Unit 3 Parallel and Perpendicular Lines

Content Area: **Math**
Course(s): **CP Geometry**
Time Period: **Marking Period 1**
Length: **3**
Status: **Published**

Unit Overview

In this ~~chapter~~ unit students will classify angle pairs formed by three intersecting lines, study angle pairs formed by a line that intersects two parallel lines, and use angle relationships to prove lines parallel. They will investigate slopes of lines and study the relationship between slopes of parallel and perpendicular lines. Students will find equations of lines. Finally, they will prove theorems about perpendicular lines and find the distance between parallel lines in the coordinate plane.

Enduring Understandings

Parallel and perpendicular lines have certain properties that arise when they intersect.

Students will understand how to use properties of parallel and perpendicular lines.

Students will understand how to prove relationships using angle measures.

Students will make connections to lines in algebra.

Essential Questions

What are the properties of parallel and perpendicular lines?

What special angle relationships are formed by two parallel lines cut by a transversal?

How can you prove relationships using angle measures?

How do parallel and perpendicular lines relate to each other, specifically on the coordinate plane?

How can you prove parallel lines exist?

New Jersey Student Learning Standards (No CCS)

MA.G-CO	Congruence

MA.F-IF	Interpreting Functions
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.F-IF.B	Interpret functions that arise in applications in terms of the context
MA.S-ID.B.6a	Fit a function to the data (including with the use of technology); use functions fitted to data to solve problems in the context of the data.
MA.G-CO.C	Prove geometric theorems
MA.G-CO.C.9	Prove theorems about lines and angles.
MA.S-ID.C.7	Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data.
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.F-LE.A.1b	Recognize situations in which one quantity changes at a constant rate per unit interval relative to another.
MA.G-GPE	Expressing Geometric Properties with Equations
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.5	Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).
MA.G-GMD	Geometric Measurement and Dimension
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.

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

- Use the book activities and extensions to give added dimension.
- Investigating slopes activity.
- 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