

Scratch

What is code?

These are the instructions used to write a computer program. Different pieces of code can be arranged in different ways to give the computer a set of instructions.

What is Debugging?

This is the process of finding errors or problems with your code and trying to fix it. Sometimes code will be in the wrong order or there could be bits of code missing, the process of fixing the code is called debugging.

What is Scratch?

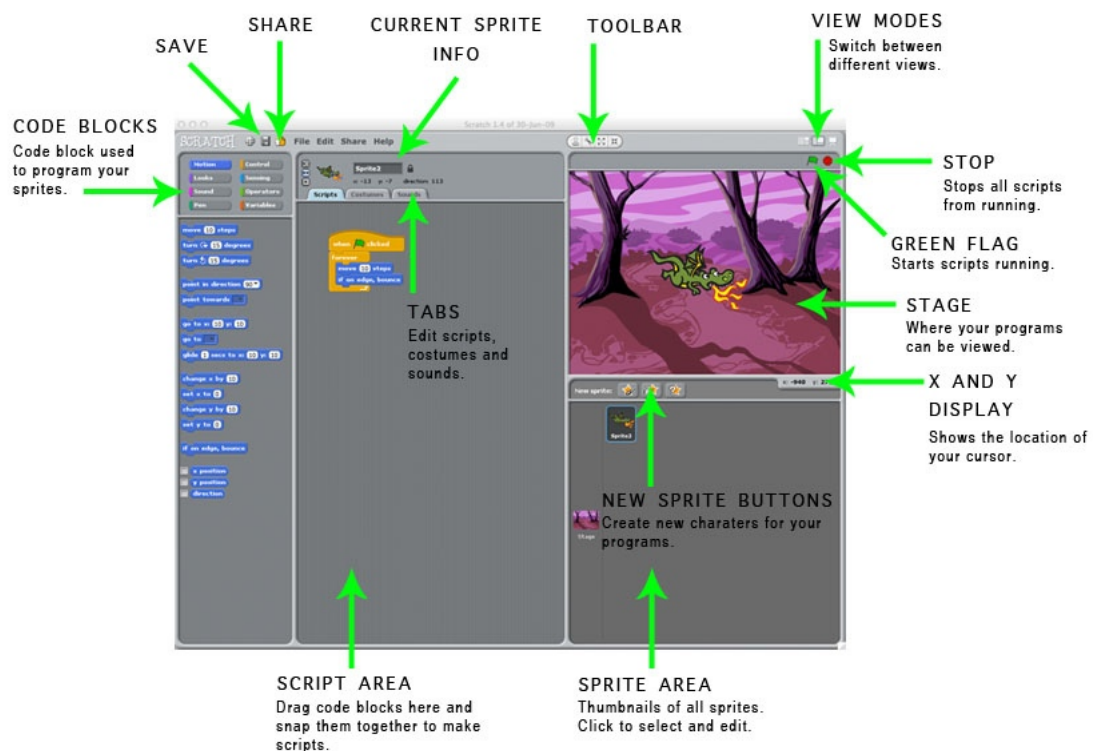
Scratch is a programming language and online community where you can create your own interactive stories, games and animations. It is freely available to download and install on either Mac OS X and Windows operating systems. A web based version will also run through your browser so it can be accessed without the need to install it on your computer.

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

Download: http://scratch.mit.edu/scratch_1.4/

Web Version: http://scratch.mit.edu/projects/editor/?tip_bar=getStarted

The Scratch Interface



Getting Started in Scratch

Scratch is brilliant in dealing with graphics and sprites, it comes with its own library of graphics ready for you to import into your projects or you can use the paint editor within Scratch to design your own.

Creating your own graphics within Scratch

Using the paint editor in Scratch is the easier way of creating your own sprites as you don't have to remove the background like in the previous example.



Firstly you select the *Paint New Sprite* button to launch the paint editor.



Once the paint editor has launched you can then start to paint and draw your sprites and characters for your games. There are a range of different tools in here to assist you with your drawing.

Click ok to save your sprite once you have finished.

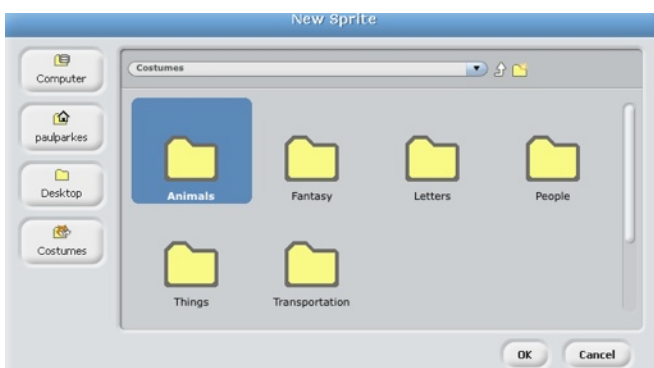
Video Guide: [Creating your own sprites.mp4](#)

Using sprites supplied with Scratch

The great thing about Scratch is that it comes with lots of sprites that are ready for you to use in your projects.



To use the sprites that come with Scratch you need to click the *Chose new sprite from file* button.



Once the new sprite window has loaded, click the *Costumes* icon down the left hand side.

Then select a folder for the type of character your are looking for.

Once you have found your sprite click ok to import it.

Video Guide: [Using Sprites from Scratch.mp4](#)

The Stage

You can also import graphics to the stage which will act as the background image. Its possible for you to draw your own backgrounds like it is with the sprites or you can import background images from the library of images available in Scratch.



To change the background of the stage you firstly need to click on the stage itself.



Next step is to select the background tab.

You then have a choice to either *import* a background from the library or draw your own background by using the edit button to load up the paint editor.

Video Guide: [Changing The Stage.mp4](#)

Activity 1

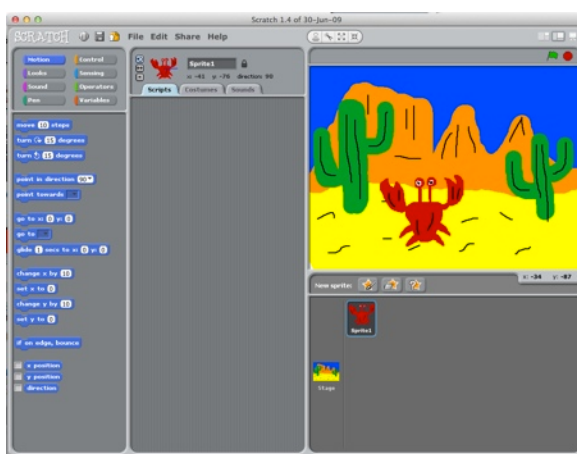
- The aim of this activity is to draw what you will make in Scratch. Ask the children to think of a scene they would like their Scratch project to take place in and draw it on paper like the example below which uses a desert background.



- Then ask the children to draw a character in their project. The example above uses a crab character.
- The next step would be to label the background and the character as the stage and the sprite as they would be known in Scratch.

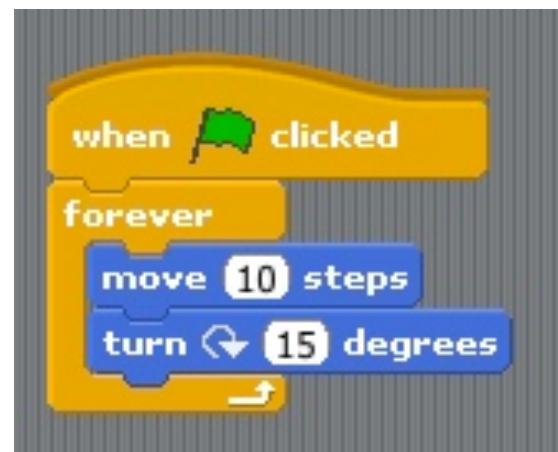
Activity 2

- Demonstrate how to draw your own background on the stage in Scratch to the students and ask them to then draw their own based on the background they chose in Activity 1.
- Demonstrate how to create and draw your own sprites within Scratch and then ask the children to draw their own character based on the one they drew in Activity 1.
- It is also possible to import background and sprites from the library of images that comes with Scratch. The two examples below show the difference between a drawn project and one created with the Scratch supplied graphics.
- Watch **Activity 2a.mp4** and **Activity 2b.mp4** in the **Activity Videos** folder for guidance.



Activity 3 - Control & Motion

- Drag the green flag code block and the forever loop code block into the script area.
- Ask the children to connect a move code block and change the number of steps.
- Connect a turn code block to the move block, explaining the difference in the two turn blocks. Discuss what happens when the code blocks are not connected?
- Experiment with different move code blocks and see what they can create.
- Watch **Activity 3.mp4** in the **Activity Videos** folder for guidance.



~~Lets Fix It!~~

~~Ask the children to complete **Problem 1** and **Problem 2** in the **Problems** folder inside the **Ref 18 folder**. The solutions are also provided.~~

Activity 4 - Looks & Sound

- Drag the green flag code block into the script area to create a new code block.
- Demonstrate the Look code blocks and ask them to use the **say Hello! for 2 Secs** code block connected to the green flag button.
- Change what you want the character to say and the duration it says it for.
- Demonstrate using sounds by clicking on the sounds tab and importing a sound from the Scratch library then ask the children to do the same for their project.
- Demonstrate the Sound code blocks and ask the children to connect the **play sound** code block to the previous code block.
- Watch **Activity 4.mp4** in the **Activity Videos** folder for guidance.



~~Lets Fix It!~~

~~Ask the children to complete the **Problem 3** and **Problem 4** in the **Problems** folder inside the **Ref 18 folder**. The solutions are also provided.~~

Activity 5 - Conditions & Sensors

- Import a new sprite from the Scratch Library into your project.
- Add the following code blocks to your new sprite.
- Watch **Activity 5.mp4** in the **Activity Videos** folder for guidance.

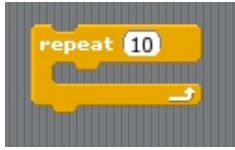


~~Lets Fix It!~~

~~Ask the children to complete the **Problem 5** and **Problem 6** in the **Problems** folder inside the **Ref 18 folder**. The solutions are also provided.~~

Activity 6 - Loops

- Drag the green flag code block into the script area for the crab.



- Then connect a repeat code block to this and ask the children to change the value in the box.

- Discuss with the children the difference between the **Forever** loop and the **Repeat** loop. What is the difference between the two?
- Use the change colour effect code block inside the Looks section and place this inside your repeat code block.
- Watch **Activity 6.mp4** in the **Activity Videos** folder for guidance.



Lets Fix It!

Ask the children to complete the **Problem 7** and **Problem 8** in the **Problems** folder inside the **Ref 18 folder**. The solutions are also provided.