



# Gold Seal Lesson

|                                 |     |      |  |        |   |   |
|---------------------------------|-----|------|--|--------|---|---|
| <b>Author(s):</b><br>Susan Goss |     |      | <b>Lesson Title:</b><br>Who Says that Geometry is Hard to Swallow? |        |   |   |
| <b>Grade Span</b>               |     |      | <b>ICLE Application Model</b>                                      |        |   |   |
| K-4<br>X                        | 5-8 | 9-12 | A  | B<br>X | C | D |

### Instructional Focus: these are the standards

#### Geometry

Students apply geometric concepts, properties, and relationships in a problem-solving situation. Students communicate the reasoning used in solving these problems.

#### Measurement

Students use a variety of tools and techniques of measurement in a problem-solving situation. Students communicate the reasoning used in solving these problems.

#### Statistics and Probability

Students use statistics and probability to analyze given situations and the results of experiments. Students communicate the reasoning used in arriving at a conclusion.

### Performance Task

The students will work in groups of 4. Each group will be issued a round pizza with instructions not to eat. Half of each pizza will be divided up into a different number of pieces, so that each group will have different answers. Students will have given information such as:

- a) The pizza is a 16 in pizza (b) Use 3.14 for pi, etc.

Students will be given a worksheet to complete asking such questions as diameter = \_\_\_\_\_, radius = \_\_\_\_\_, area of pizza = \_\_\_\_\_.

Students will also be given instructions to work with pieces of the pie. Take a slice. Students know formula for area of sector, which is a piece of pizza. Calculate, record and eat.

Take another piece. Cut off the crust leaving a triangle and a "segment." Students have formulas for these. Find the areas and eat. Find the percent eaten, percent left, etc.

From the uncut half, cut a piece with central angle of  $90^\circ$  Find the measure of the sides of that triangle by using the Pythagorean Theorem.

Continue with other questions that apply.

Students complete worksheet as they complete pizza.

### ICLE Essential Skills

Understand the **properties of circles** (e.g., radius, arc, diameter, chord, secant, tangent, etc.). (m10)

Compute the **perimeter and area of two-dimensional figures**. (m13)

Understand the **properties and classification triangles** by sides (i.e., scalene, isosceles, and equilateral). (m16)

Use the **Pythagorean theorem** to compute side lengths of right triangles. (m21)

Know how to **measure circle quantities** (e.g., area, angle formed by two secants, circumference, length of segments, etc.). (m30)

**Scoring Guide: CHECK LIST**

Answer each of the following questions yes or no.

- |   |     |    |
|---|-----|----|
| 1. Did the students work cooperatively and productively in their group? | YES | NO |
| 2. Did the students correctly identify area of the entire pizza?        | YES | NO |
| 3. Did the students correctly identify area of sector?                  | YES | NO |
| 4. Did the students correctly identify area of triangle?                | YES | NO |
| 5. Did the students correctly identify area of sector?                  | YES | NO |
| 6. Did the students correctly cut the pizza to form a right triangle?   | YES | NO |
| 7. Did the students correctly identify the area of the right triangle?  | YES | NO |
| 8. Did the students complete his/her pizza?                             | YES | NO |

8 correct = A    7 correct = B    6 or 5 correct = C    4 or 3 correct = D

**Keywords**

| <b>English Language Arts</b> | <b>Mathematics</b>  | <b>Science</b>       |
|------------------------------|---|----------------------|
| <b>Reading</b>               | <b>Algebra</b>  | <b>Earth Science</b> |
| <b>Writing</b>               | <b>Geometry</b><br><b>Angles</b><br><b>Pythagorean Theory</b><br><b>Area</b><br><b>Triangles</b><br><b>Circles</b><br><b>Two-Dimensional</b><br><b>Circumference</b><br><b>Sector</b><br><b>Segment</b><br><b>Problem Solving</b> | <b>Life Science</b>  |
| <b>Communications</b>        | <b>Statistics</b>   | <b>Chemistry</b>     |
| <b>Literature</b>            | <b>Calculus</b>   | <b>Physics</b>       |
| <b>Other</b>                 | <b>Trigonometry</b>   | <b>Other</b>         |
|                              | <b>Other</b>  |                      |