Unit 4 Congruent Triangles

Content Area: **Math**
Course(s): **CP Geometry**
Time Period: **Marking Period 2**
Length: **5**
Status: **Published**

Unit Overview

In this ~~chapter~~ unit students will classify triangles ~~tiangles~~, find measures of angles of triangles, identify congruent figures, and prove triangles congruent. They will also use theorems about isosceles and equilateral triangles and perform transformations.

Enduring Understandings

In order to prove two triangles are congruent we typically need three pieces of information

Students will understand the classifications of triangles by sides and angles.

Students will understand how to prove are congruent.

Students will understand how to use coordinate geometry to investigate triangle relationships.

Essential Questions

How do we classify triangles?

What do we know about corresponding parts of congruent figures?

What is the difference between congruence and equality?

How do we prove figures are congruent?

What algebraic properties help us to prove figures are congruent?

How do we use a two column proof?

What are the properties of special triangles?

How do you find the sums of angle measures in a triangle?

What are the criteria for isosceles and equilateral triangles?

What are transformations and do they produce congruent figures?

How do we perform congruence transformations?

New Jersey Student Learning Standards (No CCS)

MA.G-CO	Congruence
MA.G-CO.A	Experiment with transformations in the plane
MA.G-CO.A.1	Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.
MA.G-CO.A.2	Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch).
MA.G-CO.A.4	Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.
MA.G-CO.A.5	Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.
MA.G-CO.B	Understand congruence in terms of rigid motions
MA.G-CO.B.6	Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.
MA.G-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.
MA.G-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.
MA.G-CO.C	Prove geometric theorems
MA.G-CO.C.9	Prove theorems about lines and angles.
MA.G-CO.C.10	Prove theorems about triangles.
MA.G-CO.D	Make geometric constructions
MA.G-SRT.B.5	Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.
MA.G-GPE.B.4	Use coordinates to prove simple geometric theorems algebraically.
MA.G-MG	Modeling with Geometry
MA.G-MG.A	Apply geometric concepts in modeling situations

Interdisciplinary Connections

LA.W.9-10.6	Use technology, including the Internet, to produce, share, and update individual or shared writing products, taking advantage of technology's capacity to link to other information and to display information flexibly and dynamically.

SCI.HS-ETS1-2	Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering.
TECH.8.1.12.C.CS4	Contribute to project teams to produce original works or solve problems.

Technology Standards

TECH.8.1.12.C.CS4	Contribute to project teams to produce original works or solve problems.
TECH.8.1.12.D.CS3	Exhibit leadership for digital citizenship.
TECH.8.1.12.E.CS4	Process data and report results.
TECH.8.1.12.F.CS3	Collect and analyze data to identify solutions and/or make informed decisions.
TECH.8.1.12.F.CS4	Use multiple processes and diverse perspectives to explore alternative solutions.
TECH.8.2.12.C.CS2	The application of engineering design.

21st Century Themes/Careers

CAEP.9.2.12.C.3	Identify transferable career skills and design alternate career plans.

Financial Literacy Integration

PFL.9.1.12.C.1	Compare and contrast the financial benefits of different products and services offered by a variety of financial institutions.
PFL.9.1.12.C.2	Compare and compute interest and compound interest and develop an amortization table using business tools.
PFL.9.1.12.C.3	Compute and assess the accumulating effect of interest paid over time when using a variety of sources of credit.

Instructional Strategies & Learning Activities

- Lesson Discovery Activities
- Partner/ Group Work
- ~~In class investigations and hands-on exploration of transformations with use of Geometer's Sketchpad~~
- Create triangles with spaghetti and straws

Formative Assessments

- Daily homework checks
- Quiz
- ~~Chapter~~ Unit Test
- Exit Tickets
- Warm-ups

Summative Assessment

- Unit Test
- Unit Project (Optional)

Benchmark Assessments

Students will take NJSLA Geometry Benchmark A

Alternate Assessments

- Modified homework
- Modified quizzes
- Modified tests
- Modified projects