

FRANKLIN-SIMPSON HIGH SCHOOL

Course Name: Geometry **Unit Name: Coordinate Geometry**

Quality Core Objectives:

Unit 2 Coordinate Geometry	
B.1. Mathematical Processes	c. Represent data, real-world situations, and solutions in increasingly complex contexts (e.g., expressions, formulas, tables, charts, graphs, relations, functions) and understand the relationships
	d. Use the language of mathematics to communicate increasingly complex ideas orally and in writing, using symbols and notations correctly
	e. Make appropriate use of estimation and mental mathematics in computations and to determine the reasonableness of solutions to increasingly complex problems
	f. Make mathematical connections among concepts, across disciplines, and in everyday experiences
	g. Demonstrate the appropriate role of technology (e.g., calculators, software programs) in mathematics (e.g., organize data, develop concepts, explore relationships, decrease time spent on computations after a skill has been established)
	h. Apply previously learned algebraic concepts in geometric contexts
C.1. Logic and Proof	d. Use various methods to prove that two lines are parallel or perpendicular (e.g., using coordinates, angle measures)
G.1. Coordinate Geometry	a. Use slope to distinguish between and write equations for parallel and perpendicular lines
	b. Apply the midpoint and distance formulas to points and segments to find midpoints, distances, and missing information
	c. Use coordinate geometry to solve problems about geometric figures (e.g., segments, triangles, quadrilaterals)

Purpose of the Unit: To find the distance between two points on the coordinate plane, find the midpoint between two points on the coordinate plane, understand instantaneous change, understand average rate of change, find the slope of a line, determine properties of lines, write equations of lines, and graph equations of lines

Prerequisites: Students should be able to graph points and lines on the coordinate plane, simplify algebraic expressions, and solve algebraic equations. Students should also understand concepts learned in Unit One of this course.

Daily Lesson Guide

Day	Lesson Content and Objectives	Focus Questions	Critical Thinking (High Yield / Literacy /LTF/etc.)	Engagement	Assessment and/or Accommodations
1	B.1.c, B.1.d, B.1.e, B.1.f, B.1.h, G.1.b, G.1.c	How do I find the distance and the midpoint between two points in the coordinate plane?	Make Sense of Problems and Persevere in Solving Them – Students will graph line segments in addition to explaining the correspondence between a graph of a line segment and a verbal representation of one.	Novelty and Variety (Points on a Map Activity)	Opener – ACT Question (Algebra I) Points on a Map Activity Homework – p19-22 (5-10, 14-16, 35-40, 48)
2	B.1.c, B.1.d, B.1.e, B.1.h, G.1.b, G.1.c	How do I find the distance and the midpoint between two points in the coordinate plane?	Make Sense of Problems and Persevere in Solving Them – Students will graph line segments in addition to explaining the correspondence between a graph of a line segment and a verbal representation of one.	Learning with Others (Problem Solving Lesson 1.3) Construct Viable Arguments and Critique the Reasoning of Others (Problem Solving Lesson 1.3)	Opener – ACT Question (Algebra I) Problem Solving Lesson 1.3 Homework – p19-22 (20-23, 27-34, 41-46)
3	B.1.c, B.1.e, B.1.f, B.1.g, B.1.h	How do I distinguish between average and instantaneous rate of change?	Reason Abstractly and Quantitatively – Students will use relationships between points in a set to make conjectures and predictions.	Learning with Others (LTF: Average Rate of Change versus Instantaneous Rate of Change) Nonlinguistic Representation (LTF: Average Rate of Change versus Instantaneous Rate of Change)	Opener – ACT Question (Algebra I) LTF: Average Rate of Change versus Instantaneous Rate of Change

4	B.1.c, B.1.e, B.1.f, B.1.g, B.1.h	How do I distinguish between average and instantaneous rate of change?	Reason Abstractly and Quantitatively – Students will use relationships between points in a set to make conjectures and predictions.	Learning with Others (LTF: Average Rate of Change versus Instantaneous Rate of Change) Nonlinguistic Representation (LTF: Average Rate of Change versus Instantaneous Rate of Change)	Opener – ACT Question (Algebra I) Learning with Others (LTF: Average Rate of Change versus Instantaneous Rate of Change) Nonlinguistic Representation (LTF: Average Rate of Change versus Instantaneous Rate of Change)
5	B.1.c, B.1.d, B.1.e, B.1.f, B.1.g, B.1.h,	How do I evaluate slope? How do I graph using slope?	Attend to Precision – Students will determine the importance of precise measurements of slope and its implications.	Authenticity (Stock Market Graph) Clear/Modeled Expectations (Unit Two Quiz)	Opener – ACT Question (Algebra I) Stock Market Graph Unit Two Quiz (Summative) Homework - P167-168 (1, 2, 4-10 even, 16, 18)
6	B.1.c, B.1.d, B.1.f, B.1.g, B.1.h, C.1.d, G.1.a, G.1.c	How do I use slope to determine properties of lines?	Look for and Make Use of Structure – Students will use their knowledge of slope to find patterns in results in order to determine if lines are parallel, perpendicular, or neither.	Clear/Modeled Expectations (Perpendicular Investigation)	Opener – ACT Question (Algebra I) Perpendicular Investigation Homework - P167-169 (13-15, 19-22, 27-30, 36, 39, 40)
7	B.1.c, B.1.d, B.1.f, B.1.g, B.1.h, C.1.d, G.1.a, G.1.c	How do I write equations of lines?	Make Sense of Problems and Persevere in Solving Them – Using their knowledge of perpendicular lines and parallel lines, students will write equations of lines parallel or perpendicular to lines on graphs. They will make correspondences between graphs of lines and equations.	Novelty and Variety (Art Design)	Opener – ACT Question (Algebra I) Art Design Homework – p176-177 (1, 2, 6-9, 13-15, 19-22, 26-29, 50)
8	B.1.c, B.1.d, B.1.f, B.1.g, B.1.h, C.1.d, G.1.a, G.1.c	How do I graph equations of lines?	Make Sense of Problems and Persevere in Solving Them – Using their knowledge of perpendicular lines and parallel lines, students will correlate graphs of lines and equations.	Clear/Modeled Expectations (Example Problems)	Opener – ACT Question (Algebra I) Example Problems Homework - p176-178 (33-35, 42-44, 46, 48, 54, 57)

9	B.1.c, B.1.d, B.1.e, B.1.f, B.1.g, B.1.h, C.1.d, G.1.a, G.1.b, G.1.c	Do I know the slope formula, midpoint formula, and distance formula? Do I know how to evaluate slope, find the midpoint, and find the length of a segment? Do I know how to write and graph equations of lines?		Clear/Modeled Expectations (Mini Assessment) Personal Response (Quiz Analysis)	Mini Assessment Quiz Analysis
10	B.1.c, B.1.d, B.1.e, B.1.f, B.1.g, B.1.h, C.1.d, G.1.a, G.1.b, G.1.c	Do I know the slope formula, midpoint formula, and distance formula? Do I know how to evaluate slope, find the midpoint, and find the length of a segment? Do I know how to write and graph equations of lines?		Clear/Modeled Expectations (Unit Two Assessment)	Unit Two Assessment (Summative)
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