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# Angle Relationships

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# Web-base Lesson Plan

You should submit this form in addition to any computer generated files/documents/models to your group folder on Angel. Please create a .zip file and upload the group of files as a single archive.

Name: Renee Gambino
Grade level(s)/Subject taught: 10 <sup>th</sup> Grade Geometry
Objectives:  This lesson will allow the students to practice important angle vocabulary. <ul style="list-style-type: none"><li>• Define and give examples of alternate interior, alternate exterior, adjacent, vertical and corresponding angles</li><li>• Discuss parallel and perpendicular lines</li><li>• Define and show examples of right angles, obtuse angles, and acute angles</li></ul>

Please provide a rich **one-page, single-spaced**, description or a *vision* of your best thinking on a way or ways you might teach the planned lesson. (approximately ½ page for the teacher role, ½ page for the student role). Also, construct a tentative rubric that you might use with your students (see example)

Items to include in your lesson plan: (Choose your discipline/concepts from your own area).

1. *Write* the Mathematical Concept or “key idea” that modeling will be used to teach: (e.g. Students use mathematical modeling/ multiple representation to provide a means of presenting, interpreting, communicating, and connecting mathematical information and relationships)

The students will use visual representations of angles using project interactive as a means of interpreting important angle vocabulary such as:

- Identify pairs of angles with special relationships: supplementary, complementary, vertical, adjacent, etc.
- Discuss parallel lines
- Example: Line l is parallel to line m. Also line r is parallel to line s. Each of the angles formed by the intersection of these four parallel lines can be classified as acute, obtuse, or right.
- Any pair of angles can be classified as adjacent, vertical, alternate-interior, alternate-exterior, or as none of the above.

Materials: laptop, projector, project interactive program, paper, pen or pencil

“...a rich **one-page, single-spaced**, description or a *vision* of your best thinking...”

The day or two prior to this lesson, the students and I would have looked at all the different types of angles in depth and gone over all the definitions and examples of each. This lesson would be a good wrap up or review before a quiz or test. I will begin the class with a quick warm-up of examples dealing with the different types of questions that may be asked related to angles. After the students had a chance to try them on their own, as a class we will go over them and answer any questions or problems the students were having. At this point I will break the class up into groups. As they were moving into their groups I will finish setting up the activity. When the students are in their groups I will explain the activity to them. “Today we’re going to practice what we’ve learned thus far with angles. You are not only going to have to identify different types of angles, but you will also have to know the definitions of each angle in order to identify them.” I will begin as a whole class modeling with a few examples (for about 10-15 min) using the project interactive “Angles” software. The program gives a visual representation of two parallel lines cut by a transversal. It labels each angle and line with different letters. It then asks you to compare two of the angles using the proper vocabulary. It will first ask if the two angles are acute, obtuse or right, assessing the students’ knowledge on these angles. It then asks the student to compare the angles as alternate interior/exterior, corresponding, vertical, etc. We will go through each example together, however, each group will work together to find the best solution. During this time I will be walking around the room assessing how each group is doing, while helping any group that is in need. As each example is displayed to the class, I would ask different groups each time to explain what answer they chose and then plug in their answers to the program. If the answer is correct and there are no questions or concerns we will move on. If the answer is incorrect or there are questions about an example I will spend time going over that example to make sure everyone is clear on what is expected. After completing this my hope is that the students will have a better understanding of the angles as a whole. Not only will they be familiar with the definitions but they will also be able to visually apply exactly what the definitions represent.

## Math - Problem Solving: Identifying and Understanding Angles Rubric

CATEGORY	4	3	2	1
<b>Mathematical Concepts</b>	Explanation shows complete understanding of the mathematical concepts used to solve the problem(s).	Explanation shows substantial understanding of the mathematical concepts used to solve the problem(s).	Explanation shows some understanding of the mathematical concepts needed to solve the problem(s).	Explanation shows very limited understanding of the underlying concepts needed to solve the problem(s) OR is not written.
<b>Explanation</b>	Explanation is detailed and clear.	Explanation is clear.	Explanation is a little difficult to understand, but includes critical components.	Explanation is difficult to understand and is missing several components OR was not included.
<b>Mathematical Terminology and Notation</b>	Correct terminology and notation are always used, making it easy to understand what was done.	Correct terminology and notation are usually used, making it fairly easy to understand what was done.	Correct terminology and notation are used, but it is sometimes not easy to understand what was done.	There is little use, or a lot of inappropriate use, of terminology and notation.

**Prompts:**

1. How will you assess the prior knowledge of the student?
2. How will you begin the lesson?
3. What are the teacher and students doing every 5-10 minutes? (Teacher Actions and Student Actions)
4. How will you assess the learning for the lesson?

**Using \_\_\_\_\_ I plan on having my students...**  
(software / modeling package(s))