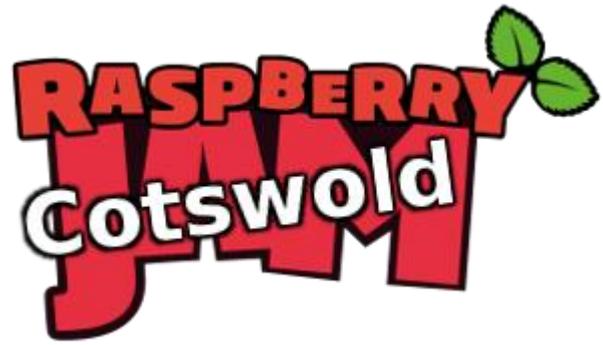
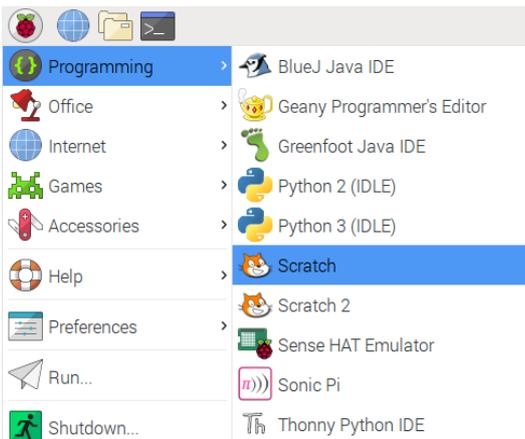


Raspberry Pi Scratch Maze Game - Simplified

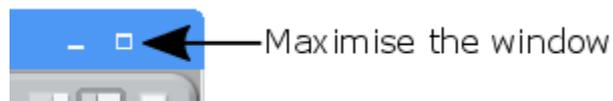


Tutorial by Andrew Oakley - Public Domain
Updated Nov 2017 www.cotswoldjam.org

Getting started



1. Click on the Raspberry menu, Programming, Scratch



2. Click the Maximise Window button.
3. Select File menu, Open.
4. Click the Pi button.
5. Select Scratch and click OK.
6. Select simple-maze and click OK.



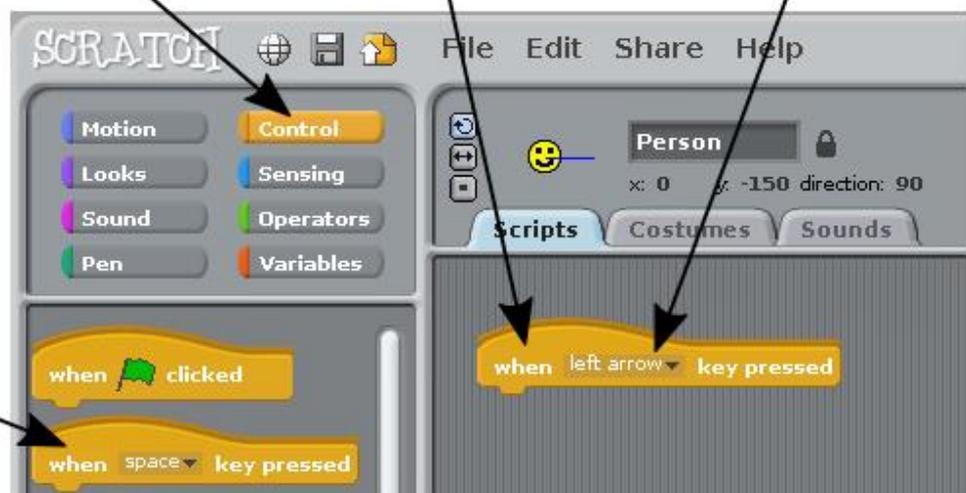
7. Select smaze1 and click OK. A green and blue maze should appear.

1. Click "Control"

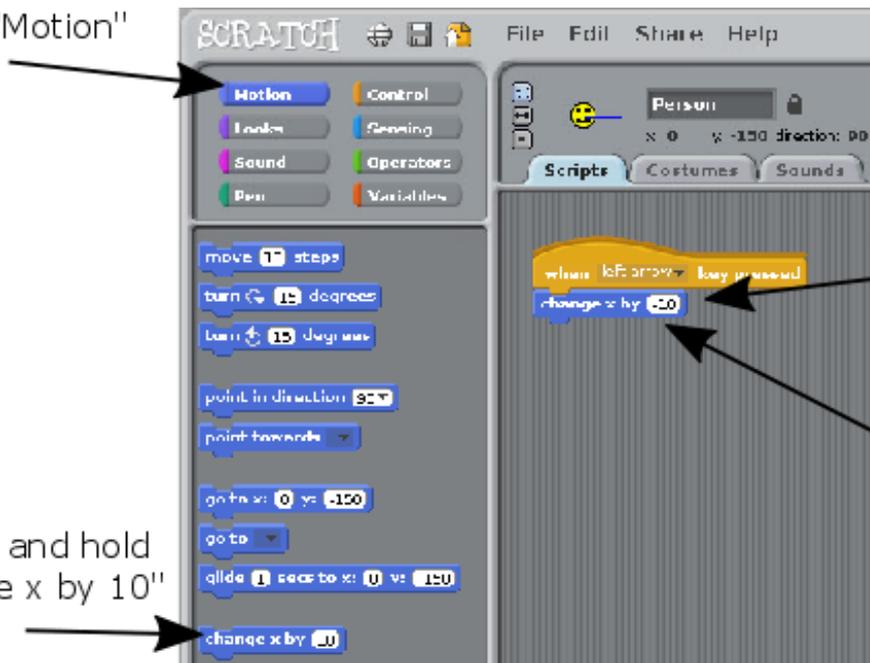
3. Drag to here

4. Change "space" to "left arrow"

2. Click and hold



1. Click "Motion"



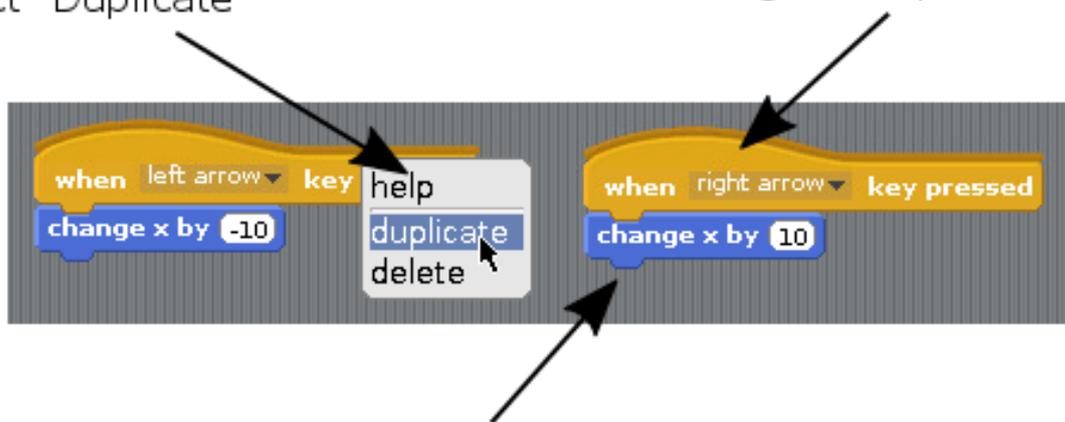
3. Drag to here

2. Click and hold "Change x by 10"

4. Click 10 and change to -10 using keyboard

1. Right-click here and select "Duplicate"

2. Drag the duplicate to here



3. Change "left arrow" to "right arrow" and -10 to 10

You should now be able to move the Smiley left and right, using the left and right arrow keys.

X is a "variable". A variable can hold a number or a word which can change. X measures left and right position.

The screenshot shows the Scratch code editor for a 'Person' sprite. The 'Scripts' tab is active, displaying four 'when key pressed' blocks. The first two blocks are for the left and right arrows, both containing 'change x by' blocks with values of -10 and 10 respectively. The last two blocks are for the down and up arrows, both containing 'change y by' blocks with values of -10 and 10 respectively. On the left, the 'Motion' category is selected, showing a list of movement blocks. An arrow points from the 'change y by 10' block in the 'Motion' list to the 'change y by 10' block in the 'Scripts' area.

1. From the Control list, create "when down arrow" and "when up arrow"
2. From the Motion list, add "change y by 10"
3. Change 10 to -10 for the down arrow

You should now be able to move the Smiley up and down, using the up and down arrow keys. The Y variable measures up and down position.

The Smiley can now move anywhere around the maze, including through the walls.

We need to add rules:

- To make the Smiley go back to the start if it hits a **blue** wall
- To say "You win!" if the Smiley reaches the **white** outline of the exit

The screenshot shows a 'when clicked' script. It starts with a 'go to x: 0 y: -150' block. This is followed by a 'repeat until' loop with a 'touching color' block. Inside the loop, there is an 'if' statement with a 'touching color' block. If the condition is met, it goes to 'x: 0 y: -150'. After the loop, there is a 'say You win!' block.

Create this new block.

You will find "touching color" under the "Sensing" list.

The screenshot shows the 'Sensing' category in the Scratch code editor. The 'touching color' block is highlighted with a black arrow. Below it, there are other sensing blocks: 'touching' and 'color is touching'.

To select a colour:



1. Click the colour box



2. Click the colour you need

To start a new game:



Click the green flag

What if you make a mistake?



Right-click any block and click "delete"

For teachers / Scout / Guide leaders:

Downloads available from <http://www.cotswoldjam.org/downloads/beavers>

To add the files to Raspbian, go to the terminal:



```
cd
mkdir -p Scratch/simple-maze
cd Scratch/simple-maze
curl "http://www.cotswoldjam.org/downloads/beavers/cjam-scratch-simple-maze-code.zip" -O
unzip cjam-scratch-simple-maze-code.zip
exit
```

Note that -O is the capital letter O, not zero.