

Unit 6 Similarity

Content Area: **Math**
Course(s): **CP Geometry**
Time Period: **Marking Period 2**
Length: **3**
Status: **Published**

Unit Overview

In this chapter unit students use proportions to identify similar polygons and find the scale factor between two polygons, they use a scale factor to find corresponding lengths in similar polygons, and they use the AA Similarity Postulate, the SSS Similarity Theorem, or the SAS Similarity Theorem to determine whether two triangles are similar. Also, students use proportions and the Triangle Proportionality Theorem or its converse to find the lengths of segments related to triangles or parallel lines. Finally, students perform dilations that are reductions or enlargements and they verify that a figure is similar to its dilation.

Enduring Understandings

Similar figures have congruent angles but proportional side lengths.

Students will understand how to use ratios and proportions to solve geometric problems.

Students will understand how to show that triangles are similar.

Students will understand how to use indirect measurement and similarity.

Essential Questions

How do you set up and solve a proportion?

What ways can you show two triangles are similar?

What transformations produce similar figures?

How can we perform these transformations on the coordinate plane?

New Jersey Student Learning Standards (No CCS)

MA.G-CO.A

Experiment with transformations in the plane

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-SRT.A	Understand similarity in terms of similarity transformations
MA.G-SRT.A.1	Verify experimentally the properties of dilations given by a center and a scale factor:
MA.G-SRT.A.1a	A dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged.
MA.G-SRT.A.1b	The dilation of a line segment is longer or shorter in the ratio given by the scale factor.
MA.G-SRT.A.2	Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.
MA.G-SRT.A.3	Use the properties of similarity transformations to establish the AA criterion for two triangles to be similar.
MA.G-SRT.B	Prove theorems involving similarity
MA.G-SRT.B.5	Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.
MA.G-SRT.C.6	Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles.
MA.G-GPE.B	Use coordinates to prove simple geometric theorems algebraically
MA.G-MG	Modeling with Geometry
MA.G-MG.A	Apply geometric concepts in modeling situations
MA.G-MG.A.1	Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).

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~~
- Shadow activity
- Dilations and AA similarity activity
- Dilations activity

Formative Assessments

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

Summative Assessment

- Unit Test
- Unit Project

Benchmark Assessments

Students will take NJSLA Geometry Benchmark A

Alternate Assessments

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