Angle Pairs

Lesson Overview

Students will learn to find the measures of unknown angles by applying the unique relationships between angle pairs that are known as vertical, adjacent, and corresponding.

Standards Addressed

7.G.5   Use facts about supplementary, complementary, adjacent, and vertical angles in a multistep problem to write and solve simple equations for unknown angle in a figure.

Disciplinary Literacy Best Practices

Verbal Visual Word Association
Most Important Point
Collaborative Groups

Lesson Plan

Time Required: 45-60 minutes

Disciplinary Vocabulary: supplementary, complementary, adjacent, vertical, corresponding, alternate, angle pairs

Materials Needed:

  o   Verbal Visual Word Association (VVWA) chart, labeled

Assessment: teacher observation of student work and dialogue

Engage

o   Introduce the Visual Verbal Word Association process using a mathematics concept with which students are familiar. For the lesson on the video, I used the topic "proportional relationships."

o   In Visual Verbal Word Association (VVWA), students create charts that identify the vocabulary term, a visual representation of the vocabulary term, a definition of the term, and a personal association or characteristic to help them remember the term.

o   Sample VVWA Chart:

Vocabulary Term	Visual Representation
Definition	Personal Association or Characteristic

Explore

o   Students will complete a VVWA for angle pairs for complementary and supplementary angle pairs. The students will learn about the components of the VVWA and share with their groups the evidence recorded for these angle pairs. This will allow students to learn a new strategy with angle pairs they already have mastered.

o   Students will reflect on the different angle pairs previously studied (complementary and supplementary). Given a VVWA sheet, students will work in groups to complete the VVWA for each type of angle, to include vertical and adjacent angles.

Explain

o   As an exit ticket, students will complete an MIP statement, which begins: "The most important point to remember about these angle pairs would be…" Volunteers may share their MIP statements with the class. The teacher collects all statements and reviews them to assess students' understanding of the angle pair relationships studied and the equations required to solve for unknown degree measures.

Extend

o   Students will be given a figure that contains four angles that share a common ray, with only three showing the degree size and the last angle labeled, *x*. Have the angles joined that the total number of degrees possible are 210° (interior). Students will begin brainstorming how to determine the unknown angle's measure without using a protractor to measure it. Students will be encouraged to use precise vocabulary for the degrees associated with differing angle types (acute, straight, right, and obtuse) and how these connect to angle pairs (complementary, supplementary). Lastly, students will write and solve an equation to determine the unknown angle's measure based on at least one relationship of angle pairs observed from the figure.

o   Once the group determines that an equation may be easily written based on the definition of the specific angle pair and its relationship, provide the group with the VVWA for angle pairs. Students will model their application of writing and solving equations regarding these angle pairs and their degrees. The group must then complete each component of the VVWA to show understanding of the relationships' between angles that are adjacent, corresponding, supplementary, and complementary.

Teacher Reflections and Biographical Information

The lesson went great and was an awesome way to connect prior learning via the VVWA strategy, which was new for my class. The students' grasp of the equation writing and solving was evident in their examples on their VVWA models. The students' conversations showed a deep level of understanding of angle pair relationships. The MIP statements were the greatest reveal to show what the individual take-away from the lesson was and how closely it aligned with my objective, as well as providing a starting point for subsequent lessons for those individuals who did not quite hit the target of the lesson.

Lesson Author:

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