

## SWIRLS

In this animation we will be using the pen tool in Scratch. We will be creating looping repetitive patterns with the pen tool.

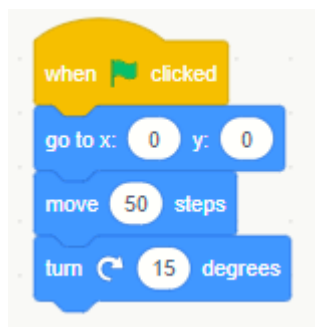
The first step is to choose a new sprite, delete the cat and choose your own.

I have chosen the wizard frog, but pick whatever you want.

Add code to your sprite so that when the flag is clicked the sprite starts in the centre of the stage.

Then add some more code to make it move and spin.

The code should look like this:

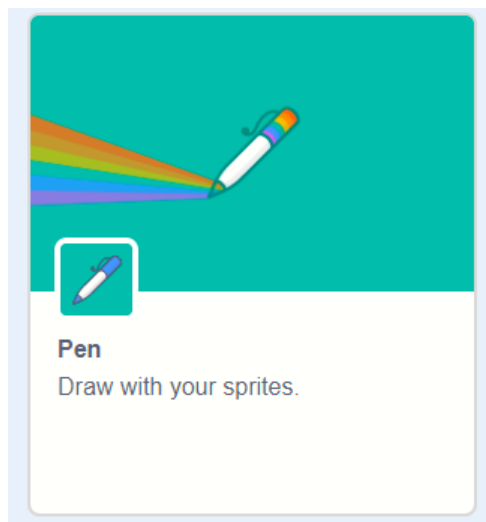


The next step is to add the pen.

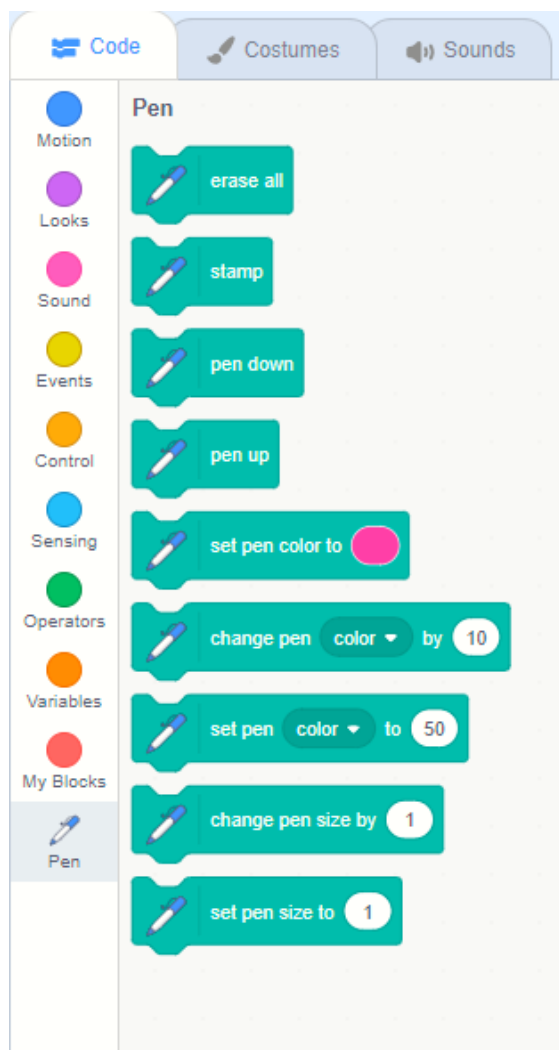
The pen extension button is located at the bottom left of your screen, under all the coding blocks and looks like this:



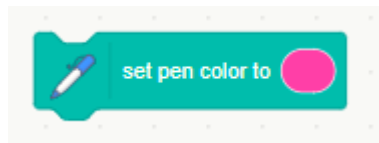
Click on the extension symbol and choose PEN.



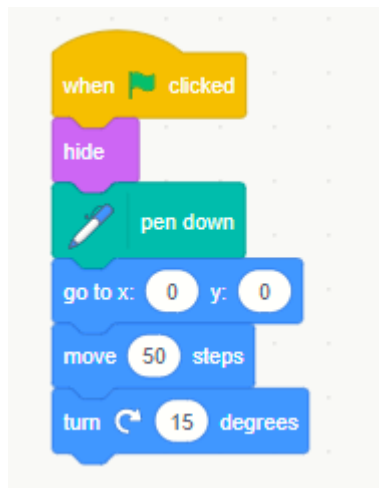
Once you have chosen the pen extension it should appear at the bottom of the coding blocks.



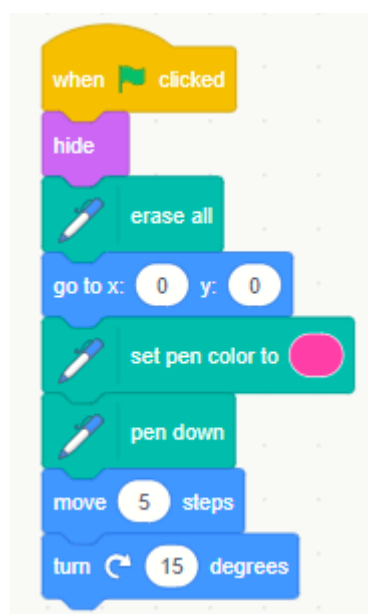
Snap this code in above the pen down block, This allows you to change the colour of your drawing.



Now we're going to add code to draw and hide the sprite so you can actually see what you're drawing.



You may notice that the drawing doesn't disappear once the code has run. Add an erase all code block to the top of your code. Your code should now look like this:



Now to actually start drawing we're going to add a pen up block, a repeat until touching edge loop to the existing code. Change the amount of steps the sprite takes to just 5.

The code should now look like this

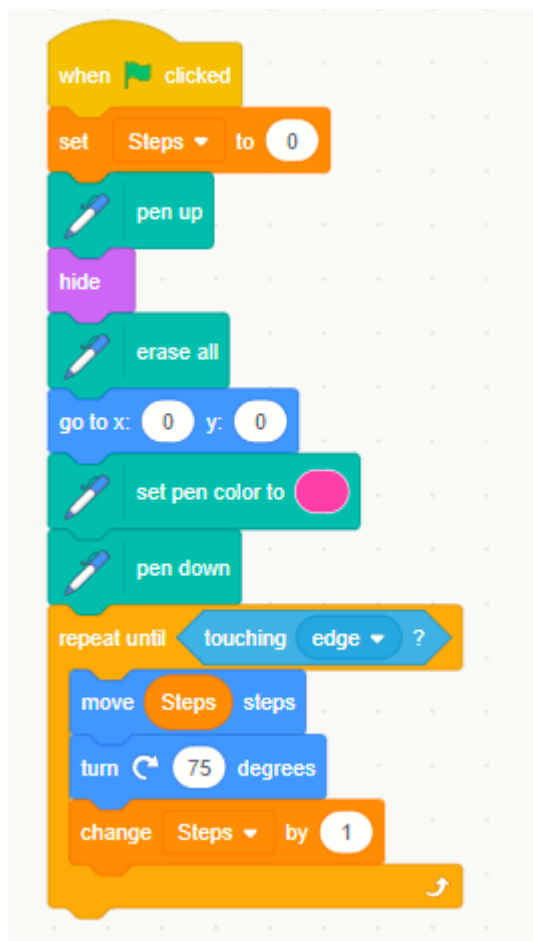


This code now makes a perfect circle, but that's a bit boring so we will add some more code to get interesting patterns.

The first step is to add a variable for all sprites called 'steps'. Add this variable at the start of the existing code.

Next we're going to change the code inside the loop to include the variable.

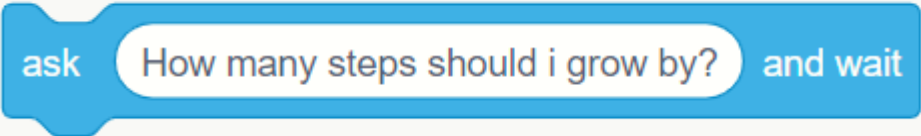
Your script should now look like this:



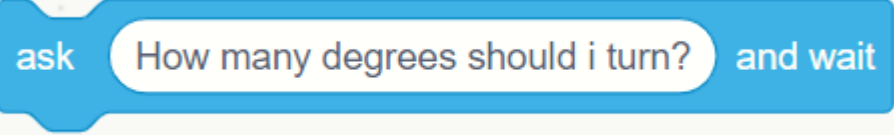
Add two new variables called degrees and increase, and make the following changes to the repeat code:



To make the animation interactive add some ask blocks at the start of the code under the set steps variable.

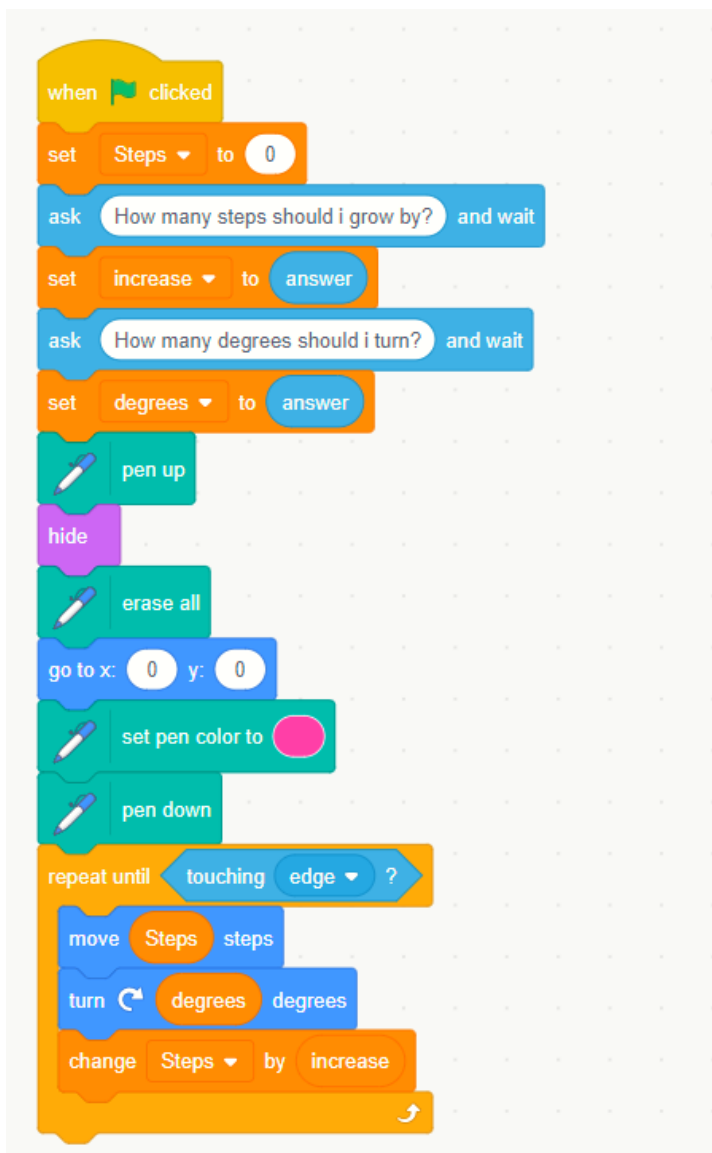


ask How many steps should i grow by? and wait



ask How many degrees should i turn? and wait

The entire code should now look like this



```
when clicked
  set Steps to 0
  ask How many steps should i grow by? and wait
  set increase to answer
  ask How many degrees should i turn? and wait
  set degrees to answer
  pen up
  hide
  erase all
  go to x: 0 y: 0
  set pen color to pink
  pen down
  repeat until touching edge ?
    move Steps steps
    turn degrees degrees
    change Steps by increase
```

If you want the lines to change colours you can randomise the colour by adding this code:

