

# Activity: Let's Draw!

Grade:

3-9

Estimated Time:

60 minutes

Learning objectives:

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

Materials:

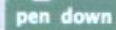
- At least one computer per student
- Access to the internet, or a downloaded version of Scratch
- Projector or whiteboard

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.]

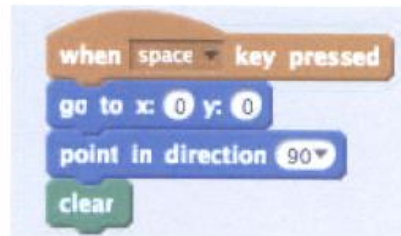
The class discovers how to add drawing to their Scratch sequences using this block:



Once the pen down block is clicked, all the movement blocks can be used to draw.

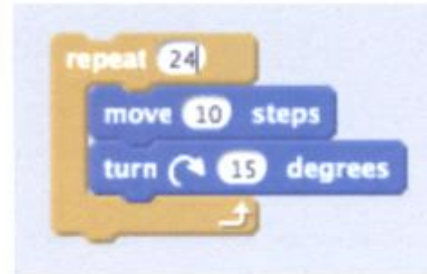
Experiment with [move 10](#), [turn 15 degrees](#), and [repeat 10 times](#).

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](#).



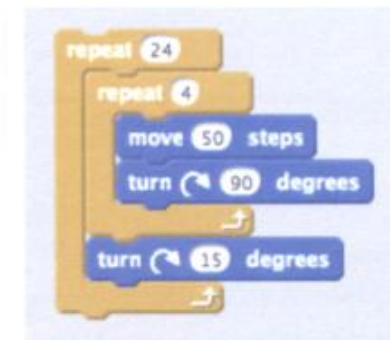
Students discuss strategies used to find the answer.

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

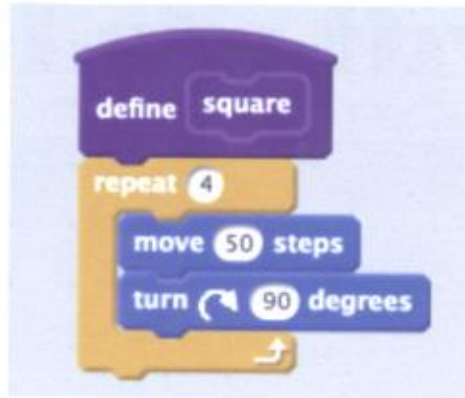
Students use repetition and movement blocks to draw a square.



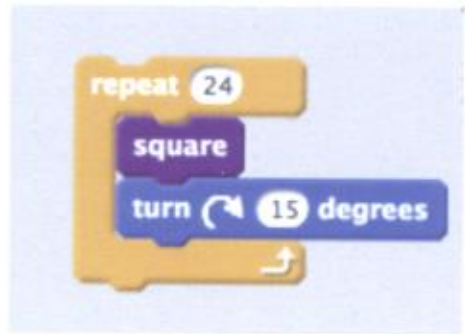
Instructor demonstrates how to put the loop for a square inside the loop for a circle, to draw a spirograph!



Students can also make their own "square" block:



and construct a simple spirograph like this:



Draw a triangle [5 min.]

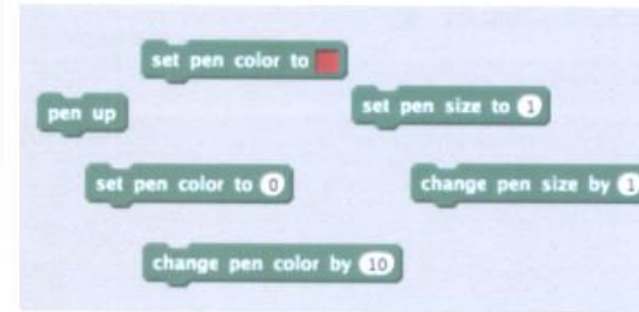
Students draw an equilateral triangle



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

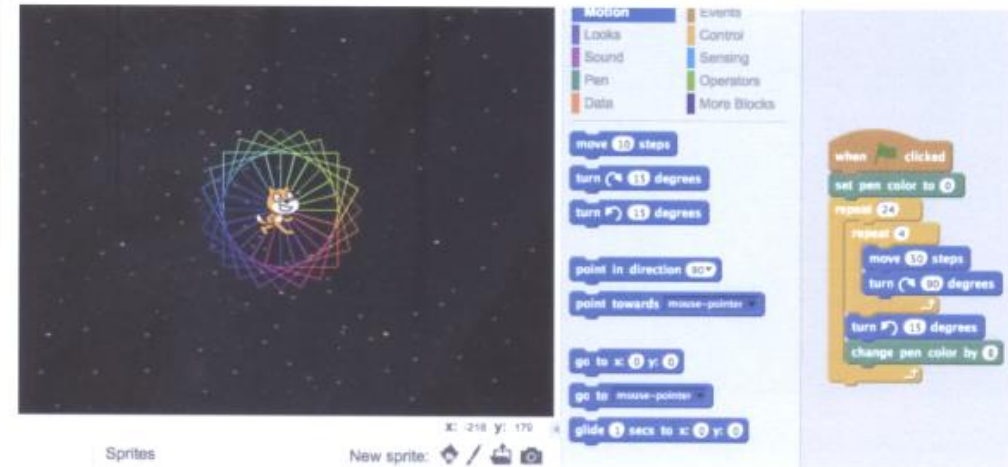
Experiment with other blocks [10 min.]

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 the pen moves through the loop, we can get a good sense of what the colours are.



Wrap-up [5-10 min.]

Students should complete their sequences with **Event** blocks. Students share 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 to draw a simple recognizable logo, like the Olympic rings. Visit the KCJ drawing studio to see some examples.

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