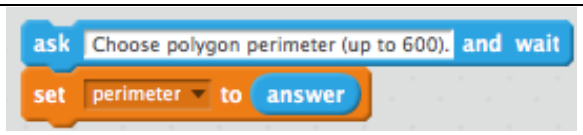
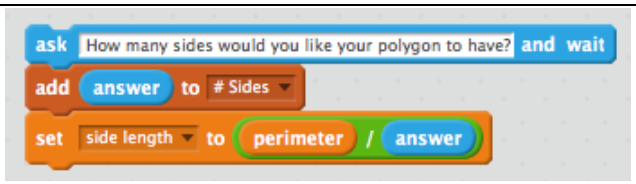
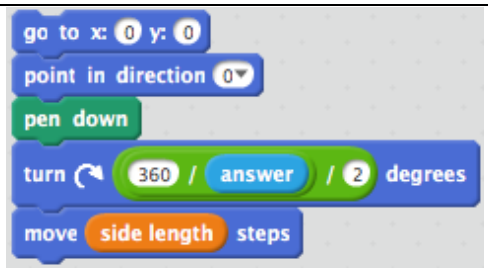
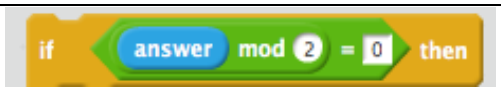
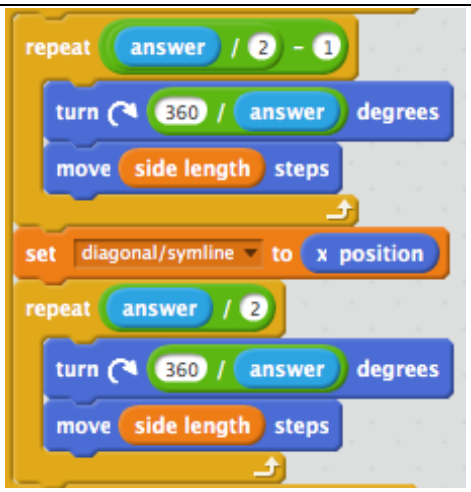
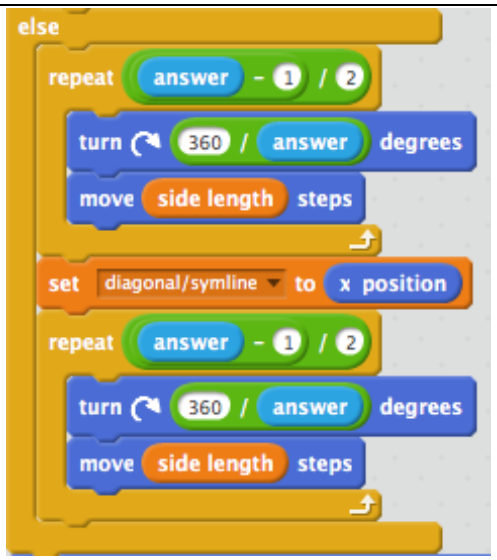
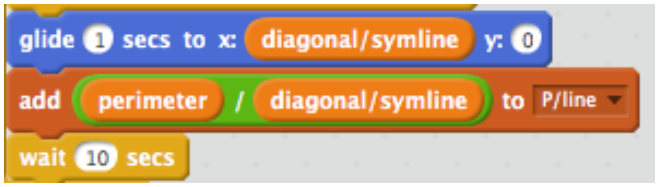
Interpreting *Splitting Polygons*

The Scratch code *Splitting Polygons* will allow you to look at polygons in a different way, and will provide you with some ideas about the relationship between the diameters and circumferences of circles. Before you work with the code in Scratch, analyze some of its main components below. They are presented in order and, as is the case with code, they build upon each other.

With a partner, study each of the seven pictured blocks of code. Then, to the right of each block, describe your interpretation of what it does.

	-allows the user to set the perimeter of every polygon made -it is outside the forever loop, so polygons will continue to have the same perimeter until the code is reset (space bar)
	-allows the user to choose the polygon by selecting the number of sides -dividing the perimeter by the number of sides to get side length ensures that all polygons made will be regular polygons
	-the hidden sprite is sent to (0, 0) and is pointed toward the top of the stage -the pen is set down, allowing for drawing -the sprite turns by (360/number of sides)/2 degrees and moves the number of steps of side length; this results in drawing the first side of the polygon
	-this means that the remainder of dividing the number of sides in the polygon by 2 is 0 -in other words, “if the polygon has an even number of sides” (the only way dividing the number of sides by 2 can yield a remainder of 0)
	-for polygons with even numbers of sides: • The sprite will turn and draw sides one less than half the total sides. This will bring it to the halfway point, and the highest x value in the polygon. • That x value is set as the variable ‘diagonal/symline’ for later use • The second half of the polygon is drawn

	-for polygons with odd numbers of sides: • The sprite will turn and draw sides totaling half of one less than the total number of sides. For example, for a pentagon, the first half of this block will result in (5 – 1)/2 = 2 more sides being drawn. This will bring the sprite to the bottom of the vertical side that is furthest from the origin, and the highest x value in the polygon. • That x value is set as the variable 'diagonal/symline' for later use • The remainder of the polygon is drawn
	-with the polygon completed, the sprite glides over to ('diagonal/symline ', 0), thereby drawing a diagonal that halves the polygon (even numbers of sides) or line of symmetry (odd numbers of sides)