



NCEA Math Lesson Plan

Grade: 4

Subject: Mathematics

<p>Domain: Geometry and Measurement</p>
<p>Standard Number(s) and Description: 4.G.1 Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.</p> <p>4.G.2 Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.</p> <p>4.MD.5 Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement.</p> <p>4.MD.6 Measure angles in whole- number degrees using a protractor. Sketch angles of specified measure.</p>
<p>Vocabulary to be Highlighted: Parallel, perpendicular, right angle, obtuse angle, acute angle, quadrilateral, triangle, closed figure, polygon</p>
<p>Mathematical Practices (#): 2. Reason abstractly and quantitatively. 4. Model with mathematics. 5. Use appropriate tools strategically. 6. Attend to precision. 7. Look for and make use of structure.</p> <p>Essential Questions: How can objects be represented and compared using geometric attributes? How are angles measured? Does your method work for different shapes? What conclusions can you draw from this exercise?</p>
<p>Materials/Tools (include technology): SmartBoard or Promethean Board</p>
<p>Connections to Other Math Domains: Fractional amounts of shapes in each category as related to the whole group.</p>
<p>Connections to Other Subject Areas: This lesson relates to science by practicing and reinforcing the skill of categorizing.</p>

Catholic Identity Component:

Shapes include a cross with right angles. Discussion relates to how Jesus is the missing piece to the full puzzle in our lives providing us with enlightenment and guidance.

Resources (attachments):

<http://www.ncpublicschools.org/docs/acre/standards/common-coretools/unpacking/math/4th.pdf>

Activities/Timeline:

Class Setup: Whole group discussion with brief table group discussions

Discussion:

Parallel or Perpendicular Lines: Students should be familiar with the concept of parallel and perpendicular lines. (Two lines are parallel if they never intersect and are always equidistant. Two lines are perpendicular if they intersect in right angles (90 degrees).)

1. Class is presented with a Venn Diagram separating quadrilaterals in “contains at least one right angle” and “has parallel sides” groups. A shape is purposely misplaced to generate discussion.

2. Sample Questions:

Which figure in the Venn diagram below is in the wrong place, explain how you know?

Do you agree with the label on each of the circles in the Venn diagram above?

Describe why some shapes fall in the overlapping sections of the circles?

3. Students evaluate and discuss each other's ideas.

4. Shape sort is presented on the Smartboard as “Guess my Rule” game using the rule “contains at least one right angle”

4 shapes are added at a time. Triangles must end up in both groups. Quadrilaterals end up in both groups. Before rule is revealed a shape of a cross is introduced providing a strong visual of right angles.

5. Discussion follows: How did this shape help you figure out the sorts? Religion can be tied in with discussion of how often times Jesus is the “missing piece” to help us see the whole picture.

6. Closure: Ticket out the door Students are asked to draw the following if possible:

A parallelogram with exactly one right angle.

A right triangle.

A rectangle that is not a parallelogram. (impossible)

A square that is a quadrilateral.

A trapezoid that is a parallelogram.

Formative Assessment (what to look for, how/when to look):

Student answers during discussion can be used as formative assessment.

Summative Assessment:

Ticket out the door provides visual proof of students’ ability to attend to precision and their understanding of how these characteristics belong to specific geometric shapes.