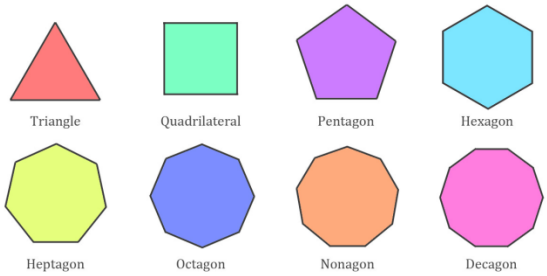
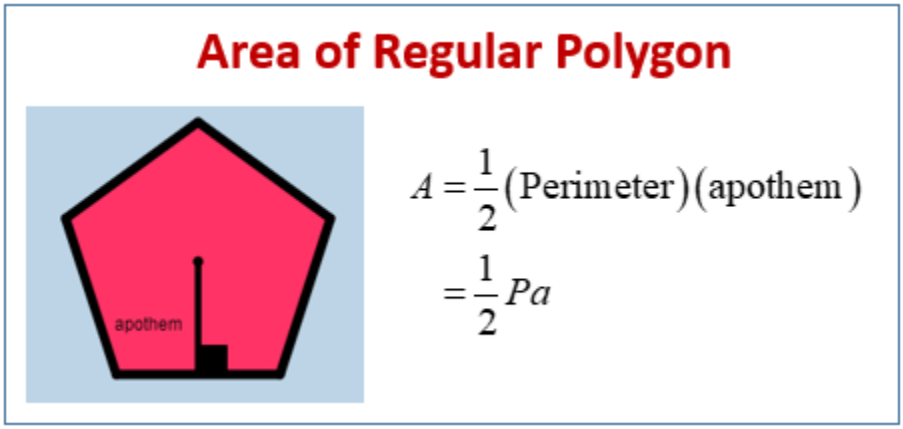
STRAW POLYGONS

Level	3 (Age group 11 – 14)
Resources Required	Straws, Scissors, Ruler, Graph paper, Glue
Alternate Options for the Resources	Sticks, pencils, objects with straight lines
Strand Covered	Shape and Measurements
Targeted Skills	Draw and calculate the perimeter of any polygons
Inspired by	Scholastic 100 - Genia Connell
Time Required	Set up time 15 minutes Game time 30 minutes
Previous Learning Required	Know how to draw polygons Knowledge of addition Knowledge of multiplication
Support Required	Low supervision

Rules of the Game:

Goal	Have the highest total perimeter of all four polygons
Rules	Players must cut their straws into lengths of only 2, 4 or 6 inches and should have at least 10 straws
Steps	Step 1: At the beginning of the game, all players should have their own scissors, a ruler, a couple of straws and a graph paper. Step 2: Ask each player to cut their straws into lengths of only 2, 4 or 6 inches and make a total of 4 polygons on their graph paper. The pieces of straw will be glued on to the graph paper. Note: The players are free to choose whichever polygons they want to make. See the images/illustrations section for examples of polygons, irregular polygons can also be made. Step 3: Once all players are done making their four polygons, they will measure each shape's perimeter and add all the perimeters together. The pre-measured lengths (2,4,6) will help players in their calculations.

	Players represent the relationship between the perimeter of individual shapes and the total perimeter of all the shapes in ratio form. For example, a player who has perimeters 10, 12, 12, 18 will represent these as 10:52, 12:52, 12:52, and 18:52 Players simplify the ratios and share them out. First one to share the simplified ratios wins.
Images or Illustrations	Polygons (shapes with at least 3 straight sides and angles): 
Variations of the Game	Play the game without pre-measured lengths so that players are able to self-strategize in order to have the highest perimeter of any 4 polygons on a given size of graph paper We can limit this version to areas of regular polygons such as a pentagon  Apothem = line segment from center of polygon to the midpoint of its side
Simplification	1. Have the players make shapes with 4 sides or less. 2. Have only two lengths of straws instead of three lengths