Access Algebra Scope and Sequence

Unit	Standards	Conceptual Categories	Domains	Essential Understandings	Learning Objectives
Unit 1	• Represent data with plots on the real number line (dot plots and histograms). • Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets. • Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).	Statistics and Probability	Interpreting Data	Data can be difficult to interpret. Mean, median, and mode help explain the variability in data.	• Identify vocabulary words that help to discuss unit concepts: *data, dot plot, axis, horizontal, vertical, histogram* • Create a dot plot • Identify the spread of data • Interpret basic frequency data from dot plots • Identify mode as the highest frequency within a data set • Identify mean as the average • Use a calculator to calculate mean
	• Create equations and inequalities in one variable and use them to solve problems.	Algebra	Creating Equations	Relationships between quantities encountered in real-world situations can be expressed as equations.	• Create a histogram • Create intervals to reflect the spread of data • Interpret basic frequency data from a histogram • Identify estimated mode as the highest frequency interval in a histogram • Understand the impact of an outlier on statistics (Challenge) • Calculate mode and mean eliminating an outlier (Challenge) • Calculate exact and estimated modes and compare (Challenge)

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Access Algebra Scope and Sequence

Unit	Standards	Conceptual Categories	Domains	Essential Understandings	Learning Objectives
Unit 2	• Explain how the definition of rational exponents follows from extending the properties of integer exponents to those values, allowing for a notation for radicals in terms of rational exponents.	Numbers and Quantity	Real Numbers	Large numbers can be represented with a base and an exponent. Numbers expressed with a base number and an exponent grow quickly from the base amount to the total amount	• Identify vocabulary words that help to discuss unit concepts: *base, exponent, squared, power, operation, expression* • Identify numbers expressed as powers • Identify the base and exponent in a number written as a power
	• Create equations and inequalities in one variable and use them to solve problems, including equations arising from linear and quadratic functions, and simple rational and exponential functions. • Represent and analyze mathematical situations and structures using algebraic symbols. • Monitor and reflect on the process of mathematical problem solving.	Algebra	Creating Equations	Relationships between quantities encountered in real-world situations can be expressed as equations.	• Express a number as a power with a base and an exponent from a math story problem • Use a scientific calculator to compute x^2 • Compute the value of a number expressed as a power ("*x* to the power of ^{y}") • Recalculate the solution to the problem using additional information (Challenge)

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Access Algebra Scope and Sequence (continued)

Unit	Standards	Conceptual Categories	Domains	Essential Understandings	Learning Objectives
Unit 3	• Write a function that describes a relationship between two quantities. • Understand that a function from one set (called the *domain*) to another set (called the *range*) assigns to each element of the domain exactly one element of the range. If *f* is a function and *x* is an element of its domain, then *f*(x) denotes the output of *f* corresponding to the input *x*. The graph of *f* is the graph of the equation $y = f(x)$. • Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.	Functions	Building Functions Interpreting Functions	Relationships between quantities can be predictable. These can be represented on a coordinate plane.	• Identify vocabulary words that help to discuss unit concepts: *x-axis, y-axis, linear function, equation, variable, inverse operation* • Name inverse operations • Identify a variable in algebraic expressions • Read and write an algebraic expression using a variable • Complete an Input/Output Table • Plot data points on a coordinate graph • Identify the rate of change in a linear function • Write a linear function equation that matches a function rule • Solve a problem using a linear function equation • Apply inverse operations to solve algebraic equations • Use a calculator to solve an algebraic expression • Recalculate the solution to a problem using additional information (Challenge)

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Unit	Standards	Conceptual Categories	Domains	Essential Understandings	Learning Objectives
Unit 3	• Create equations and inequalities in one variable and use them to solve problems. • Represent and analyze mathematical situations and structures using algebraic symbols. • Monitor and reflect on the process of mathematical problem solving.	Algebra	Creating Equations	Relationships between quantities encountered in real-world situations can be expressed as equations.	
Unit 4	• Use units as a way to understand problems and to guide the solution of multi-step problems. • Understand measurable attributes of objects and the units, systems, and processes of measurement.	Numbers and Quantity	Quantities	Measurements are specific to the attribute they describe in real-world situations.	• Identify vocabulary words that help to discuss unit concepts: *ratio, proportion, proportional relationship, scale, numerator, denominator* • Identify units of measurement appropriate to a specific purpose and attribute measured

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Access Algebra Scope and Sequence *(continued)*

Unit	Standards	Conceptual Categories	Domains	Essential Understandings	Learning Objectives
Unit 4	• Create equations and inequalities in one variable and use them to solve a problem. • Represent and analyze mathematical situations and structures using algebraic symbols. • Monitor and reflect on the process of mathematical problem solving.	Algebra	Creating Equations	Relationships between quantities encountered in real-world situations can be expressed as equations.	• Express proportions as ratios • Express proportions as fractions • Solve 1- and 2-step algebraic equations with 1 variable • Identify multiplication and division as inverse operations • Use a calculator to compute problems involving multiplication and division • Calculate ratios and proportions using more complex math elements (Challenge)