Getting into gaming – starting from Scratch

Introduction

Getting into game building isn't too challenging – there are lots of programs out there, often free to download and use, that can help you start to build your own game. One of these is Scratch – a program that allows you to easily create worlds and characters and make those characters interact by simple coding principles.

Joining and downloading Scratch

Scratch is available as a download from https://scratch.mit.edu/scratch_1.4/ if you want a local copy of the program.

Or you can go to https://scratch.mit.edu/ and click on Create (top navigation) to open up a web-based version of Scratch. To save your Scratch games, you will need to create an account – click on **Join Scratch**, choose a username and password to sign up, free of charge.

To access lots of help with getting started on Scratch, go to the **Help** menu from the top navigation. There are video tutorials, Scratch cards and a getting started guide with lots of clear instructions on how to use Scratch. You will also find a copy of the Getting Started Guide alongside this guide in the Resources area of the course page.

A quick overview of how Scratch works – the scripts

Scratch is based on characters known as sprites, which can be programmed to move and act. The default sprite is the cat, but you can also choose others in the library, or draw your own. You can also upload your own sprite images.

Scratch uses scripts – these are three main menus in the middle of the screen that can change the movement of the sprite (motion script), the costume and the sounds of the game.

The motion script programs the sprite to move a number of steps, change direction or locate itself through coordinates. You can move towards something (e.g. the mouse) or rotate.

Sounds can be added that then synchronise with the sprite's movements. Drums can be chosen from the 'play drum' block, and repeat loops are easy to add using the 'if…then' logic to control the sprite actions.

The event script can control actions depending on user input, using sensing scripts that change the sprite's behaviour if it approaches or touches other objects.

The looks script can add speech to sprites and change the colour, costume and size of a sprite. You can also change the backdrop in this menu.

How Scratch works – the programming

Scratch works by using blocks that can be snapped together one on top of another or – in the case of control scripts – wrapped around the actions.

In the example on the right, two 'move' blocks are layered with two 'play drum' blocks with a repeat loop to make the sprite move forwards and backwards to the drum beat.

Clicking on any of the blocks starts the program and the sprite starts to move.

Changing the look of the game

You can change the backdrop of the game in the library by selecting 'new backdrop' from the menu under the sprite window and choosing one. You can also upload your own backdrop, or important images from a camera. Sprites are then located by dragging them within the backdrop.

The sprite colour can be changed with the looks and events script, using the space bar. Use the change colour block from looks, and then when the space bar is pressed from events, the sprite changes colour.
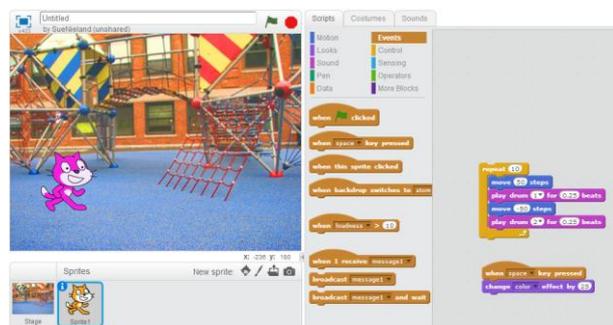
More sprites can be added to give you multiple characters. The sprite library has a range to choose from. Make this new sprite move by allocating the move blocks to the second sprite (object).

Scratch as a preparation for different languages

Scratch is a great place to start for making games – even the Oliver twins have built games in Scratch! It is a precursor to other languages including JavaScript, which is important in game programming. Although it might not seem like 'real' programming because it's based on a drag and drop and is known as visual programming, it teaches real computer science principles around logic and control.