Solving One-Variable Equations

Overview

All lessons are based on solving one-variable equations. The one-variable lessons include:

- Expressions and properties
- Solving equations using properties
- Order of operations (PEMDAS)
- Solving equations using the order of operations
- Solving one-variable inequalities
- Solving absolute value equations and inequalities
- Ratios, proportions, and percents

The number of total suggested days for the unit is 12 to 14.5. Adjustments may be needed based on student performance during the unit and amount of time available until the end of the semester.

Vocabulary

Integer
Constant
Like terms
Numerical expressions
Zero pair
Identity property of addition
Multiplicative property of zero
Reciprocals (inverses)
Numerator
Commutative property of addition
Commutative property of multiplication
Distributive property
Unknown
Addition Property of Equality
Multiplication Property of Equality
Substitution
Symmetric
Input
PEMDAS
Order of operations
Undoing
Solving
AND
Less than or equal to
Greater than or equal to
Compound
Addition Property of Inequality

Coefficient
Term
Mathematical properties
Algebraic expressions
Additive inverse property
Multiplicative identity property
Multiplicative property of negative one
Multiplicative inverse property
Denominator
Associative property of addition
Associative property of multiplication
Variable
Solution
Subtraction Property of Equality
Division Property of Equality
Substitution Property of Equality
Property of Equality
OutputOperations
GEMDAS
Doing
Solve
OR
Less than
Greater than
Inequality
Compound inequality
Subtraction Property of Inequality

Vocabulary (Continued)

Multiplication Property of Inequality
Division Property of Inequality
Absolute
Absolute Value
Absolute value inequality
Ratio
Proportion
Proportional
Percent of change
Percent
Change in value
Original value
Scaled

Material List

Student Journal
Setting the Stage
Transparencies
Dry-erase boards
Markers and erasers
Overhead tiles
Student tiles
Tile pad
Equal tile pad
Graphing calculators
Calculator view screen
Blank transparencies
Lesson specific transparencies
Overhead projector
Construction paper
Poster paper and markers
Graphic organizer
Scissors
Centimeter rulers
Inequality pad

The following table contains lesson name, timeline, summary of concepts covered, and the Essential Question(s) for each lesson.

Lesson	Timeline	Concepts Covered	Essential Question(s)	Common Core Standards for Mathematical Content

Expressions and Properties	2 Days	• Represent expressions using:
		  o symbols
		  o tiles
		  o words
		  o scenarios
		  o drawings
		• Represent equations using:
		  o symbols
		  o tiles
		  o words
		  o scenarios
		  o drawings
		• Represent and write equivalent expressions
		• Determine mathematical properties and rules related to expressions and equations
			How can words, symbols, tiles, drawings, and scenarios represent mathematical expressions and equations?	3.OA.5, 5.NF.1, 5.NF.4, 5.OA.1, 5.OA.2, 6.NS.1, 6.NS.5, 6.EE.1, 6.EE.2a. 6.EE.3, 6.EE.6, 7.NS.1a, 7.NS.1c, 7.NS.1d, 7.NS.2a, 7.NS.2b, 7.NS.2c, A-SSE.1a, Modeling

Solving Equations by Using Properties	1 to 1.5 Days	• Solve one-variable equations using the properties of equality:
		  o Addition
		  o Subtraction
		  o Multiplication
		  o Division
		• Check answers using the substitution property of equality
		• Represent properties of equality using:
		  o Symbolic equations
		  o Words
		  o Numbers
		  o Tiles
		• Translate real-world scenarios into equations to solve
			How can mathematical properties be used to solve equations and real–world applications?	6.EE.5, 6.EE.6, 6.EE.7, 7.EE.2, 7.EE.4a, A-CED.1, A-REI.1, A-REI.2, A-REI.3, Modeling

Order of Operations	2 Days	• Evaluate expressions using the order of operations • Create an expression from a series of operations • Determine input needed for an expression to yield a given output	How can working backward help solve problems in mathematics?	5.OA.1, 5.OA.2, 5.OA.3, 6.EE.1, 6.EE.2, 6.EE.3, 6.EE.4, 7.EE.1, 7.EE.2, 7.EE.3, 8.EE.2, A-SSE.1, Modeling

Solving Equations Using the Order of Operations	1 to 2 Days	• Solve one-variable equations symbolically using the reverse order of operations and opposite (undo) operations • Solve for an unknown in basic real-world applications related to formulas • Solve one-variable equations using tables and tiles	• How can the order of operations be used to solve equations? • How do you solve equations using opposite operations? • How do you apply what you have learned about solving equations to solving real-world applications involving formulas?	6.EE.3, 6.EE.4, 6.EE.5, 6.EE.6, 6.EE.7, 7.EE.1, 7.EE.3, 7.EE.4a, 8.EE.7, A-CED.1, A-REI.1, A-REI.2, A-REI.3, Modeling
Solving One-Variable Inequalities	2 Days	• Solve one-variable inequalities • Graph and describe the solution to one-variable inequalities • Solve one-variable inequalities related to real-world applications	How are solutions to inequalities described in written and graphed formats?	6.NS.6a, 6.NS.7c, 6.NS.7d, 6.EE.5, 6.EE.8, Modeling
Solving Absolute Value Equations and Inequalities	1.5 Days	• Solve absolute value equations symbolically • Solve absolute value inequalities symbolically • Graph the solutions to absolute value equations and inequalities on a number line • Model real-world phenomena with absolute value equations and inequalities • Apply absolute value inequalities to tolerance specifications for consumer products	• How can absolute value help model real-world phenomena? • How do we solve absolute value equations and inequalities?	6.NS.6a, 6.NS.7c, 6.NS.7d, 6.EE.5, 6.EE.8, 7.EE.4b, A-CED.1, A-REI.3, Modeling

Ratios, Proportions and Percent of Change	2 Days	• Determine percent of change for real-world applications • Write the ratio of various real-world applications • Use proportions to solve for unknowns in real-world applications	• How are ratios used to model real-world phenomenon? • What are the similarities and/or differences between ratios, proportions, and percent of change?	5.NF.5, 6.RP.1, 6.RP.2, 6.RP.3b, 6.RP.3c, 6.EE.5, 6.EE.6, 7.RP.2a, 7.RP.2b, 7.RP.2c, 7.G.1, 8.G.4, A-CED.1, A-REI.1, G-SRT.2, Modeling

Linear Functions

Overview

All lessons are based on linear functions. The linear function lessons include:

- Plotting Points
- Linear equations and the slope-intercept form
- Applications of linear functions
- Linear function notation
- Other forms of linear functions
- Absolute value functions
- Defining linear functions and the vertical line test
- Linear regression
- Linear inequalities

The total suggested days for the unit is 12 to 14.5. Adjustments may be needed based on student performance during the unit and time available until the end of the semester.

Vocabulary

Coordinate plane
Cartesian Coordinate Plane
x-value
y-value
Ordered pair
Reflect
Scatter plots
Connected scatter plots
Origin
Intersection
Vertical
Horizontal
x-axis
y-axis
Quadrant I
Quadrant II
Quadrant III
Quadrant IV
Number line
Positive
Negative

Table of ordered pairs
Reflection
x-minimum
y-minimum
x-maximum
y-maximum
x-scale
y-scale
Original object
Function
Input value
Output value
Scenario
Rule in words
Rule as an equation
Graph
Δx
Δy
Slope
Slope of a line
Rise
Run
y-intercept

Slope intercept
Parallel lines
Constant
Constant rate
Term number
Term value
Input
Output
Domain
Range
Function
Function notation
Standard form of a linear equation
Point-slope form of a linear equation
Vertical line
Horizontal line
Parallel slope
Perpendicular slope
Slope-intercept form of a linear equation
Point
Vertical line test

Regression
Least sum
Correlation coefficient
Line of best fit
Line of least squares
Least-squares line
Correlation
Positive correlation
Negative correlation
No correlation
Sum
Summation
Summation notation
Linear inequality
Less than
Less than or equal to
Greater than
Greater than or equal to
Inequality
Solution
Solution region
System of inequalities

Materials List

Student journal	Scissors	Paper
Setting the Stage transparencies	Chart paper	Lesson specific transparencies
Dry-erase boards	Graphing calculators	Overhead projector
Markers and erasers	Calculator view screen	Construction paper
	Blank transparencies	Poster paper

The following table contains lesson name, timeline, summary of concepts covered, and the Essential Question(s) for each lesson.

Lesson	**Timeline**	**Concepts Covered**	**Essential Question(s)**	**Common Core Standards for Mathematical Content**
Plotting Points	1 Day	• Coordinate plane and axes • Identify the four quadrants • Graph ordered pairs • Create a connected scatter plot on a grid and using technology	How can you represent a table of ordered pairs visually?	5.G.1, 5.G.2, 7.G.1, 8.G.2, 8.G.3, G-MG.1, G-CO.2, G-CO.5, Modeling

Linear Equations in Slope-Intercept Form	2 to 3 Days	• Linear functions represented five ways:
		  ○ Scenario
		  ○ Rule in words
		  ○ Rule as an equation
		  ○ Table of ordered pairs
		  ○ Graph
		• Linear equations in slope-intercept form
		• Applications of linear equations in slope-intercept form
		• Graphic organizer related to lesson vocabulary
			How can a linear function represent a real-world scenario?	5.G.1, 5.G.2, 6.EE.9, 8.EE.6, 8.F.1, 8.F.2, 8.F.3, 8.F.4, 8.F.5, A-CED.2, A-REI.10, F-IF.4, F-IF.7a, F-BF.1, Modeling

Applications of Linear Functions in Slope-Intercept Form	1 to 2 Days	• Determine linear equations from real-world scenarios
		• Determine linear equations given:
		  ○ Number pattern
		  ○ Polygon dot pattern
		• Use linear equations to determine specific term value for various scenarios and patterns
			How does using a linear equation help answer questions related to linear patterns or scenarios?	5.G.1, 5.G.2, 6.EE.9, 7.EE.3, 7.EE.4a, 8.EE.6, 8.F.1, 8.F.2, 8.F.3, 8.F.4, 8.F.5, A-CED.2, A-REI.10, F-IF.4, F-IF.7a, F-BF.1, Modeling

Lesson	Timeline	Concepts Covered	Essential Question(s)	Common Core Standards for Mathematical Content

Linear Function Notation	1 Day	• Write equations using function notation
		• For linear functions, determine:
		  ○ Domain
		  ○ Range
		  ○ Independent variable
		  ○ Dependent variable
			How is function notation useful to represent linear function scenarios?	5.G.1, 5.G.2, 6.EE.9, 7.EE.3, 7.EE.4a, 8.F.1, 8.F.2, 8.F.3, 8.F.4, 8.F.5, A-CED.2, A-REI.10, A-REI.11, F-IF.1, F-IF.2, F-IF.4, F-IF.7a, F-BF.1a, F-LE.2, Modeling

Other Forms of Linear Functions	3 Days	• Standard form of a linear equation • Point-slope form of a linear equation • Determine linear equations that match real-world linear function scenarios • Determine linear equations for horizontal and vertical lines • Determine the equation of a line parallel or perpendicular to a second line and passing through a specific point	What are the advantages of using linear equations to model linear functions and real world applications?	5.G.1, 5.G.2, 6.EE.9, 7.EE.4a, 8.EE.6, 8.F.3, A-CED.2, A-REI.10, Modeling
What is a Function?	1 to 1.5 Days	• Use the vertical line test to determine if a graph represents a function • Graph various non-linear functions using a graphing calculator • Create or match graphs that model real-world scenario. For example, distance-time graphs.	What characteristic of a graph confirms that it can represent a function?	8.F.1, 8.F.2, 8.F.3, 8.F.4, 8.F.5, F-IF.1, F-IF.2, F-IF.4, F-IF.5, F-IF.7a, F-IF.7b, Modeling

Lesson	Timeline	Concepts Covered	Essential Question(s)	Common Core Standards for Mathematical Content
Linear Regression	2 Days	• Estimate the line of best fit for a set of data and then determine the slope-intercept form of the equation • Use a formula to determine the correlation coefficient from a set of data • Use a formula to determine the equation for the line of best fit • Use the graphing calculator to determine the correlation coefficient and the equation for the line of best fit • Make predictions based on the line of best fit • Determine if a set of data has a linear trend based upon visual observations of the graph of data and the correlation coefficient	How can linear regression be used to predict values and in real–world applications?	6.EE.9, 7.EE.4, 8.F.1, 8.F.2, 8.F.3, 8.F.4, 8.F.5, 8.SP.1, 8.SP.2, 8.SP.3, A-CED.2, A-REI.10, F-IF.1, F-IF.2, F-IF.4, F-IF.5, F-IF.7a, F-BF.1a, S-ID.6a, S-ID.6b, S-ID.6c. S-ID.7, S-ID.8, Modeling
Linear Inequalities	1 Day	• Graph linear inequalities by hand and using a graphing calculator • Determine the linear equality from the graphed solution • Graph the solution to a system of linear inequalities • Apply linear inequalities to model and solve real-world problems involving two or more variables	• How can the properties of inequalities be used to create a linear inequality in slope-intercept form? • How can shading and dashed lines represent the solution to a linear inequality?	6.EE.8, 7.EE.4b, A-CED.1, A-CED.3, A-REI.12, Modeling

Systems of Equations

Overview

All lessons are based on solving linear systems and include:

- Two Items One Table
- Two Items and a Diagram
- Balance Scales
- Systems of Equations and Tiles
- Solve Systems of Equations by Graphing

The number of total suggested days for the unit is 5 to 10. Adjustments may be needed based on student performance during the unit and amount of time available until the end of the semester.

Vocabulary

Combination	Mass Produce	Systems of Equations	System
Table	Represents	Substitution	Profit
Situation	Balance Scales	Tiles	Operating Expenses

Material List

Student journal	Calculator view screen	Two bowls (5 cups or larger)
Setting the Stage	Blank transparencies	(optional)
transparencies	Lesson specific transparencies	Pitcher of Water (optional)
Dry-erase boards	Overhead projector	Balance Scale (optional)
Markers and erasers	Construction paper	Tiles
Overhead markers	Poster paper	Tile pads
Graphing calculators		

The following table contains lesson name, timeline, summary of concepts covered, and the Essential Question(s) for each lesson.

Lesson	**Timeline**	**Concepts Covered**	**Essential Question(s)**	**Common Core Standards for Mathematical Content**
Two Items One Table	2 Days	• Create tables that represent the sum of multiple combinations for two different values • Determine an equation that represents the sum of multiple combinations for two different values	How can a table be used to solve a system of equations?	6.EE.6, 6.EE.9, 7.EE.4, A-CED.2, Modeling
Two Items and a Diagram	2 Days	• Use diagrams to determine unknown values (system of equations) • Use diagrams to work with the substitution concept of solving a system of equations • Use diagrams to work with combining two equations to solve a system of equations	How can diagrams be used to solve a system of equations?	6.EE.6, 6.EE.9, 7.EE.4, 8.EE.8a, 8.EE.8b, 8.EE.8c, A-CED.2, A-REI.6, Modeling
Balance Scales	1 Days	• Model a Systems of Equations using Balance Scales • Solve Systems of Equations using Balance Scales	How can the concept of balance scales be used to solve a system of equations?	8.EE.8a, 8.EE.8b, 8.EE.8c, A-CED.2, A-REI.6, Modeling

Lesson	Timeline	Concepts Covered	Essential Question(s)	Common Core Standards for Mathematical Content
Systems of Equations and Tiles	1 Days	• Use tiles or blocks to represent a system of equations • Develop a deeper conceptual understanding of solving a system of equations • Solve system of equations with integers • Solve system of equations by substitution • Solve system of equations with rational and approximate rational solutions	How can tiles be used to solve a system of equations?	8.EE.8a, 8.EE.8b, 8.EE.8c, A-CED.2, A-REI.6, Modeling
Solve Systems of Equations by Graphing	2 Days	• Solve systems of equations by analyzing graphs and/or tables • Solve one-variable equations by analyzing graphs and/or tables • Model real world problems with graphs and tables • Understand the links between algebra, tables, and graphs	How can graphing be used to solve a system of equations?	8.EE.8a, 8.EE.8b, 8.EE.8c, A-REI.6, A-REI.11, Modeling

Non-Linear Functions

Overview

The types of non-linear functions include:

- Quadratic functions
- Power functions
- Inverse variation functions
- Exponential functions
- Step functions
- Absolute value functions
- Circles (domain restricted to be a function)
- Piece-wise functions

The number of total suggested days for the unit is 18. Adjustments may be needed based on student performance during the unit and amount of time available until the end of the semester.

Vocabulary

Square/squaring
Quadratic equation
Square root
Minimum point
Maximum point
Standard form of a quadratic function
General form of a quadratic function
Parabola
Solutions
Quadratic formula
Discriminant
Double root
Break-even point
Symmetry
Vertical line symmetry
Vertex
x-coordinate
y-coordinate
Quadratic regression
Multiples
Power function
Even function
Odd function
Direct variation
Inverse variation
Constant of proportionality
Base
Exponent
Exponential function
Growth
Decay
Exponential regression
Rise
Run
int() function
Greatest integer
Floor function
Smallest integer
Ceiling function
Binary number system
Absolute value function
Dilation
Vertical line test
General equation of a circle
Piece-wise function

Material List

Student journal
Setting the Stage transparencies
Dry-erase boards
Markers and erasers
Chart paper
Graphing calculators
Calculator view screen
Blank transparencies
Lesson specific transparencies
Overhead projector
Construction paper
Poster paper
Colored pencils

AIIF

Planning Document

The following table contains lesson name, timeline, summary of concepts covered, and the Essential Question(s) for each lesson.

Lesson	Timeline	Concepts Covered	Essential Question(s)	Common Core Standards for Mathematical Content
Introduction to Quadratic Functions	1 Day	• Write and solve simple quadratic equations • Use the graphing calculator to find vertex, x-intercepts, and to draw a graph	How does the process of squaring relate to quadratic functions?	6.EE.9, 7.EE.4, 8.F.1, 8.F.2, 8.F.3, 8.F.4, 8.F.5, A-CED.2, F-IF.1, F-IF.2, F-IF.4, F-IF.5, F-IF.7a, F-IF.7c, F-BF.1a, Modeling
The Quadratic Formula	2 Days	• Standard form of a quadratic function • Quadratic formula • Discriminant • Solve quadratic functions using the quadratic formula • y-intercept • Applications of quadratic functions	How can the quadratic formula be used to solve real-world applications?	6.EE.5, 6.EE.6, 6.EE.9, 7.EE.3, 7.EE.4, 8.F.1, 8.F.2, 8.F.3, 8.F.4, 8.F.5, A-CED.1, A-REI.1, A-REI.2, A-REI.5, A-REI.7, A-REI.10, Modeling
Graphing Quadratic Functions and Their Applications	3 Days	• Line of symmetry • Vertex • Graphing • Applications of quadratic functions • Quadratic regression	How can quadratic functions and applications of quadratic functions be graphed?	6.EE.9, 7.EE.4, 8.F.1, 8.F.3, 8.F.4, A-APR.3, A-CED.2, A-REI.6, A-REI.7, A-REI.10, A-REI.11, F-IF.1, F-IF.4, F-IF.5, F-IF.7a, Modeling

Lesson	Timeline	Concepts Covered	Essential Question(s)	Common Core Standards for Mathematical Content
Power Functions	2 Days	• Power function format • Odd and even functions • Graphing power functions • Transformations involving power functions • Applications of power functions	Do power functions have patterns that can be used when solving and graphing them?	6.EE.9, 8.F.1, 8.F.2, 8.F.3, 8.F.4, 8.F.5, 8.EE.1, 8.EE.2, N-RN.2, A-CED.1, A-CED.2, A-REI.6, A-REI.10, F-IF.1, F-IF.2, F-IF.4, F-IF.5, F-IF.7, F-BF.3, Modeling
Inverse Variation	2 Days	• Write equations involving direct variation • Constant of proportionality • Write equations involving inverse (indirect) variation • Graph direct and inverse variation • Identify inverse variation phrases	• How does inverse variation affect real–world application problems? • How does direction variation affect real–world application problems?	6.RP.1, 6.RP.2, 6.RP.3, 6.EE.9, 8.F.1, 8.F.2, 8.F.3, 8.F.5, A-CED.2, A-CED.3, F-IF.1, F-IF.2, F-IF.5, F-IF.7d, F-BF.1a, Modeling
Exponential Functions	3 Days	• Identify exponential functions • Growth and decay • Exponential applications • Graph exponential functions	How do exponential functions behave in real-world applications?	8.EE.1, 8.F.1, 8.F.2, 8.F.5, N-RN.1, N-RN.2, A-CED.2, F-IF.1, F-IF.2, F-IF.4, F-IF.5, F-IF.7e, F-IF.8b, F-BF.1, F-LE.1c, Modeling

Lesson	Timeline	Concepts Covered	Essential Question(s)	Common Core Standards for Mathematical Content
Step Functions	2 Days	• *Rise* and *run* of a step function • *Floor* step function • *Ceiling* step function • Graph step functions using the graphing calculator and the **int()** function • Applications involving step functions	How do step functions apply to real-world applications?	8.F.1, 8.F.2, 8.F.5, F-IF.1, F-IF.2, F-IF.4, F-IF.5, F-IF.7, F-BF.1, Modeling

Miscellaneous Non-Linear Functions	3 Days	• Absolute value functions
		  o Transformations involving absolute value functions
		  o Graph absolute value functions
		• Circles
		  o Equations for circles
		  o Restrict domain of a circle equation
		  o Solve circle equations for *y*
		  o Graph circle equations using center, radius, and intercepts
		• Piece-wise functions
		  o Write piece-wise functions
		  o Graph piece-wise functions
		  o Applications of piece-wise functions
			How do absolute value functions, piece–wise functions, and circle equations apply to real–world applications?	8.F.1, 8.F.2, 8.F.5, F-IF.1, F-IF.2, F-IF.4, F-IF.5, F-IF.7, F-BF.1, G-GPE.1, Modeling

Probability and Statistics

Overview

All lessons are based on probability and statistics. The probability and statistics lessons include:

- Fundamental Counting Principle
- Permutations and Factorial
- Combinations
- Probability
- Expected Winnings
- Parameters and Statistics

The number of total suggested days for the unit is 5 to 10. Adjustments may be needed based on student performance during the unit and amount of time available until the end of the semester.

Vocabulary

Fundamental Counting Principle	Tree diagram	Without replacement	Mode
Permutation	Combinations	Expected winnings	Range
Factorial	Combination formula	Population parameter	Standard deviation
Standard form	Theoretical probability	Sample statistic	Lower quartile
Scientific notation	Experimental probability	Random sample	25^{th} percentile
Permutations formula	Independent event	Biased	Upper quartile
	Dependent event	Mean	75^{th} percentile
	With replacement	Median	Box and whisker plot

Material List

Student journal	Graphing calculators	Construction paper
Setting the Stage transparencies	Calculator view screen	Poster paper
	Blank transparencies	Decks of cards (one for each group)
Dry-erase boards	Lesson specific Transparencies	Pennies
Markers and erasers		Paper bags
Overhead markers	Overhead projector	

The following table contains lesson name, timeline, summary of concepts covered, and the Essential Question(s) for each lesson.

Lesson	Timeline	Concepts Covered	Essential Question(s)	Common Core Standards for Mathematical Content
Fundamental Counting Principle	1 to 2 Days	• Discover the Fundamental Counting Principle • Use the Fundamental Counting Principle to determine the number of outcomes	How can the Fundamental Counting Principle be used to determine the number of outcomes of an event?	7.NS.3, S-CP.1, Modeling
Permutations and Factorial	1 to 2 Days	• Use the Fundamental Counting Principle to determine the number of permutations possible for different situations • Use the Fundamental Counting Principle to understand factorial • Use factorials to define the calculations for permutations • Determine the number of permutations for different situations	• How can the Fundamental Counting Principle be used to define factorial • How can factorials and permutations be used to determine the number of outcomes of an event?	7.NS.3, S-CP.1, Modeling
Combinations	1 to 2 Days	• Use combinations to determine the total number of outcomes for lottery games • Determine the number of combinations for different situations	• How can combinations be used to determine the number of outcomes in gaming? • How can combinations be used to determine the number of combinations of different situations?	7.NS.3, S-CP.1, Modeling

Lesson	Timeline	Concepts Covered	Essential Question(s)	Common Core Standards for Mathematical Content
Probability	1 to 2 Days	• Determine the probability of independent and dependent events • Determine theoretical and experimental probability	• What is the difference between theoretical probability and experimental probability? • How can the Fundamental Counting Principle, permutations, and combinations be used to determine probability?	7.SP.5, 7.SP.6, 7.SP.7a, 7.SP.8a, 7.SP.8b, S-CP.1, S-CP.2, Modeling
Expected Winnings	1 to 2 Days	• Determine the expected winnings of different situations	• How can probability be used to determine the expected winnings in various situations?	7.SP.5, 7.SP.6, 7.SP.7a, 7.SP.8a, 7.SP.8b, S-CP.1, S-CP.2, S-CP.5a, Modeling
Parameters and Statistics	1 to 2 Days	• Determine the mean, median, mode, upper quartile, lower quartile, minimum, maximum, and standard deviation of a set of data. • Draw a histogram • Draw a box and whisker plot • Investigate the difference between a population parameter and a sample statistic • Investigate the relationship between a random sample and bias • Investigate the spread of data and standard deviation	• How is data used to create histograms and box and whisker plots? • How are the various statistics used in real-world applications?	6.SP.2, 6.SP.3, 6.SP.4, 6.SP.5, S-ID.1, S-ID.2, S-IC.1, S-IC.3, S-IC.4, Modeling