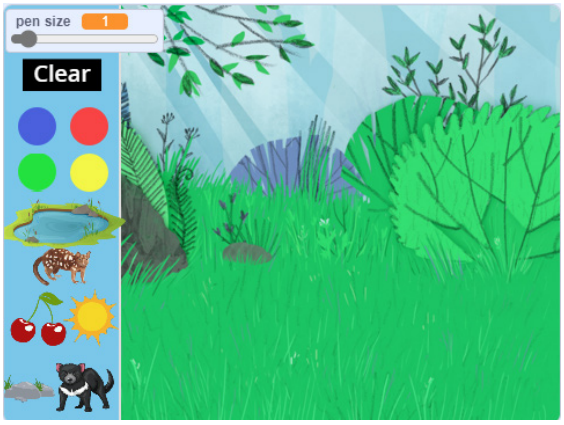
CODE OF ORIGIN

TAS Create a scene

Create an art pad where the user can create their own scene about Tasmania.

INTRODUCTION



What you will need

HARDWARE

A computer capable of running Scratch 3

SOFTWARE

Scratch 3:
either online
rpf.io/scratchon
or offline
rpf.io/scratchoff

What you will learn

- How to use **clones**
- How to use **branching** to determine next actions
- How to use the **pen extension tool**

Starter Project

https://scratch.mit.edu/projects/873330070/

Additional notes for educators

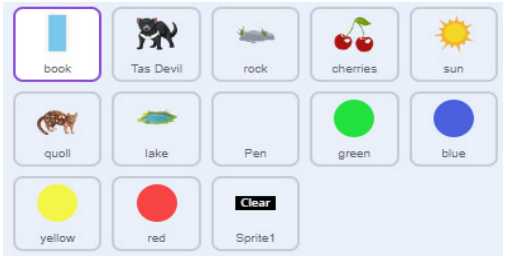
Here is a link to the completed project
https://scratch.mit.edu/projects/873321789/

Read this blog post for information about the Code of Origin project by Code Club Australia.

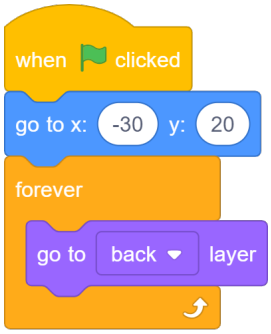
STEP 1 - SETTING THE BOOK

Open the starter project -https://scratch.mit.edu/projects/873330070/

Select the book sprite.

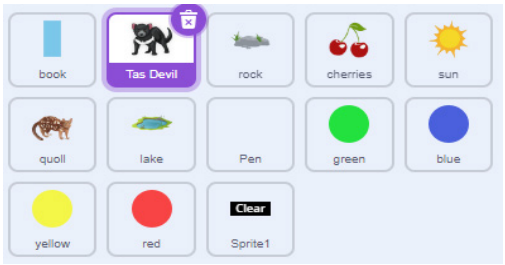


The book will help to control the sprites. Start with the event when green flag clicked. Set the coordinates to lock it into place. Add a forever block so it always sits at the back.



STEP 2 - CREATING THE STICKERS

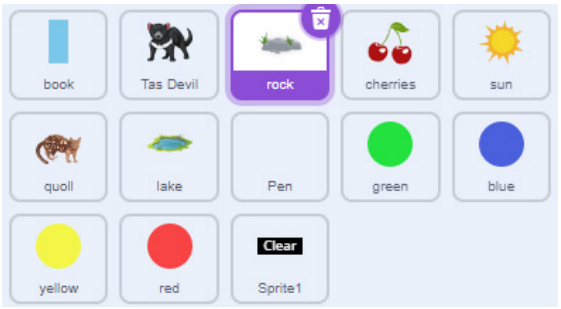
Select the Tas Devil sprite.

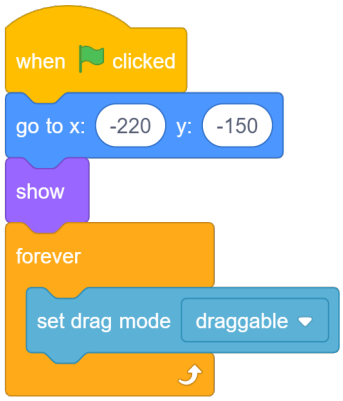


Set the conditions for the sprite when the green flag is clicked. Add a block for the sprites starting location and to show. Add a forever control and set the drag mode to draggable. This means that the user will be able to move the sprite on the screen.

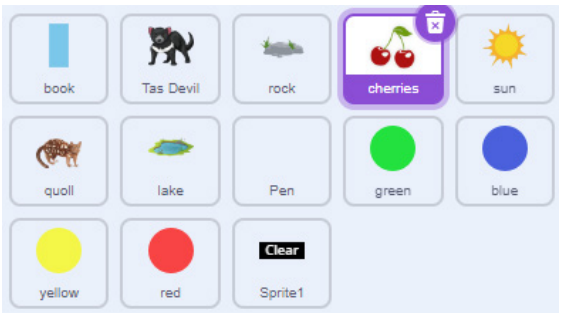
This algorithm needs to be copied to the other 'sticker' sprites - rock, cherries, sun, quoll and lake. Drag the algorithm from the Tas Devil sprite and 'drop' it onto the other sprites. For each sprite change the starting location as shown on the next page.

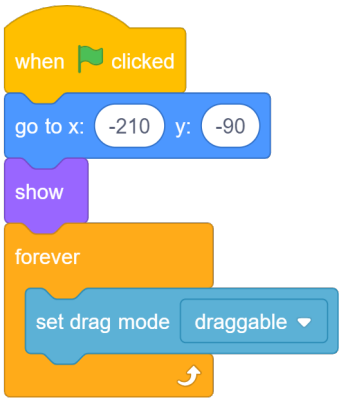
Rock sprite.



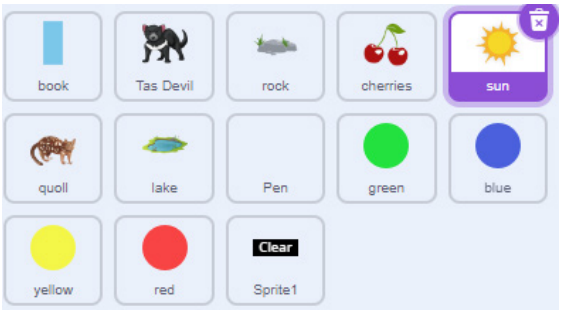


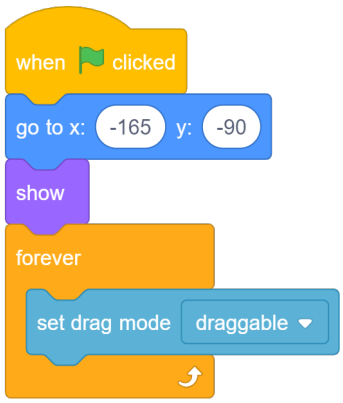
Cherries sprite



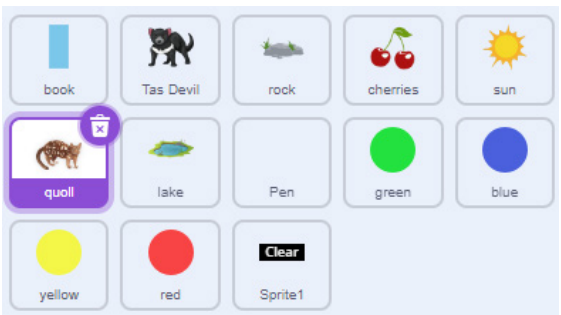


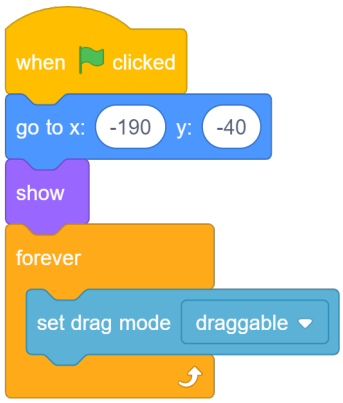
Sun sprite



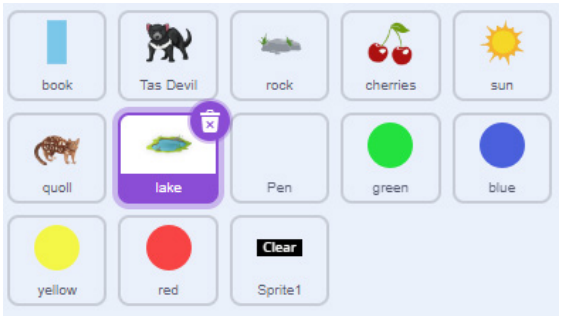


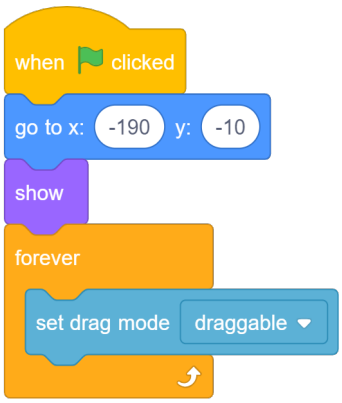
Quoll sprite





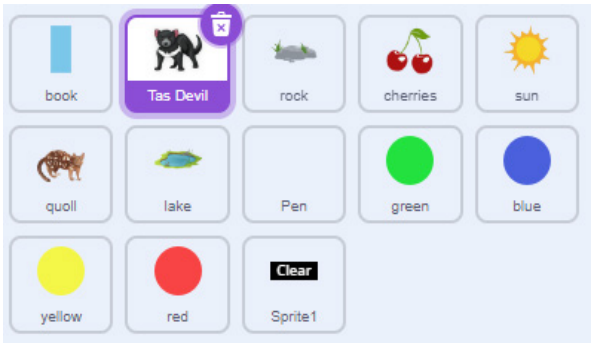
Lake sprite



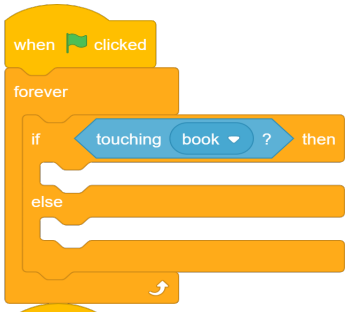


The next algorithm that we create will set conditions so that when the sprite is touching the book it is small, but when it is dragged onto the page it gets larger. The algorithm will be the same for all of the sprites, except for the location information. You can drag the completed algorithm to all the other sprites to copy it across.

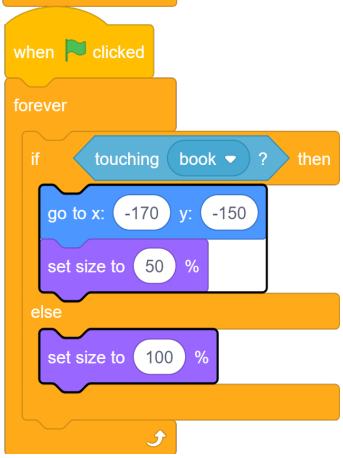
Click on the Tas Devil sprite.



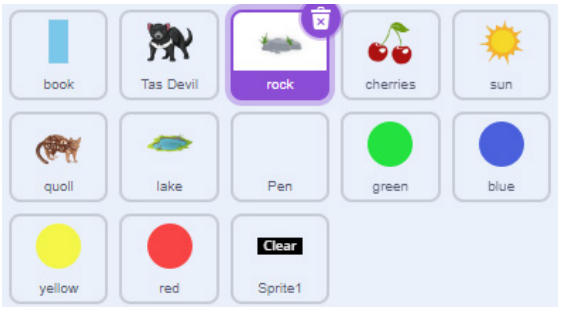
Start with the green flag clicked block. Add a forever control and inside an if-then-else block, that contains the sensing block of touching book.



If the sprite is touching the book sprite we need to send it to it's location and shrink it to 50%. If it is not touching the book we want to set the size to 100%.

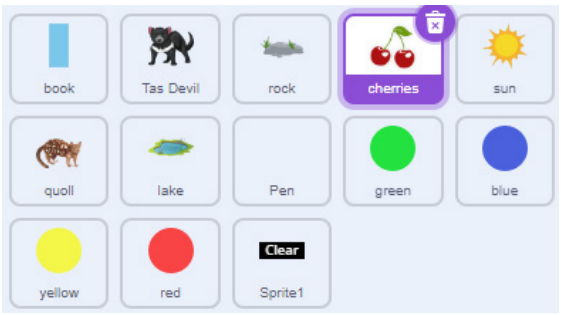


Rock sprite.



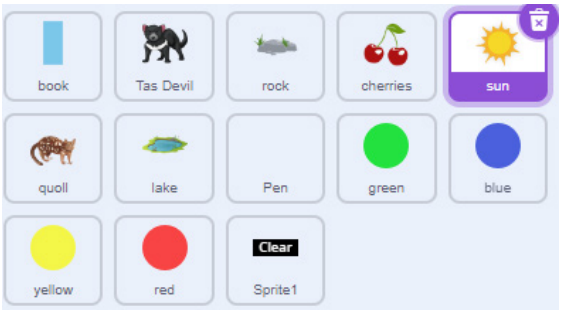

```
when clicked
forever
  if touching book ? then
    go to x: -220 y: -150
    set size to 50 %
  else
    set size to 100 %
```

Cherries sprite



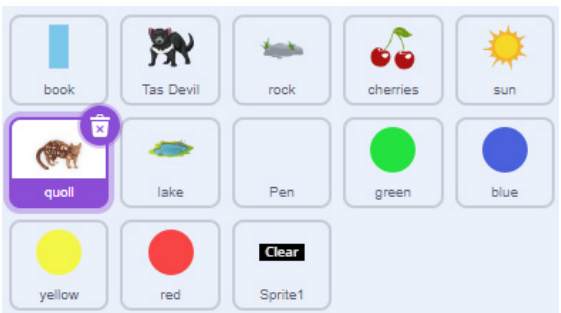

```
when clicked
forever
  if touching book ? then
    go to x: -210 y: -90
    set size to 50 %
  else
    set size to 100 %
```

Sun sprite



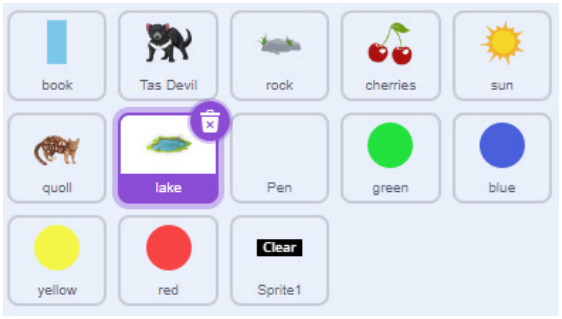

```
when clicked
forever
  if touching book ? then
    go to x: -165 y: -90
    set size to 50 %
  else
    set size to 100 %
```

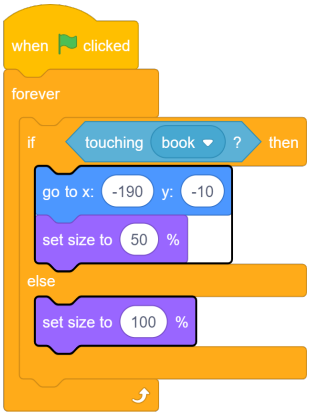
Quoll sprite




```
when clicked
forever
  if touching book ? then
    go to x: -190 y: -40
    set size to 50 %
  else
    set size to 100 %
```

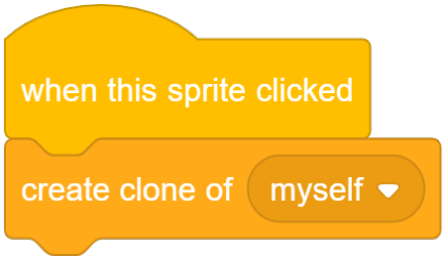
Lake sprite



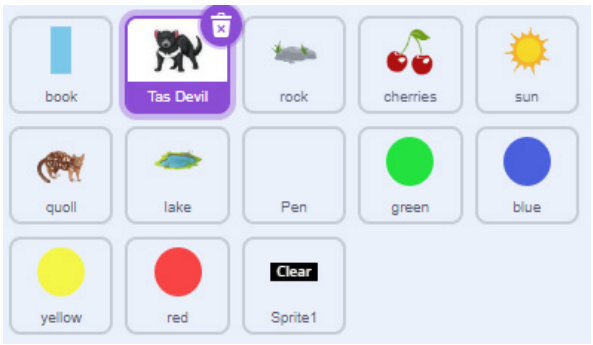


On **each of the sprites** add this code. Make sure you put it on the rock, cherries, sun, quoll and lake.

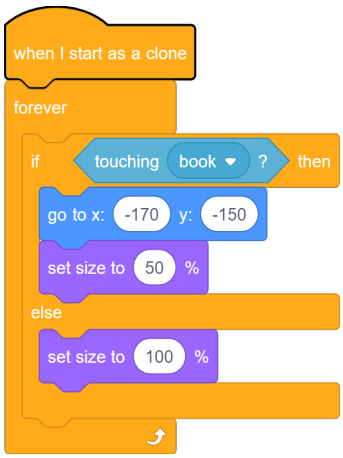
Add an event when this sprite clicked.
Add a block to create a clone of itself.
For the user this means that when they click the sprite it will create a sticker they can drag onto the page.
Remember to put it on each sticker sprite.



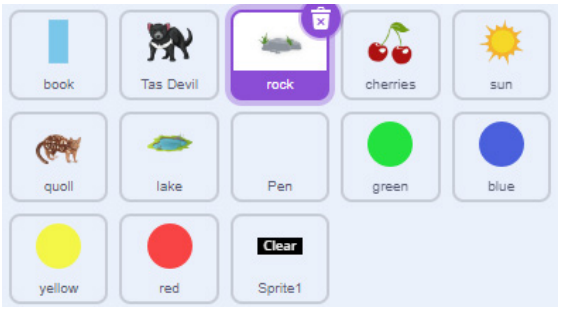
Click on the Tas Devil sprite.

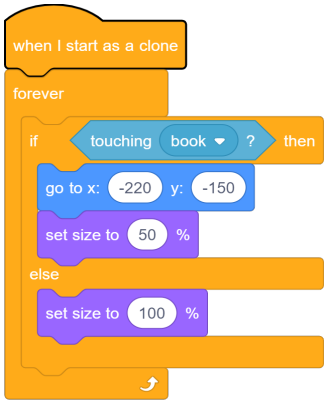


This next block of code is created by duplicating the green flag algorithm that is already on the page, and changing the event to when I start as a clone.

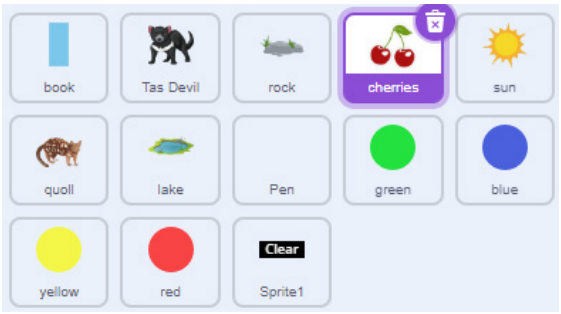


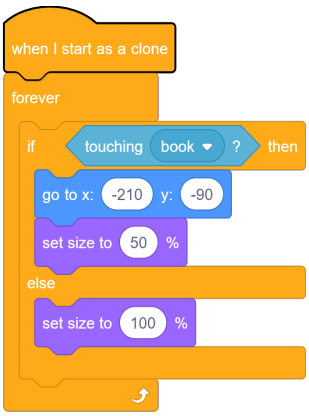
Rock sprite.



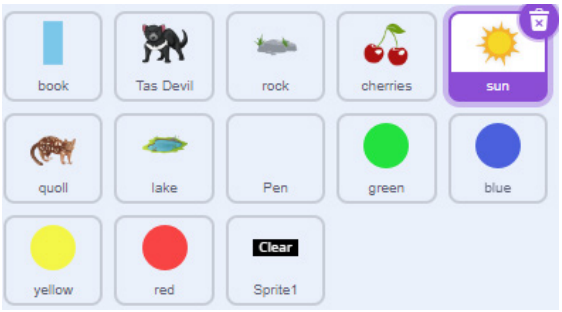


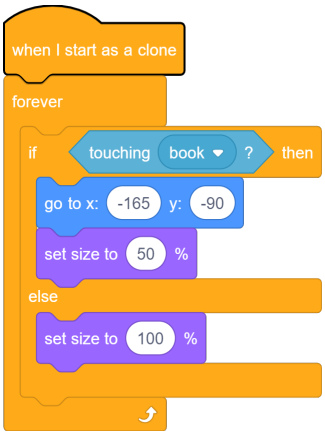
Cherries sprite



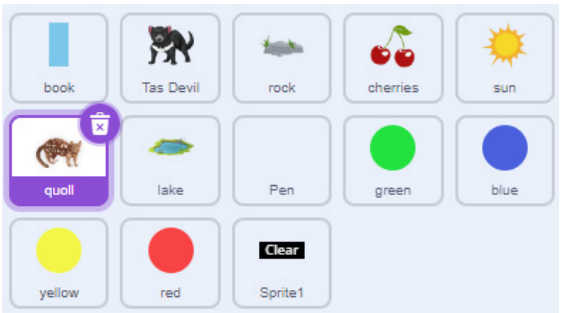


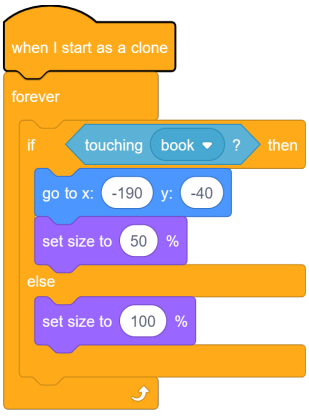
Sun sprite



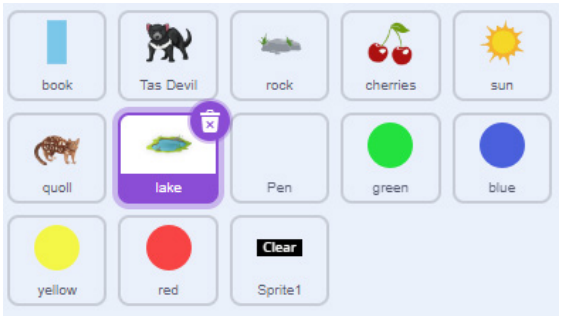


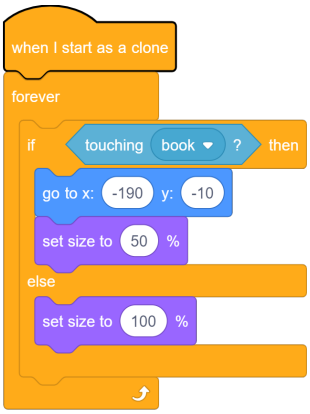
Quoll sprite





Lake sprite

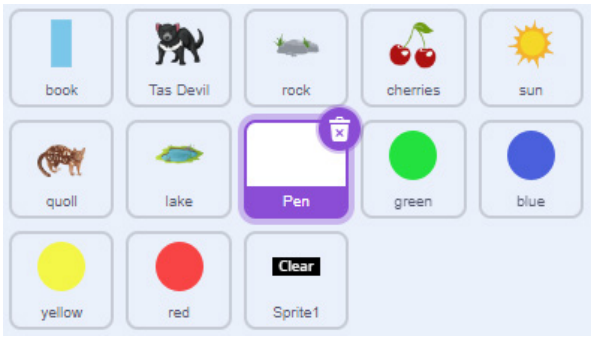




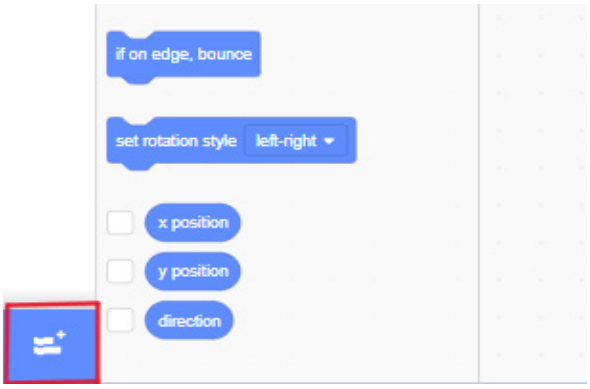
Test your code. Click a sprite to make a clone and then drag it onto the page. It should get larger. Drag it back to the book and it should go back to its starting spot.

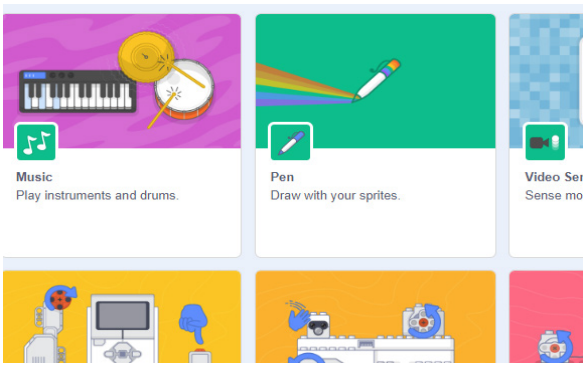
STEP 3 - DRAWING TOOLS

Click on the pen sprite.

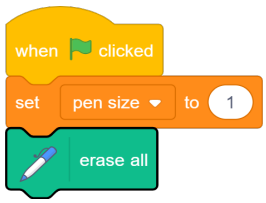


Add in the pen extension blocks. Click on the Add Extension button in the bottom left of your screen. When the selection comes up, choose the Pen tools.

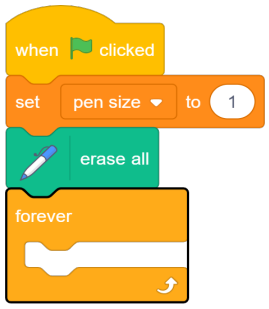




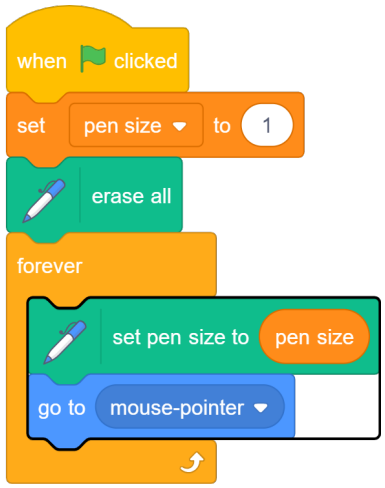
Start with the event when green flag is clicked. Makea new variable called pen size and set it to 1. Add a block from the pen menu, erase all.



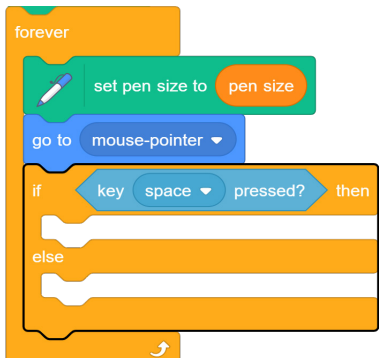
Add a forever control block.



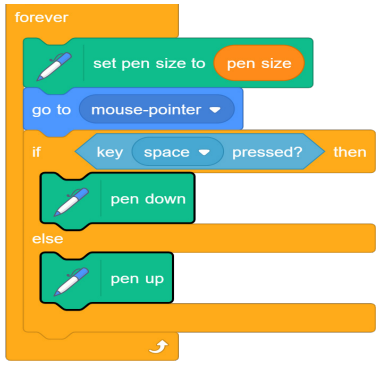
In the forever block add a block to set the pen size. From the variable menu add in the pen size bubble. Then add a motion block to go to mouse pointer. This means the pen will be wherever the user moves their mouse.



Add in an if-then-else block. Make sure you are still in the forever block. Add in the sensing block of space key pressed. This will contol the pen.

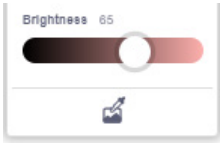


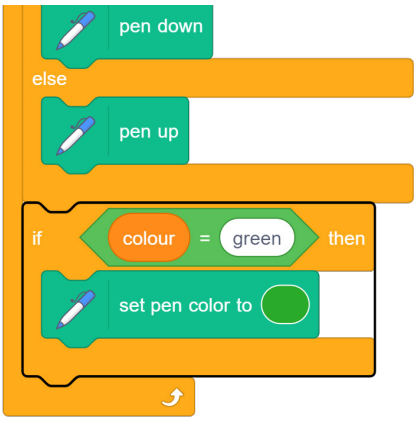
After then add in a pen down block. After else add in a pen up block. If the space key is pressed it will draw, and if it isn't it won't draw.



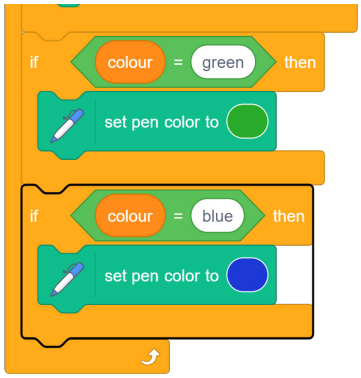
Underneath add an if-then block. Make a new variable called colour. Add an = operator to create the condition if colour (variable) = green then set the colour of the pen to green.

Note - the colour needs to be exact to work. Use the eyedropper on the green sprite to match the colour.

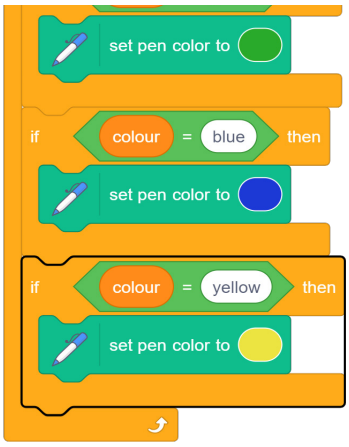




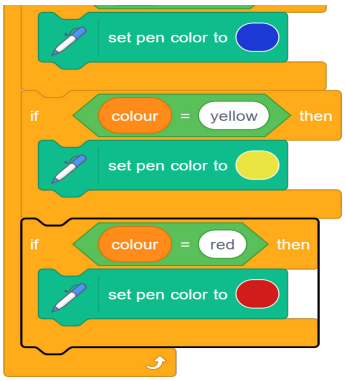
Duplicate the if-then block for the colour blue. Make sure it goes under the last if-then block.



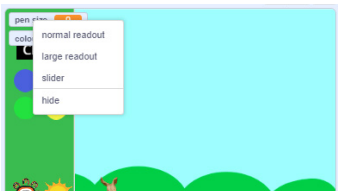
Duplicate it for yellow. Make sure it goes under the last if-then block.



Duplicate it for red. Make sure it goes under the last if-then block.

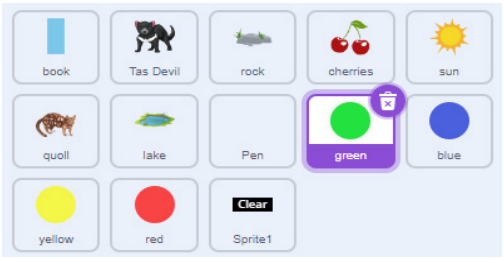


On the project page, right click the pen size variable and change it to a slider. Hide the colour variable.

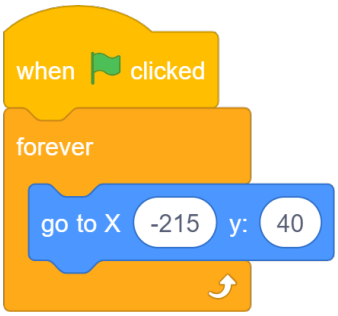


STEP 4 - THE COLOURS

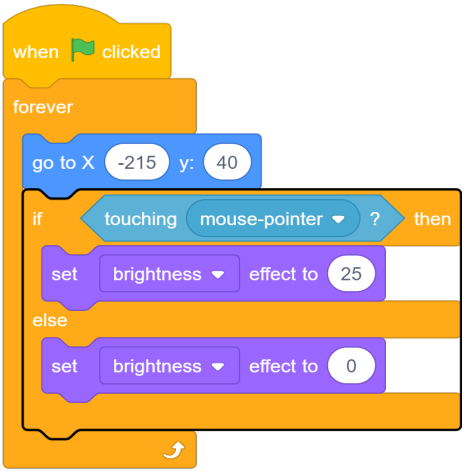
Click on the green sprite



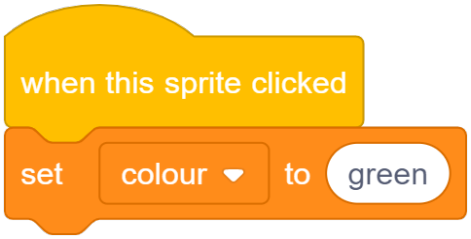
Create an algorithm that will be followed when the green flag is clicked. Add a forever block and its location.



Add in an if-then-else block with the sensing block of touching mouse point. Add a set brightness effect to 25 after then, and a set brightness effect to 0 after the else. These blocks will create an effect that when the user hovers over the button it will change colour, giving the illusion of the button being pressed.

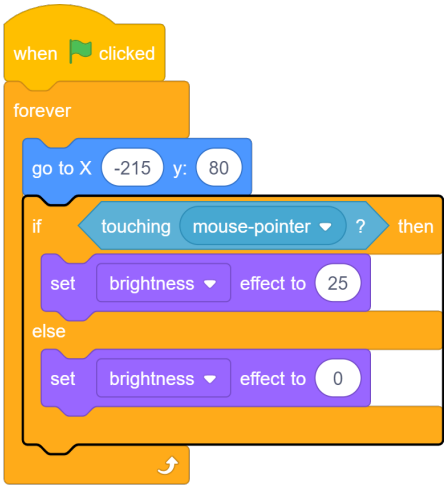


Start a new algorithm when this sprite is clicked. From the variables menu set colour to green.

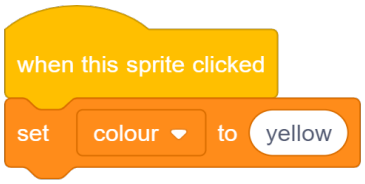


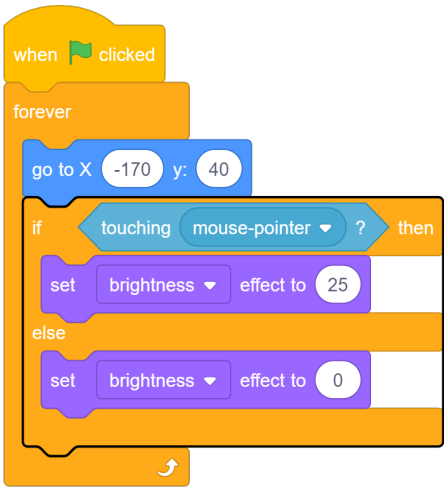
These algorithms will be copied to each of the coloured sprites (blue, yellow and red), change the location and the colour variable.

Drag and drop the code from the green sprite onto the blue sprite and make the necessary changes.

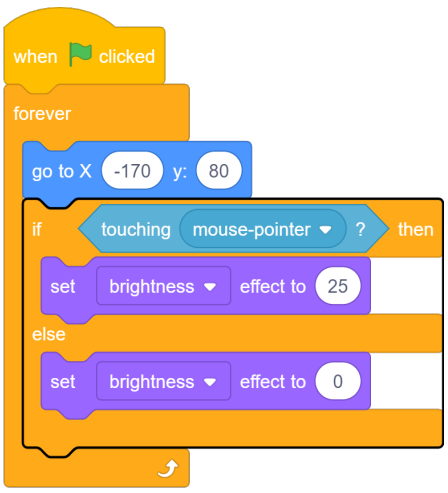


Drag and drop the code from the green sprite onto the yellow sprite and make the necessary changes.





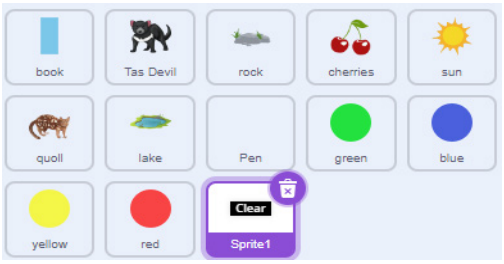
Drag and drop the code from the green sprite onto the red sprite and make the necessary changes.



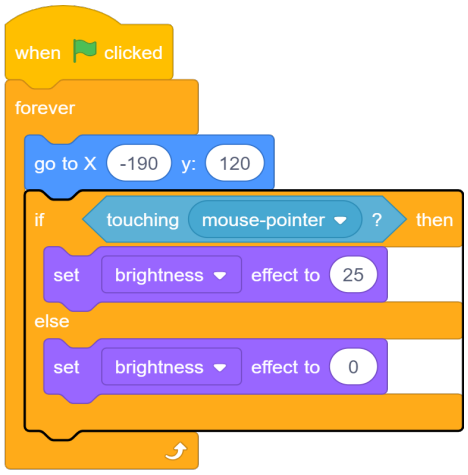
Test your code. Remember that you have coded the colour sprites to respond to clicking on the colour and then holding the space key down to make it draw.

STEP 5 - THE CLEAR BUTTON

Click on the clear sprite



This sprite will clear all of the drawing that the user has done. Copy the code from the colour sprites that starts with the green flag.



Add a second algorithm that start with the event when the sprite clicked. Add an erase all button from the pen menu.

Your program is now complete. Test out all features to see that it is working correctly.

Challenges:

Improved user experience

There are some things that are a little glitchy in how this program works. What could you do to improve the code to make it better for the user?

Larger screen

Can you add code to the book so that it can be open and closed? The user can open it to access the stickers and pen, and then close it to have more background to work on.

Background

At the moment there is only one background for the user. Can you change it so that they can select from multiple backgrounds?

Congratulations!

You have created a game that will help others learn about the Tamania.

Which state or territory will win the Code of Origin?