Building and Debugging Your Own Blocks

BJC Unit 1 Lab 4
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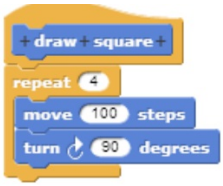
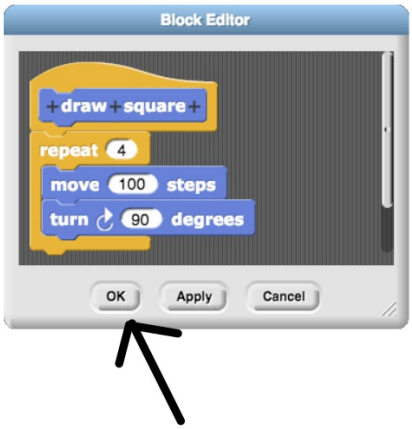
The Beauty and Joy of Computing for New York City project is supported by the National Science Foundation under grant number 1441075.

Build the draw square block.



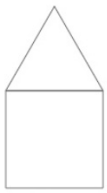
Right-click (or control-click on a Mac) on the gray background of the scripting area.
Choose "make a block..."



Try it out.

This was saved in the Motion pallet.

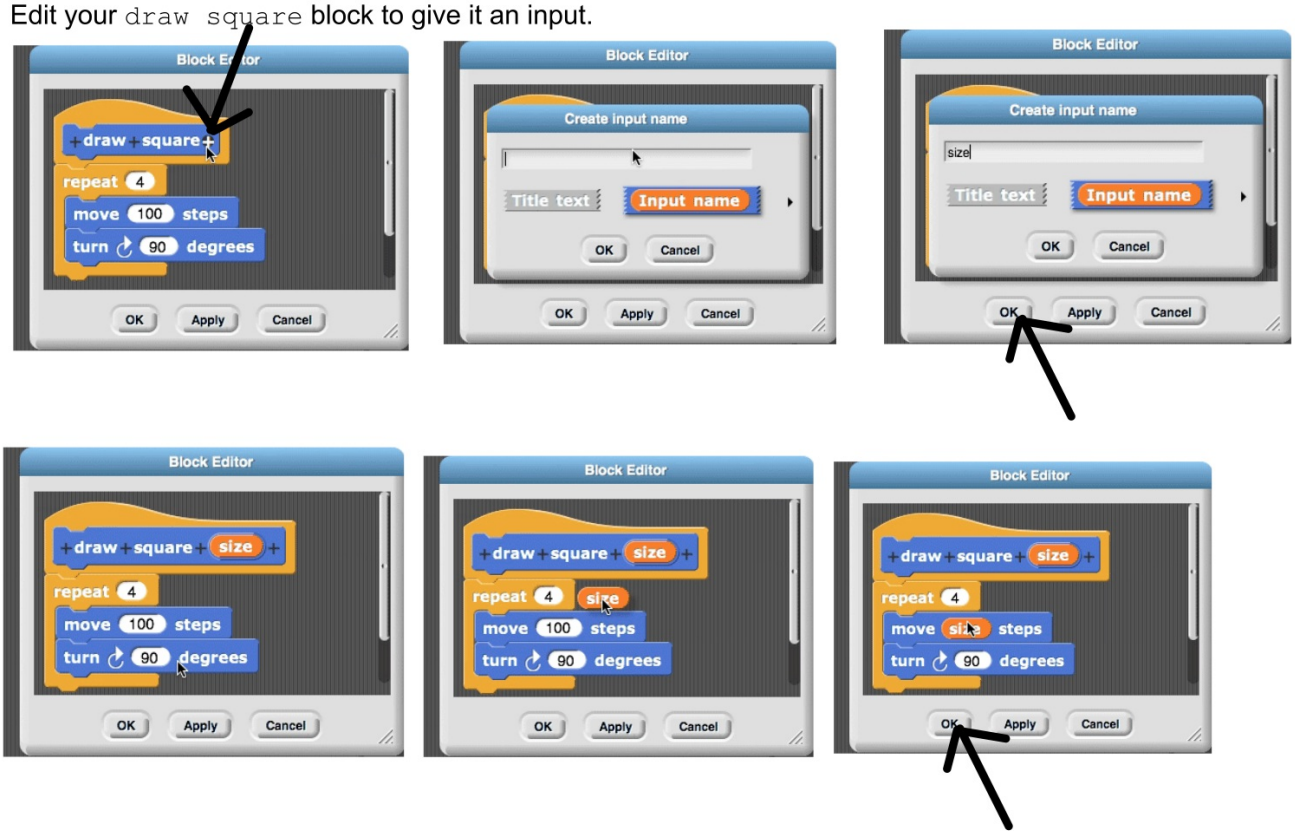
Now build: draw triangle and try it out.



Using draw square and draw triangle, create a script to build this house.

Adding an Input

Edit your `draw square` block to give it an input.



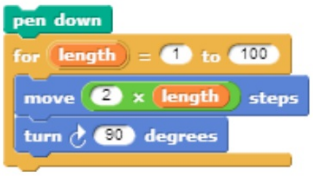
Draw a square with your new draw square block.

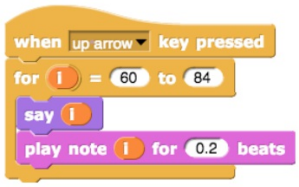
Edit your triangle and house blocks so you can build houses of any size.

Create a `draw polygon` block that takes two inputs:

- a number of sides (call the variable `sides`)
- the length of each side (call the variable `length`)

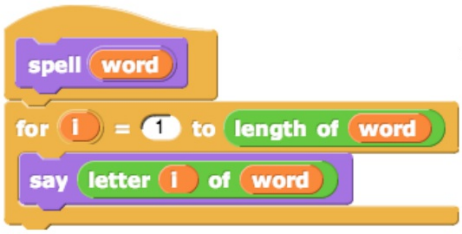
Build these scripts and try them out:





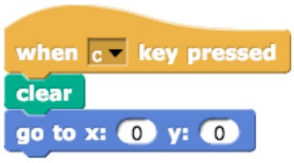
Debugging Custom Blocks

Build this block

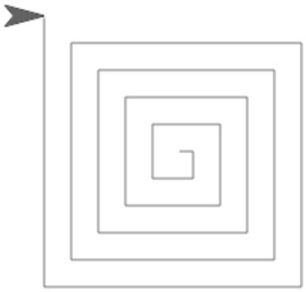


Try it out and fix it so that you see your "word" spelled out.

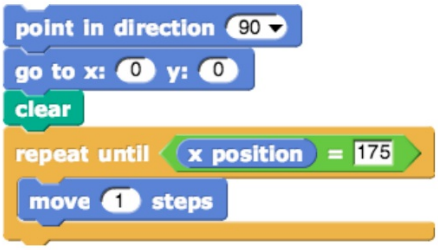
Build, try it out, and fix it so that the screen is clear and the mouse is in the middle even when you've had the "pen down."



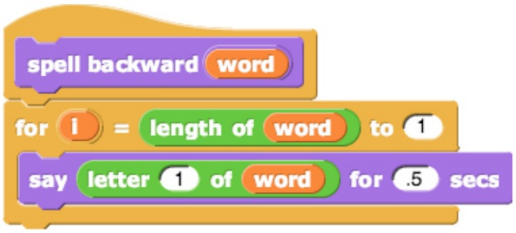
Build, try it out, and fix it so it does this.



This script was designed to move the sprite to the right until it reaches *x* = 175. Then speed it up a little.

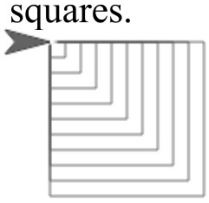


The block below was intended to spell its input backward. Try it out and fix it.



Create a spell backwards block using 

Build a script that nests squares.



Make the picture symmetric:

Nest different polygons using your draw polygon block.

Challenge!

For You To Do

1. Use the **draw square** block to create a block **draw square-petal flower with petals of size** that will draw a flower with square petals, like the one shown here, but with any specified number of square-shaped petals of the specified size. Calling **draw square-petal flower with 6 petals of size 50** should draw the example picture shown here.

   After you've worked on this for a bit, take a moment to look at what others have done. If you see something you like, think how you could use that idea in your program.

2. Now, draw a field of flowers and give each flower a different color, size, shape, position, and so forth.

   a. Use some of the simple custom blocks you've already written, and write new custom blocks that make use of those simpler blocks to do complicated things.

   b. Use **repeat 10** to draw lots of flowers.

   c. Use **pick random to** to make the flowers interesting and different.