop down arrow to select different percussion instruments.
- Duplicate this block by clicking right and change the length of the beats to create a rhythm.




## Musical Notes

Input the following code. Do you recognise the music?

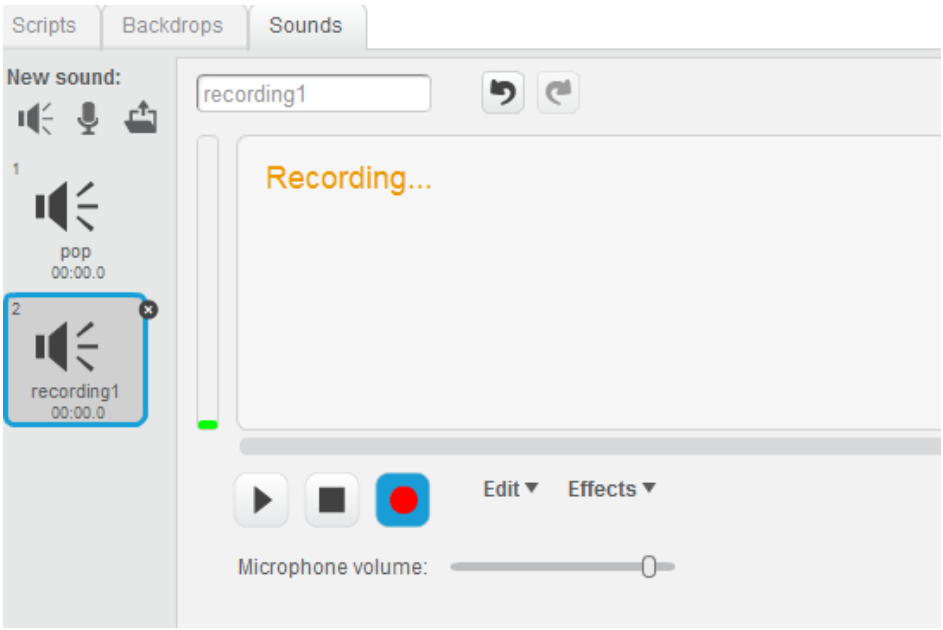



**Participant Activity**

Can you create a song using Scratch? Perhaps you could create a tin whistle tune from school. You can search the internet for notes for different songs. When you are finished upload your song to the studio and share it with the group.

Sound Files

- Click on the sounds tab. Click the loudspeaker to "Choose sound from library" and select some sounds from the folder. Once selected these will appear as a list in the sound tab.
- You may also import sounds that have been saved to desktop from websites such as www.pacdv.com/sounds.
- Click back into the scripts tab.
- Use the "Play Sound" block to incorporate the sounds you have chosen.
- In the sounds tab you can also record your own sounds. Most laptops have an inbuilt microphone. If this is not present you must attach an external microphone to record.




- Sounds may also be added to the background.

**Participant Activity**

1. Go to http://scratch.ie/primary/resources. Choose Lesson 3 – Battle of the Bands. You will need to enter your password to access this lesson.
2. Complete Challenge Time 2. If you feel confident in this task, and if time allows, continue to the Ultimate Challenge.

# Discussion Time

Today's objectives were to cover:

Introduction to Scratch
Installation of Scratch Desktop Editor
Getting Started with Scratch
Discussion Time

Discuss the day with your colleagues and reflect on what you have learned.
Discuss the cross curricular use of Scratch in particular for music and SESE.
Discuss aspects of Scratch that are relevant to numeracy. What could you use in your classroom if you were teaching tomorrow?