Workshop 2: Let's Draw!

Grades: 3-9
Time Estimate: 60 minutes

Learning objectives:

- Familiarity with Scratch as a drawing tool
- Familiarity with basic programming concepts like sequencing and loops

Materials:

- At least one computer per student
- Access to internet, or downloaded version of Scratch
- Projector or whiteboard

Warm up [5 min.]

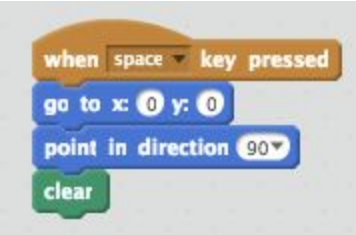
- A short activity that demonstrates how repetition and sequences are used in drawing. E.g. the teacher draws a geometric pattern like a star, that uses a repeated sequence. How would students describe the steps to drawing a square, a triangle?

Set up [5 min.]

- The class discovers how to add drawing to their Scratch sequences using this block:

Once the pen down block is clicked, all the movement blocks can be used to draw. Experiment with move 10, turn 15 degrees, and repeat 10 times.

When drawing, it can be useful to add a clear block to a basic reset sequence, to work as an eraser.



Draw a Circle [10 min.]

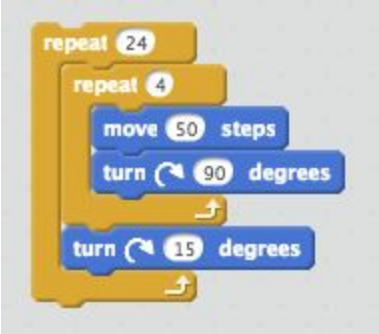
- Students experiment to see how many repetitions are needed to complete a circle using move 10 and turn 15 degrees

- Students discuss strategies used to find the answer.

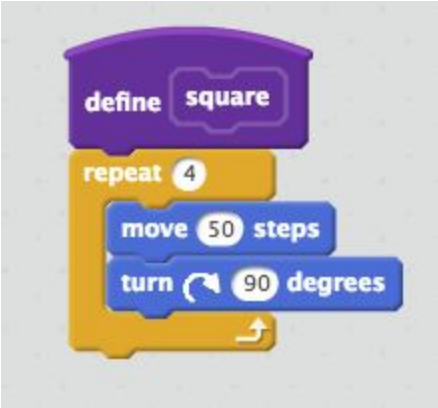
Draw a square and put it inside a circle [15 min.]

Students use repetition and movement blocks to draw square.

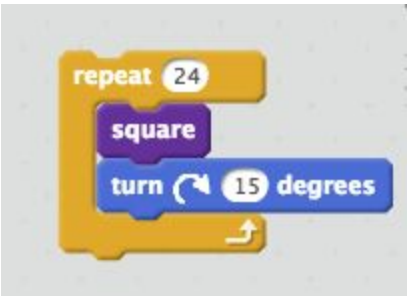
Instructor demonstrates how to put the square into a circle to draw a spirograph!



Students can also make their own “square” block:



and construct a simple spirograph like this:



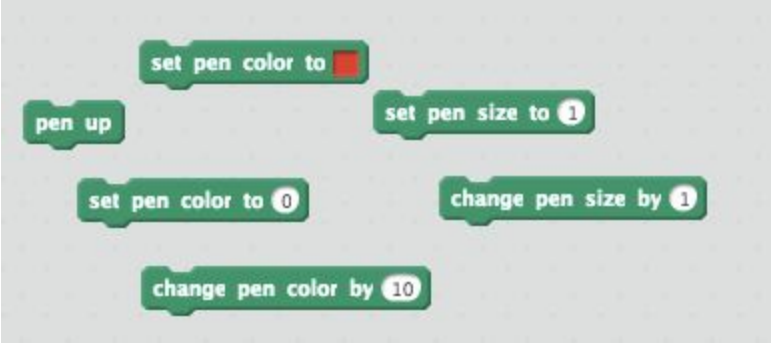
Draw a triangle [5 min.]

Students draw an equilateral triangle

Watch out for the common mistake of using 60 degrees (interior angle) instead of 120 degrees (exterior angle).

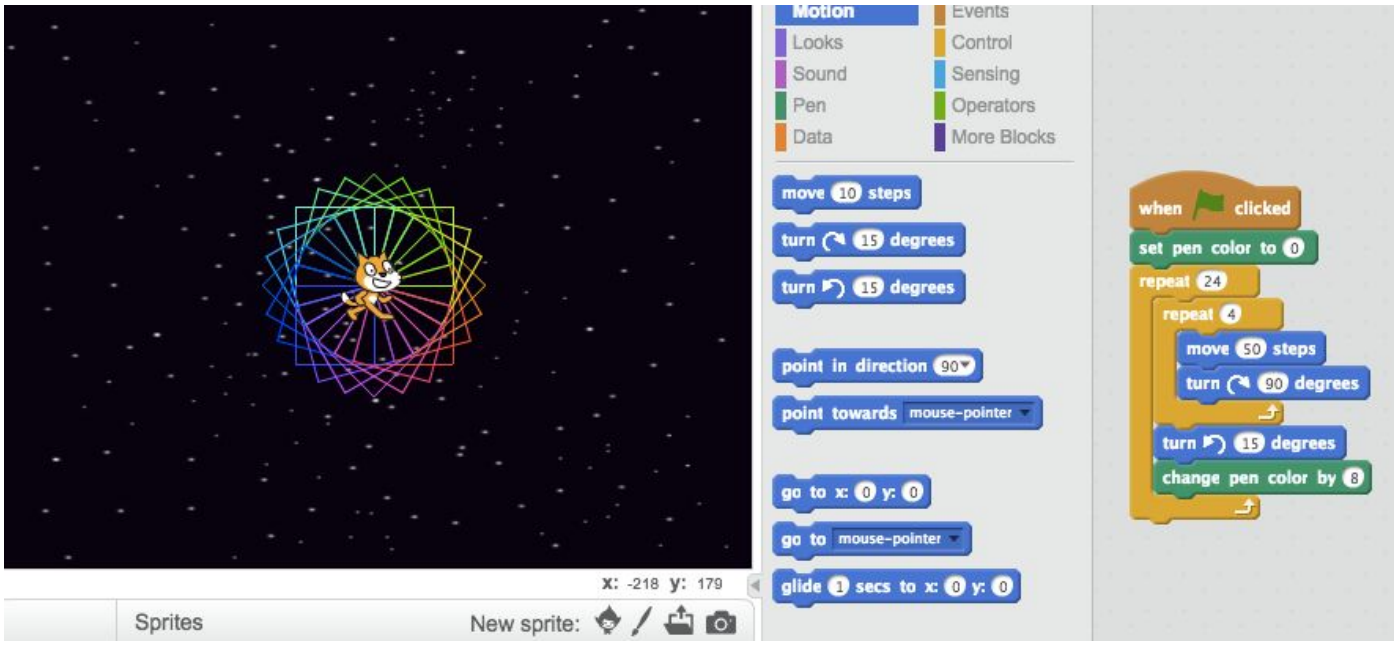
Experiment with other blocks [10 min.]

Students can create and add to their patterns by using some of these blocks



A fun thing to build is a Scratch colour wheel.

There are 200 colours and each one has a number. If we start our spirograph at 0 (red) and change the pen colour by 8, as it moves through the loop, we can get a good sense of what they are.



Wrap-up [5-10 min.]

Students should complete their sequences with Event blocks..

Students share their discoveries, strategies, difficulties encountered and successes.

Practice

The possibilities for creating new patterns are endless! Try synchronizing multiple sprites to draw variations on a theme, or a simple recognizable logo, like the olympic rings. Visit the KCJ drawing studio to see some examples.

https://scratch.mit.edu/studios/4516472/