

DIGITAL ART

- In this project we are going to create three separate apps to automatically draw some crazy artwork. And every drawing will be a unique masterpiece!
- We write the code to make the sprite move around the stage and use the pen blocks to draw lines as it moves. We'll hide the sprite so that the drawings appear like magic.
- Then we can play around with the code to try out different ideas.

Information!

If you haven't used Scratch before we suggest you first take a look at our introductory project [Coding with Scratch – First Steps](#). You can go directly to the project by clicking the link below.

[Coding with Scratch – First Steps](#)

Let's start coding!

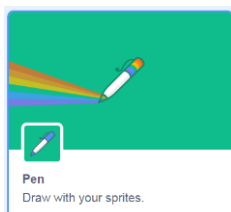
Access the Pen Blocks

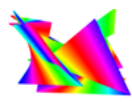
The Pen blocks are used in Scratch for drawing and all sorts of artistic projects and games.

In order to use Pen blocks you need to add them from the Extensions.

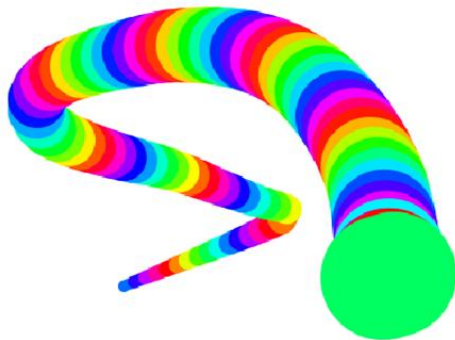


Click on the Extensions icon which is below the Blocks palette, at the bottom left of your screen. Then click on the Pen extension to add the Pen blocks.

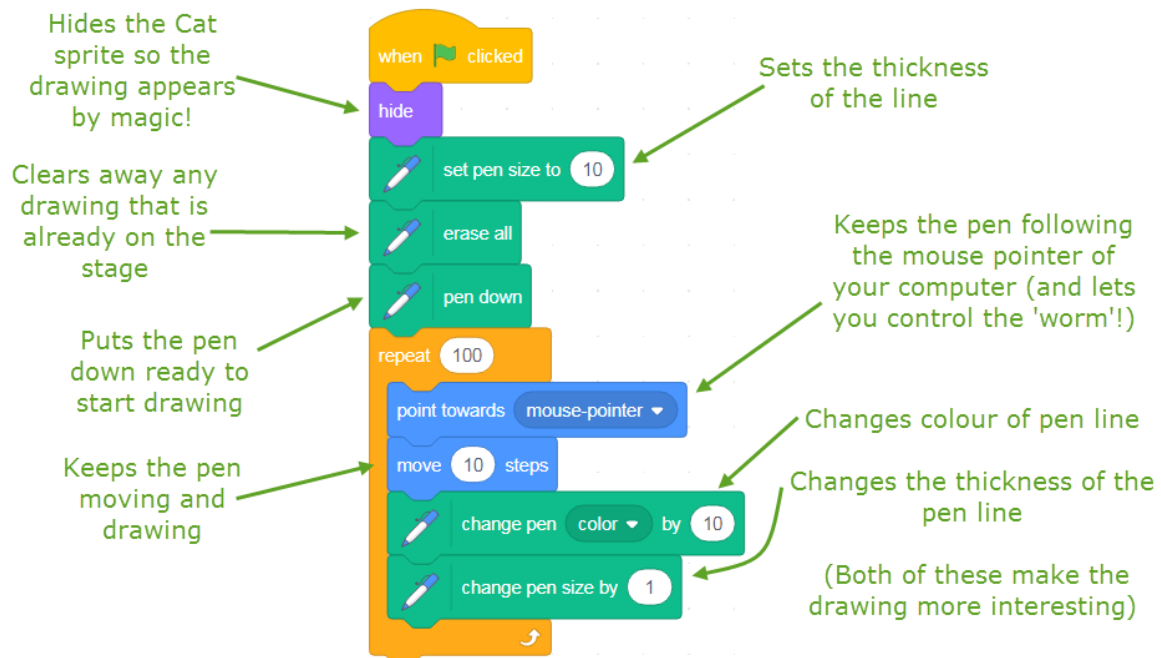





App1: Rainbow worm



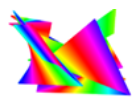
Drag these code blocks onto the code area and join them up as shown. You will find the green blocks as part of the Pen blocks.



Run the code and the Rainbow Worm will follow your mouse pointer and keep changing colour and getting bigger!

Try changing the number in the  block. The bigger the number the faster the worm moves.

Try changing the number in the repeat block . The bigger the number the longer the drawing keeps going.



App 2: Scratch Grafitti



In this app we will create code to draw lines that are different lengths, different colours and different thicknesses automatically.

The code is similar to Rainbow Worm but here we make the sprite move to random positions on the stage. Also we keep lifting the pen up and then putting it down so we get sections of the drawing with no line.

Drag these code blocks onto the code area and join them up as shown.

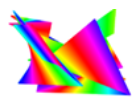
The code blocks are as follows:

- when green flag clicked
- hide
- set pen size to 10
- erase all
- pen down
- repeat 20
 - pen down
 - change pen color by 10
 - change pen size by 1
 - go to random position
 - wait 0.2 seconds
 - pen up
 - go to random position

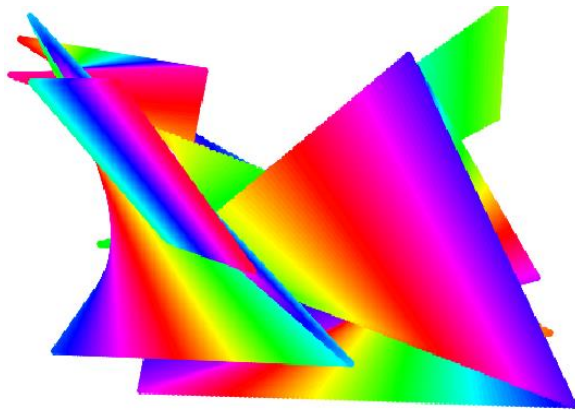
Annotations:

- Each loop on the code first draws a coloured section of line then lifts the pen up so that the next section is blank.
- Changes the colour
- Changes the thickness of the line
- Slows the drawing down to make it more fun to watch
- Goes to a random position on the stage so that the length of each section of the line keeps changing

In the code above we have set the wait time to 0.2 seconds to slow down the speed of the drawing. Try experimenting with different times and see what happens.



App 3: Abstract Art



In this app we create some random, constantly changing artwork. This works by making the pen chase backwards and forwards between two invisible sprites that are moving all over the stage.

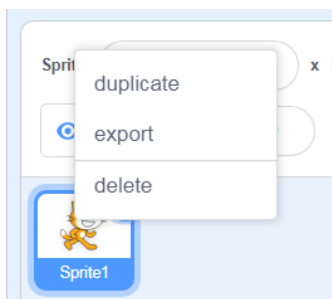
To start add the following code to the cat sprite.

Code for Cat sprites

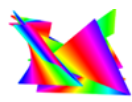
Keeps the cat sprite moving randomly around the stage

```
when green flag clicked
hide
forever
  glide 1 secs to random position
```

Now right click on the cat sprite in the Sprite area and select **duplicate**



You now have two invisible cat sprites (Sprite 1 and Sprite 2) which are dashing around the stage when the Green Flag is clicked. Remember when a sprite is hidden its code still runs even though you can't see it.



Now select a third sprite and add it to the project (it doesn't matter which one because it will be hidden). Then write the code shown below:

Code for third sprite

when green flag clicked

hide

erase all

set pen size to 5

pen up

forever

go to Sprite1

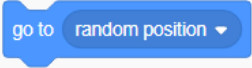
pen down

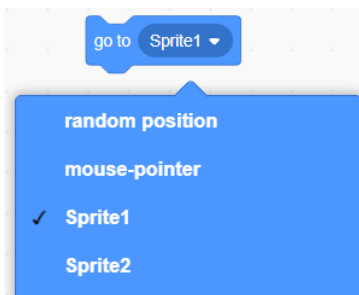
change pen color by 1

go to Sprite2


These blocks make the third sprite chase backwards and forwards between Cat Sprite1 and Cat Sprite2

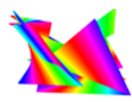
Drawing a pattern as it moves

When you add the  block use the drop down menu to select Sprite1 or Sprite2.



Run the code by clicking the Green Flag and see the art work appear.

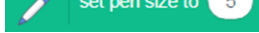
Click the  stop button when you want to stop!

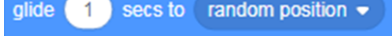


Challenge!

This is a good app to try playing with some of the settings in the blocks.

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For example for the third sprite try changing the  to 0.5

And try changing the  to 100 secs for one of the cat sprites (Sprite1 or Sprite 2)

Try out other numbers and see what happens.