1. **GRADE LEVEL: Grade 7**

Subject Area: Mathematics

Quarter 1 – Week   
Duration: 45 minutes

1. **LEARNING OBJECTIVES**

Learners are expected to:

1. Students will be able to identify and define complementary, supplementary, and vertical angles
2. Students will be able to calculate the measure of an unknown angle in a pair, given the measure of the other
3. Students will be able to explain why vertical angles are always equal.
4. **CONTENT**

* Title: Angle Pair Relationships
* Learning Competency: describe and explain the relationships between angle pairs based on their measures.
* Particular Focus: Understanding and applying the properties of complementary, supplementary, and vertical angles to find unknown angle measures.

1. **LEARNING RESOURCES**

1. Teacher's Guide
2. Textbook (Geometry section on angles)
3. Whiteboard or projector
4. Interactive online quiz (e.g., Kahoot!)
5. Worksheets with angle pair problems
6. PPT: 'Angle Pairs'
7. **PROCEDURE**

**Introduction:**

Start with a quick poll: 'What is a 90-degree angle called? What about a 180-degree angle?' Introduce the terms 'complementary' and 'supplementary' using visual aids. Show two intersecting lines and ask students to predict which angles might be equal, leading into the concept of 'vertical angles'.

**Presentation:**  
Teacher explains the definitions of complementary (add to 90°), supplementary (add to 180°), and vertical angles (opposite angles formed by intersecting lines). Use diagrams to illustrate each. Model solving for an unknown angle, e.g., 'If angle A is 40° and is complementary to angle B, what is the measure of angle B?' Explain the logical proof for why vertical angles are congruent (e.g., both are supplementary to the same adjacent angle).

**Practice:**  
Students work on a 'Solve the Puzzle' worksheet where they have to find the measures of all missing angles in a complex diagram of intersecting lines. This is followed by a rapid-fire round using Kahoot! to test their ability to quickly identify angle relationships and calculate measures.

**Integration:**  
Connect to real-world examples: the angles in a gate, the intersection of roads, the frame of a picture. Discuss how understanding these relationships is crucial in fields like carpentry and engineering to ensure stability and proper fit. Values: Logical reasoning and attention to detail.

**Assessment:**  
['1. Two angles are supplementary. If one angle is 110°, what is the other? (70°)', ' 2. What is the complement of a 35° angle? (55°)', ' 3. In an intersection, the angle opposite a 125° angle is \_\_\_\_\_. (125°)', ' 4. True or False: Two acute angles can be supplementary. (False)']

**Enrichment:**  
['Remediation: Use physical manipulatives, like two connected sticks, to demonstrate the angle relationships. Provide a formula card with the definitions and examples.', ' Enhancement: Ask students to find and photograph examples of complementary, supplementary, and vertical angles in the school environment.']  
**Asignment:**  
Complete a worksheet with more complex problems involving algebraic expressions, e.g., 'Two vertical angles measure 2x + 10 and 3x - 5. Find the value of x and the measure of the angles.'

1. **EVALUATION TOOLS**

Quiz scores will be used to identify students who need more practice. A 'think-pair-share' activity where students explain their reasoning to a partner will be used to assess their conceptual understanding. Exit ticket: 'Explain in your own words why vertical angles are equal.'

1. **REMARKS**

["Be prepared for confusion between 'complementary' and 'supplementary'. Use mnemonics (e.g., 'C' for corner/90°, 'S' for straight/180°) to help. The use of algebra can be a barrier for some", ' have some non-algebraic problems ready as an alternative.']

1. **REFLECTION**

The Kahoot! quiz was a huge success, creating an energetic and competitive atmosphere that reinforced the concepts effectively. Some students struggled with the algebraic problems, indicating a need to review solving simple linear equations. Next time, I will dedicate a specific segment of the presentation to the algebraic application, with a step-by-step guide.