

Flat game!

A flat game is an artistic adventure, where a tiny sprite explores a surface. You can draw pictures and write messages for it to find! See the completed project at <https://scratch.mit.edu/projects/1209220008/>



Adapted from the instructions <https://projects.raspberrypi.org/en/projects/flatgame>.

First, decide on the theme you want to create, will it be a butterfly exploring flowers, a pixel exploring a computer, or tiny you exploring a desktop?

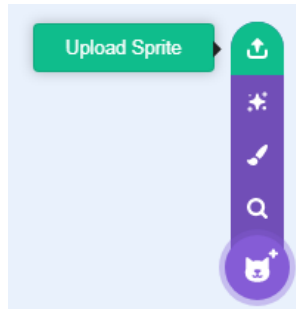
If you have a camera (or tablet or phone) that you can connect to your computer, you can even draw some of the artwork and upload it into Scratch.

Step 1: The background is a sprite!

- Once you know your theme, choose the surface you will explore. It could be indoors or outdoors, one of the photos provided or one you find by safe-searching on the internet.



- Create the background **as a sprite** from the photo by choosing 'Upload Sprite' as shown below:

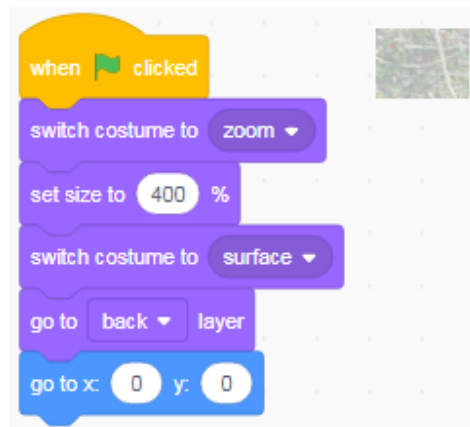


- The reason we create the background as a sprite is because there is a clever trick to make it bigger than we can see, so there is lots of space to explore.
- To do this, go to the sprite costume, and change its name to 'surface'.
- Now paint a new costume, and draw a small spot or a squiggle in the middle.
- Call this new costume 'zoom' (it will let us zoom in on our surface).
- Your costumes should look something like this:

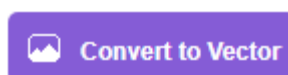


Save your project

- Now add the following code, and test it out! You should see a zoomed in view of the middle of your surface (you may need to scroll down to find the 'go to back layer' block):



- If your surface is a bit pixellated when you run your code, see if clicking 'Convert to Vector' on its costume makes it clearer:

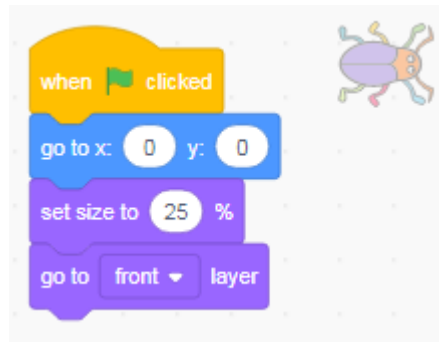


- Alternatively you could reduce the number in the 'set size' block.

Save your project

Step 2: Choose your explorer

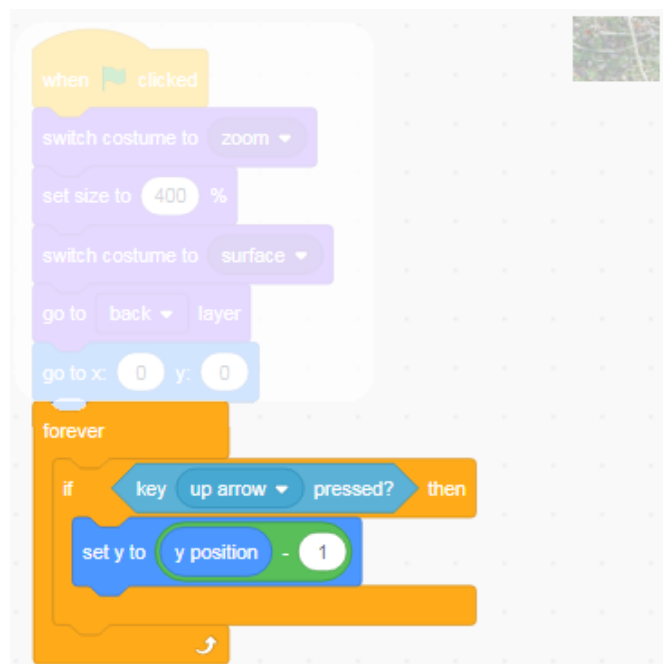
- Now, lets decide who is going to explore this surface. You can choose a Scratch sprite, upload one from a photo, or draw one, it's up to you.
- When you've created your exploring sprite, add the code below to make it small, and position it in the centre:



Save your project

Step 3: Moving the surface

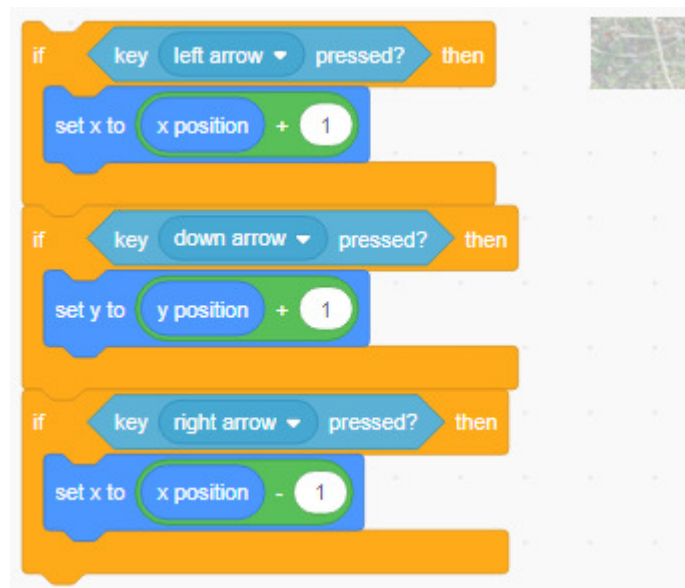
- You might think the movement code will go on the explorer, but it doesn't – it goes on the surface sprite! This way we get to explore all the space we couldn't see.



- Add the code above to the surface sprite, to move it with the Up arrow.
- We have used blocks from Motion, Operators and Sensing; you might need to scroll down to find some of them.
- Try it out! Which way does the surface move?
- If your surface moves **down** when you press the **Up** arrow, you have got it right! This makes it look as though our explorer is moving upwards.

Save your project

- Now we can add the other arrow keys, so we have movement in all four directions. Add the code below (after the 'if') in the 'forever' loop:



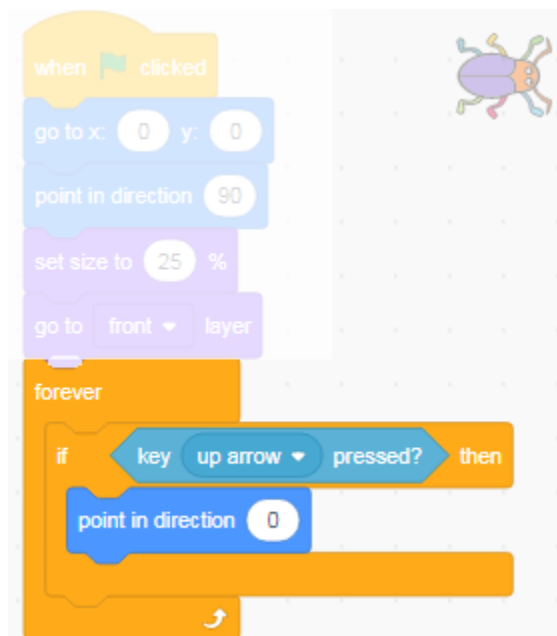
- You can check you have got it right by running your code.
- If an arrow key moves the surface the wrong way, look closely at the code above, or ask a friend to check.

Save your project

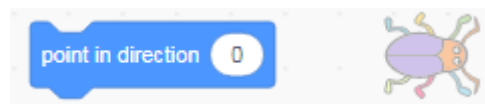
Step 4: Sounds and costumes

Depending on the sprite you chose for your explorer, some of the time it may look like it is moving backwards, which isn't very realistic. Also we can change costumes and add footstep sounds!

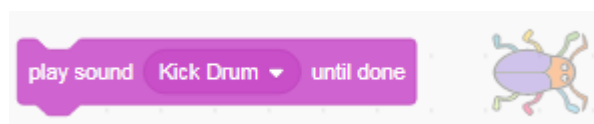
- We can make it face a different direction by adding code that checks for the arrow keys, similar to the code on the surface sprite:



- You will need an 'if' block for each arrow key, and this block with the values -90, 0, 90, 180:



- If you aren't sure which number goes in which 'if' block, try it out!
- Next, think about what sort of moving noise your sprite will make (footsteps, beeps, music...).
- Choose a sound that fits your explorer (a short one works best), then add the sound block inside each 'if':



- If the sound is too long, you can cut off the end, or speed it up – play about with it until it fits your sprite!
- And of course, you can use four different sounds if you like...
- Test your project!

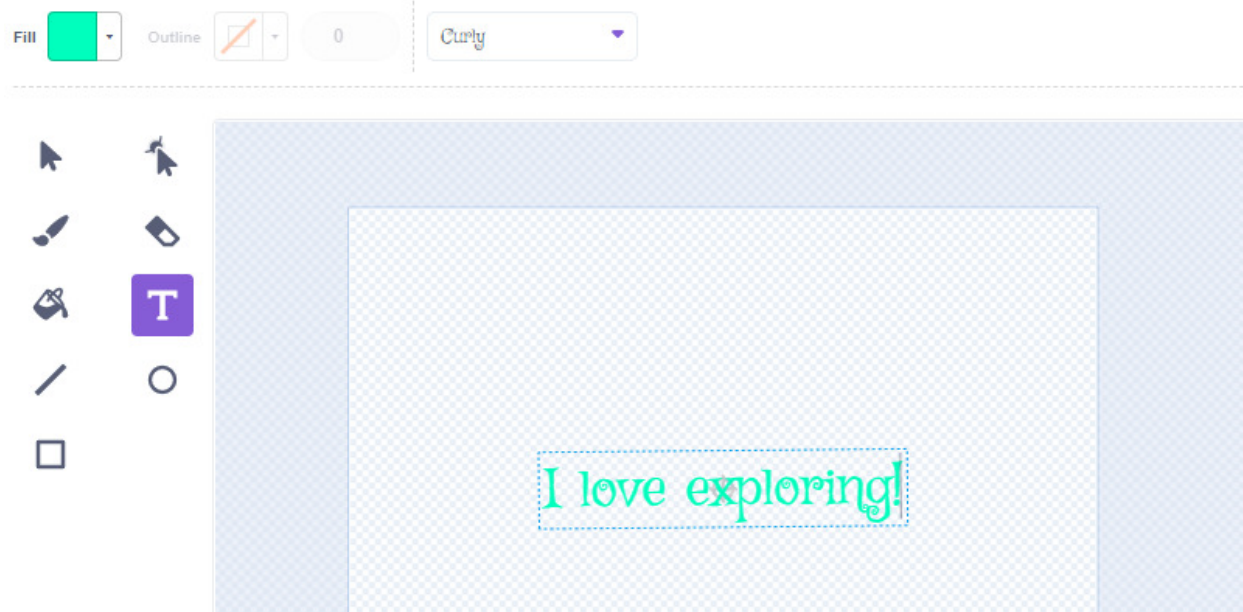
Save your project

Step 5: Finding words

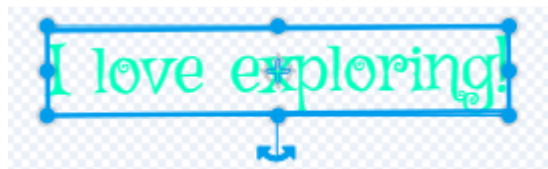
It would be nice if your explorer sprite could find things to interact with, as it explores the surface. Have a think what would fit your theme...

It turns out that text sprites (words) and drawn sprites (pictures) behave differently when we move them off the screen – let's start with words.

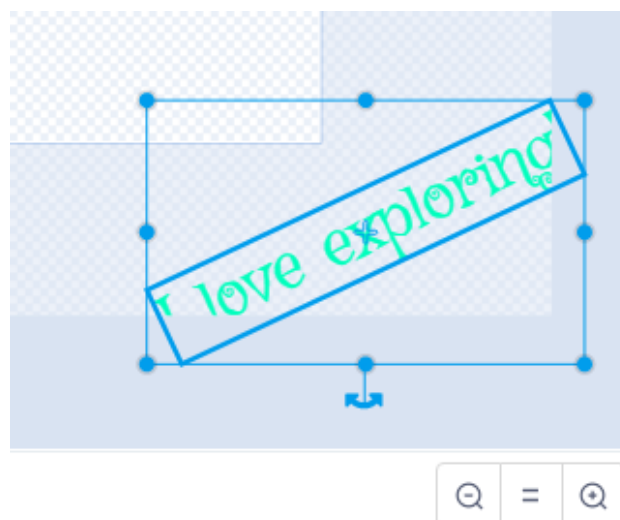
- Paint a new sprite, and use the Text tool to type some words for your explorer to find.



- You can change the style (I chose Curly) and colour of your text.
- Click outside the text box when you are happy with it; you should see the blue highlighting that allows you to change its size, shape and position:



- Now drag it right into one of the corners of the costume, so it almost disappears!



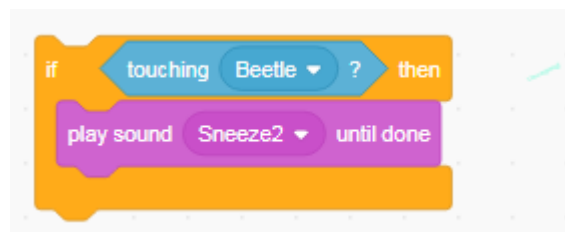
- We do this so the explorer has to move about to find the message we have written.

Save your project

- Now add the code below to your word sprite, and test your game – do the words appear when you travel into the corner where you hid the text?



- Let's add one more effect, we can play a sound when our explorer touches the word sprite.
- Choose a sound, then add an 'if' block inside the 'forever' block on our word sprite:



Save your project


Step 6: Finding pictures

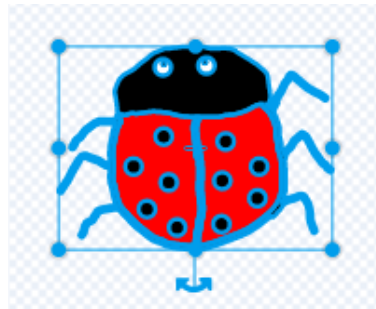
Scratch is designed so that once a picture sprite is on the screen, it can never move completely off again, which means we can't hide these sprites in the corners like we did with the text.




However, we can draw a sprite, and then copy its costume onto the surface sprite's costume, which gives us the same effect!

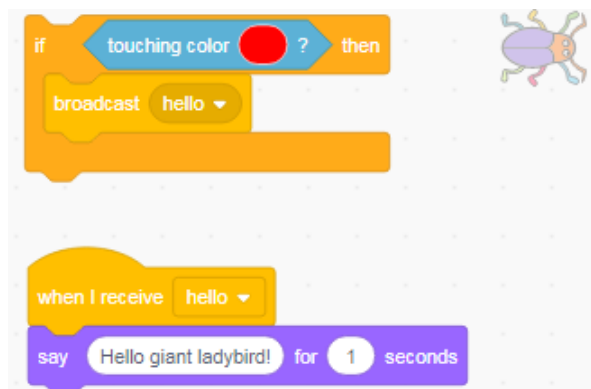
- First, paint a new sprite – I drew a ladybird:



- (We could draw this directly on our surface sprite, but it's easier to see what we are drawing if we use a blank sprite.)
- Next, highlight the costume you have drawn with the Select tool  :



- Click Copy  , then on the costume of your surface sprite click Paste  .
- You can shrink the costume and move it around while it is still highlighted, until you have positioned it where you want (in a corner out of sight!).
- Remember the Undo button if things go wrong  .
- Don't forget to hide (or delete) the sprite you used to draw the costume.
- Finally, you can use the 'touching colour' sensing block to make something happen when your explorer touches the costume colour. I added a 'say' block:



- Why do you think I used a message? Try it without if you are not sure!

Save your project