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Congruent Angles

By: Amanda Martin
Elementary school music teacher; M.A.Ed. In Curriculum and Instruction

**Math
Grades 9–12**

Introduction

Students will review the characteristics of congruency and rigid motion and employ the use of that knowledge while examining various triangles.

Learning Objectives

- Students will examine triangles in order to determine congruency.
- Students will connect congruency to characteristics of rigid motion: translation, rotation, reflection, and glide reflection.

Materials Needed

- Journals or paper
- Congruent and not congruent triangle examples (for the board)
- Notecards/half sheet of paper

Procedure

1. Review and define **congruence**. Ask students to pair and share about the term's meaning before discussing the definition as a class. Students should write down characteristics of the term in a journal or notebook.

2. Define **rigid motion**. Discuss how rigid motion affects congruency. During this discussion, ask students to complete a t-chart organizing the characteristics of the 4 types of rigid motion: translation, rotation, reflection, and glide reflection. Students should complete the t-chart in a journal or notebook.

3. On the board, display 6-8 triangles. Be sure that at least half of the triangles can be congruent with one another. Model for the class how to look for and prove congruency among the triangles. Continue examining the triangles until all congruent triangles have been identified.

4. Ask students to create a set of triangles on a piece of paper. Students can decide whether their triangles are congruent or not.

5. Students should gather in small groups. Students will share their individual triangles with the group. Groups must determine whether the triangles have congruency or whether they do not. Each group must document the reasons supporting their decision for each set of triangles using the characteristics of congruency and rigid motion.

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6. To close the lesson, students will complete a small task. On the board, display 3 triangles. Ask students to examine the triangles for congruency. On a notecard or half sheet of paper, students must use their knowledge of congruency and rigid motion in order to correctly explain the relationship between the 3 triangles. Students will turn in their work before exiting the classroom.

Evaluation

During the concluding activity, students must examine the angles/parts of various triangles in order to determine if they are congruent. Students must successfully describe the relationship between the triangles using the characteristics of congruency and rigid motion.