

## PROGRAM OVERVIEW

# Table of Contents for Instructional Units

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### Unit 1: Introduction to Functions and Equations

Lesson 1.1: Support Skill: Creating and Evaluating Inputs and Outputs of Equations (8.F.1)

Lesson 1.2: Domain and Range (F–IF.1)

Lesson 1.3: Support Skill: Verifying Whether Inequalities Are True or False (6.EE.5)

Lesson 1.4: Function Notation and Evaluating Functions (F–IF.2)

Lesson 1.5: Support Skill: Analyzing Situations Involving Linear Equations (8.F.5)

Lesson 1.6: Identifying Key Features of Linear and Exponential Graphs (F–IF.4★, F–IF.5)

Lesson 1.7: Support Skill: Using the Distributive Property (6.EE.3)

Lesson 1.8: Support Skill: Solving Simple Inequalities (7.EE.4b)

Lesson 1.9: Support Skill: Using Properties of Equality to Solve Equations\* (8.EE.7b)

Lesson 1.10: Properties of Equality (A–REI.1)

Lesson 1.11: Support Skill: Solving Multi-Step Equations\* (8.EE.7b)

Lesson 1.12: Solving Linear Equations (A–REI.3)

Lesson 1.13: Solving Linear Inequalities (A–REI.3)

Lesson 1.14: Solving Linear Inequalities in Two Variables (A–REI.12)

Lesson 1.15: Identifying Terms, Factors and Coefficients (A–SSE.1a★)

Lesson 1.16: Creating Linear Equations in One Variable (A–CED.1★)

Lesson 1.17: Rearranging Formulas (A–CED.4★)

### Conceptual Tasks

A Wing of a Deal (A–CED.1★, N–Q.2★, N–Q.3★)

Infectious Dilemma (F–IF.4★)

### Station Activities

Ratios and Proportions (A–CED.1★)

Solving Inequalities (A–CED.1★)

Solving Equations (A–CED.1★)

### Mid-Unit Assessment and Answer Key

### End-of-Unit Assessment and Answer Key

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#### Unit 2: Linear Functions

- Lesson 2.1: Support Skill: Identifying Parts of an Expression (6.EE.2b)
- Lesson 2.2: Support Skill: Identifying Linear Relationships\* (8.F.4)
- Lesson 2.3 (ONLINE ONLY): Parts of Expressions (A–SSE.1a★)
- Lesson 2.4: Interpreting Linear Expressions (A–SSE.1b★)
- Lesson 2.5: Support Skill: Determining the Intercepts of Linear Functions (8.EE.6)
- Lesson 2.6: Support Skill: Determining the Slope and  $y$ -intercept of a Linear Function (8.F.4)
- Lesson 2.7: Support Skill: Graphing Linear Functions from Tables or Equations\* (A–CED.2★)
- Lesson 2.8: Support Skill: Understanding Slope as a Rate of Change (8.EE.5)
- Lesson 2.9: Support Skill: Identifying  $y$ -intercepts of Graphs of Functions\* (8.EE.6)
- Lesson 2.10: Support Skill: Creating Linear Equations to Solve Problems\* (A–CED.2★)
- Lesson 2.11: Support Skill: Creating and Evaluating Inputs and Outputs of Equations (8.F.1)
- Lesson 2.12: Support Skill: Connecting Graphs and Equations of Linear Functions (8.F.3)
- Lesson 2.13: Creating Equations from Context (A–CED.2★)
- Lesson 2.14: Intersecting Graphs (A–REI.11★)
- Lesson 2.15: Solving Systems of Linear Inequalities (A–REI.12)
- Lesson 2.16: Support Skill: Verifying Whether Inequalities Are True or False (6.EE.5)
- Lesson 2.17: Function Notation and Evaluating Functions (F–IF.2)
- Lesson 2.18: Support Skill: Analyzing Situations Involving Linear Equations (8.F.5)
- Lesson 2.19: Key Features of Linear Functions (F–IF.4★)
- Lesson 2.20: Identifying Key Features of Linear and Exponential Graphs (F–IF.4★, F–IF.5)
- Lesson 2.21: Support Skill: Writing Linear Equations\* (8.F.4)
- Lesson 2.22: Connecting Graphs and Equations of Linear Functions (F–IF.6★)
- Lesson 2.23: Finding the Slope or Rate of Change of Linear Functions (F–IF.6★)
- Lesson 2.24: Calculate and Interpret the Average Rate of Change (F–IF.6★)
- Lesson 2.25: Comparing Linear Functions (F–IF.9)
- Lesson 2.26: Building Functions from Context (F–BF.1a★)
- Lesson 2.27: Arithmetic Sequences (F–BF.2★)
- Lesson 2.28: Interpreting Parameters (F–LE.5★)

#### Conceptual Tasks

- Weighing Job Offers (A–CED.2★)
- Book Cover Hustle (A–REI.12)
- Jumping Jamal (F–BF.1a★)

#### Station Activities

- Comparing Linear Models (A–CED.2★, A–REI.10, F–IF.7★)
- Relations Versus Functions/Domain and Range (F–BF.1★)

#### Mid-Unit Assessment and Answer Key

#### End-of-Unit Assessment and Answer Key

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#### Unit 3: Modeling with Linear Functions

Lesson 3.1: Support Skill: Writing Linear Equations\* (8.F.4)

Lesson 3.2: Recognizing Average Rate of Change (F–LE.1)

Lesson 3.3: Support Skill: Creating a Scatter Plot Given Data in a Table (8.SP.1)

Lesson 3.4: Solving Problems Given Functions Fitted to Data (S–ID.6a★)

Lesson 3.5: Analyzing Residuals (S–ID.6b★)

Lesson 3.6: Support Skill: Identifying Linear Correlations Graphically (8.SP.3)

Lesson 3.7: Analyzing the Slope and  $y$ -intercept of Linear Graphs from Data (S–ID.7★)

Lesson 3.8: Support Skill: Creating a Scatter Plot Given Data in a Table (8.SP.1)

Lesson 3.9: Calculating and Interpreting the Correlation Coefficient (S–ID.8★)

Lesson 3.10: Support Skill: Creating a Scatter Plot Given Data in a Table (8.SP.1)

Lesson 3.11: Distinguishing Between Correlation and Causation (S–ID.9★)

#### Conceptual Tasks

Time to Print in 3D (S–ID.6a★)

Smartphone Surge (S–ID.7★)

#### Station Activity

Line of Best Fit (S–ID.6a★, S–ID.6b★, S–ID.6c★, S–ID.7★)

#### Mid-Unit Assessment and Answer Key

#### End-of-Unit Assessment and Answer Key

#### Unit 4: Connecting Algebra and Geometry on the Coordinate Plane

Lesson 4.1: Support Skill: Using the Distance Formula with Two Points on the Coordinate Plane (8.G.8)

Lesson 4.2: Support Skill: Calculating Slope\* (8.EE.5)

Lesson 4.3: Calculating Perimeter and Area (G–GPE.4)

Lesson 4.4: Working with Parallel and Perpendicular Lines (G–GPE.5)

Lesson 4.5: Finding Midpoints and Endpoints of Line Segments (G–GPE.6)

#### Conceptual Task

The Town Square (G–GPE.5)

#### Station Activities

Parallel Lines, Slopes, and Equations (G–GPE.4, G–GPE.5)

Perpendicular Lines (G–GPE.4, G–GPE.5)

Coordinate Proof with Quadrilaterals (G–GPE.4, G–GPE.5)

#### Mid-Unit Assessment and Answer Key

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#### Unit 5: Exponential Functions

- Lesson 5.1: Support Skill: Understanding the Rules of Exponents, Including Negative Exponents\* (8.EE.1)
- Lesson 5.2: Applying the Properties of Integer Exponents (N–RN.2)
- Lesson 5.3: Interpreting Linear and Exponential Expressions (A–SSE.1a★, A–SSE.1b★)
- Lesson 5.4: Creating Exponential Equations (A–CED.1)
- Lesson 5.5: Creating and Graphing Exponential Equations (A–CED.2★)
- Lesson 5.6: Graphing the Set of All Solutions (A–REI.10)
- Lesson 5.7: Intersecting Graphs (A–REI.11★)
- Lesson 5.8: Support Skill: Understanding Function Notation, Domain, and Independent and Dependent Variables\*\* (F–IF.1)
- Lesson 5.9: Domain and Range of Exponential Functions (F–IF.2)
- Lesson 5.10: Sequences As Functions (F–IF.3)
- Lesson 5.11: Graphing Exponential Equations in Context (F–IF.4★, F–IF.5★)
- Lesson 5.12: Exponential Rate of Change (F–IF.6★)
- Lesson 5.13: Graphing Exponential Functions (F–IF.7★)
- Lesson 5.14: Analyzing Exponential Functions (F–IF.7★)
- Lesson 5.15: Comparing Exponential Functions (F–IF.9)
- Lesson 5.16: Building Functions Including Parameters (F–BF.1.1a★, F–LE.5★)
- Lesson 5.17: Geometric Sequences (F–BF.2★)
- Lesson 5.18: Comparing Linear to Exponential Functions (F–LE.3★)
- Lesson 5.19: Fitting Exponential Functions to Data (S–ID.6c★)

#### Conceptual Tasks

- Sanjay’s Salary (F–BF.1a★, F–LE.5★)
- Saving for a Boat (F–LE.3★)

#### Station Activities

- Comparing Exponential Models (F–IF.7★)
- Interpreting Exponential Functions (F–IF.2, F–IF.7★)

#### Mid-Unit Assessment and Answer Key

#### End-of-Unit Assessment and Answer Key

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#### Unit 6: Quadratic Functions

Lesson 6.1: Factoring Expressions by the Greatest Common Factor (A–SSE.3★)

Lesson 6.2: Factoring Expressions with  $a = 1$  (A–SSE.3★)

Lesson 6.3: Factoring Expressions with  $a > 1$  (A–SSE.3★)

Lesson 6.4 (ONLINE ONLY): Polynomial Operations (7.EE.1, 7.EE.2)

Lesson 6.5: Adding and Subtracting Polynomials (A–APR.1)

Lesson 6.6: Multiplying Polynomials (A–APR.1)

Lesson 6.7 (ONLINE ONLY): Zero Product Property (A–REI.1)

Lesson 6.8: Creating and Graphing Equations Using Standard Form (A–APR.3, A–SSE.1★)

Lesson 6.9: Creating and Graphing Equations Using the  $x$ -intercepts (A–SSE.3★, A–CED.2★)

Lesson 6.10: Solving Quadratic Equations by Factoring (A–SSE.3★, A–CED.1★, A–REI.4)

Lesson 6.11: Taking the Square Root of Both Sides (A–CED.1★, A–REI.4)

Lesson 6.12: Interpreting Various Forms of Quadratic Functions (F–IF.7★, F–IF.8a)

Lesson 6.13: Identifying the Average Rate of Change (F–IF.6★)

Lesson 6.14: Comparing Models (F–IF.9)

#### Conceptual Tasks

Pondering Patterns (F–IF.9)

Solution Squabble (A–CED.1★, A–REI.4)

#### Station Activities

Graphing Quadratic Equations (F–IF.7★)

#### Mid-Unit Assessment and Answer Key

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#### **Unit 7: Systems of Equations and Inequalities**

Lesson 7.1: Support Skill: Solving Systems of Linear Equations by Algebraic Methods (8.EE.8)

Lesson 7.2: Representing Constraints (A–CED.3★)

Lesson 7.3: Solving Systems of Linear Equations by Graphing (A–REI.5, A–REI.6)

Lesson 7.4: Solving Systems of Linear Equations by Substitution and Elimination (A–REI.5)

Lesson 7.5: Solving Linear Inequalities in Two Variables (A–REI.12)

Lesson 7.6: Solving Systems of Linear Inequalities (A–REI.12)

#### **Conceptual Task**

All or Nothing (A–REI.5, A–REI.6)

#### **Station Activities**

Solving Systems by Substitution and Elimination (A–REI.5)

Solving Systems by Graphing (A–REI.6)

Using Systems in Applications (A–CED.3★, A–REI.5, A–REI.6)

#### **Mid-Unit Assessment and Answer Key**

#### **End-of-Unit Assessment and Answer Key**

#### **Unit 8: Statistics**

Lesson 8.1: Representing Data Sets (S–ID.1★)

Lesson 8.2: Comparing Data Sets (S–ID.2★)

Lesson 8.3: Interpreting Data Sets (S–ID.3★)

#### **Conceptual Task**

What Does the Real Data Show? (S–ID.3★)

#### **Station Activity**

Displaying and Interpreting Data (S–ID.1★, S–ID.2★, S–ID.3★)

#### **Mid-Unit Assessment and Answer Key**

#### **End-of-Unit Assessment and Answer Key**