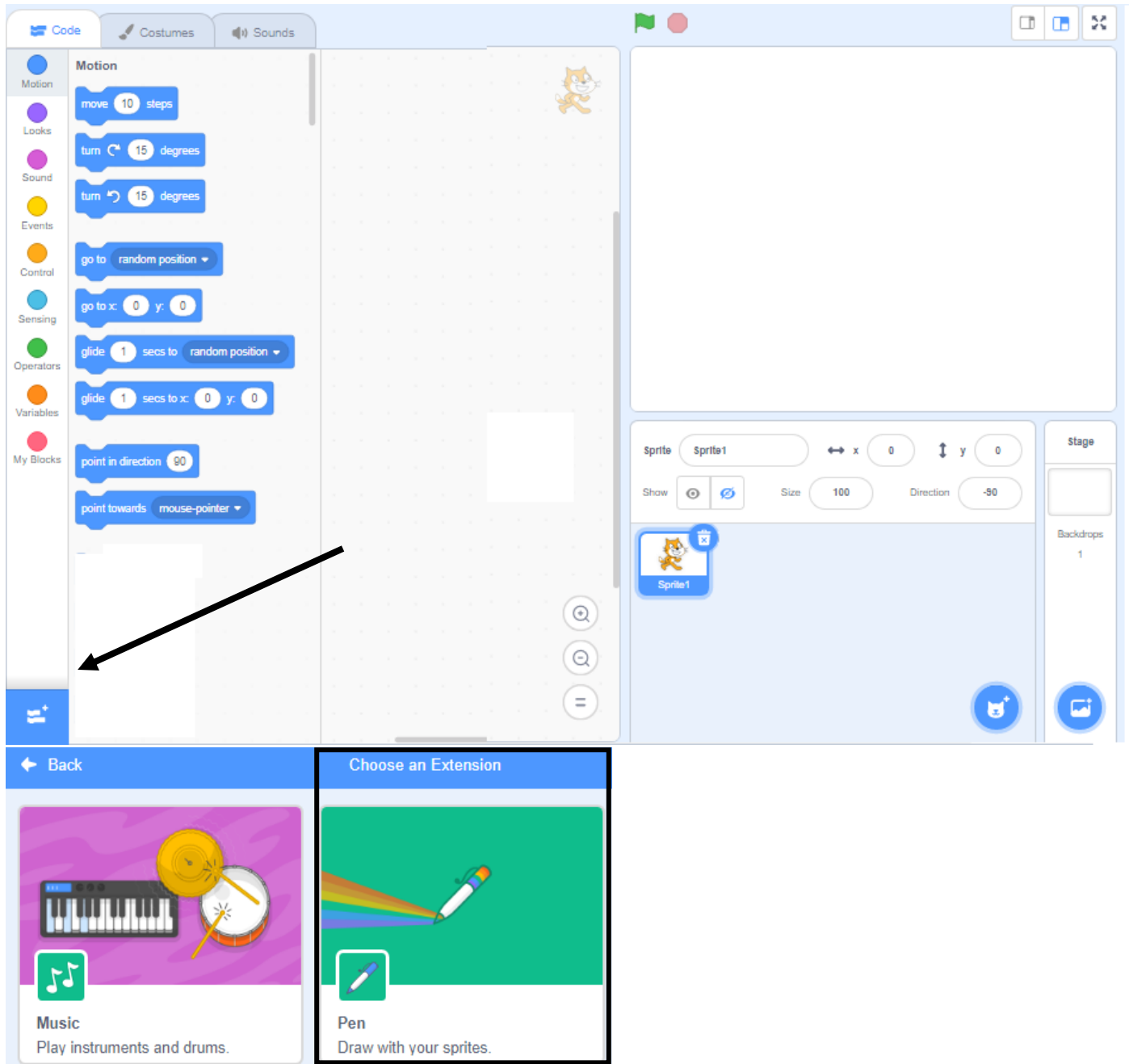


Grade 5 - Scratch Geometry – Lesson 1 - Equilateral Triangles

In this lesson you will use the basic Motion blocks, Pen blocks, and some Control blocks to create equilateral triangles. This will require you to draw upon your math and geometry skills.

Go to the Extensions and click to add the Pen blocks menu.



The image shows the Scratch software interface. The top panel displays the 'Code' menu with various block categories: Motion, Looks, Sound, Events, Control, Sensing, Operators, Variables, and My Blocks. A black arrow points to the 'My Blocks' icon at the bottom left of the code area. Below the main interface, the 'Choose an Extension' dialog is open, showing two options: 'Music' (Play instruments and drums) and 'Pen' (Draw with your sprites). The 'Pen' extension is highlighted with a black border.

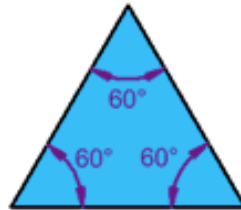
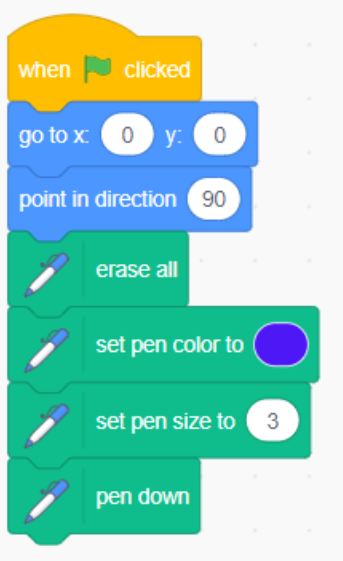
Resize your sprite to about the size of a nickel.

Click the Events blocks menu. Add Event when green flag clicked.

Challenge One

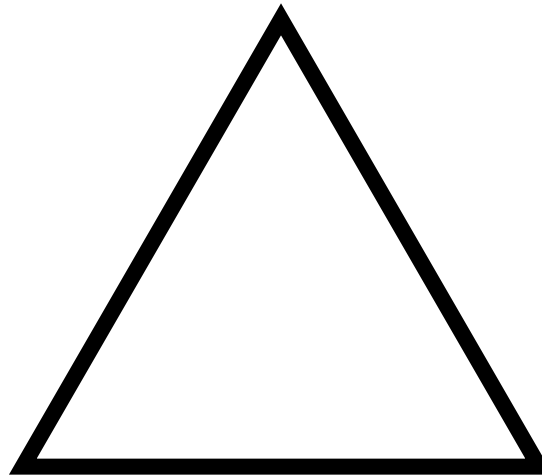
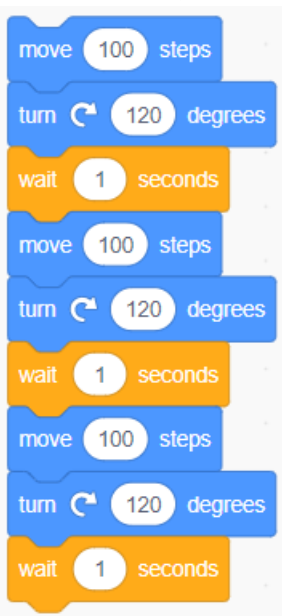
Your challenge is to apply what you learned so far to use the Pen blocks and the move and turn blocks to create an equilateral triangle with each side equal to 100 steps.

A) Add the following up start blocks.



Equilateral Triangle
- Three equal sides.
- Three equal internal angles.

B) Add the following move, turn, and wait blocks to create a triangle and then click the green flag above the stage.



Notice that for both a square and your triangle that all of the turns add up to 360.

Square – $90 + 90 + 90 + 90 = 360$.

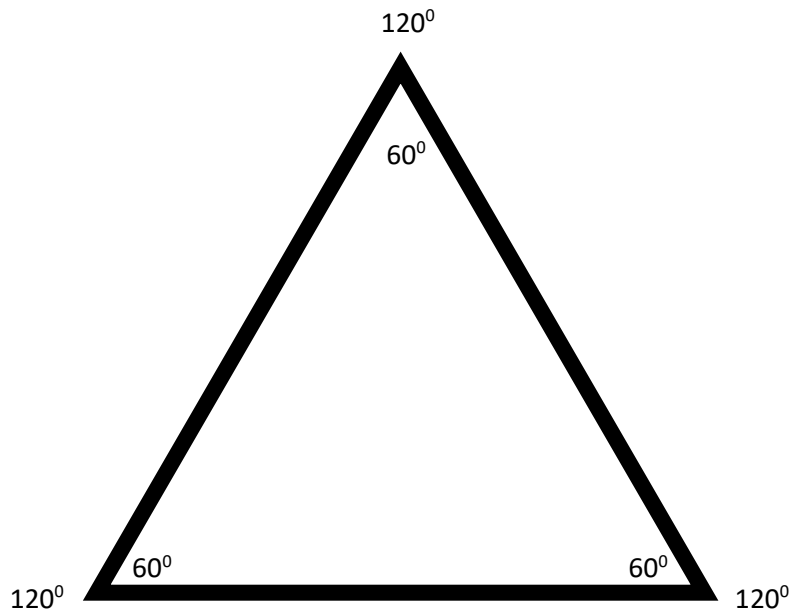
Triangle – $120 + 120 + 120 = 360$.

When creating a shape in Scratch you must go around the outside of the shape.

This is just like creating a circle. You must complete a 360 degree turn.

Important Facts About Triangles

- i) All inside (internal) angles of a triangle must always equal 180° .
- ii) All outside (external) angles of a triangle must always equal 360° .
- iii) At every vertex (corner) the internal and external angles must always equal 180° .



Challenge Two

Your challenge is to create an equilateral triangle with each side equal to 50 steps.

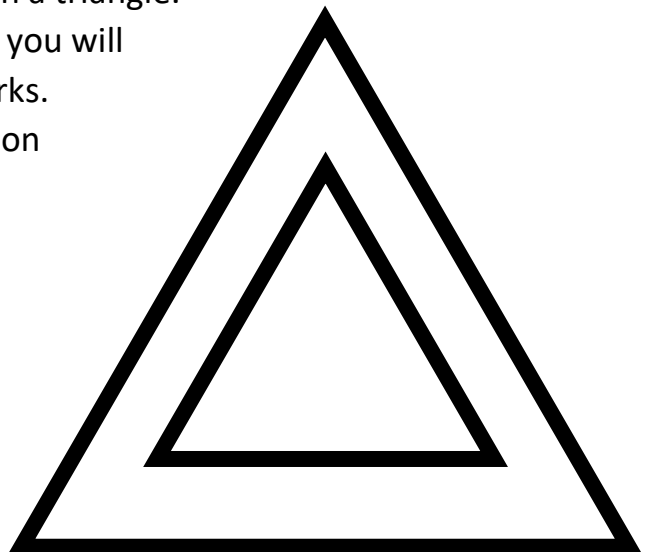
Challenge Three

Your challenge is to create a triangle within a triangle.

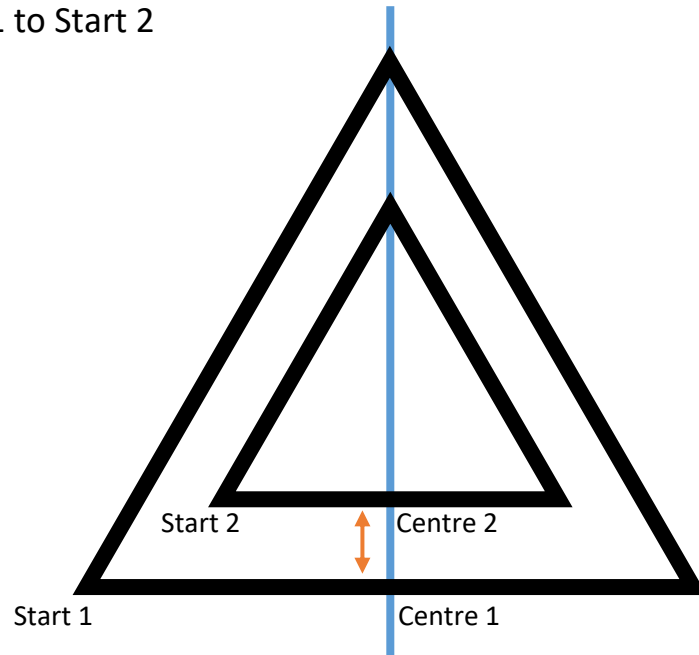
The two triangles cannot be connected so you will need to explore how the pen up block works.

Both triangles should be centered in relation to each other.

It would be easiest to start with the big triangle first.



Think about where the big triangle started and ended.
How would you move from Start 1 to Start 2
so that you could make a
smaller triangle inside
the bigger triangle?



When you are done show Mr. Desmond what you have created.