Drawing Patterns with Scratch

The following activities provide practice with algorithmic thinking, spatial reasoning and basic programming constructs.

**Activity 1: Square**

Your sprite should draw out a square on a background of your choice. The square should always been drawn in the same place and in the same way.

**Activity 2: Circle**

Now make your sprite draw a circle. There should be no fancy math involved. Think carefully about what you do when you turn around in a circle. You’re constantly turning, right? Remember, it takes 360 degrees to get all the way around.

**Activity 3: Logo**

This kind of computer-generated drawing is great for making logos. Reproduce the shape to the left. Think carefully about the steps needed. How would you draw the shape by hand? What is it made up of?

**Activity 3b**

Add a color gradient to your logo. Explore other logo shapes you could create.
Activity 4: Resizable Square

Go back to your original square. Now the user should be able to set the square’s size using a slider. Notice I made sure multiple sizes would show on my screen. The size variable doesn’t have to be in any particular unit. *Note: things WILL look weird if the sprite draws off screen. Don’t worry about it!*

Activity 5: Resizable Regular Polygon

There are many kinds of regular polygons:

<table>
<thead>
<tr>
<th>Name</th>
<th>Number of sides</th>
<th>Angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triangle</td>
<td>3</td>
<td>120</td>
</tr>
<tr>
<td>Square</td>
<td>4</td>
<td>90</td>
</tr>
<tr>
<td>Pentagon</td>
<td>5</td>
<td>72</td>
</tr>
</tbody>
</table>

Using the pattern found in the table above as well as the screenshots below, modify your previous script so that a user can change how many sides are on the figure.