

PROGRAM OVERVIEW

Table of Contents for Instructional Units

Unit 1: Relationships Between Quantities

Topic A: Interpreting Structure in Expressions

Lesson 1.1.1: Identifying Terms, Factors, and Coefficients

Lesson 1.1.2: Interpreting Linear and Exponential Expressions

Topic B: Creating Equations and Inequalities in One Variable

Lesson 1.2.1: Creating Linear Equations in One Variable

Lesson 1.2.2: Creating Linear Inequalities in One Variable

Lesson 1.2.3: Creating Exponential Equations

Conceptual Activities

Desmos. “Polygraph: Linear Inequalities.”

GeoGebra. “Simple Logic?”

GeoGebra. “Verbal to Algebraic!”

GeoGebra. “Linear Inequality Generator (1A).”

Conceptual Task

A Wing of a Deal, Parts 1 and 2

Topic C: Creating and Graphing Equations in Two Variables

Lesson 1.3.1: Creating and Graphing Linear Equations in Two Variables

Lesson 1.3.2: Creating and Graphing Exponential Equations

Conceptual Activities

Desmos. “Function Carnival, Part 2.”

Desmos. “Put the Point on the Line.”

GeoGebra. “Rise & Run (Revamped).”

GeoGebra. “Equation of a Line: Dynamic Illustrator.”

Conceptual Task

Weighing Job Offers, Parts 1 and 2

Topic D: Representing Constraints

Lesson 1.4.1: Representing Constraints

Topic E: Rearranging Formulas

Lesson 1.5.1: Rearranging Formulas

Unit Review: Relationships Between Quantities

Unit 1 Assessment

Station Activities

Set 1: Ratios and Proportions

Set 2: Solving Inequalities

Set 3: Solving Equations

PROGRAM OVERVIEW

Table of Contents

Unit 2: Linear and Exponential Relationships

Topic A: Graphs As Solution Sets and Function Notation

Lesson 2.1.1: Graphing the Set of All Solutions

Lesson 2.1.2: Intersecting Graphs

Lesson 2.1.3: Domain and Range

Lesson 2.1.4: Function Notation and Evaluating Functions

Conceptual Activities

Desmos. “Card Sort: Functions.”

Desmos. “Function Carnival, Part 2.”

GeoGebra. “Systems of Equations on a Graph.”

GeoGebra. “Domain and Range.”

Topic B: Solving Linear Inequalities in Two Variables and Systems of Inequalities

Lesson 2.2.1: Solving Linear Inequalities in Two Variables

Lesson 2.2.2: Solving Systems of Linear Inequalities

Conceptual Activity

GeoGebra. “System of Inequalities.”

Conceptual Task

Book Cover Hustle, Parts 1 and 2

Topic C: Sequences As Functions

Lesson 2.3.1: Sequences As Functions

Conceptual Activities

GeoGebra. “Sequences (Dynamic Illustrator).”

GeoGebra. “Graphs of arithmetic sequences on a coordinate plane.”

Topic D: Interpreting Graphs of Functions

Lesson 2.4.1: Identifying Key Features of Linear and Exponential Graphs

Lesson 2.4.2: Average Rate of Change

Lesson 2.4.3: Recognizing Average Rate of Change

Conceptual Activities

Desmos. “Polygraph: Exponentials.”

GeoGebra. “Average Rate of Change.”

Conceptual Task

Infectious Dilemma, Parts 1 and 2

Topic E: Analyzing Linear and Exponential Functions

Lesson 2.5.1: Graphing Linear Functions

Lesson 2.5.2: Graphing Exponential Functions

Conceptual Activities

Desmos. “Card Sort: Linear Functions.”

Desmos. “Match My Line.”

Desmos. “What Comes Next?”

GeoGebra. “Explore exponential vs. linear functions.”

PROGRAM OVERVIEW

Table of Contents

Topic F: Comparing Functions

Lesson 2.6.1: Comparing Linear Functions

Lesson 2.6.2: Comparing Exponential Functions

Lesson 2.6.3: Comparing Linear to Exponential Functions

Conceptual Activities

Desmos. “Avi and Benita’s Repair Shop.”

Desmos. “Game, Set, Flat.”

Conceptual Task

Saving for a Boat, Parts 1 and 2

Topic G: Building Functions

Lesson 2.7.1: Building Functions from Context

Lesson 2.7.2: Constructing Functions from Graphs and Tables

Conceptual Task

Jumping Jamal, Parts 1 and 2

Topic H: Operating on Functions and Transformations

Lesson 2.8.1: Operating on Functions

Lesson 2.8.2: Transformations of Linear and Exponential Functions

Conceptual Activities

Desmos. “Marbleslides: Exponentials.”

GeoGebra. “Function Transformations.”

GeoGebra. “All operations on functions.”

Topic I: Arithmetic and Geometric Sequences

Lesson 2.9.1: Arithmetic Sequences

Lesson 2.9.2: Geometric Sequences

Topic J: Interpreting Parameters

Lesson 2.10.1: Interpreting Parameters

Conceptual Activity

GeoGebra. “Parameters of a Linear Equation.”

Unit Review: Linear and Exponential Relationships

Unit 2 Assessment

Station Activities

Comparing Linear Models

Relations Versus Functions/Domain and Range

Comparing Exponential Models

Interpreting Exponential Functions

Sequences

PROGRAM OVERVIEW

Table of Contents

Unit 3: Reasoning with Equations

Topic A: Solving Equations and Inequalities

Lesson 3.1.1: Properties of Equality

Lesson 3.1.2: Solving Linear Equations

Lesson 3.1.3: Solving Linear Inequalities

Lesson 3.1.4: Solving Exponential Equations

Conceptual Activities

Desmos. “Solutions to Systems of Linear Equations.”

Desmos. “Systems of Two Linear Equations.”

Conceptual Task

Inventory Indecision, Parts 1 and 2

Topic B: Solving Systems of Equations

Lesson 3.2.1: Solving Systems of Linear Equations by Substitution and Elimination

Lesson 3.2.2: Solving Systems of Linear Equations by Graphing

Conceptual Activities

Desmos. “The Intersection.”

GeoGebra. “Solving a System of Equations by Elimination.”

GeoGebra. “Solving Systems Using Substitution.”

GeoGebra. “Solving Linear Systems Graphically.”

Conceptual Task

Boxing Match, Parts 1 and 2

Unit Review: Reasoning with Equations

Unit 3 Assessment

Station Activities

Solving Systems by Substitution and Elimination

Solving Systems by Graphing

Using Systems in Applications

PROGRAM OVERVIEW

Table of Contents

Unit 4: Descriptive Statistics

Topic A: Working with a Single Measurement Variable

Lesson 4.1.1: Representing Data Sets

Lesson 4.1.2: Comparing Data Sets

Lesson 4.1.3: Interpreting Data Sets

Conceptual Activities

Desmos. “LEGO Prices.”

Desmos. “Polygraph: Histograms.”

GeoGebra. “Lotto Tickets Simulation.”

GeoGebra. “Dot Plot Maker.”

GeoGebra. “Measures of Center.”

GeoGebra. “Visualize Measures of Center and Spread.”

GeoGebra. “Outlier Influence.”

Topic B: Working with Two Categorical and Quantitative Variables

Lesson 4.2.1: Summarizing Data Using Two-Way Frequency Tables

Lesson 4.2.2: Solving Problems Given Functions Fitted to Data

Lesson 4.2.3: Analyzing Residuals

Lesson 4.2.4: Fitting Linear Functions to Data

Conceptual Activity

Desmos. “Predicting Movie Ticket Prices.”

Conceptual Task

Time to Print in 3D, Parts 1 and 2

Topic C: Interpreting Linear Models

Lesson 4.3.1: Interpreting Slope and y -intercept

Lesson 4.3.2: Calculating and Interpreting the Correlation Coefficient

Lesson 4.3.3: Distinguishing Between Correlation and Causation

Conceptual Activities

GeoGebra. “Correlation Experimentation.”

GeoGebra. “Correlation Sliders.”

Conceptual Task

Smartphone Surge, Parts 1 and 2

Unit Review: Descriptive Statistics

Unit 4 Assessment

Station Activities

Displaying and Interpreting Data

Line of Best Fit

PROGRAM OVERVIEW

Table of Contents

Unit 5: Congruence, Proof, and Constructions

Topic A: Introducing Transformations

Lesson 5.1.1: Defining Terms

Lesson 5.1.2: Transformations As Functions

Lesson 5.1.3: Applying Lines of Symmetry

Conceptual Activities

Desmos. “Polygraph: Transformations.”

GeoGebra. “Draw (a) line of symmetry.”

Topic B: Defining and Applying Rotations, Reflections, and Translations

Lesson 5.2.1: Defining Rotations, Reflections, and Translations

Lesson 5.2.2: Applying Rotations, Reflections, and Translations

Conceptual Activity

GeoGebra. “Reflections, Rotations, Dilations, and Translations.”

Conceptual Task

The Transforming Key, Parts 1 and 2

Topic C: Constructing Lines, Segments, and Angles

Lesson 5.3.1: Copying Segments and Angles

Lesson 5.3.2: Bisecting Segments and Angles

Lesson 5.3.3: Constructing Perpendicular and Parallel Lines

Conceptual Activities

GeoGebra. “Basic Constructions.”

GeoGebra. “Constructing Parallel and Perpendicular Lines.”

Topic D: Constructing Polygons

Lesson 5.4.1: Constructing Equilateral Triangles Inscribed in Circles

Lesson 5.4.2: Constructing Squares Inscribed in Circles

Lesson 5.4.3: Constructing Regular Hexagons Inscribed in Circles

Conceptual Activities

GeoGebra. “Equilateral Triangle Construction (Dynamic Illustration).”

GeoGebra. “Construct Equilateral Triangle Inscribed in a Circle.”

GeoGebra. “Hexagon-Construction.”

Topic E: Exploring Congruence

Lesson 5.5.1: Describing Rigid Motions and Predicting the Effects

Lesson 5.5.2: Defining Congruence in Terms of Rigid Motions

Conceptual Activity

GeoGebra. “Congruence by Rigid Motions.”

Conceptual Task

Transformation Tests, Parts 1 and 2

PROGRAM OVERVIEW

Table of Contents

Topic F: Congruent Triangles

Lesson 5.6.1: Triangle Congruency

Lesson 5.6.2: Explaining ASA, SAS, and SSS

Conceptual Activity

GeoGebra. “Congruence of triangles.”

Conceptual Task

Decoration Dilemma, Parts 1 and 2

Unit Review: Congruence, Proof, and Constructions

Unit 5 Assessment

Station Activities

Rotations and Reflections

Corresponding Parts, Transformations, and Proof

Unit 6: Connecting Algebra and Geometry Through Coordinates

Topic A: Slope and Distance

Lesson 6.1.1: Using Coordinates to Prove Geometric Theorems with Slope and Distance

Lesson 6.1.2: Working with Parallel and Perpendicular Lines

Conceptual Activities

GeoGebra. “Writing the Equation of Line from Graph in Slope-Intercept Form.”

GeoGebra. “Distance Formula.”

GeoGebra. “Parallel Lines.”

Conceptual Task

The Town Square, Parts 1 and 2

Topic B: Lines and Line Segments

Lesson 6.2.1: Calculating Perimeter and Area

Conceptual Activities

GeoGebra. “Triangle Area Warmup.”

GeoGebra. “Perimeter of Triangles on the Coordinate Grid.”

Unit Review: Connecting Algebra and Geometry Through Coordinates

Unit 6 Assessment

Station Activities

Parallel Lines, Slopes, and Equations

Perpendicular Lines

Coordinate Proof with Quadrilaterals

End-of-Course Assessment

Problem-Based Task: Celebrating Black History