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Angle Measurements: Teaching Notes

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GRADE RANGE: 4–6

MATHEMATICAL TOPICS: Direct comparison of angles, ordering angles

MATERIALS: Scissors

Discussion of the Mathematics

Angle measurements can be thought of as "the amount of turn" about the vertex of the angle. One of the common irrelevant attributes of an angle is the lengths of the sides of the angles. Students are often misled by this irrelevant attribute. Direct comparison of angles is one way to help students see that it is the amount of turn that determines the size of the angle and not the lengths of the sides of the angle. The angle comparisons in this activity are completed without the use of a protractor. The intent is to help students develop a grasp of the concept of angle without the distraction of reading a protractor. However, if students are very comfortable with using a protractor, you can ask students to label the angles on the square (without cutting out the pieces), measure the angles, and then compare the angle measures for angle *A*, angle *B*, and so on.

Implementation

You may want to provide two copies of the square for each student. One copy will be cut apart, and the other copy would be for reference as students compare their angles. You may want to have students discuss strategies that they used to label the angles; for example, labeling the largest angle as *A*, the next largest as *B*, and so on. Ask students to explain why they tried these strategies and what effect each strategy seemed to have on their scores. As a follow-up to this game, students can make their own game pieces from a square or rectangle that you give them. You can specify the total number of angles (either specifically or as a range of numbers) that must be included in the pieces.

Questions to Ask Students

- How do you know when one angle is greater than another?
- What benchmark angles can you use to help estimate the size of an angle? (Students may, for example, compare angles to a right angle or a straight angle to classify the angles as more than or less than a right angle.)
- Do the lengths of the sides of the angles influence which angle is greater?

Credit

Bright, George W., and Mary B. Wiesner. *Measurement for Teachers of Grades 6–8.* Text and manipulatives kit. Austin, Tex.: Texas Education Agency, 1987.

Name _____ Date _____

Angle Measurements

Work in groups of three to five people.

1. Cut out the square, and then cut along each line.
2. Label all the angles in the pieces. Choose any angle and label it angle *A*. Then choose any other angle and label it angle *B*. Continue until all the angles are labeled.
3. Begin with angle *A*. Compare all the angles in your group labeled angle *A*. Decide which is the largest angle. That person scores 1 point. In the event of a tie, each person with the largest angle scores 1 point.
4. Then compare all the angles *B*, then all the angles *C*, and so on. Continue comparing angles until all angles have been compared.
5. The winner is the person with the most points