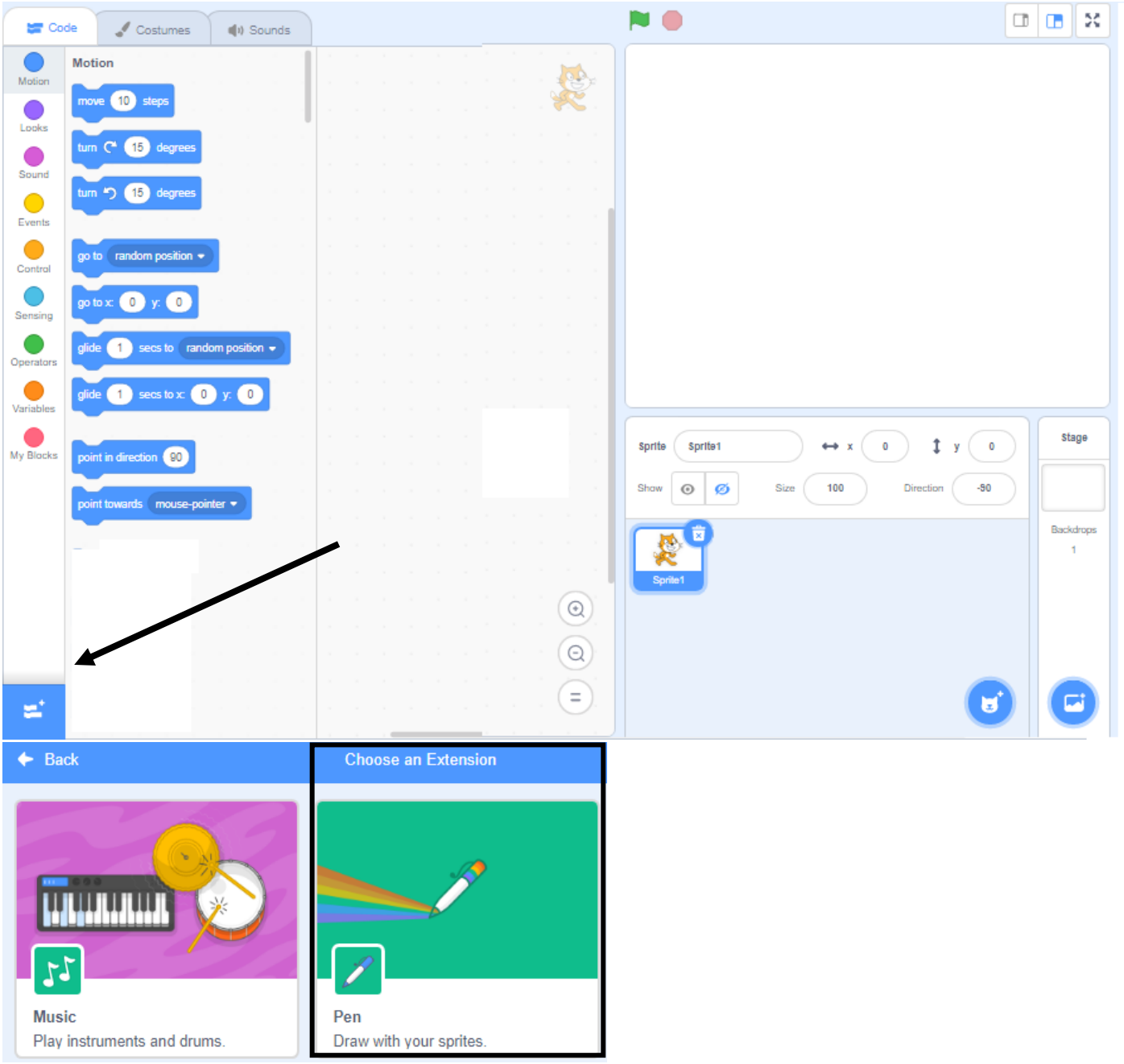
Grade 5 - Scratch Geometry – Triangles 3 - Scalene

In this lesson you will use the basic Motion blocks, Pen blocks, and some Control blocks to create scalene 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.

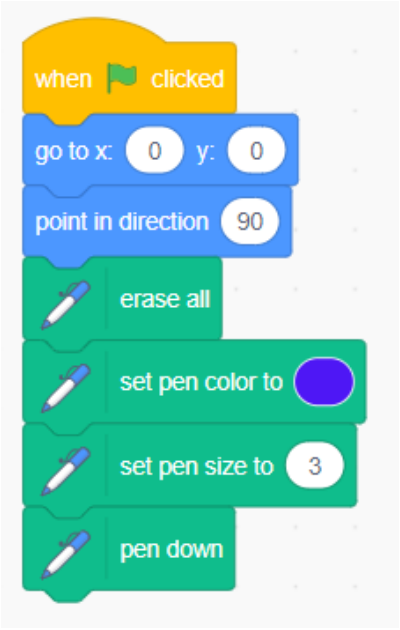


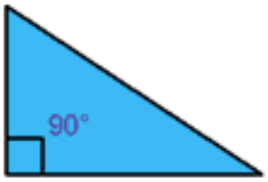
Resize your sprite to about the size of a nickel.

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 a right-angle scalene triangle.

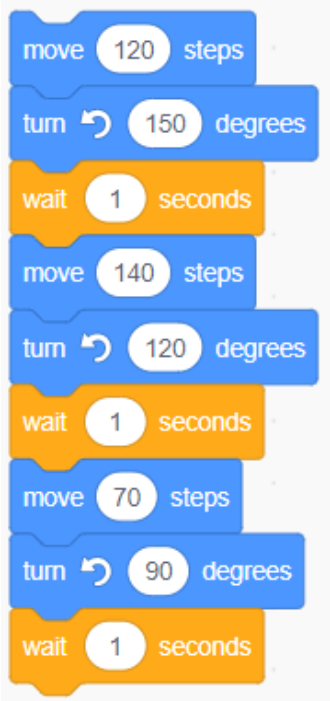
A) Add the same start up blocks as before.





Right-Angle Scalene Triangle
- No equal sides.
- No equal internal angles.
- A 90^0 angle at one vertex.

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



Did you create a right-angle scalene triangle?

Notice that all of your turns add up to 360 => 150 + 120 + 90 = 360.

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

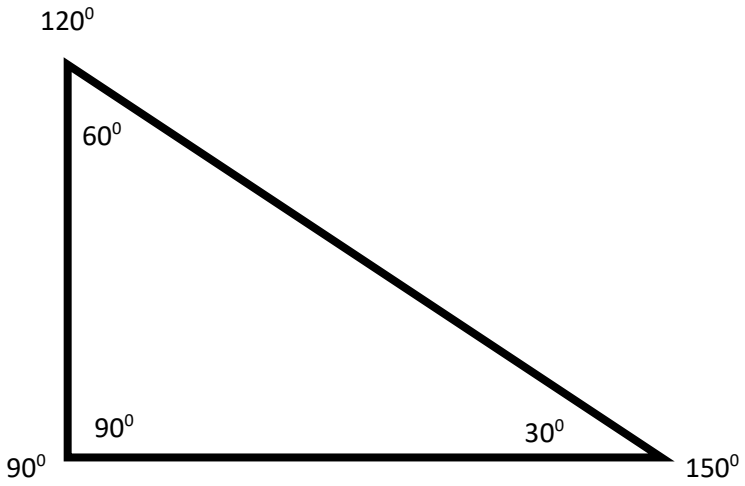
This is just like creating a circle. You must complete a 360 degree turn.

Important Facts About Triangles

i) All inside (internal) angles of a triangle must always equal 180^0.

ii) All outside (external) angles of a triangle must always equal 360^0.

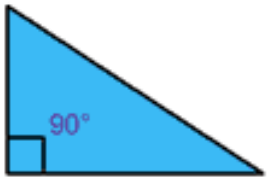
iii) At every vertex (corner) the internal and external angles must always equal 180^0.



This is one example of a scalene triangle. Not all scalene triangles will look like this.

All scalene triangles have no equal sides and no equal internal angles.

Challenge Two
Your challenge is to create a new and different right-angle scalene triangle.
Change the angles, but make sure that none of the internal angles are the same.
Figure out how big each side should be (each side must be bigger than 50 steps), this may take a few tries to get it correct so that all three lines meet perfectly.



Right-Angle Scalene Triangle
- No equal sides.
- No equal internal angles.
- A 90^0 angle at one vertex.

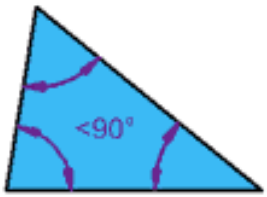
It is a good idea to use paper to draw your triangle and figure out your internal and external angles before you do the coding part. Use the triangle rules above to help you.
Be prepared to explain what your external angles are and how they equal 360.
When you are done show Mr. Desmond what you have created.

Challenge Three

Your challenge is to create an acute angle scalene triangle.

An acute triangle has all internal angles less than 90 degrees. None of the internal angles will be the same.

Figure out how big each side should be (each side must be bigger than 50 steps), this may take a few tries to get it correct so that all three lines meet perfectly.



Acute Angle Scalene Triangle
- No equal sides.
- No equal internal angles.
- All angles less than 90^0.

It is a good idea to use paper to draw your triangle and figure out your internal and external angles before you do the coding part. Use the triangle rules above to help you.

Be prepared to explain what your external angles are and how they equal 360.

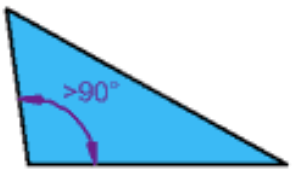
When you are done show Mr. Desmond what you have created.

Challenge Four

Your challenge is to create an obtuse angle scalene triangle.

An obtuse triangle has one internal angle that is greater than 90 degrees. None of the internal angles will be the same.

Figure out how big each side should be (each side must be bigger than 50 steps), this may take a few tries to get it correct so that all three lines meet perfectly.



Obtuse Angle Scalene Triangle
- No equal sides.
- No equal internal angles.
- One angle greater than 90^0.

It is a good idea to use paper to draw your triangle and figure out your internal and external angles before you do the coding part. Use the triangle rules above to help you.

Be prepared to explain what your external angles are and how they equal 360.

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