Unit B - *Congruent Triangles*

Overview

This unit focuses on triangle classifications and proving triangles congruent. Proof is a fundamental concept throughout the unit. Proving and using congruent triangles will be used throughout the course.

21st Century Capacities: Analyzing, Presentation

Stage 1 - Desired Results

ESTABLISHED GOALS/ STANDARDS

MP1 Make sense of problems and persevere in solving them
MP3 Construct viable arguments and critique the reasoning of others
MP7 Look for and make use of structure

CCSS.MATH.CONTENT.HSG.CO.B.7
Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.

CCSS.MATH.CONTENT.HSG.CO.B.8
Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence in terms of rigid motions.

Transfer:

Students will be able to independently use their learning in new situations to...

1. Draw conclusions about graphs, shapes, equations, or objects. (Analyzing)
2. Make sense of a problem, initiate a plan, execute it, and evaluate the reasonableness of the solution. (Analyzing)
3. Justify reasoning using clear and appropriate mathematical language. (Presentation)

Meaning:

UNDERSTANDINGS: *Students will understand that:*

1. Effective problem solvers work to make sense of the problem before trying to solve it
2. Mathematicians compare the effectiveness of various arguments, by analyzing and critiquing solution pathways.
3. Mathematicians analyze characteristics and properties of geometric shapes to develop mathematical arguments about geometric relationships.

ESSENTIAL QUESTIONS: *Students will explore & address these recurring questions:*

A. What strategies can I use to solve the problem?
B. What do I need to support my answer?
C. How does classifying bring clarity?
D. What makes these shapes the same? Different?

CCSS.MATH.CONTENT.HSG.SRT.B.5 Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.	***Acquisition:***	
	Students will know… 1. That two points determine a line 2. how the lengths of the sides of a triangle relate to the size of the angles opposite them 3. that corresponding parts of congruent triangles are congruent 4. The relationship between slope and a pair of parallel or perpendicular lines 5. Vocabulary: congruent, included, median, altitude, obtuse, acute, right, equiangular, isosceles, scalene, equilateral	*Students will be skilled at…* 1. Using SSS, SAS, AAS and HL to prove that triangles are congruent 2. Will be able to use congruence of triangles to find congruent parts (CPCTC) 3. Drawing auxiliary lines to help in proofs 4. Using overlapping triangles in proofs 5. Applying characteristics of triangles (ex; isosceles) to solve problems 6. Applying theorems relating to triangle angle measures and side lengths 7. Transforming shapes on the coordinate plane (reflect, translate, rotate, dilate) 8. Reflecting over any vertical or horizontal line or point