Scratch cheat sheet

Scratch - web-based block coding tool developed by MIT Media Lab.

Use at [scratch.mit.edu](https://scratch.mit.edu/) - sign up to get a free account to create and save your projects.

# How does Scratch work?

* Scratch allows you to control images ('sprites') on backgrounds ('backdrops') by dragging blocks together to create instructions for the computer.
* The area where the sprites and backdrops can be seen, and where people can 'play' with your game or animation is called the 'stage'.
* When you share your project, users will see the stage, and be able to interact with the project as you've told it to work using the code blocks.
* They can also 'See inside' the project to look at the blocks used to make it.

# **Get started...**

1. Make sure you're signed in (top right corner of screen) and then click **Create**
2. Rename your project in the top bar (by typing over where it says 'untitled').
3. Choose or upload your sprite(s) and backdrop(s).
4. Work out what code you're going to need.
5. Start dragging blocks into the middle area to 'write' your code!

# Other Scratch terms

* **Costumes** - different versions of the image for a sprite, allowing you to change what they look like (e.g. outfit, direction, facial expression)
* **Blocks** - how you create code in Scratch, blocks fit together like Lego to create instructions for the computer, and different kinds of blocks can do different things

# Useful blocks

**Event blocks** are the only way to make your code start - the computer needs to know what will happen that tells it to start 'doing' the blocks.

The event might be when the green flag icon is clicked, when the sprite is clicked, or when a particular key is pressed. You can use multiple events in your code, to allow different things to happen.

Scratch  'when green flag clicked' event blockScratch 'when space key pressed' event blockScratch 'when this sprite clicked' event block

**Motion blocks** make the sprite move around the screen, using 'steps' or telling the Sprite to go to a specific location.

Scratch 'move 10 steps' motion blockScratch 'go to x: 0 y: 0' motion blockScratch 'point in direction 90' block

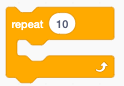
**Looks blocks** change how things look on the screen, including displaying text and changing the costume or size of a sprite.

Scratch 'say Hello! for 2 seconds' looks blockScratch 'switch costume to costume2' looks block

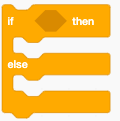
**Control blocks** allow you to control what the code itself does, rather than affect what the user interacts with on the stage. This can be telling the code to 'wait' a certain amount of time before doing the next block, repeating sections of code, and making decisions about which code should run.Scratch 'wait 1 seconds' control block

The **wait block** is useful for making sure things don't all happen at the same time - try using it if you don't see a discernible change when you expect one.

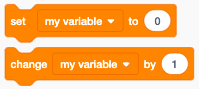
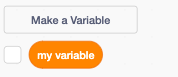
There are two **repeat blocks** - one for a specified number of times, and another for 'forever'. The forever option will run until the project is stopped or closed (or computer battery gives up!).



The **if blocks** tell the code to decide whether code should run, depending on whether a statement is evaluated to 'true', e.g. if the user has a particular score, or if the sprite has a certain costume. You can use the **if / else block** if you want something to also happen if the statement is false.



**Variable blocks** allow you to store values in your code, for example a score for a game, and to refer to these values by name. Go to the Variables list and choose 'Make a Variable' to create one, giving it a relevant name. You can then display the variable on the stage and do maths with it, for example increasing by a certain amount as a player gets points.



# Further resources

For more resources on coding and Scratch, see [subjectguides.york.ac.uk/skills/coding](https://subjectguides.york.ac.uk/skills/coding)