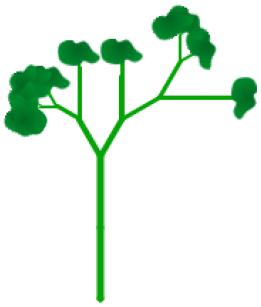
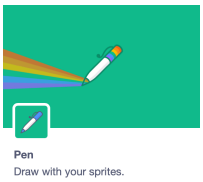
Scratchling



Register/login at https://scratch.mit.edu

Grow your own Scratch sapling – a scratchling.

1) Click on the **Add Extension** button, and add the **Pen** extension.

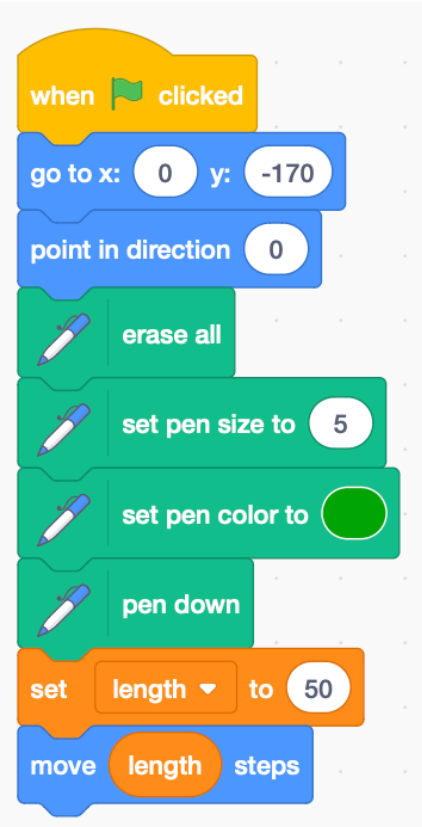


2) Create a sprite using the **Tree1** graphic.
3) In costumes, select one leaf and drag it to one side.

4) Delete the rest of the tree, then drag the leaf to the centre cross.

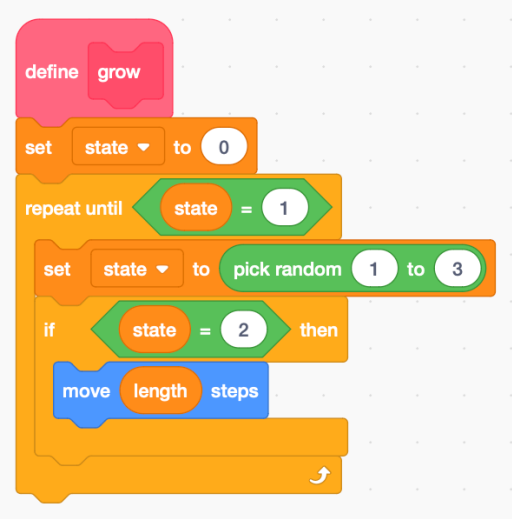
Make a sapling (a young tree).

5) Make a variable, for the **length of the stalk**, **for this sprite only**.
6) Add the code to the right. First, place the sprite somewhere near the bottom of the screen, **pointing** upwards.
7) Use pen commands to **erase** the screen, set the pen **size** and **colour**, and put the **pen down** to start drawing.
8) Initialise the stalk **length** to 50, and then **move** it to draw the stalk.



Run this to see your new sapling.

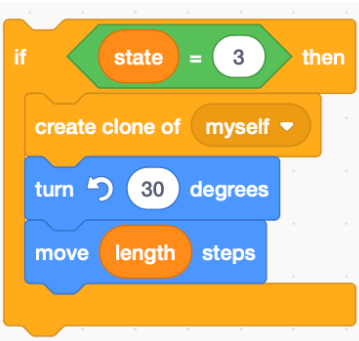
Grow your plant with a repeat loop



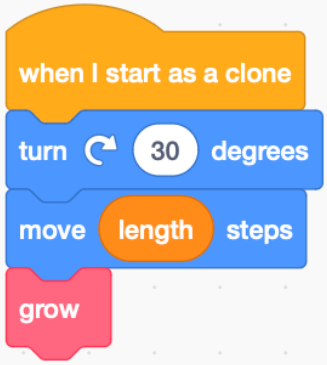
9) **Make a block** to **grow** your plant.
10) Make a variable for the **state** of the plant, **for this sprite only**, and initialise it to zero.
11) **Randomise** the **state** each time round the loop, between 1 and 3.
12) When **state = 1** it exits the loop and stops growing.
13) **If state = 2 move** the sprite to grow a little bit.
14) Add 

to the end of your **green flag** code.

Now the clever bit – the plant branches.

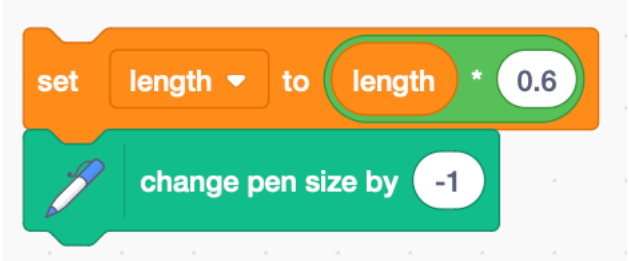


15) Add code after the last **if**, inside the loop, so the main plant **turns** 30° left and a **clone** of the sprite branches right.
16) Add code **when it starts as a clone** to **turn** 30° right, and continues to 



Is your plant a bit bushy? Prune it by cutting back the length each time round the loop.

17) Add code at the end of the loop – but inside it – to scale back the **length** and reduce the pen **size**.



*Remember to **Save** your code with a good name.*