

[Scratch basics]

Here we'll get some basics of how to create and run programs in scratch.

This window is where objects and some information are displayed, and where the program will actually be run. Below we have a list of "sprites", these are objects that can move around and perform actions (or have actions performed upon them), then on the right here we have the programming blocks. We can drag these across and allow them to click into sequence.

The blocks or "scripts" are organised into different categories. Different groups will be important depending on what we want to do, but for the moment we'll focus on the Motion and Event blocks.

The most important Event block is the green flag which is used to start our program. So we can drag this to the right as the first block of our program. The other Event blocks can be used to allow things to happen either within the program or based on different starting criteria. For example, the "when key pressed" button will work even if you haven't started the program.

We can then build a sequence of instructions. We'll focus on the Motion ones since these are the most straight-forward to observe.

We can put in any sequence of actions, and then when we're happy with our program, we can run what we have.

In this case, pressing the green flag will result in the Cat moving forward 10 steps, turning 15 degrees, moving forward another 10 steps, turning another 15 degrees and moving forward 10 steps again.

After running it, it just looks like the cat moved across a little bit.

This is because the computer can run the actions in hardly any time at all, and so we only see the difference between the position of the cat at the start and end.

If we want to be able to actually observe the steps one by one, we can ask the computer to pause between the steps. A block for this can be found under “Control”. We can make our steps and rotations bigger so that they’re more obvious too.

We can drag the cat to reposition its starting position, or we can also add in some commands that will ensure it starts in the right spot. In this case, you can see that this window maps to some x- and y-coordinates. The x value is how far left or right we are from the centre, and the y value is how far up or down we are from the centre. We also might want to set the starting “direction” to point towards the right. This way, no matter where our cat ends up or where we drag it to, when we click the flag, it’ll start from this position and repeat the same sequence.