Title: How Many Jelly Beans Fit Inside?

Brief Overview:

> Students will discover that, even with the same perimeter, a rectangle, a square, a circle, and a triangle will have different areas. They will discover the attributes of a shape that maximizes or minimizes the area. The student will find the area of rectangles, graph data, find the area of a circle, and use the Pythagorean Theorem to find the area of a triangle.

Maryland Content Standards:

1.8.1a	Recognize, describe, and extend patterns and functional relationships.
1.8.1c	Determine whether functions are discrete or continuous.
1.8.1d	Determine whether functions are linear or nonlinear when given graphic examples.
3.8.3a	Estimate and determine the circumference and area of circles.
3.8.3b	Estimate and determine the area of figures by measuring, partitioning, and using formulas
3.8.3d	Determine relationships between length, area, and volume and describe how a change in one measure affects the others.

Grade/Level:

> Grades 7 - 9.

Duration/Length:

> 4-5 days of a 45 minute class period, including either homework or extension time in class and an assessment.

Student Outcomes:

> Students will:

- Explain how a change in the length of a rectangle will affect the area of the rectangle and graph the relationship.
- Calculate the area of a circle given the circumference.
- Subdivide a triangle into two triangles, apply the Pythagorean Theorem in order to find missing side lengths, and calculate the area of the triangle.
- Students will use necessary materials(string, graph paper) and math tools (calculators, rulers, etc) to decide which shape yields the highest area, given the same perimeter.