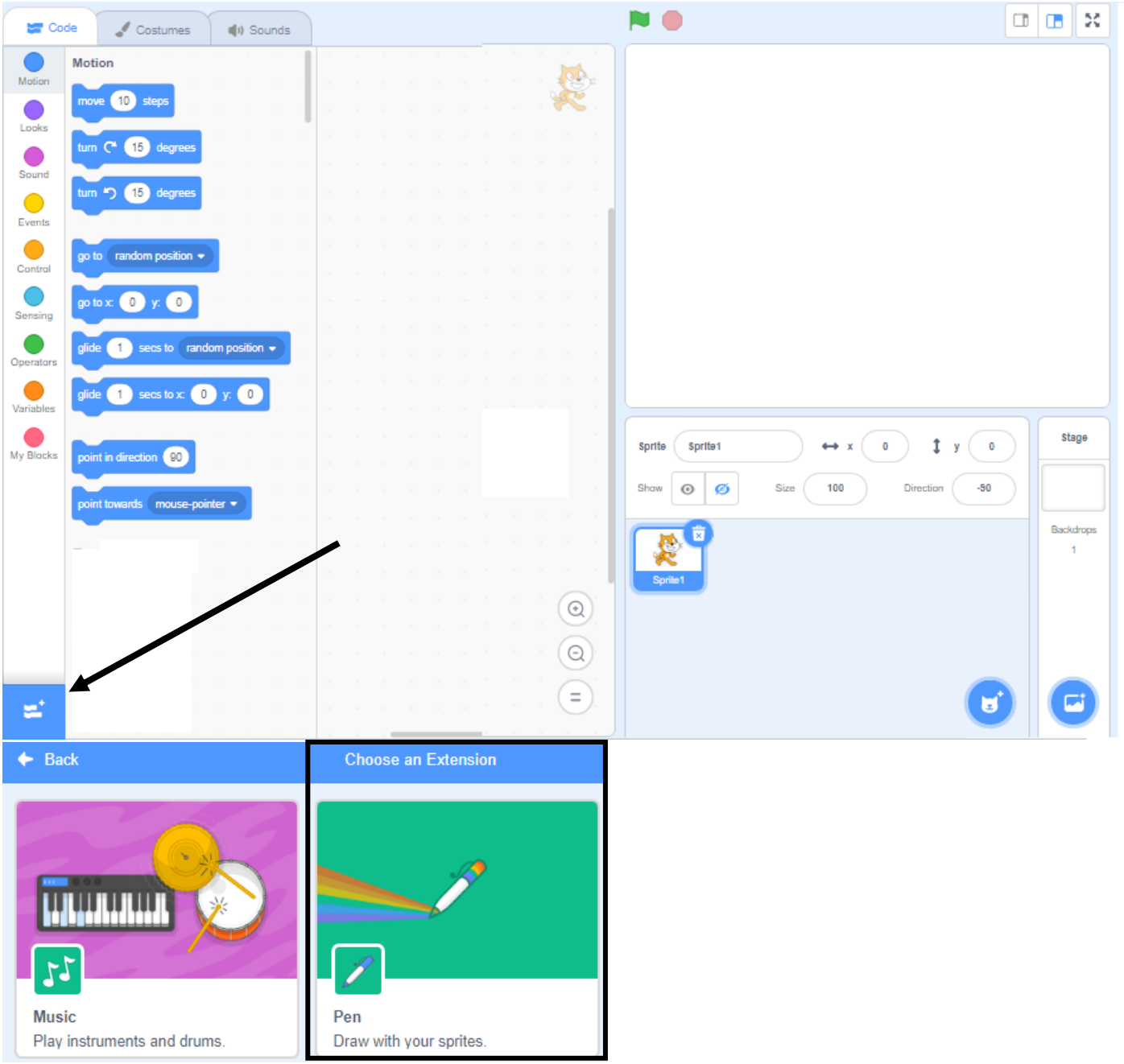
Grade 5 - Scratch Geometry – Triangles 2 - Isosceles Triangles

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

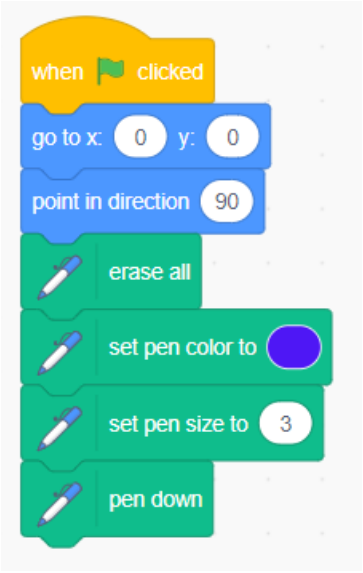


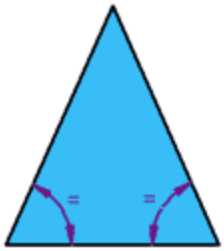
Resize your sprite to about the size of a nickel.

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 an isosceles triangle with two sides equal to 160 steps.

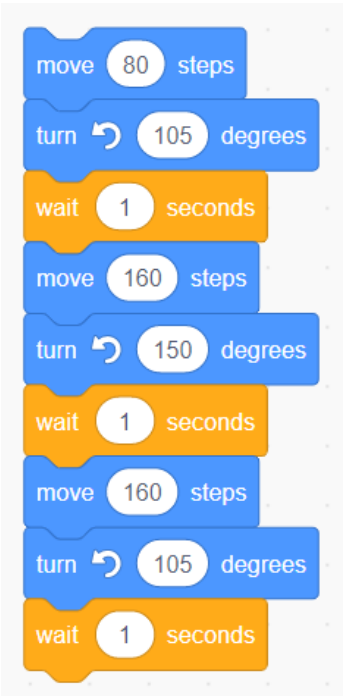
A) Add the same start up blocks as before.





Isosceles Triangle
- Two equal sides.
- Two equal internal angles.

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



Did you create an isosceles triangle?

Notice that all of your turns add up to 360 => 105 + 150 + 105 = 360.

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

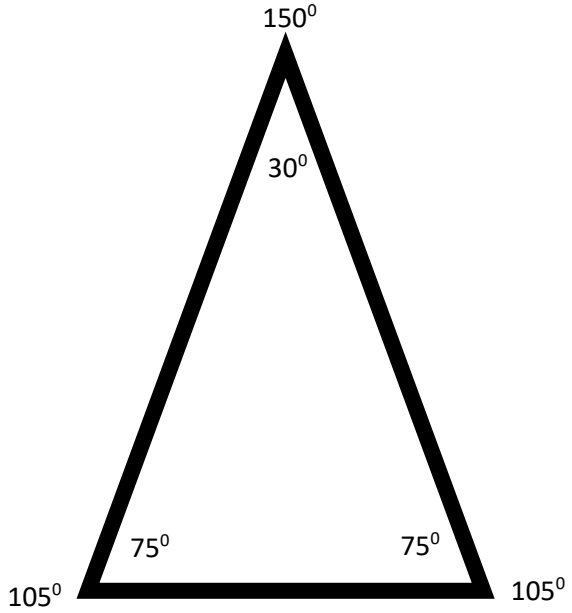
This is just like creating a circle. You must complete a 360 degree turn.

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 an isosceles triangle. Not all isosceles triangles will look like this.

Challenge Two
Your challenge is to create a different isosceles triangle.
Keep all the angles the same. Change the size of the sides. Figure out how big each side should be, but make sure that two sides are the same size.
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.
When you are done show Mr. Desmond what you have created.

Challenge Three
Your challenge is to create a new and different isosceles triangle.
Change the angles (different than Challenge Two), but make sure two of the internal angles are the same.
Figure out how big each side should be (each side must be bigger than 50 steps). Make sure that two sides are the same size.
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 a right-angle isosceles triangle.

A right-angle triangle has a 90 degree angle at one vertex.

What are the other angles?

Figure out how big each side should be (each side must be bigger than 50 steps). Make sure that two sides are the same size.

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.