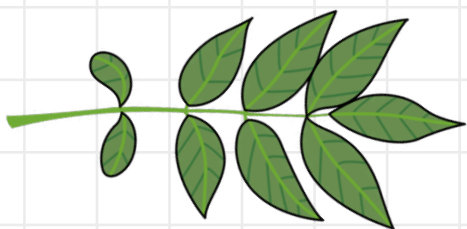


Overview

This activity fulfills **Stage 3, Requirement 3** of the **Digital Maker Staged Activity Badge** ('Design and create digital graphics'). Young people will design a theme and create the sprites and background for a computer game.



You will need:



- Laptops, desktop computers, or tablets (ideally one per pair of young people)
- Activity handouts (at least one per group)

If your meeting place has WiFi

Run Scratch online in a web browser and open the starter project 'Shape shooter' using this link: rpf.io/scouts-graphics-on.

If your meeting place doesn't have WiFi

- Download the Scratch Desktop application beforehand; refer to the Scratch guide at rpf.io/scouts-scratch for instructions.
- Download the Scouts Game Design starter project shape-shooter.sb3 from rpf.io/scouts-graphics-go.



45 minutes



Flexible (ideally two young people per computer)



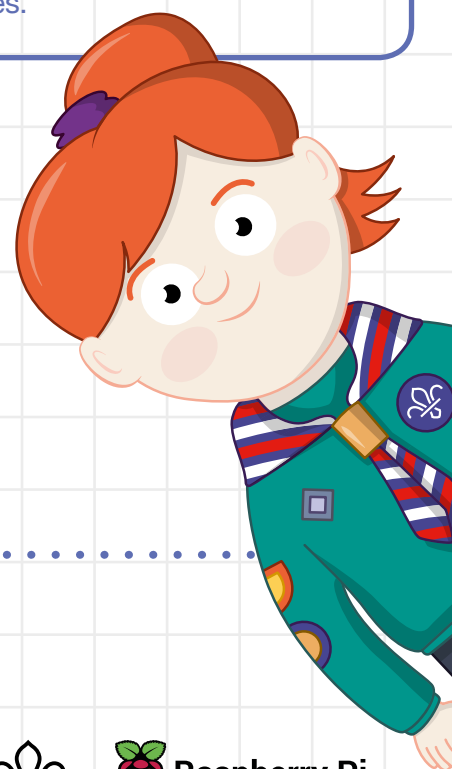
If you're running this activity without access to WiFi, you will need to download the software and starter project ahead of time. You may also wish to print handouts.



Wherever you have access to computers

Key messages

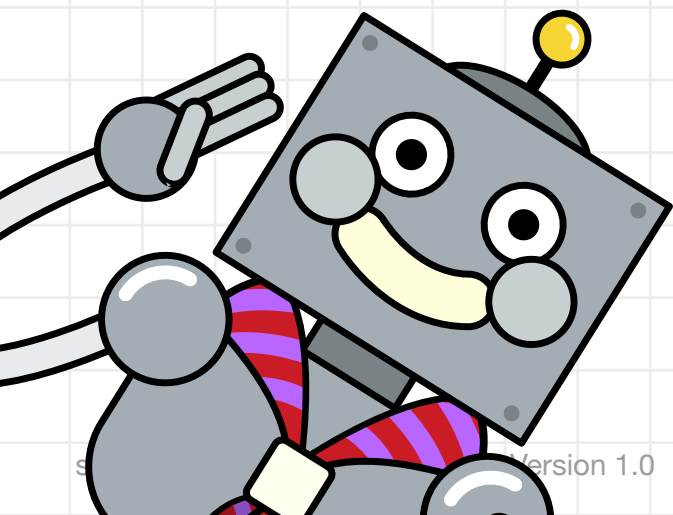
- Creating a computer game is as much about art as it is about programming.
- The theme of a computer game comes from what the game looks and sounds like, not just what it does.



Leader instructions



- 1 Discuss that computer games are created using images as well as code.
- 2 Explain that an image in a computer game is often known as a sprite.
- 3 If they haven't used it before, introduce the young people to Scratch. Explain that it is a programming language for creating games, stories, and animations.
- 4 Explain that the young people will be modifying a computer game by creating new sprites for it.
- 5 Demo the 'Shape shooter' game.
- 6 Explain that the young people can change the sprites to anything they want.
- 7 You can introduce a theme for the game (e.g. recycling) or leave it up to the young people to decide.



Alternatives



- Young people could create their own game and graphics.
- Young people could use more sophisticated image editing software, such as **Photoshop** or **GIMP**, and upload costumes.

Community and sharing

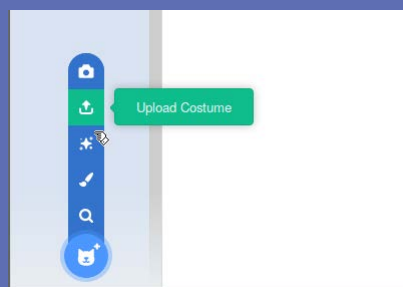


- Ask the young people to showcase their new games and graphics.
- You can share the games on the Scratch website by logging in and using the 'Share' option.

Adaptability



- Use the 'Upload Costume' option in Scratch to upload pictures from your computer, then you can use these pictures as sprites in your game. If you like, you can take your own pictures with your mobile phone or camera.



Safety

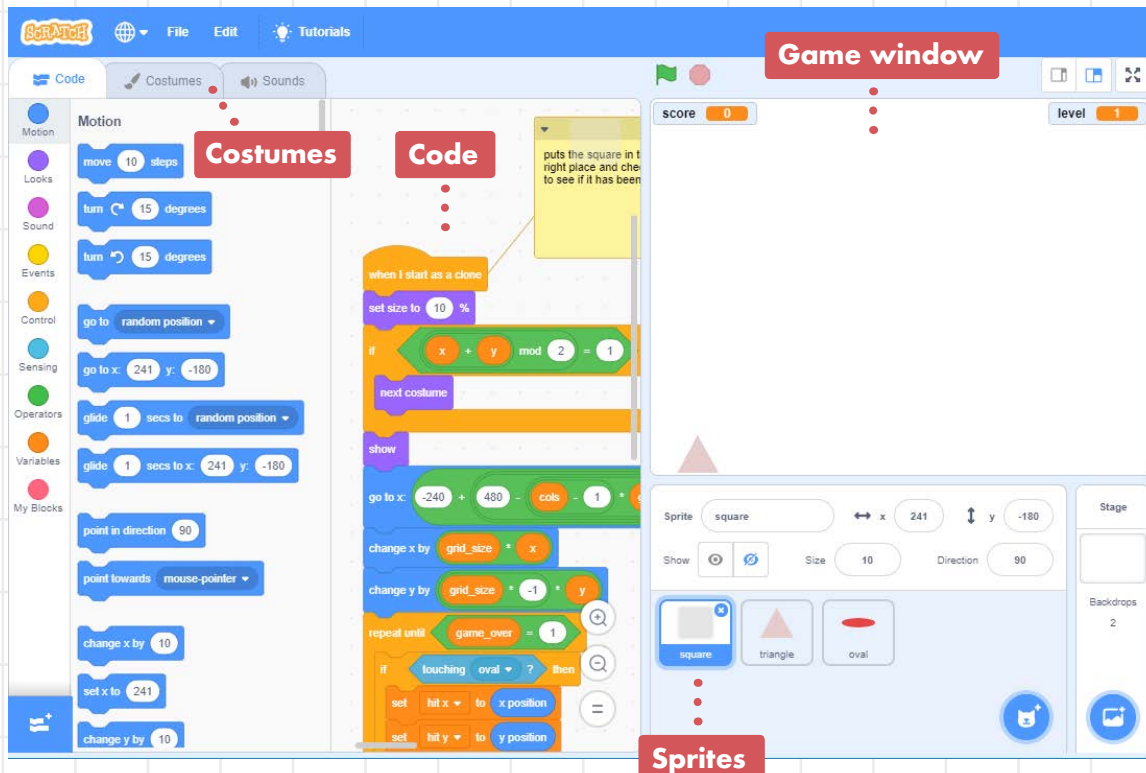
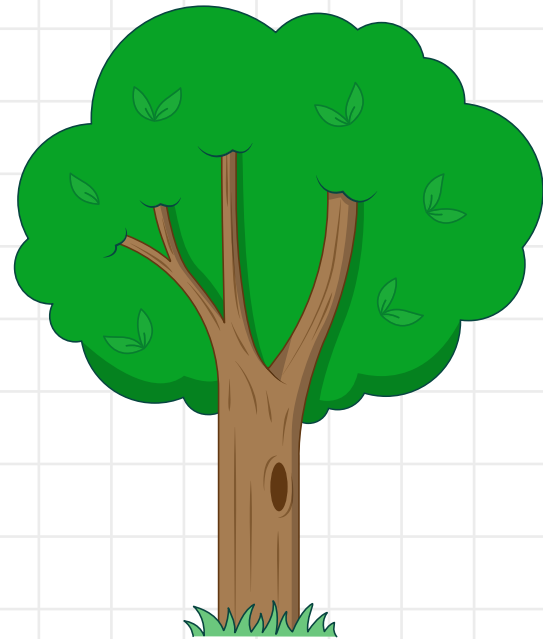


Supervise young people when they're online. Give safety advice, and remind them about staying safe online at home.

In this activity, you will design your own theme and graphics for a computer game called 'Shape shooter'.

Part 1: The game design

- 1 Open the 'Shape shooter' starter project in Scratch 3:
 - If your device is connected to the internet: open the starter project at rpf.io/scouts-graphics-on
 - If your device is not connected to the internet: click on 'File', then 'Load from your computer', then select the shape-shooter.sb3 file that your leader has downloaded

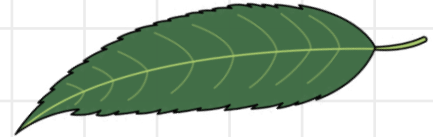
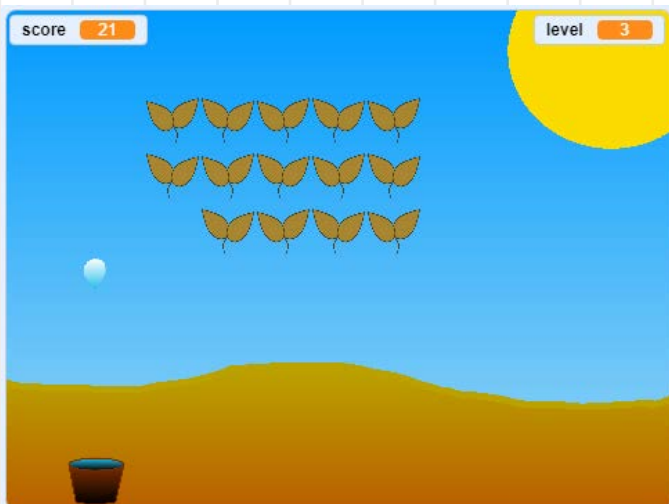


2 You will see the Shape shooter game, sprites, costumes, and code in Scratch.

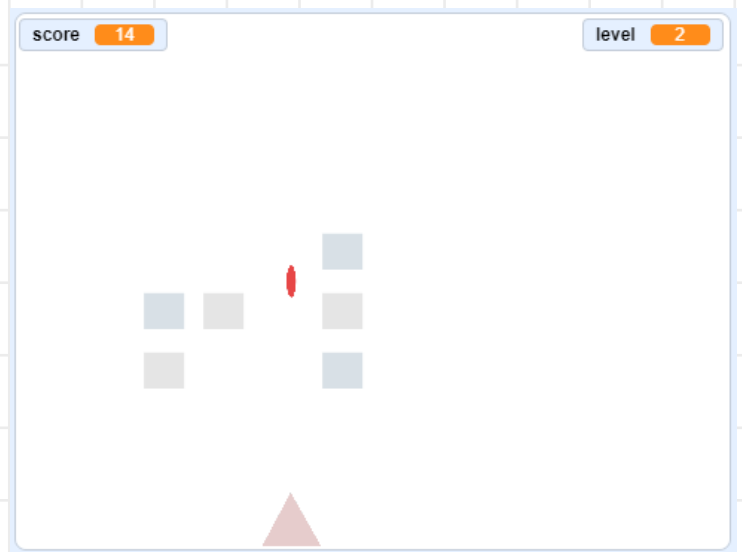
3 Click on the green flag to play the game. The aim of the game is to shoot the squares with the ovals. Use your mouse or touchscreen to control the triangle that is shooting the ovals.

4 As you can see, at the moment, the game's graphics are really simple.

6 In this example, 'Plant waterer', the squares are dried out plants that need watering, and the triangle is a bucket that fires water droplets instead of ovals:

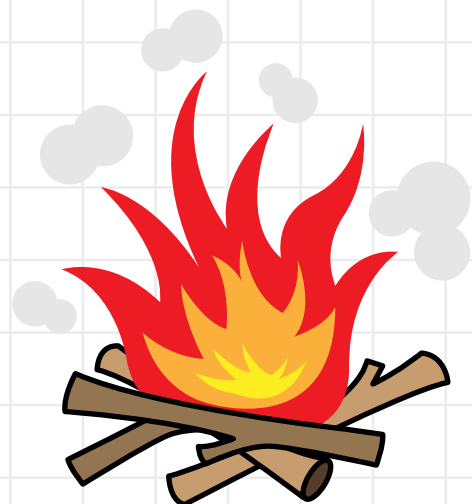


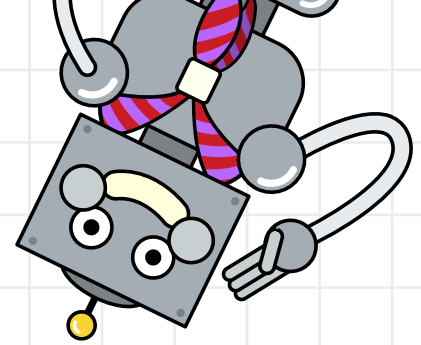
3



5 Think about or discuss with your group what theme you want the game to have. The choice is yours — it could be a Scouts theme, such as 'badge collector', or something of your own creation, such as 'fairies vs dragons'.

7 Decide on a background and decide what you are going to use instead of the square, triangle and oval sprites.

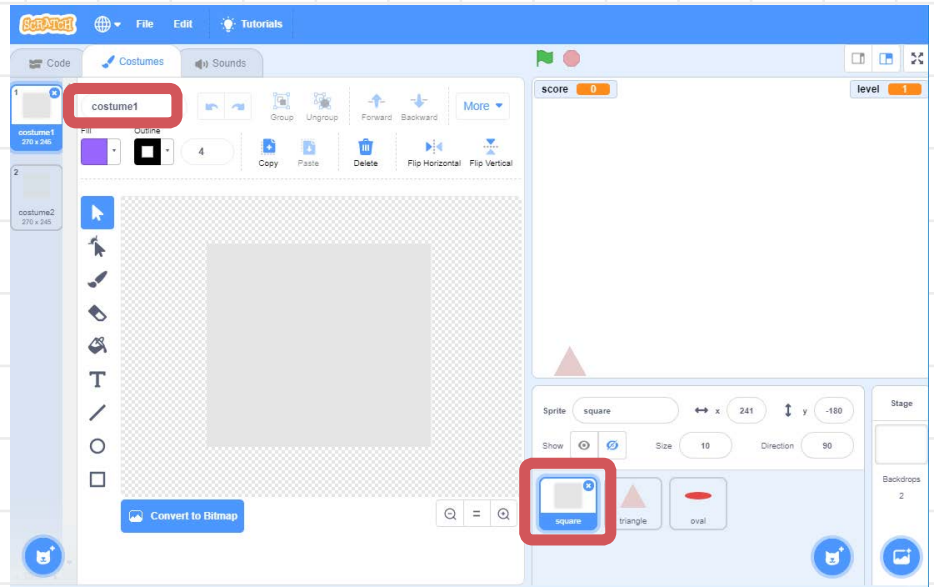




Part 2: Create your sprites

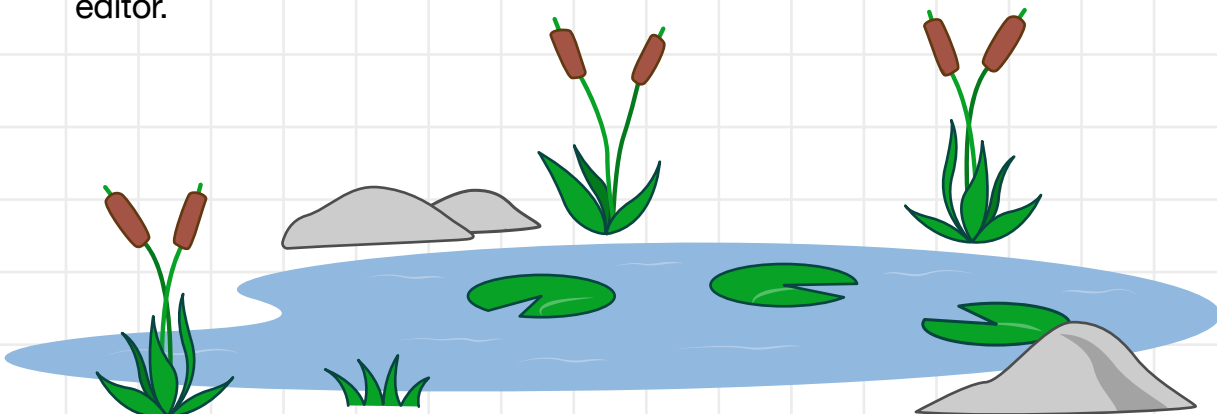
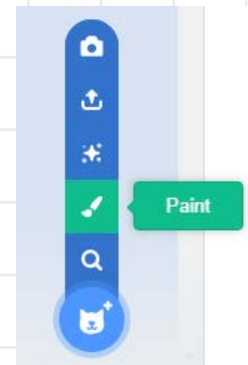
1 Click on the square sprite underneath the game demo, then click on the 'Costumes' tab in the top left-hand corner to open the editor.

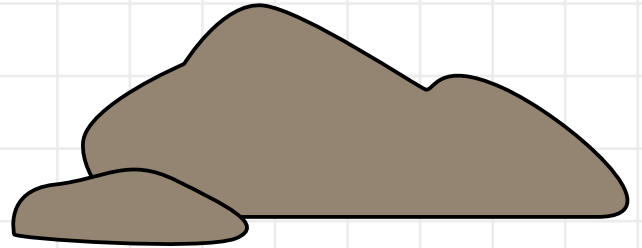
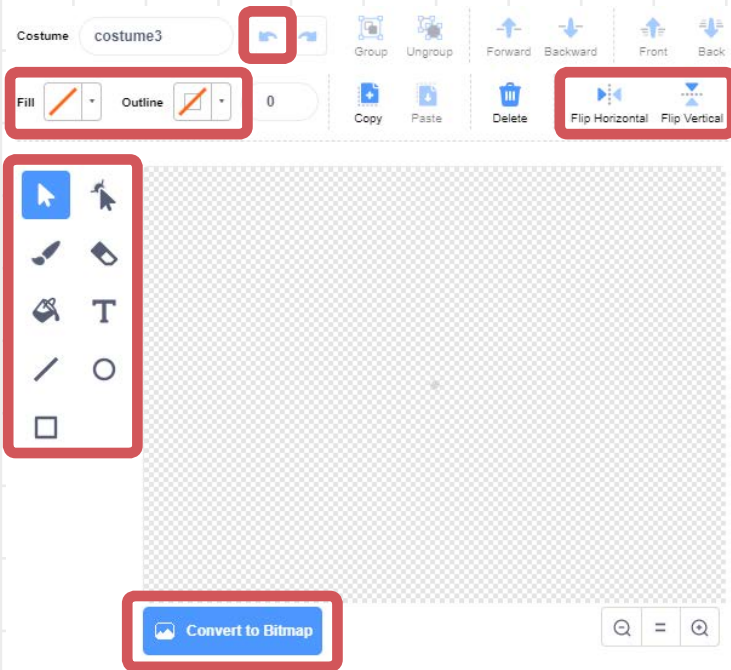
2 Mouse over 'Choose a Costume' (a cat with a + symbol next to it) in the bottom left-hand corner, then click on 'Paint' to create a new costume.



3 Use the editor to create a new costume for the square sprite. Scratch has two editors, Vector and Bitmap:

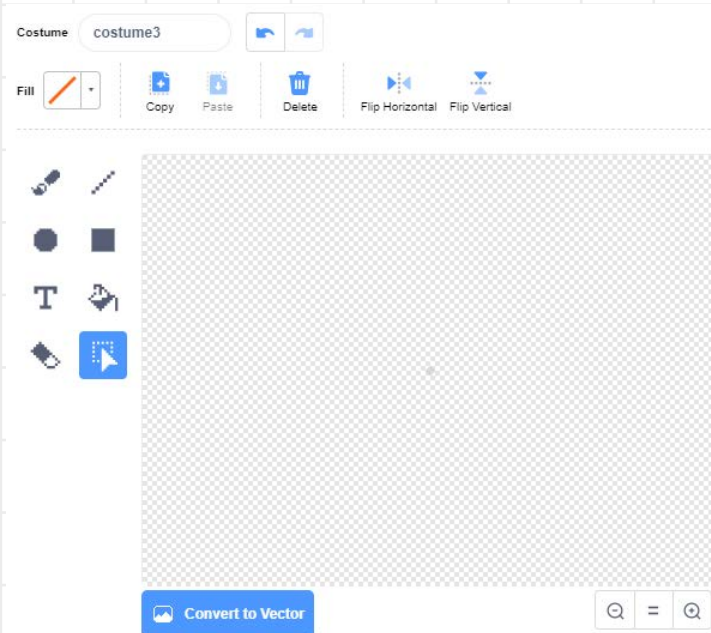
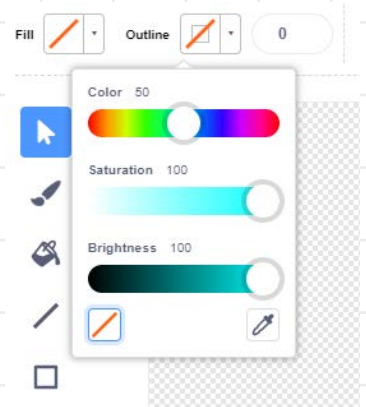
- In the Vector editor, the paint tools draw, move around, and change lines, shapes, and text. The Vector editor is the default editor.
- The Bitmap editor allows you to paint your costumes using pixels as if you were using a paint brush or pencil. Click on 'Convert to Bitmap' if you would like to open the Bitmap editor.





4 To change the colour of the 'Fill' or 'Outline', use the colour selectors. To choose a colour, set the following values:

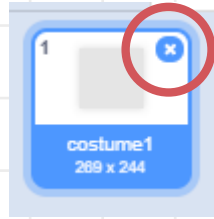
- Color – the colour you want
- Saturation – how much of the colour you want
- Brightness – how bright you want the colour to be



5 The square sprite can have more than one costume and it will switch between them as the squares move across the screen.

6 If you create more than one costume for the sprite, you can animate it. Make a small change to the second costume, and then the sprite will change appearance as it moves.

- 7** Delete any costumes that you no longer need by clicking on the 'x'.

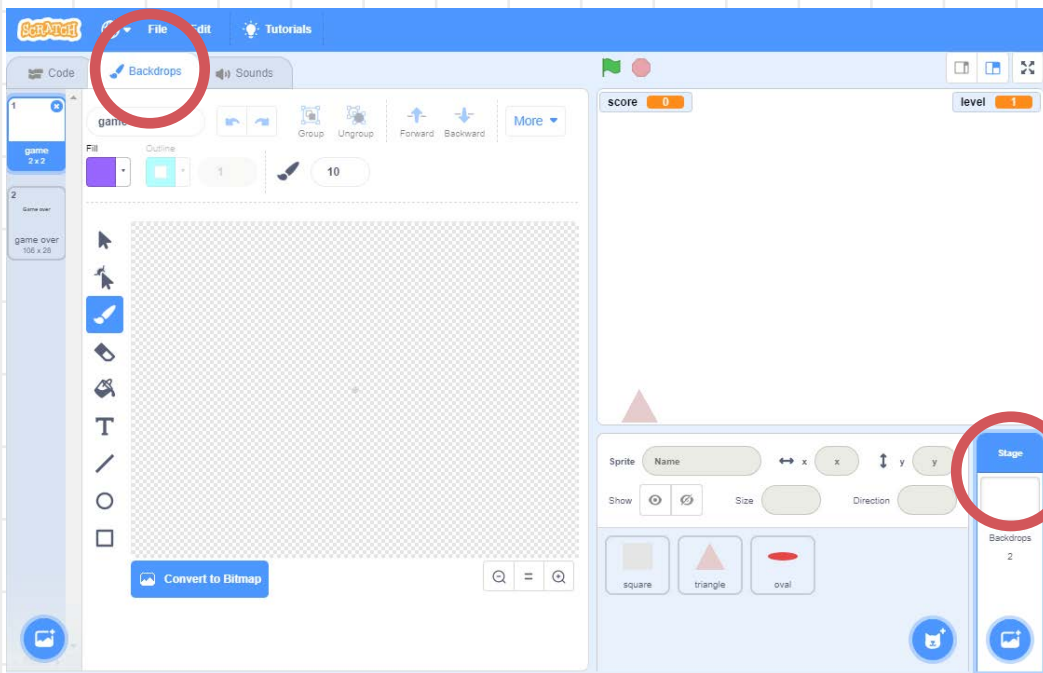


- 8** Play the game to see how your new sprite looks.

- 9** Create new costumes for your triangle and oval sprites.

Part 3: Create a backdrop

- 1** Your game should also have a background to complement the game. Click on 'Stage' on the right-hand side, then click on 'Backdrops' to display the backdrops.



- 2** There are two backdrops, one that is used while the game is being played, and one that is used when the game is over.



- 3** Create a new background for your game to complete the theme.

- 4** Share your game with your friends and see who can get the highest score.

Trivia



Computer sprites are named after the mythical sprites, because they **float** across the screen.



Discuss

How do you think the game could be modified to make it more fun, or to fit your theme better?



Tip

If you want to create multiple costumes, right-click on the sprite in the menu on the left-hand side, then click 'duplicate'. This will create a copy that you can modify, so that you don't have to redraw the costume.

