

Unit 5 Relationships within Triangles

Content Area: **Math**
Course(s): **CP Geometry**
Time Period: **Marking Period 4**
Length: **4**
Status: **Published**

Unit Overview

In this chapter unit students use properties of midsegments to find lengths of segments in triangles. They then learn to write a coordinate proof. They explore perpendicular bisectors and use the concurrency of perpendicular bisectors and use the concurrency of perpendicular bisectors of a triangle to solve problems. They use angle bisectors to find distance relationships and explore the concurrency of angle bisectors of a triangle. Students use medians of a triangle to find the centroid and to find segment lengths, and they use altitudes of a triangle to find and explore the orthocenter. Students relate side length and angle measures of a triangle, find possible side lengths for the third side of a triangle, use inequalities to make comparisons in two triangles, and use the Hinge Theorem and its converse to solve multi-step problems.

Enduring Understandings

There are special segments that exist within triangles.

Students will understand using properties of special segments in triangles.

Students will understand using triangle inequalities to determine what triangles are possible.

Students will understand extending methods for justifying and proving relationships.

Essential Questions

What properties exist with special segments in triangles?

How can we use triangle inequalities to determine what triangles are possible?

What inequalities exist within two triangles?

New Jersey Student Learning Standards (No CCS)

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-CO.D.12	Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.).
MA.G-SRT.B.4	Prove theorems about triangles.
MA.G-C.A.3	Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle.
MA.G-GPE.B	Use coordinates to prove simple geometric theorems algebraically
MA.G-GPE.B.4	Use coordinates to prove simple geometric theorems algebraically.
MA.G-GPE.B.6	Find the point on a directed line segment between two given points that partitions the segment in a given ratio.
MA.G-MG	Modeling with Geometry
MA.G-MG.A	Apply geometric concepts in modeling situations
MA.G-MG.A.3	Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios).

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.
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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

- Finding "middle" of a triangle opening activity.
- Use the book activities and extensions to give added dimension.
- Construction of triangle centers with various tools.
- Partner/group work.
- Lesson discovery activities.
- Use problems and activities from book involving modeling problems.
- Provide access to online book
- Provide access to book pages and problems through Canvas and Twitter
- Provide access to review keys

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