Classifying and Measuring Angles

Block I - General Information

Class: Elementary Mathematics  
Subject: Math  
Lesson Title: Classifying and Measuring Angles  
Grade Level: 5th  
Lesson Length: 45 minutes

Block II - Purpose

The purpose of this lesson is review three types of angles, introduce angle measuring and provide practice with estimating and measuring angles.

Block III – Objectives

Content Objectives
All students will be able to identify acute, obtuse and right angles. They will be able to estimate the measure of given angles and draw angles when given a measure using a protractor.

1. ELLs will become familiar with identifying and measuring angles.
2. ELLs will investigate types of angles and angle measurements.
3. ELLS will create angles and measure those of others using a protractor.

Language Objectives
All students will be able to define acute, obtuse and right angles. They will also be able to identify and define for what a protractor is used.

1. ELLs will read the presented SMART notebook slides and words in the math textbook.
2. ELLs will find real world examples of angles and estimate their measurement after identifying them as acute, obtuse or right.
3. ELLs will rewrite definitions of acute, obtuse and right in their math journals. They will use images as needed to help with their definitions.

Culture Objectives
Given a class discussion on identifying, estimating and measuring angles

1. ELLs will pair with a native English speaking student to differentiate between examples of the three types angle found in their native country and those associated with the United States. These might include regional monuments, foods, money, etc. Some the examples may be similar and some may be unique.
Block IV – State Standards

Objective 2.02: Identify, estimate, and measure the angles of plane figures using appropriate tools.

Block V – Teacher Materials

1. Smart board and projector
2. Internet access
3. Protractor for each student
4. Paper pencil for each student

Block VI – Content, Procedures, and Instructional Strategy

Activity 1 – Student will be presented with the following questions to be answered either orally or written. ELL students will be allowed to answer orally if needed or written answers can be shared orally to ensure that teacher assess level of background knowledge.

What is an angle? How can angles be classified? What can we use to measure an angle?

Activity 2 – Using a SMART notebook lessons, students will be introduced to or review the three types of angles: acute, obtuse and right. They will then sort given angles into the three categories as a whole class. Next they will predict the measure of given angles before checking for accuracy of their prediction. Students will finally watch a video that introduces them to measuring angles with a protractor. It will be necessary to practice this some as a group so that students become familiar with the numbering on the protractor and how to read it correctly. The SMART lesson provides an interactive protractor to help with this practice in a format large enough for the whole class to see. The high level of interactivity and reduced words will be of benefit for ELL students. Another accommodation is the video that demonstrates the use of the protractor. This video is non-verbal and can be replayed as many times as needed which could be beneficial to ELL students.

Activity 3 – Students will be paired up for the next part of this lesson. ELL speakers should be grouped with native speakers to help with vocabulary important to this lesson. In pairs, the students will draw an angle of any measure they choose. They will then switch papers with their partner so it can be measured. This will be repeated several times to allow for practice with the three types of angles. Each time the students must identify the angle, predict the measurement and then use the protractor to find the exact measure. ELL students can write down the angle measures and classifying words if needed.
Activity 4-Conclusion: Students will use the following website to practice independently on measuring angles using a protractor.

http://www.mathplayground.com/measuringangles.html

The teacher will circulate around the room to assess student understanding of the concept. The teacher will read the directions to ELL students and provide a demonstration to clarify how to use the interactive protractor.

Activity 5 – Assessment: Several forms of assessment will be used during this lesson. One assessment will occur when students are working in pairs to identify, estimate and measure one each others angles. As the teacher circulates she will listen for conversations that demonstrate understanding or need for more support. The next piece of assessment will come with the website. Since the website does not keep track of a student’s score the teacher will have to again circulate around and watch for any difficulties students are having during the activity. Last the teacher will provide students with the following measures and ask that the angles be drawn with a protractor on a piece of notebook paper. The teacher will collect these and grade for accuracy.

   a. 75 degrees           b. 164 degrees           c. 90 degrees
   d. 116 degrees           e. 30 degrees           f. 180 degrees

Block VII – Instructional Technology Used for Teaching

Technology will be used in this lesson by the teacher for instructing through presentation tools (point 3). The presentation tool, SMART notebook, will be interactive and use video to help build student understanding. Technology will be used by the student for learning through the website http://www.mathplayground.com/measuringangles.html (point 6). This online exercise facilitates the learning of the student and provides additional practice that will build understanding.

Block VIII – Author Identification

Lesson Author: Laura Schwiebert
School: Pinebrook Elementary
Signature:
Permission to Publish: YES