* **That’s a Right Angle, Right?**

**Grade Level:** Fourth

**Objectives:**

Students will be able to explain what the difference between an acute, obtuse, and right angle is by finding them throughout the classroom/school building and sharing them with their peers.

**Common Core Standards Addressed:**

*MCC. 4.G.1**Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.*

**Materials:**

* Digital Camera
* Computer
* One piece of paper per student
* Protractor
* Is This the Right Angle? Task Sheet
* The Greedy Triangle by *Marilyn Burns*

**Procedure:**

1. Introduce the Geometry unit with the book The Greedy Triangle by *Marilyn Burns* This book is an excellent introduction into the topics that will be covered in the unit, especially this first lesson on triangles and angles.
2. Give each student a piece of paper.
3. Ask them to cut it into an odd shape
4. Have them work to determine how to fold it to create a square corner.
5. The students can create a square corner by making any two perpendicular folds.
6. Once students have folded their square corners, they can use this to find right, acute, and obtuse angles in the classroom
7. After finding angles around the classroom, take a “right angle field trip” throughout the school with cameras and record them on the chart. If a student is having difficulty, encourage group members to help. When the students compare their angles to their group members’ angles, they should notice all the right angles are the same size.

\**Before leaving, discuss proper hall walking behavior!*

1. The groups can present the angles they found to their classmates to make sure they agree on the comparative sizes of the angles.
2. Discuss the angle that was easiest to find. Ask them to tell why they think this angle is so common. *Why are angles important in life? (i.e. bridges, doorways, floor tiles, etc.)*
3. Compile the pictures from the “right angle field trip” and present them to the class.
4. When a picture is displayed, ask the student who took the picture, or the student(s) in the picture to explain what they found and what type of angle it is.
5. *Ask the students to respond to at least four of the following questions on an exit slip*

* Can you make a right angle using anything? How?
* Which angle is the easiest to find? Why?
* Why is a right angle an important angle to know?
* How can you use the right angle to help you determine whether other angles are acute or obtuse?
* What makes an angle a right angle?
* How can you use only a right angle to classify all angles?

**Assessment:**

Use the student responses from the exit slips to track their individual progress. The responses should be used to group students for the following lessons. If any follow-up needs to be made, make note of that and leave the student a note on their exit slip that will be returned to them the following day.

**Differentiation:**

* Pair students to work together and compare answers.
* Give students a hand-made angle (two strips of paper and a brad) to use when searching for angles.
* Students who may need a more challenging activity can use a protractor to record the degree of angles found around the classroom and school.

**Integration Activities:**

Reading is integrated into this lesson the book The Greedy Triangle by Marilyn Burns. This book is an excellent introduction into the topics that will be covered in the unit, especially this first lesson on triangles and angles.

Art integration would be a great addition to this lesson. When walking around the school, focus on the art that the school may have. Spend time outside the art room and have students look for angles within the art projects. Additionally, have students create a small art project using a variety of angles. Set the requirements and provide the materials. Suggested materials include: pipe cleaners, popsicle sticks, string, etc.

**Lesson Justification:**

This lesson meets the Common Core Standard *MCC. 4.G.1* because students are finding a variety of angles in basic two-dimensional figures as well as more abstract items like art. Students looking for more of a challenge also have the option of finding the measurement of the angles using a protractor. During the angle “field trip” around the school, students will be keeping track of the angles they find on their worksheet as well as taking a picture of them with the classroom camera. By using their hand-made right angle or a protractor, students will be practicing the CCSSM Math Practice Standard- using tools.

When we get back to the classroom, or as a follow-up, the class will review the pictures and students can share where they found the angle and what kind it is. By sharing this information I can make sure that the students have retained information learned in today’s lesson.

**Credits:**

*This lesson has been modified from its original version created by the Georgia Department of Education, Dr. John D. Barge, State School Superintendent*