

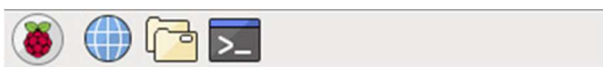
# Raspberry Pi Scratch Maze Game - Simplified



Tutorial by Andrew Oakley - Public Domain  
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Simplified version for 3rd Beaver Scouts, Tewkesbury – Digital Maker Part 2

## Getting started



Wastebasket



smaze1.sb



smaze2.sb



smaze3.sb

Double-click on  
smaze1.sb



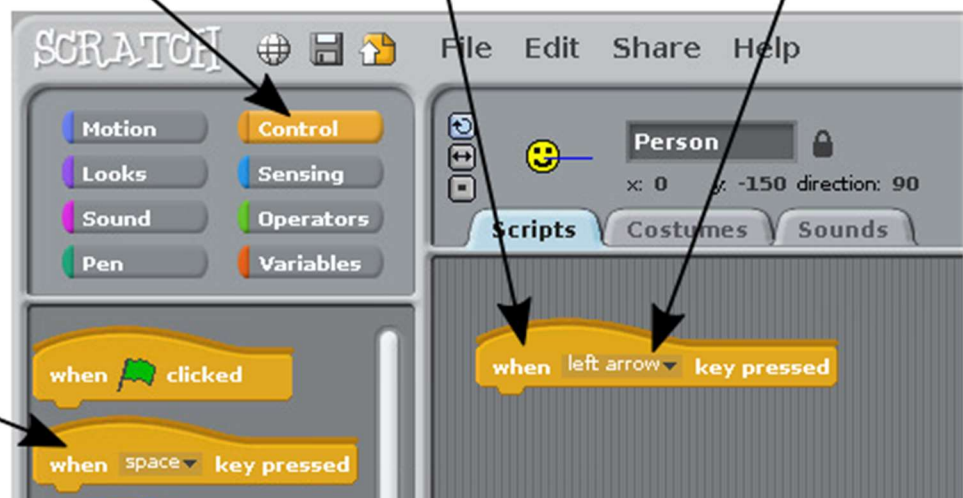
Maximise the window

1. Click "Control"

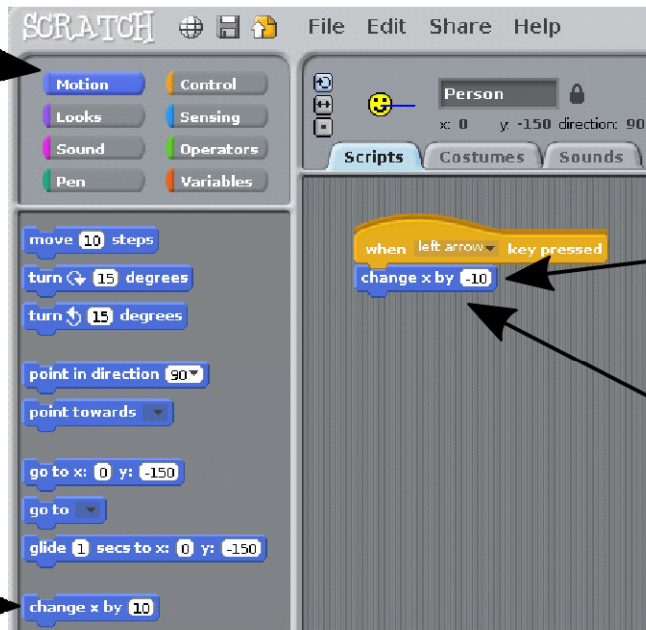
3. Drag to here

4. Change "space"  
to "left arrow"

2. Click and hold



1. Click "Motion"



2. Click and hold "Change x by 10"

3. Drag to here

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.

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

Create this new block.

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

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"

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## For leaders

This tutorial uses Scratch version 1.4. It'll work on the Raspberry Pi, PC or Mac.

This Scratch programming exercise can be used to achieve the following sections of the Digital Maker badge:

- Stage 2 section 3
- Stage 3 section 1

You can get a copy of smaze1.sb , which includes the maze stage graphics and the smiley sprite, from: <http://www.cotswoldjam.org/downloads/beavers>

You can also get a PDF and MS-Word version of this document from the same place. This tutorial is public domain so you can use, copy or change it without needing to ask or credit us. However it would be nice if you could mention: cotswoldjam.org

Worksheets for Digital Maker Stage 1 is also available from the same place. That worksheet also covers Stage 2 section1 part 2.

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# Digital Maker Stage 2

## Additional Requirements

Name: \_\_\_\_\_

As well as the Scratch Maze game, to earn your Stage 2 badge, you also need to answer these two requirements:

1. Which of the following sensors might a robot use to get through a maze?  
(Tick any TWO; you need at least one right to pass)

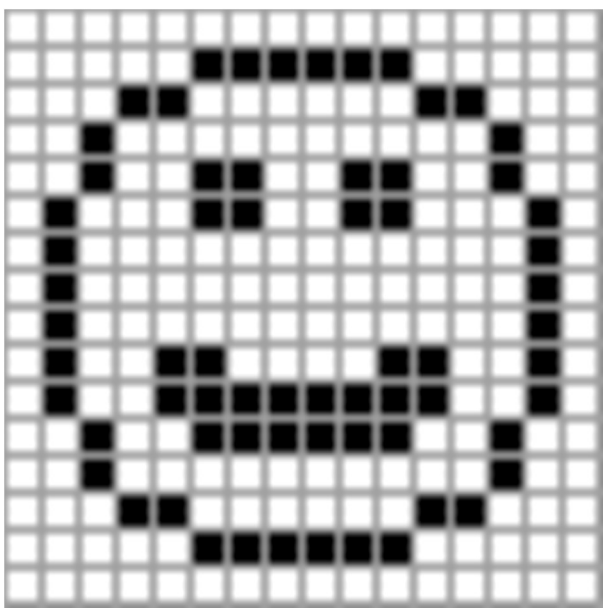
- A: A temperature sensor for measuring heat
- B: A distance sensor for measuring whether a wall is near or far away
- C: A humidity sensor for measuring whether air is dry or wet
- D: A collision sensor for knowing if it has bumped into something

2. Using a pencil, create some black and white pixel art, for example a face or a stick man.

In a computer, each square would be stored as a zero (white) or one (black). This is how computers store pictures.

Remember you can only fill each square with either black or white.

Example:



Your pixel art:

