

CODE OF ORIGIN



WA Road Trip

Take a tour of famous places across Western Australia. How many have you been to?

INTRODUCTION



What you will need

HARDWARE

A computer capable of running Scratch 3

SOFTWARE

Scratch 3:
either online
[rpf.io/scratchon](https://scratch.mit.edu)
or offline
[rpf.io/scratchoff](https://scratch.mit.edu)

What you will learn

- How to use broadcast
- How to use costumes
- How to use the pen extension tool

Starter Project

<https://scratch.mit.edu/projects/799150211/>

Additional notes for educators

Here is a link to the completed project
<https://scratch.mit.edu/projects/793136845/>

Read this [blog post](#) for information about the Code of Origin project by Code Club Australia.



STEP 1 - ADDING THE PEN EXTENSION

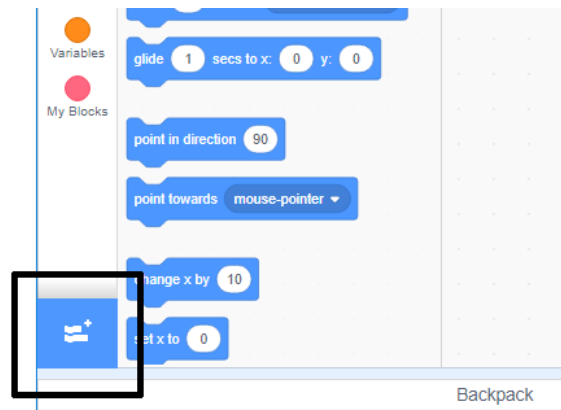
Open the starter project - <https://scratch.mit.edu/projects/799150211/>



This project uses the pen extension. This is an extra set of coding blocks that allow the user to 'draw' with a pen.



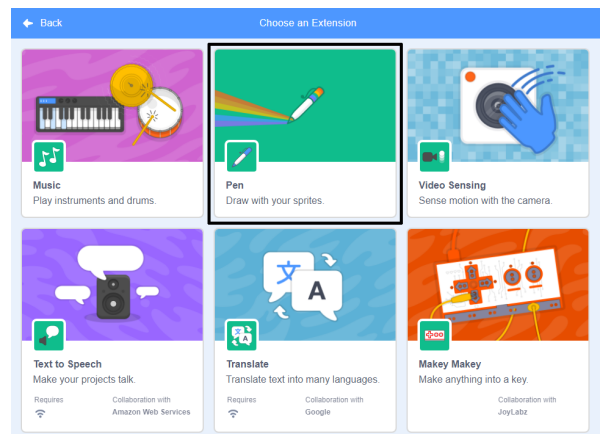
In the bottom left of your screen click on the Add Extension button.



Backpack



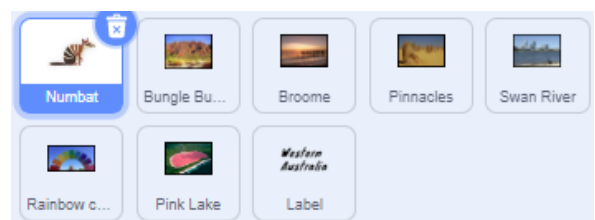
Select the Pen box to add this tool to your screen. You will notice a new set of blocks are now ready to use.



STEP 2 - NUMBAT



Select the numbat sprite





Our first algorithm needs to start with the event **when flag is clicked**. The first thing is to ensure the **pen is up** (so that it won't be drawing) and to tell it to **go to** its starting position.



```

when green flag clicked
  pen up
  go to x: 115 y: -30
  
```



Now start a new algorithm that will control the pen. Start with the event **when flag is clicked**. The code here needs to happen during the whole project so we will need to add a **forever** block. Inside this add blocks to put the **pen down**, **set the pen colour** (you can choose this) and **set the pen size**.



```

when green flag clicked
  forever loop
    pen down
    set pen color to white
    set pen size to 10
  
```



Now comes our longest algorithm. We will code the numbat to travel to each of the locations on the map that are marked with a white dot.



```

when this sprite clicked
  glide 1 secs to x: 115 y: 105
  broadcast Bungle
  wait 2 seconds
  
```

Start with the event **when this sprite is clicked**. Add in a motion block to **glide** to the first dot. Now create a new **broadcast** and call it Bungle. (this is the name of the location). Then add a **wait block**.



Test your code. Remember to click the green flag and then click the numbat to make it start moving. You should see the numbat glide on the screen and draw a line going straight up to the dot at the top of Western Australia. If you test your code a second time you will discover a small problem. Do you see it?

The line you drew from the first time is still there! Let's add a block to our code to **erase all** pen lines when the green flag is clicked.

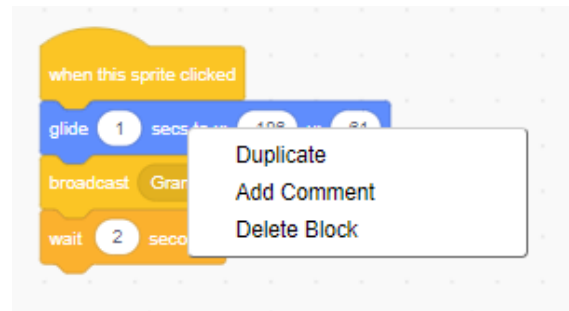
```

when green flag clicked
  erase all
  forever loop
    pen down
    set pen color to white
    set pen size to 10
  
```





So far we got the numbat to The Bungle Bungles. Now we need to get it to each of the other locations. You can do this by selecting each block individually or you can use the duplicate function by right clicking your mouse over the code blocks you want to copy.

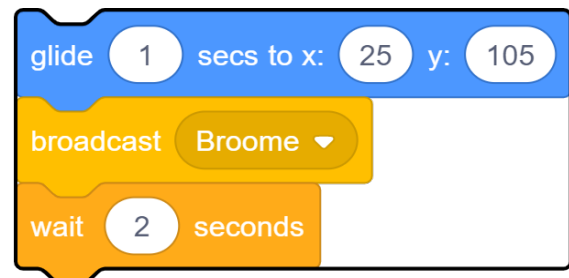


For each location that the numbat travels to we need to use the same 3 coding blocks but change the details within them. Add each new set underneath the Bungle Bungle blocks, and then keep adding them to make one long algorithm.



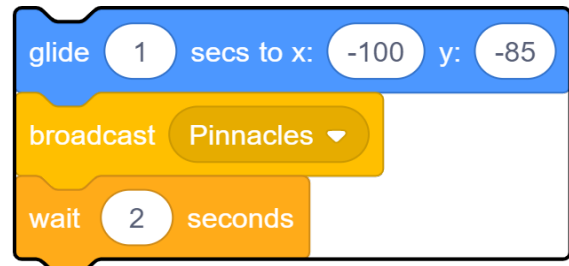
Next stop is Broome. Add blocks (or duplicate them) to

- **glide to** the correct position
- **broadcast** Broome
- **wait** 2 seconds



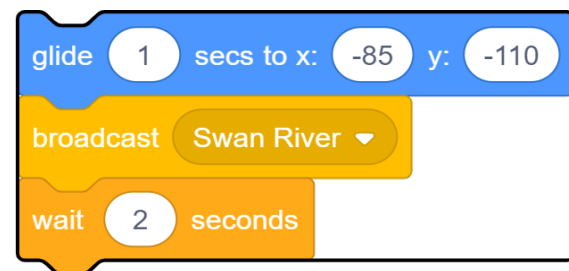
Next stop is the Pinnacles. Add blocks (or duplicate them) to

- **glide to** the correct position
- **broadcast** Pinnacles
- **wait** 2 seconds



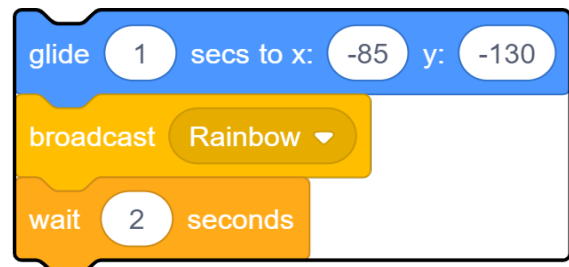
Next stop is Swan River. Add blocks (or duplicate them) to

- **glide to** the correct position
- **broadcast** Swan River
- **wait** 2 seconds



Next stop is the Rainbow Containers. Add blocks (or duplicate them) to

- **glide to** the correct position
- **broadcast** Rainbow
- **wait** 2 seconds





Last stop is the Pink Lake. Add blocks (or duplicate them) to

- glide to the correct position
- broadcast Pink Lake
- wait 2 seconds



```

glide 1 secs to x: 5 y: -150
broadcast Pink Lake
wait 2 seconds

```



Finish the road trip with numbat saying 'Awesome road trip!'



```

glide 1 secs to x: 5 y: -150
broadcast Pink Lake
wait 2 seconds
say 'Awesome road trip!'

```

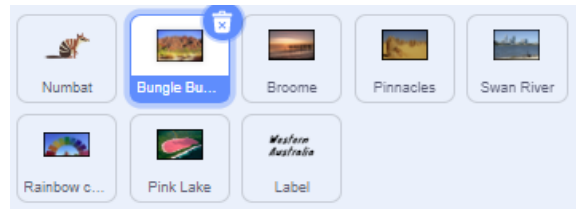


Test your code. The numbat should travel to each location, drawing a line as it travels. At the end it should say your message.

STEP 3 - PHOTOS



Select the Bungle sprite.



The algorithms that we create for this sprite will be copied to all of the photo sprites.



The first algorithm starts with the event **when the flag is clicked**. Add a **hide** block because we don't want to see the sprite at the beginning.

Start a second algorithm with the event **when I receive** the broadcast Bungle. When this happens we want the sprite to **show**.

```

when clicked
hide

```

```

when I receive Bungle
show

```





Create the same algorithms for each photo sprite. You can create the code on each sprite or you can drag your code from the Bungle and 'drop' it onto each sprite. This will copy your code across.



```
when I receive Broome
show
```

```
when I receive Pink
show
```

Make sure for the broadcast algorithm that you change the broadcast name to show the sprite you are on.

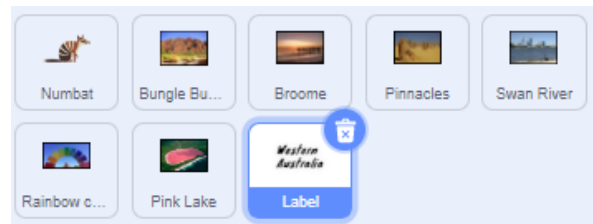


Test your code. As the numbat arrives at each stop the photo should show on the screen.

STEP 4 - LABELS



Select the label sprite



This sprite has costumes. We are going to use these with the broadcast function to change the labels as the photos appear on screen. Create the first algorithm **when the flag is clicked** **show the costume** Western Australia.



```
when flag clicked
switch costume to Western Australia
```



Now create one algorithm for each of the photo sprites. Start with the event **when I receive broadcast** Bungle. Add a block to **switch costume** to Bungle.

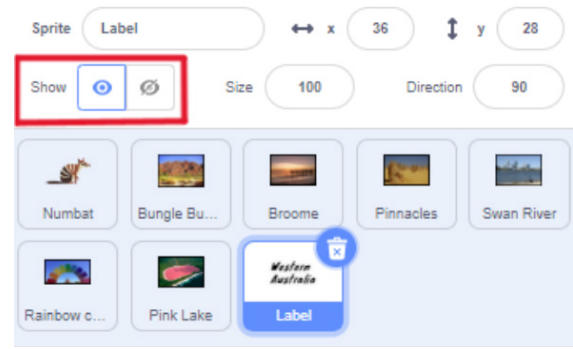


```
when I receive Bungle
switch costume to Bungle
```

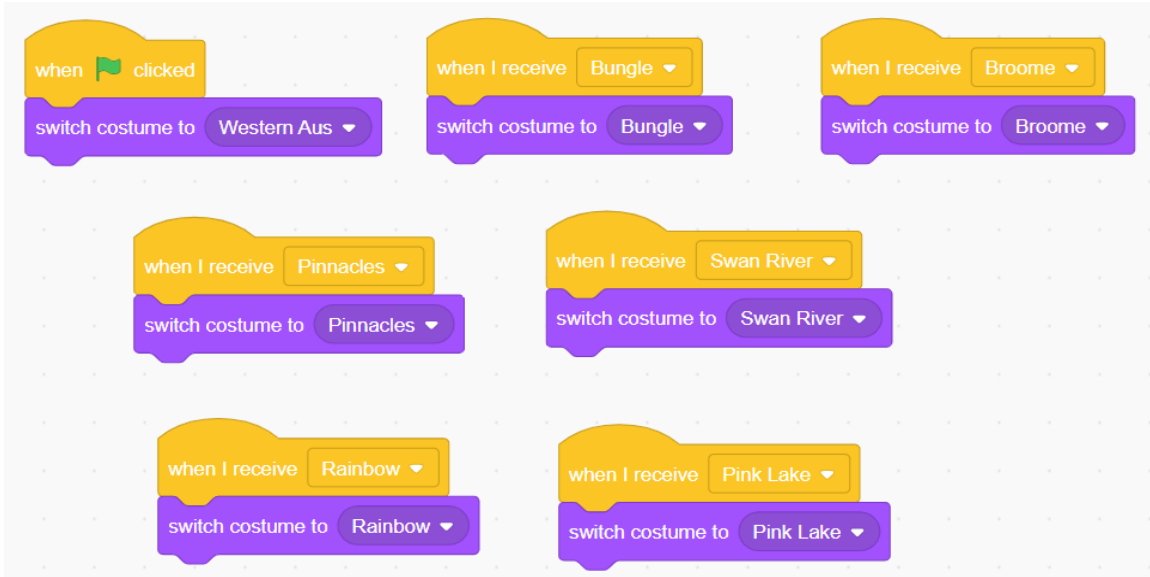




You should finish with 7 algorithms on your page. Test your code. Was your sprite hidden? Make sure on the sprites information it is set to 'show'



Your page should look like this.



Test your code. The road trip should play from start to finish when you click the flag and then click the numbat. Each photo should show on screen when numbat reaches the next destination, and the name at the top should match the photo.



Challenges:

Add information about each place

All of these locations have been chosen as a unique place to visit in Western Australia. Many people won't know why these places are unique. Research each location and add this information to your project. You could add

- pop up information boxes
- a change of background to give more images and information
- audio information

Interaction

At the moment we could describe this project as an animation. How could you change it so that the user interacts with it and it is more like a game?

- Add interaction to get the numbat to move each time
- Perhaps it is a game where the user is given a clue and they have to click the correct location.

Change the locations

These locations are not the only ones that people would choose to visit on a road trip. You could

- add different locations
- create the project for a different state or territory of Australia
- create the project for a different country
- create the project for an around the world trip

Congratulations!

You have created a game that will help others learn about Western Australia.

Which state or territory will win the Code of Origin? [Vote here.](#)

