

Looking at Our Classroom From a Different Angle



Jackie Cooke, West Gresham Grade School, Gresham, Oregon

Note: The original activity was suggested at the 2001 Oregon Math Leaders Swap by Mary Ann Coe of Lenox Elementary School in the Hillsboro School District. I tried it out in my classroom during the 2001-02 school year. I then brought it back to use as a Lesson Study for the 2002 Swap at OML to brainstorm with my group of teachers how to overcome a few of the difficulties that were encountered by my students when I presented the original activity. The following is the revised lesson plan.

Standards addressed

- Describe paths for moving from one location to another on a grid.
- Choose the most appropriate tool and unit of measurement for common, everyday objects including: angle (degrees).
- Recognize, describe, and provide real world counterparts for: angles (acute, right, obtuse).

Materials

- Grid paper
- Protractors (an overhead of the paper protractor found in the book listed below.)
- Picture Book: **Sir Cumference and the Great Knight of Angleland**, by Cindy Neuschwander
- Skateboard
- Chart paper
- Cardboard box with the top and bottom cut out.
- Rulers, yardsticks, and other measuring tools around the room

Set Opener: Real Life Connection

Ask students if they skateboard or know someone who does. Tell them that Tony Hawk is a “mathematical angle wizard” and ask if they would like to know how they can become one, too. Ask for a volunteer to come up and use the skateboard to demonstrate what is meant by a 360° turn. Have students draw in the air what geometric shape is made if one traced the path of the skateboard. Next demonstrate the 180° turn and again ask them to draw the path in the air. On the chalkboard show students how the half circle is translated into a straight line by just going from the beginning to the end point. Repeat this process again for the 90° turn. Tell students that in math we have specialized terminology and ways of notating angle measurements. Record the terms angle, degree, 360° , 180° , and 90° on the chart paper. Ask students to share what they notice and how these terms/notations are related to the names of the skateboard turns.

Brainstorming

To introduce the vocabulary of right, acute and obtuse angles, have students come up and bend the box with the top and bottom removed into examples of these three angles. Draw a three column chart on the board. Label the middle column 90° , the left hand column obtuse, and the right hand column acute. Ask a student to come draw the 135° angle in the obtuse column. Next ask the students to try to predict what the angle measurement would be for the turn that is half way between the 90° angle and the zero that stands for no turn. Ask a student to come up to draw this angle in the acute column. Brainstorm a list of examples of angles in the classroom and place them in the correct column on the chart. For example, the corner of the door, the angle of the hands on the clock, the bend of an arm, etc.

Angle Measurement Practice Activities:

Introduction: Read out loud the story **Sir Cumference and the Great Knight of Angleland**. Have students suggest vocabulary words from the book that could be added to the vocabulary chart begun previously.

Some possibilities might include:

- a. right angle
- b. parallel lines
- c. straight angle
- d. protractor

Place the overhead of the paper protractor that comes with the book on the projector and ask students to describe what they notice. Demonstrate how the protractor is used to measure different examples of angles.

Activity 1

Have students work with partners to learn to use the protractor and to measure the angles found on the Angle Measurement Activity Worksheet. Also

CONTINUED →