Drawing shapes with Scratch

1. In Scratch, we can make the cat draw shapes by getting it to put its pen down.

2. If we make the cat take 50 steps, it will leave a blue line behind.

3. We're going to make the cat draw a hexagon. He's drawn the first line. He needs to turn 60 degrees before drawing the second line.

4. Now we want him to turn automatically after each line, so put the two commands together.

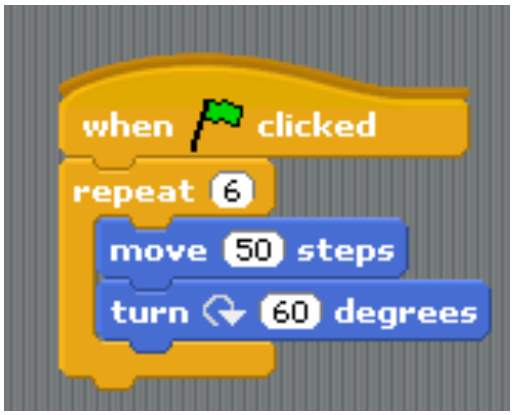
5. Click on that command block 6 times. The Cat should move around the hexagon, drawing as he goes!

6. Now, we want to make him draw a hexagon with a single click. First, we need to clear the screen.

7. See that script block you've done already? We want to do that 6 times when we click the green Go button. See if you can work out how to do that, and when you're done, talk to Mr. Boyer about getting the next sheet. (It builds on what you've learned here)

Drawing shapes with Scratch (part 2)

8. Your answer should look something like this >



9. Move the cat to a different position and press the Green Flag. You can now draw a hexagon in any place on the screen.

10. We can make this more interesting by changing the pen color each loop. Stick

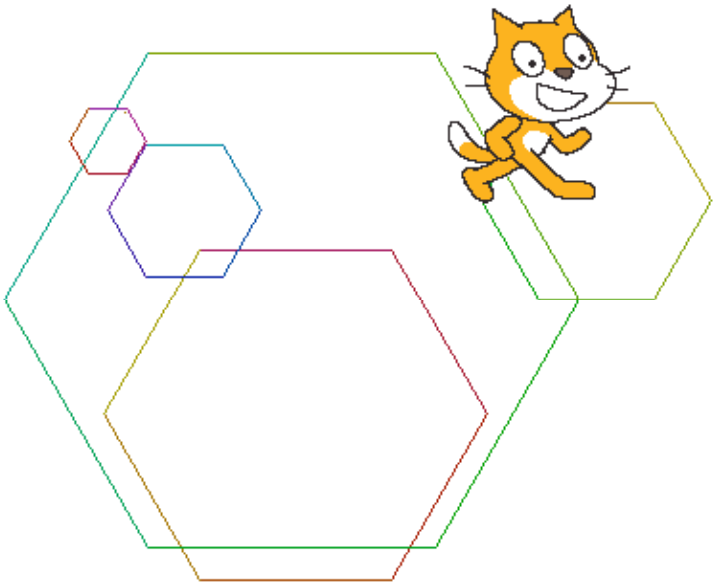
a… into the loop and the line will change colour slowly as it goes round.

INTRODUCING VARIABLES

We want to be able to control how big the hexagon is. Have a think about what number we would need to change to make the hexagon bigger…

It's the number of steps. If the cat takes 100 steps instead of 50, each edge will be longer, and the hexagon will be bigger. Lets try it now

1. Drag the cat to a different spot on the screen.
2. Click on the script block you've built, and change the "50" to "100"
3. Press the Green flag.
4. Move the cat to different spots around the screen, and change the number of steps to 20, 40, and 150. Click the green flag between each.



You can see that you can change the size of the hexagon by changing the number of steps the cat takes. This is a perfect use for a ***variable***.

1. Make a new variable and call it “Size”

2. Double click the variable in the stage area. It should turn into a slider. Drag the slider up to around 50.

3. Drag the orange “Size” variable over the place in your script block that says “Move 50 steps”. It should drop in and look like this:

4. Click the green flag. What happens?

5. Drag the slider up to change the value of “Size”. Click the green flag again. What happens?

6. You should see that now we can control how big the hexagon is just by changing the slider. We are controlling the variable. When the script runs, it gets to the step shown above and looks at what the “Size” is, and takes that many steps.

Save what you’ve done, then have a play around with the script block you’ve created. Try changing some numbers, adding extra steps, just explore. After you’re done, reload your project to get back to this script.

You can also change the variable inside the script. What happens if we increase the size slightly inside the loop? Lets try it now.

1. Each time we loop, we want to increase the size by one. This means that as the cat goes round the hexagon, it will get slightly bigger. Drag this command into the script block, and click the Green Button a few times.

2. This would work a lot better if the cat drew more than one hexagon at a time. Change the number of times the loop repeats to 100.

3. Clear the screen, drag the slider down to 0, put the cat in the centre and press the Green Flag.