**Algebra 1**

**Khan Academy Video Correlations
By SpringBoard Activity and Learning Target**

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| **SB Activity** | **Video(s)** |
| **Unit 1: Equations and Inequalities** |
| **Activity 1***Investigating Patterns*1-1 Learning Targets: * + - * Identify patterns in data.
			* Use tables, graphs, and expressions to model situations.
			* Use expressions to make predictions.

1-2 Learning Targets: * Use patterns to write expressions.
* Use tables, graphs, and expressions to model situations.
 | ***Algebraic Expressions*** |
| [**Treating units algebraically and dimensional analysis**](https://www.khanacademy.org/math/algebra/introduction-to-algebra/units-algebra/v/dimensional-analysis-units-algebraically)[**Writing simple algebraic expressions**](http://www.khanacademy.org/math/algebra/introduction-to-algebra/writing-expressions-tutorial/v/writing-expressions-1)[**Writing algebraic expressions**](http://www.khanacademy.org/math/algebra/introduction-to-algebra/writing-expressions-tutorial/v/writing-expressions-2)[**Writing algebraic expressions word problem**](http://www.khanacademy.org/math/algebra/introduction-to-algebra/writing-expressions-tutorial/v/writing-expressions-3-exercise-example-1)[**Evaluating an expression example**](http://www.khanacademy.org/math/algebra/introduction-to-algebra/variable-and-expressions/v/variables-and-expressions-1)[**Evaluating an expression using substitution**](http://www.khanacademy.org/math/algebra/introduction-to-algebra/variable-and-expressions/v/evaluate-a-formula-using-substitution)[**Expression terms, factors, and coefficients**](https://www.khanacademy.org/math/cc-sixth-grade-math/cc-6th-expressions-and-variables/cc-6th-writing-expressions/v/expression-terms-factors-and-coefficients) |
| ***Patterns and Expressions*** |
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| **Activity 2***Solving Equations*2-1 Learning Targets: * Use the algebraic method to solve an equation.
* Write and solved an equation to model a real-world situation.

2-2 Learning Targets: * Write and solve an equation to model a real-world situation.
* Interpret parts of an expression in terms of its context.

2-3 Learning Targets: * Solve complex equations with variables on both sides and justify each step in the solution process.
* Write and solve an equation to model a real-world situation.

2-4 Learning Targets: * Identify equations that have no solution.
* Identify equations that have infinitely many solutions.

2-5 Learning Targets: * Solve literal equations for a specified variable.
* Use a formula that has been solved for a specified variable to determine an unknown quantity.
 | ***The “Why” of Algebra: Equation Basics*** |
| [**Why we do the same thing to both sides: Simple equations**](http://www.khanacademy.org/math/algebra/solving-linear-equations-and-inequalities/why-of-algebra/v/why-we-do-the-same-thing-to-both-sides-simple-equations)[**Why we do the same thing to both sides: Multi-step equations**](http://www.khanacademy.org/math/algebra/solving-linear-equations-and-inequalities/why-of-algebra/v/why-we-do-the-same-thing-to-both-sides-multi-step-equations)[**Representing a relationship with a simple equation**](http://www.khanacademy.org/math/algebra/solving-linear-equations-and-inequalities/why-of-algebra/v/representing-a-relationship-with-a-simple-equation)[**One-step equation intuition**](http://www.khanacademy.org/math/algebra/solving-linear-equations-and-inequalities/why-of-algebra/v/one-step-equation-intuition) |
| ***Simple Equations*** |
| [**Simple equations of the form ax = b**](http://www.khanacademy.org/math/algebra/solving-linear-equations-and-inequalities/equations_beginner/v/simple-equations)[**Simple equations of the from x/a = b**](http://www.khanacademy.org/math/algebra/solving-linear-equations-and-inequalities/equations_beginner/v/solving-one-step-equations-2)[**Simple equations of the form x + a = b**](http://www.khanacademy.org/math/algebra/solving-linear-equations-and-inequalities/equations_beginner/v/solving-one-step-equations)[**Simple equations: examples involving a variety of forms**](http://www.khanacademy.org/math/algebra/solving-linear-equations-and-inequalities/equations_beginner/v/one-step-equations) |
| **Equations with Variable on Both Sides** |
| [**Solving two-step equations**](http://www.khanacademy.org/math/algebra/solving-linear-equations-and-inequalities/why-of-algebra/v/why-we-do-the-same-thing-to-both-sides-two-step-equations)[**Example: two-step equations**](http://www.khanacademy.org/math/algebra/solving-linear-equations-and-inequalities/equations_beginner/v/two-step-equations)[**Adding and subtracting from both sides of an equation**](http://www.khanacademy.org/math/algebra/solving-linear-equations-and-inequalities/why-of-algebra/v/adding-and-subtracting-the-same-thing-from-both-sides)[**Dividing from both sides of an equation**](http://www.khanacademy.org/math/algebra/solving-linear-equations-and-inequalities/why-of-algebra/v/intuition-why-we-divide-both-sides)[**Example: two-step equation with numerator x**](http://www.khanacademy.org/math/algebra/solving-linear-equations-and-inequalities/equations_beginner/v/solving-equations-1) |
| ***More Complex Equations*** |
| [**Solving a more complicated equation**](http://www.khanacademy.org/math/algebra/solving-linear-equations-and-inequalities/equations_beginner/v/equations-2)[**Variables on both sides**](http://www.khanacademy.org/math/algebra/solving-linear-equations-and-inequalities/basic-equation-practice/v/equations-3)[**Example 1: Variables on both sides**](http://www.khanacademy.org/math/algebra/solving-linear-equations-and-inequalities/basic-equation-practice/v/multi-step-equations-1)[**Example 2: Variables on both sides**](http://www.khanacademy.org/math/algebra/solving-linear-equations-and-inequalities/basic-equation-practice/v/solving-equations-2)[**Solving equations with the distributive property**](http://www.khanacademy.org/math/algebra/solving-linear-equations-and-inequalities/complicated_equations/v/solving-equations-with-the-distributive-property)[**Solving equations with the distributive property 2**](http://www.khanacademy.org/math/algebra/solving-linear-equations-and-inequalities/complicated_equations/v/solving-equations-with-the-distributive-property-2) |
| ***Equations with No Solutions or Infinitely Many Solutions*** |
| [**Equation special cases**](http://www.khanacademy.org/math/algebra/solving-linear-equations-and-inequalities/solutions-linear-equations/v/equation-special-cases)[**Number of solutions to linear equations**](http://www.khanacademy.org/math/algebra/solving-linear-equations-and-inequalities/solutions-linear-equations/v/number-of-solutions-to-linear-equations)[**Number of solutions to linear equations ex 2**](http://www.khanacademy.org/math/algebra/solving-linear-equations-and-inequalities/solutions-linear-equations/v/number-of-solutions-to-linear-equations-ex-2)[**Number of solutions to linear equations ex 3**](http://www.khanacademy.org/math/algebra/solving-linear-equations-and-inequalities/solutions-linear-equations/v/number-of-solutions-to-linear-equations-ex-3)[**Rearrange formulas to isolate specific variables**](http://www.khanacademy.org/math/algebra/solving-linear-equations-and-inequalities/solving_for_variable/v/rearrange-formulas-to-isolate-specific-variables) |
| **Solving Literal Equations for a Variable** |
| [**Solving for a variable**](http://www.khanacademy.org/math/algebra/solving-linear-equations-and-inequalities/solving_for_variable/v/solving-for-a-variable)[**Solving for a variable 2**](http://www.khanacademy.org/math/algebra/solving-linear-equations-and-inequalities/solving_for_variable/v/solving-for-a-variable-2)[**Example: Solving for a variable**](http://www.khanacademy.org/math/algebra/solving-linear-equations-and-inequalities/solving_for_variable/v/example-of-solving-for-a-variable) |
| **Activity 3***Solving Inequalities*3-1 Learning Targets: * Understand what is meant by a solution of an inequality.
* Graph solutions of inequalities on a number line.

3-2 Learning Targets: * Write inequalities to represent real-world situations.
* Solve multi-step inequalities.

3-3 Learning Targets: * Graph compound inequalities.
* Solve compound inequalities.
 | ***One-Step Inequalities*** |
| [**Constructing and solving a one-step inequality**](http://www.khanacademy.org/math/algebra/linear_inequalities/inequalities/v/inequalities)[**One-step inequality involving addition**](http://www.khanacademy.org/math/algebra/linear_inequalities/inequalities/v/one-step-inequalities)[**Inequalities using addition and subtraction**](http://www.khanacademy.org/math/algebra/linear_inequalities/inequalities/v/inequalities-using-addition-and-subtraction)[**Multiplying and dividing with inequalities**](http://www.khanacademy.org/math/algebra/linear_inequalities/inequalities/v/inequalities-using-multiplication-and-division)[**Multiplying and dividing with inequalities example**](http://www.khanacademy.org/math/algebra/linear_inequalities/inequalities/v/one-step-inequalities-2) |
| ***Multi-Step Inequalities*** |
| [**Constructing and solving a two-step inequality**](http://www.khanacademy.org/math/algebra/linear_inequalities/inequalities/v/interpreting-inequalities)[**Constructing, solving a two-step inequality example**](http://www.khanacademy.org/math/algebra/linear_inequalities/inequalities/v/writing-and-using-inequalities-3)[**Solving a two-step inequality**](http://www.khanacademy.org/math/algebra/linear_inequalities/inequalities/v/solving-inequalities)[**Multi-step inequalities**](http://www.khanacademy.org/math/algebra/linear_inequalities/inequalities/v/multi-step-inequalities)[**Multi-step inequalities 2**](http://www.khanacademy.org/math/algebra/linear_inequalities/inequalities/v/multi-step-inequalities-2)[**Multi-step inequalities 3**](http://www.khanacademy.org/math/algebra/linear_inequalities/inequalities/v/multi-step-inequalities-3) |
| ***Compound Inequalities*** |
| [**Compound inequalities**](http://www.khanacademy.org/math/algebra/linear_inequalities/compound_absolute_value_inequali/v/compound-inequalities)[**Compound inequalities**](http://www.khanacademy.org/math/algebra/linear_inequalities/compound_absolute_value_inequali/v/compund-inequalities)[**Compound inequalities 2**](http://www.khanacademy.org/math/algebra/linear_inequalities/compound_absolute_value_inequali/v/compund-inequalities-2)[**Compound inequalities 3**](http://www.khanacademy.org/math/algebra/linear_inequalities/compound_absolute_value_inequali/v/compound-inequalities-3)[**Compound inequalities 4**](http://www.khanacademy.org/math/algebra/linear_inequalities/compound_absolute_value_inequali/v/compound-inequalities-4) |
| **Activity 4***Absolute Value Equations and Inequalities*4-1 Learning Targets: * Understand what is meant by a solution of an absolute value equation.
* Solve absolute value equations.

4-2 Learning Targets:* Solve absolute value inequalities.
* Graph solutions of absolute value inequalities.
 |  ***Absolute Value Equations***  |
| [**Absolute value equations**](http://www.khanacademy.org/math/algebra/solving-linear-equations-and-inequalities/absolute-value-equations/v/absolute-value-equations)[**Absolute value equations**](http://www.khanacademy.org/math/algebra/solving-linear-equations-and-inequalities/absolute-value-equations/v/u02-l2-t2-we1-absolute-value-equations-avi)[**Absolute value equations 1**](http://www.khanacademy.org/math/algebra/solving-linear-equations-and-inequalities/absolute-value-equations/v/absolute-value-equations-1)[**Absolute value equations example 1**](http://www.khanacademy.org/math/algebra/solving-linear-equations-and-inequalities/absolute-value-equations/v/absolute-value-equations-example-1)[**Absolute value equation example 2**](http://www.khanacademy.org/math/algebra/solving-linear-equations-and-inequalities/absolute-value-equations/v/absolute-value-equation-example-2)[**Absolute value equation example**](http://www.khanacademy.org/math/algebra/solving-linear-equations-and-inequalities/absolute-value-equations/v/absolute-value-equation-example)[**Absolute value equation with no solution**](http://www.khanacademy.org/math/algebra/solving-linear-equations-and-inequalities/absolute-value-equations/v/absolute-value-equation-with-no-solution) |
| ***Absolute Value Inequalities***  |
| [**Absolute value inequalities**](http://www.khanacademy.org/math/algebra/solving-linear-equations-and-inequalities/absolute-value-equations/v/absolute-value-inequalities)[**Absolute value inequalities example 1**](http://www.khanacademy.org/math/algebra/solving-linear-equations-and-inequalities/absolute-value-equations/v/absolute-value-inequalities-example-1)[**Absolute inequalities 2**](http://www.khanacademy.org/math/algebra/solving-linear-equations-and-inequalities/absolute-value-equations/v/absolute-inequalities-2)[**Absolute value inequalities example 3**](http://www.khanacademy.org/math/algebra/solving-linear-equations-and-inequalities/absolute-value-equations/v/absolute-value-inequalities-example-3) |
| **Unit 2: Functions** |
| **Activity 5***Functions and Function Notation*5-1 Learning Targets: * Represent relations and functions using tables, diagrams, and graphs.
* Identify relations that are functions.

5-2 Learning Targets: * Describe the domain and range of a function.
* Find input-output pairs for a function.

5-3 Learning Targets:* Use and interpret function notation.
* Evaluate a function for specific values of the domain.
 | ***Relations and Functions***  |
| [**What is a function?**](http://www.khanacademy.org/math/algebra/algebra-functions/relationships_functions/v/what-is-a-function)[**Relations and functions**](http://www.khanacademy.org/math/algebra/algebra-functions/relationships_functions/v/relations-and-functions)[**Recognizing functions (example 1)**](http://www.khanacademy.org/math/algebra/algebra-functions/recognizing-functions/v/recognizing-functions-example-1) |
| ***Domain and Range***  |
| [**Domain and range of a relation**](http://www.khanacademy.org/math/algebra/algebra-functions/domain_and_range/v/domain-and-range-of-a-relation)[**Domain and range of a function**](http://www.khanacademy.org/math/algebra/algebra-functions/domain_and_range/v/domain-and-range-of-a-function)[**Domain and range 1**](http://www.khanacademy.org/math/algebra/algebra-functions/domain_and_range/v/domain-and-range-1) |
| ***Function Notation***  |
| [**Evaluating with function notation**](http://www.khanacademy.org/math/algebra/algebra-functions/relationships_functions/v/linear-function-graphs)[**Understanding function notation (example 1)**](http://www.khanacademy.org/math/algebra/algebra-functions/relationships_functions/v/understanding-function-notation-example-1)[**Understanding function notation (example 2)**](http://www.khanacademy.org/math/algebra/algebra-functions/relationships_functions/v/understanding-function-notation-example-2)[**Understanding function notation (example 3)**](http://www.khanacademy.org/math/algebra/algebra-functions/relationships_functions/v/understanding-function-notation-example-3) |
| **Activity 6***Graphs of Functions*6-1 Learning Targets: * Relate the domain and range of a function to its graph.
* Identify and interpret key features of graphs.

6-2 Learning Targets: * Relate the domain and range of a function to its graph and to its function rule.
* Identify and interpret key features of graphs.

6-3 Learning Targets: * Identify and interpret key features of graphs.
* Determine the reasonable domain and range for a real-world situation.
 | ***Graphs of Functions*** |
| [**Functions as graphs**](http://www.khanacademy.org/math/algebra/algebra-functions/recognizing-functions/v/functions-as-graphs)[**Domain and range from graphs**](http://www.khanacademy.org/math/algebra/algebra-functions/domain_and_range/v/domain-and-range-from-graphs)[**Graphical relations and functions**](http://www.khanacademy.org/math/algebra/algebra-functions/recognizing-functions/v/graphical-relations-and-functions)[**Testing if a relationship is a function**](http://www.khanacademy.org/math/algebra/algebra-functions/recognizing-functions/v/testing-if-a-relationship-is-a-function)[**Interpreting a graph exercise example**](http://www.khanacademy.org/math/algebra/algebra-functions/graphing_functions/v/interpreting-a-graph-exercise-example) |
| **Activity 7***Graphs of Functions*7-1 Learning Targets: * Graph a function given a table.
* Write an equation for a function given a table or graph.

7-2 Learning Targets: * Graph a function describing a real-world situation and identify and interpret key features of the graph.

7-3 Learning Targets: * Given a verbal description of a function, make a table and a graph of the function.
* Graph a function and identify and interpret key features of the graph.
 | **Graphs of Functions** |
| [**Graphing exponential functions**](http://www.khanacademy.org/math/algebra/algebra-functions/graphing_functions/v/graphing-exponential-functions)[**Interpreting a graph exercise example**](http://www.khanacademy.org/math/algebra/algebra-functions/graphing_functions/v/interpreting-a-graph-exercise-example) |
| **Activity 8***Transformations of Functions*8-1 Learning Targets:* Identify the effect on the graph of replacing f(x) by f(x) + k.
* Identify the transformation used to produce one graph from another.
 | **N/A** |
| **Activity 9***Rates of Change*9-1 Learning Targets:* Determine the slope of a line from a graph.
* Develop and use the formula for slope.

9-2 Learning Targets:* Calculate and interpret the rate of change for a function.
* Understand the connection between rate of change and slope.

9-3 Learning Targets:* Show that a linear function has a constant rate of change.
* Understand when the slope of a line is positive, negative, zero, or undefined.
* Identify functions that do not have a constant rate of change and understand that these functions are not linear.
 | ***Slope*** |
| [**Slope of a line**](http://www.khanacademy.org/math/algebra/linear-equations-and-inequalitie/slope-and-intercepts/v/slope-of-a-line)[**Slope of a line 2**](http://www.khanacademy.org/math/algebra/linear-equations-and-inequalitie/slope-and-intercepts/v/slope-of-a-line-2)[**Slope of a line 3**](http://www.khanacademy.org/math/algebra/linear-equations-and-inequalitie/slope-and-intercepts/v/slope-of-a-line-3)[**Graphical slope of a line**](http://www.khanacademy.org/math/algebra/linear-equations-and-inequalitie/slope-and-intercepts/v/graphical-slope-of-a-line)[**Slope example**](http://www.khanacademy.org/math/algebra/linear-equations-and-inequalitie/slope-and-intercepts/v/slope-example) |
| ***Slope and Rate of Change*** |
| [**Slope and rate of change**](http://www.khanacademy.org/math/algebra/linear-equations-and-inequalitie/slope-and-intercepts/v/slope-and-rate-of-change) |
| **Activity 10***Linear Models*10-1 Learning Targets:* Write and graph direct variation.
* Identify the constant of variation.

10-2 Learning Targets:* Write and graph indirect variations.
* Distinguish between direct and indirect variation.

10-3 Learning Targets:* Write, graph, and analyze a linear model for a real-world situation.
* Interpret aspects of a model in terms of the real-world situation.

10-4 Learning Targets:* Write the inverse function for a linear function.
* Determine the domain and range of an inverse function.
 | ***Variation*** |
| [**Direct and inverse variation**](http://www.khanacademy.org/math/algebra-basics/core-algebra-linear-equations-inequalities/core-algebra-direct_inverse_variation/v/direct-and-inverse-variation)[**Recognizing direct and inverse variation**](http://www.khanacademy.org/math/algebra-basics/core-algebra-linear-equations-inequalities/core-algebra-direct_inverse_variation/v/recognizing-direct-and-inverse-variation)[**Proportionality constant for direct variation**](http://www.khanacademy.org/math/algebra-basics/core-algebra-linear-equations-inequalities/core-algebra-direct_inverse_variation/v/proportionality-constant-for-direct-variation)[**Direct variation 1**](http://www.khanacademy.org/math/algebra-basics/core-algebra-linear-equations-inequalities/core-algebra-direct_inverse_variation/v/direct-variation-1)[**Direct variation application**](http://www.khanacademy.org/math/algebra-basics/core-algebra-linear-equations-inequalities/core-algebra-direct_inverse_variation/v/direct-variation-application) |
| ***Inverse Functions*** |
| [**Introduction to function inverses**](http://www.khanacademy.org/math/algebra/algebra-functions/function_inverses/v/introduction-to-function-inverses)[**Function inverse example 1**](http://www.khanacademy.org/math/algebra/algebra-functions/function_inverses/v/function-inverse-example-1)[**Function inverses example 2**](http://www.khanacademy.org/math/algebra/algebra-functions/function_inverses/v/function-inverses-example-2)[**Function inverses example 3**](http://www.khanacademy.org/math/algebra/algebra-functions/function_inverses/v/function-inverses-example-3) |
| **Activity 11***Arithmetic Sequences*11-1 Learning Targets:* Identify sequences that are arithmetic sequences.
* Use the common difference to determine a specified term of an arithmetic sequence.

11-2 Learning Targets:* Develop an explicit formula for the nth term of an arithmetic sequence.
* Use an explicit formula to find any term of an arithmetic sequence.
* Write a formula for an arithmetic sequence given two terms or a graph.

11-3 Learning Targets:* Use function notation to write a general formula for the nth term of an arithmetic sequence.
* Find any term of an arithmetic sequence written as a function.

11-4 Learning Targets:* Write a recursive formula for a given arithmetic sequence.
* Use a recursive formula to find the terms of an arithmetic sequence.
 | ***Arithmetic Sequences*** |
| [**Arithmetic sequences**](https://www.khanacademy.org/math/precalculus/seq_induction/seq_and_series/v/arithmetic-sequences)[**Explicit and recursive definitions of sequences**](https://www.khanacademy.org/math/precalculus/seq_induction/seq_and_series/v/explicit-and-recursive-definitions-of-sequences) |
| **Activity 12***Forms of Linear Functions*12-1 Learning Targets:* Write the equation of a line in slope-intercept form.
* Use slope-intercept form to solve problems.

12-2 Learning Targets:* Write the equation of a line in point-slope form.
* Use point-slope form to solve problems.

12-3 Learning Targets:* Write the equation of a line in standard form.
* Use the standard form of a linear equation to solve problems.

12-4 Learning Targets:* Describe the relationship among the slopes of parallel lines and perpendicular lines.
* Write an equation of a line that contains a given point and is parallel or perpendicular to a given line.
 | ***Slope-Intercept Form***  |
| [**Constructing linear equations to solve word problems**](http://www.khanacademy.org/math/algebra/linear-equations-and-inequalitie/equation-of-a-line/v/word-problem-solving-4)[**Graphing a line in slope-intercept form**](http://www.khanacademy.org/math/algebra/linear-equations-and-inequalitie/graphing-slope-intercept/v/graphing-a-line-in-slope-intercept-form)[**Converting to slope-intercept form**](http://www.khanacademy.org/math/algebra/linear-equations-and-inequalitie/graphing-slope-intercept/v/converting-to-slope-intercept-form)[**Multiple examples of constructing linear equations in slope-intercept form**](http://www.khanacademy.org/math/algebra/linear-equations-and-inequalitie/equation-of-a-line/v/linear-equations-in-slope-intercept-form)[**Slope-intercept form from table**](http://www.khanacademy.org/math/algebra/linear-equations-and-inequalitie/equation-of-a-line/v/slope-intercept-form-from-table)[**Constructing equations in slope-intercept form from graphs**](http://www.khanacademy.org/math/algebra/linear-equations-and-inequalitie/equation-of-a-line/v/graphs-using-slope-intercept-form)[**Graphing using x- and y-intercepts**](http://www.khanacademy.org/math/algebra/linear-equations-and-inequalitie/graphing_with_intercepts/v/graphing-using-x-and-y-intercepts)[**Graphing using intercepts**](http://www.khanacademy.org/math/algebra/linear-equations-and-inequalitie/graphing_with_intercepts/v/graphing-using-intercepts)[**x- and y-intercepts**](http://www.khanacademy.org/math/algebra/linear-equations-and-inequalitie/graphing_with_intercepts/v/x-and-y-intercepts)[**x- and y-intercepts 2**](http://www.khanacademy.org/math/algebra/linear-equations-and-inequalitie/graphing_with_intercepts/v/x-and-y-intercepts-2)[**Finding x-intercept of a line**](http://www.khanacademy.org/math/algebra/linear-equations-and-inequalitie/graphing_with_intercepts/v/finding-x-intercept-of-a-line)[**Finding intercepts for a linear function from a table**](http://www.khanacademy.org/math/algebra/linear-equations-and-inequalitie/graphing_with_intercepts/v/finding-intercepts-for-a-linear-function-from-a-table)[**Interpreting intercepts of linear functions**](http://www.khanacademy.org/math/algebra/linear-equations-and-inequalitie/graphing_with_intercepts/v/interpreting-intercepts-of-linear-functions) |
| ***Point-Slope Form***  |
| [**Linear equation from slope and a point**](http://www.khanacademy.org/math/algebra/linear-equations-and-inequalitie/equation-of-a-line/v/equation-of-a-line-1)[**Finding a linear equation given a point and slope**](http://www.khanacademy.org/math/algebra/linear-equations-and-inequalitie/equation-of-a-line/v/equation-of-a-line-2)[**Converting from point-slope to slope intercept form**](http://www.khanacademy.org/math/algebra/linear-equations-and-inequalitie/point-slope-form/v/converting-from-point-slope-to-slope-intercept-form)[**Constructing the equation of a line given two points**](http://www.khanacademy.org/math/algebra/linear-equations-and-inequalitie/equation-of-a-line/v/equation-of-a-line-3) |
| ***Standard Form***  |
| [**Linear equations in standard form**](http://www.khanacademy.org/math/algebra/linear-equations-and-inequalitie/point-slope-form/v/linear-equations-in-standard-form)[**Point-slope and standard form**](http://www.khanacademy.org/math/algebra/linear-equations-and-inequalitie/point-slope-form/v/point-slope-and-standard-form) |
| ***Slopes of Parallel and Perpendicular Lines***  |
| [**Equations of parallel and perpendicular lines**](http://www.khanacademy.org/math/algebra/linear-equations-and-inequalitie/more-analytic-geometry/v/equations-of-parallel-and-perpendicular-lines)[**Parallel lines 3**](http://www.khanacademy.org/math/algebra/linear-equations-and-inequalitie/more-analytic-geometry/v/parallel-lines-3) **geometry**[**Perpendicular lines**](http://www.khanacademy.org/math/algebra/linear-equations-and-inequalitie/more-analytic-geometry/v/perpendicular-lines) **geoemtry**[**Perpendicular lines 2**](http://www.khanacademy.org/math/algebra/linear-equations-and-inequalitie/more-analytic-geometry/v/perpendicular-lines-2) **geometry**[**Perpendicular line slope**](http://www.khanacademy.org/math/algebra/linear-equations-and-inequalitie/point-slope-form/v/converting-from-point-slope-to-slope-intercept-form) **geometry** |
| **Activity 13***Equations from Data*13-1 Learning Targets:* Use collected data to make a scatter plot.
* Determine the equation of a trend line.

13-2 Learning Targets:* Use a linear model to make predictions.
* Use technology to perform a linear regression.

13-3 Learning Targets:* Use technology to perform quadratic and exponential regressions, and then make predictions.
* Compare and contrast linear, quadratic, and exponential regressions.
 | ***Scatter Plots*** |
| [**Constructing a scatter plot**](http://www.khanacademy.org/math/probability/regression/prob-stats-scatter-plots/v/constructing-scatter-plot)[**Constructing scatter plot exercise example**](http://www.khanacademy.org/math/probability/regression/prob-stats-scatter-plots/v/constructing-scatter-plot-exercise-example)[**Correlation and causality**](http://www.khanacademy.org/math/probability/regression/regression-correlation/v/correlation-and-causality) |
| ***Trend Lines*** |
| [**Fitting a line to data**](http://www.khanacademy.org/math/probability/regression/regression-correlation/v/fitting-a-line-to-data)[**Comparing models to fit data**](http://www.khanacademy.org/math/probability/regression/prob-stats-scatter-plots/v/comparing-models-to-fit-data)[**Estimating the line of best fit exercise**](http://www.khanacademy.org/math/probability/regression/regression-correlation/v/estimating-the-line-of-best-fit-exercise)[**Interpreting a trend line**](http://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-data/cc-8th-patterns-in-data/v/interpreting-trend-line) |
| **Unit 3: Extensions of Linear Concepts** |
| **Activity 14***Piecewise-Defined Linear Functions**14-1* Learning Targets* Use function notation and interpret statements that use function notation in terms of a context.
* Calculate the rate of change of a linear function presented in multiple representation.

14-2 Learning Targets* Write linear equations in two variables given a table of values, a graph, or a verbal description.
* Determine the domain and range of a linear function, determine their reasonableness, and represent them using inequalities.

14-3 Learning Targets* Evaluate a function at specific inputs within the function's domain.
* Graph piecewise-defined functions.
 | **N/A** |
| **Activity 15***Comparing Equations*15-1 Learning Targets:* Write a linear equation given a graph or a table.
* Analyze key features of a function given its graph.

15-2 Learning Targets:* Graph and analyze functions on the same coordinate plane.
* Write inequalities to represent real-world situations.

15-3 Learning Targets:* Write a linear equation given a verbal description.
* Graph and analyze functions on the same coordinate plane.
 | ***Writing and Graphing Equations*** |
| [**Exploring linear relationships**](http://www.khanacademy.org/math/algebra/linear-equations-and-inequalitie/graphing_solutions2/v/exploring-linear-relationships)[**Linear equation word problem**](http://www.khanacademy.org/math/algebra/solving-linear-equations-and-inequalities/linear-equation-word-problems-tu/v/linear-equation-word-problem-example)[**Graphs of linear equations**](http://www.khanacademy.org/math/algebra/linear-equations-and-inequalitie/graphing_solutions2/v/graphs-of-linear-equations)[**Interpreting linear graphs**](http://www.khanacademy.org/math/algebra/linear-equations-and-inequalitie/graphing_solutions2/v/interpreting-linear-graphs)[**Interpreting a graph exercise example**](http://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-relationships-functions/linear-nonlinear-functions-tut/v/interpreting-a-graph-exercise-example)[**Application problem with graph**](http://www.khanacademy.org/math/algebra/linear-equations-and-inequalitie/graphing_solutions2/v/application-problem-with-graph) |
| **Activity 16***Inequalities in Two Variables*16-1 Learning Targets:* Write linear inequalities in two variables.
* Read and interpret the graph of the solutions of a linear inequality in two variables.

16-2 Learning Targets:* Graph on a coordinate plane the solutions of a linear inequality in two variables.
* Interpret the graph of the solutions of a linear inequality in two variables.
 | ***Graphing Linear Inequalities*** |
| [**Graphing inequalities**](http://www.khanacademy.org/math/algebra/linear-equations-and-inequalitie/graphing-linear-inequalities/v/graphing-inequalities)[**Graphing inequalities 1**](http://www.khanacademy.org/math/algebra/linear-equations-and-inequalitie/graphing-linear-inequalities/v/graphing-inequalities-1)[**Graphing inequalities 2**](http://www.khanacademy.org/math/algebra/linear-equations-and-inequalitie/graphing-linear-inequalities/v/graphing-inequalities-2)[**Solving and graphing linear inequalities in two variables 1**](http://www.khanacademy.org/math/algebra/linear-equations-and-inequalitie/graphing-linear-inequalities/v/solving-and-graphing-linear-inequalities-in-two-variables-1)[**Graphing linear inequalities in two variables example 2**](http://www.khanacademy.org/math/algebra/linear-equations-and-inequalitie/graphing-linear-inequalities/v/graphing-linear-inequalities-in-two-variables-example-2)[**Graphing linear inequalities in two variables 3**](http://www.khanacademy.org/math/algebra/linear-equations-and-inequalitie/graphing-linear-inequalities/v/graphing-linear-inequalities-in-two-variables-3) |
| **Activity 17***Solving Systems of Linear Equations*17-1 Learning Targets:* Solve a system of linear equations by graphing.
* Interpret the solution of a system of linear equations.

17-2 Learning Targets:* Solve a system of linear equations using a table or the substitution method.
* Interpret the solution of a system of linear equations.

17-3 Learning Targets:* Use the elimination method to solve a system of linear equations.
* Write a system of linear equations to model a situation.

17-4 Learning Targets:* Explain when a system of linear equations has no solution.
* Explain when a system of linear equations has infinitely many solutions.

17-5 Learning Targets:* Determine the number of solutions of a system of equations.
* Classify a system of linear equations as independent or dependent and as consistent or inconsistent.
 | ***Solving Systems by Graphing*** |
| [**Solving linear systems by graphing**](http://www.khanacademy.org/math/algebra/systems-of-eq-and-ineq/systems-through-examples/v/solving-linear-systems-by-graphing)[**Solving systems graphically**](http://www.khanacademy.org/math/algebra/systems-of-eq-and-ineq/systems-through-examples/v/solving-systems-graphically)[**Graphing systems of equations**](http://www.khanacademy.org/math/algebra/systems-of-eq-and-ineq/systems-through-examples/v/graphings-systems-of-equations)[**Graphical systems application problem**](http://www.khanacademy.org/math/algebra/systems-of-eq-and-ineq/systems-through-examples/v/graphical-systems-application-problem)[**Example 2: Graphically solving systems**](http://www.khanacademy.org/math/algebra/systems-of-eq-and-ineq/systems-through-examples/v/solving-systems-by-graphing-2)[**Example 3: Graphically solving systems**](http://www.khanacademy.org/math/algebra/systems-of-eq-and-ineq/systems-through-examples/v/solving-systems-by-graphing-3) |
| ***Solving Systems with Tables and Substitution***  |
| [**Example 1: Solving systems by substitution**](http://www.khanacademy.org/math/algebra/systems-of-eq-and-ineq/systems-with-substitution/v/solving-systems-by-substitution-1)[**Example 2: Solving systems by substitution**](http://www.khanacademy.org/math/algebra/systems-of-eq-and-ineq/systems-with-substitution/v/solving-systems-by-substitution-2)[**Example 3: Solving systems by substitution**](http://www.khanacademy.org/math/algebra/systems-of-eq-and-ineq/systems-with-substitution/v/solving-systems-by-substitution-3)[**The substitution method**](http://www.khanacademy.org/math/algebra/systems-of-eq-and-ineq/systems-with-substitution/v/the-substitution-method)[**Substitution method 2**](http://www.khanacademy.org/math/algebra/systems-of-eq-and-ineq/systems-with-substitution/v/substitution-method-2)[**Substitution method 3**](http://www.khanacademy.org/math/algebra/systems-of-eq-and-ineq/systems-with-substitution/v/substitution-method-3)[**Practice using substitution for systems**](http://www.khanacademy.org/math/algebra/systems-of-eq-and-ineq/systems-with-substitution/v/practice-using-substitution-for-systems) |
| ***Solving Systems using the Elimination Method***  |
| [**Example 1: Solving systems by elimination**](http://www.khanacademy.org/math/algebra/systems-of-eq-and-ineq/solving-systems-addition-elimination/v/solving-systems-by-elimination)[**Example 2: Solving systems by elimination**](http://www.khanacademy.org/math/algebra/systems-of-eq-and-ineq/solving-systems-addition-elimination/v/solving-systems-by-elimination-2)[**Example 3: Solving systems by elimination**](http://www.khanacademy.org/math/algebra/systems-of-eq-and-ineq/solving-systems-addition-elimination/v/solving-systems-by-elimination-3)[**Addition elimination method 1**](http://www.khanacademy.org/math/algebra/systems-of-eq-and-ineq/solving-systems-addition-elimination/v/addition-elimination-method-1)[**Addition elimination method 2**](http://www.khanacademy.org/math/algebra/systems-of-eq-and-ineq/solving-systems-addition-elimination/v/addition-elimination-method-2)[**Addition elimination method 3**](http://www.khanacademy.org/math/algebra/systems-of-eq-and-ineq/solving-systems-addition-elimination/v/addition-elimination-method-3)[**Addition elimination method 4**](http://www.khanacademy.org/math/algebra/systems-of-eq-and-ineq/solving-systems-addition-elimination/v/addition-elimination-method-4)[**Simple elimination practice**](http://www.khanacademy.org/math/algebra/systems-of-eq-and-ineq/solving-systems-addition-elimination/v/simple-elimination-practice)[**Systems with elimination practice**](http://www.khanacademy.org/math/algebra/systems-of-eq-and-ineq/solving-systems-addition-elimination/v/systems-with-elimination-practice) |
| ***Systems Without a Unique Solution***  |
| [**Infinite solutions to systems**](http://www.khanacademy.org/math/algebra/systems-of-eq-and-ineq/systems-solutions/v/infinite-solutions-to-systems)[**Constructing solutions to systems of equations**](http://www.khanacademy.org/math/algebra/systems-of-eq-and-ineq/systems-solutions/v/constructing-solutions-to-systems-of-equations)[**Practice thinking about number of solutions to systems**](http://www.khanacademy.org/math/algebra/systems-of-eq-and-ineq/systems-solutions/v/practice-thinking-about-number-of-solutions-to-systems) |
| ***Classifying Systems of Equations***  |
| [**Consistent and inconsistent systems**](http://www.khanacademy.org/math/algebra/systems-of-eq-and-ineq/systems-solutions/v/consistent-and-inconsistent-systems)[**Inconsistent systems of equations**](http://www.khanacademy.org/math/algebra/systems-of-eq-and-ineq/systems-solutions/v/inconsistent-systems-of-equations)[**Independent and dependent systems**](http://www.khanacademy.org/math/algebra/systems-of-eq-and-ineq/systems-solutions/v/independent-and-dependent-systems) |
| **Activity 18***Solving Systems of Linear Inequalities*18-1 Learning Targets:* Determine whether an ordered pair is a solution of a system of linear inequalities.
* Graph the solutions of a system of linear inequalities.

18-2 Learning Targets:* Identify solutions to systems of linear inequalities when the solution region is determined by parallel lines.
* Interpret solutions of systems of linear inequalities.
 | ***Solving Systems of Linear Inequalities*** |
| [**Testing solutions for a system of inequalities**](http://www.khanacademy.org/math/algebra/systems-of-eq-and-ineq/system-of-inequalities/v/testing-solutions-for-a-system-of-inequalities)[**Visualizing the solution set for a system of inequalities**](http://www.khanacademy.org/math/algebra/systems-of-eq-and-ineq/system-of-inequalities/v/graphical-system-of-inequalities)[**Graphing systems of inequalities**](http://www.khanacademy.org/math/algebra/systems-of-eq-and-ineq/system-of-inequalities/v/graphing-systems-of-inequalities-2)[**Graphing systems of inequalities 2**](http://www.khanacademy.org/math/algebra/systems-of-eq-and-ineq/system-of-inequalities/v/u06-l3-t1-we3-graphing-systems-of-inequalities) |
| **Unit 4: Exponents, Radicals, and Polynomials** |
| **Activity 19***Exponent Rules*19-1 Learning Targets:* Develop basic exponent properties.
* Simplify expressions involving exponents.

19-2 Learning Targets:* Understand what is meant by negative and zero powers.
* Simplify expressions involving exponents.

19-3 Learning Targets:* Develop the Power of a Power, Power of a Product, and the Power of a Quotient Properties.
* Simplify expressions involving exponents.
 | ***Basic Exponent Properties***  |
| [**Exponent properties 1**](https://www.khanacademy.org/math/algebra/exponent-equations/exponent-properties-algebra/v/exponent-properties-1)[**Exponent properties 2**](https://www.khanacademy.org/math/algebra/exponent-equations/exponent-properties-algebra/v/exponent-properties-2) |
| ***Negative and Zero Powers***  |
| [**Introduction to negative exponents**](http://www.khanacademy.org/math/algebra/exponent-equations/alg-integer-exponents/v/introduction-to-negative-exponents)[**Thinking more about negative exponents**](https://www.khanacademy.org/math/algebra/exponent-equations/alg-integer-exponents/v/thinking-more-about-negative-exponents)[**More negative exponent intuition**](https://www.khanacademy.org/math/algebra/exponent-equations/alg-integer-exponents/v/more-negative-exponent-intuition) |
| ***Additional Properties of Exponents***  |
| [**Products and exponents raised to an exponent properties**](https://www.khanacademy.org/math/algebra/exponent-equations/alg-integer-exponents/v/products-and-exponents-raised-to-an-exponent-properties)[**Negative and positive exponents**](https://www.khanacademy.org/math/algebra/exponent-equations/exponent-properties-algebra/v/negative-and-positive-exponents)[**Exponent properties 3**](https://www.khanacademy.org/math/algebra/exponent-equations/exponent-properties-algebra/v/exponent-properties-3)[**Exponent properties 4**](https://www.khanacademy.org/math/algebra/exponent-equations/exponent-properties-algebra/v/exponent-properties-4)[**Exponent properties 5**](https://www.khanacademy.org/math/algebra/exponent-equations/exponent-properties-algebra/v/exponent-properties-5)[**Exponent properties 6**](https://www.khanacademy.org/math/algebra/exponent-equations/exponent-properties-algebra/v/exponent-properties-6)[**Exponent properties 7**](https://www.khanacademy.org/math/algebra/exponent-equations/exponent-properties-algebra/v/exponent-properties-7) |
| **Activity 20***Operations with Radicals*20-1 Learning Targets:* Write and simplify radical expressions.
* Understand what is meant by a rational exponent.

20-2 Learning Targets:* Add radical expressions.
* Subtract radical expressions.

20-3 Learning Targets:* Multiply and divide radical expressions.
* Rationalize the denominator of a radical expression.
 | ***Operations with Radicals*** |
| [**Radical equivalent to rational exponents**](http://www.khanacademy.org/math/algebra/exponent-equations/simplifying-radical-expressions/v/radical-equivalent-to-rational-exponents)[**Radical equivalent to rational exponents 2**](http://www.khanacademy.org/math/algebra/exponent-equations/simplifying-radical-expressions/v/radical-equivalent-to-rational-exponents-2)[**Multiply and simplify a radical expression 1**](http://www.khanacademy.org/math/algebra/exponent-equations/simplifying-radical-expressions/v/multiply-and-simplify-a-radical-expression-1)[**Simplifying square roots**](http://www.khanacademy.org/math/algebra/exponent-equations/simplifying-radical-expressions/v/simplifying-square-roots)[**Radical expressions with higher roots**](http://www.khanacademy.org/math/algebra/exponent-equations/simplifying-radical-expressions/v/radical-expressions-with-higher-roots)[**Subtracting and simplifying radicals**](http://www.khanacademy.org/math/algebra/exponent-equations/simplifying-radical-expressions/v/subtracting-and-simplifying-radicals)[**Simplifying cube roots**](http://www.khanacademy.org/math/algebra/exponent-equations/simplifying-radical-expressions/v/simplifying-cube-roots) |
| **Activity 21***Geometric Sequences*21-1 Learning Targets:* Identify geometric sequences and the common ratio in a geometric sequence.
* Distinguish between arithmetic and geometric sequences.

21-2 Learning Targets:* Write a recursive formula for a geometric sequence.
* Write an explicit formula for a geometric sequence.
* Use a formula to find a given term of a geometric sequence.
 | ***Geometric Sequences*** |
| [**Geometric sequences introduction**](http://www.khanacademy.org/math/precalculus/seq_induction/precalc-geometric-sequences/v/geometric-sequences-introduction) |
| **Activity 22***Exponential Functions*22-1 Learning Targets:* Understand the definition of an exponential function.
* Graph and analyze exponential growth functions.

22-2 Learning Targets:* Describe characteristics of exponential decay functions.
* Graph and analyze exponential decay functions.

22-3 Learning Targets:* Describe key features of graphs of exponential functions.
* Compare graphs of exponential and linear functions.
 | ***Exponential Functions*** |
| [**Graphing exponential functions**](http://www.khanacademy.org/math/algebra/algebra-functions/graphing_functions/v/graphing-exponential-functions)[**Exponential growth functions**](http://www.khanacademy.org/math/algebra2/exponential_and_logarithmic_func/exp_growth_decay/v/exponential-growth-functions)[**Understanding linear and exponential models**](http://www.khanacademy.org/math/algebra2/exponential_and_logarithmic_func/exp_growth_decay/v/linear-exponential-models)[**Constructing linear and exponential functions from data**](http://www.khanacademy.org/math/algebra2/exponential_and_logarithmic_func/exp_growth_decay/v/constructing-linear-and-exponential-functions-from-data) |
| **Activity 23***Modeling with Exponential Functions*23-1 Learning Targets:* Create an exponential function to model compound interest,

23-2 Learning Targets:* Create an exponential function to fit population data.
* Interpret values in an exponential function.
 | ***Examples of Exponential Functions*** |
| [**Introduction to compound interest**](http://www.khanacademy.org/economics-finance-domain/core-finance/interest-tutorial/compound-interest-tutorial/v/introduction-to-compound-interest)[**Exponential growth and decay word problems**](http://www.khanacademy.org/math/algebra2/exponential_and_logarithmic_func/exponential-modeling/v/word-problem-solving-exponential-growth-and-decay)[**Decay of cesium 137 example**](http://www.khanacademy.org/math/algebra2/exponential_and_logarithmic_func/exponential-modeling/v/decay-of-cesium-137-example)[**Modeling ticket fines with exponential function**](http://www.khanacademy.org/math/algebra2/exponential_and_logarithmic_func/exponential-modeling/v/modeling-ticket-fines-with-exponential-function) |
| **Activity 24***Adding and Subtracting Polynomials*24-1 Learning Targets:* Identify parts of a polynomial.
* Identify the degree of a polynomial.

24-2 Learning Targets:* Use algebra tiles to add polynomials.
* Add polynomials algebraically.

24-3 Learning Targets:* Subtract polynomials algebraically.
 | ***Adding and Subtracting Polynomials*** |
| [**Terms coefficients and exponents in a polynomial**](http://www.khanacademy.org/math/algebra/multiplying-factoring-expression/polynomial_basics/v/terms-coefficients-and-exponents-in-a-polynomial)[**Adding polynomials**](http://www.khanacademy.org/math/algebra/multiplying-factoring-expression/polynomial_basics/v/adding-polynomials)[**Polynomials 2**](http://www.khanacademy.org/math/algebra/multiplying-factoring-expression/polynomial_basics/v/polynomials-2)[**Example: Adding polynomials with multiple variables**](http://www.khanacademy.org/math/algebra/multiplying-factoring-expression/polynomial_basics/v/example-adding-polynomials-with-multiple-variables)[**Subtracting polynomials**](http://www.khanacademy.org/math/algebra/multiplying-factoring-expression/polynomial_basics/v/subtracting-polynomials)[**Subtracting polynomials with multiple variables**](http://www.khanacademy.org/math/algebra/multiplying-factoring-expression/polynomial_basics/v/subtracting-polynomials-with-multiple-variables)[**Addition and subtraction of polynomials**](http://www.khanacademy.org/math/algebra/multiplying-factoring-expression/polynomial_basics/v/addition-and-subtraction-of-polynomials)[**Adding and subtracting polynomials 1**](http://www.khanacademy.org/math/algebra/multiplying-factoring-expression/polynomial_basics/v/adding-and-subtracting-polynomials-1)[**Adding and subtracting polynomials 2**](http://www.khanacademy.org/math/algebra/multiplying-factoring-expression/polynomial_basics/v/adding-and-subtracting-polynomials-2)[**Adding and subtracting polynomials 3**](http://www.khanacademy.org/math/algebra/multiplying-factoring-expression/polynomial_basics/v/adding-and-subtracting-polynomials-3) |
| **Activity 25***Multiplying Polynomials*25-1 Learning Targets:* Use a graphic organizer to multiply expressions.
* Use the Distributive Property to multiply expressions.

25-2 Learning Targets:* Multiply binomials.
* Find special products of binomials.

25-3 Learning Targets:* Use a graphic organizer to multiply polynomials.
* Use the Distributive Property to multiply polynomials.
 | ***Multiplying Polynomials*** |
| [**Multiplying binomials and polynomials**](http://www.khanacademy.org/math/algebra/multiplying-factoring-expression/multiplying-binomials/v/multiplication-of-polynomials)[**Multiplying binomials word problems**](http://www.khanacademy.org/math/algebra/multiplying-factoring-expression/multiplying-binomials/v/multiplying-polynomials-2)[**FOIL for multiplying binomials**](http://www.khanacademy.org/math/algebra/multiplying-factoring-expression/multiplying-binomials/v/multiplying-binomials)[**FOIL method for multiplying binomials example 2**](http://www.khanacademy.org/math/algebra/multiplying-factoring-expression/multiplying-binomials/v/multiplying-polynomials1) |
| ***Special Products of Binomials*** |
| [**Square a binomial**](http://www.khanacademy.org/math/algebra/multiplying-factoring-expression/multiplying-binomials/v/square-a-binomial)[**Squaring a binomial**](http://www.khanacademy.org/math/algebra/multiplying-factoring-expression/multiplying-binomials/v/special-products-of-polynomials-1)[**Squaring a binomial example 2**](http://www.khanacademy.org/math/algebra/multiplying-factoring-expression/multiplying-binomials/v/special-products-of-polynomials-2)[**Special products of binomials**](http://www.khanacademy.org/math/algebra/multiplying-factoring-expression/multiplying-binomials/v/special-products-of-binomials)[**Multiplying binomials to get difference of squares**](http://www.khanacademy.org/math/algebra/multiplying-factoring-expression/multiplying-binomials/v/special-polynomials-products-1) |
| **Activity 26***Factoring*26-1 Learning Targets:* Identify the GCF of the terms in a polynomial.
* Factor the GCF from a polynomial.

26-2 Learning Targets:* Factor a perfect square trinomial.
* Factor a difference of two squares.
 | ***Factoring by Greatest Common Factor***  |
| [**Factor expressions using the GCF**](http://www.khanacademy.org/math/algebra/multiplying-factoring-expression/Factoring-simple-expressions/v/factor-polynomials-using-the-gcf)[**Factoring linear binomials**](http://www.khanacademy.org/math/algebra/multiplying-factoring-expression/Factoring-simple-expressions/v/factoring-linear-binomials)[**Factoring and the distributive property**](http://www.khanacademy.org/math/algebra/multiplying-factoring-expression/Factoring-simple-expressions/v/factoring-and-the-distributive-property)[**Factoring and the distributive property 2**](http://www.khanacademy.org/math/algebra/multiplying-factoring-expression/Factoring-simple-expressions/v/factoring-and-the-distributive-property-2) |
| ***Factoring Special Products***  |
| [**Example: Factoring perfect square trinomials**](http://www.khanacademy.org/math/algebra/multiplying-factoring-expression/factoring-special-products/v/factoring-perfect-square-trinomials)[**Factoring special products**](http://www.khanacademy.org/math/algebra/multiplying-factoring-expression/factoring-special-products/v/factoring-special-products)[**Example 1: Factoring difference of squares**](http://www.khanacademy.org/math/algebra/multiplying-factoring-expression/factoring-special-products/v/factoring-difference-of-squares)[**Example 2: Factoring difference of squares**](http://www.khanacademy.org/math/algebra/multiplying-factoring-expression/factoring-special-products/v/u09-l2-t1-we3-factoring-special-products-3) |
| **Activity 27***Factoring Trinomials*27-1 Learning Targets:* Use algebra tiles to factor trinomials of the form x2 + bx + c.
* Factor trinomials of the form x2 + bx + c.

27-2 Learning Targets:* Factor trinomials of the form ax2 + bx + c when the GCF is 1.
* Factor trinomials of the form ax2 + bx + c when the GCF is not 1.
 | ***Factoring Trinomials*** |
| [**Factoring quadratic expressions**](http://www.khanacademy.org/math/algebra/multiplying-factoring-expression/factoring-quadratic-expressions/v/factoring-quadratic-expressions)[**Examples: Factoring simple quadratics**](http://www.khanacademy.org/math/algebra/multiplying-factoring-expression/factoring-quadratic-expressions/v/factoring-polynomials-1)[**Example 1: Factoring quadratic expressions**](http://www.khanacademy.org/math/algebra/multiplying-factoring-expression/factoring-quadratic-expressions/v/factoring-trinomials-with-a-leading-1-coefficient)[**Example 1: Factoring trinomials with a common factor**](http://www.khanacademy.org/math/algebra/multiplying-factoring-expression/factoring-quadratic-expressions/v/factoring-trinomials-with-a-common-factor) |
| **Activity 28***Simplifying Rational Expressions*28-1 Learning Targets:* Simplify a rational expression by dividing a polynomial by a monomial.
* Simplify a rational expression by dividing out common factors.

28-2 Learning Targets:* Divide a polynomial of degree one or two by a polynomial of degree one or two.
* Express the remainder of polynomial division as a rational expression.

28-3 Learning Targets:* Multiply rational expressions.
* Divide rational expressions.

28-4 Learning Targets:* Identify the least common multiple (LCM) of algebraic expressions.
* Add and subtract rational expressions.
 | ***Simplifying Rational Expressions***  |
| [**Simplifying rational expressions introduction**](http://www.khanacademy.org/math/algebra2/rational-expressions/simplifying-rational-alg/v/simplifying-rational-expressions-introduction)[**Simplifying rational expressions 1**](http://www.khanacademy.org/math/algebra2/rational-expressions/simplifying-rational-alg/v/simplifying-rational-expressions-1)[**Simplifying rational expressions 2**](http://www.khanacademy.org/math/algebra2/rational-expressions/simplifying-rational-alg/v/simplifying-rational-expressions-2)[**Simplifying rational expressions 3**](http://www.khanacademy.org/math/algebra2/rational-expressions/simplifying-rational-alg/v/simplifying-rational-expressions-3) |
| ***Multiplying & Dividing Rational Expressions***  |
| [**Multiplying and simplifying rational expressions**](http://www.khanacademy.org/math/algebra2/rational-expressions/multi-div-rational-exp/v/multiplying-and-simplifying-rational-expressions)[**Multiplying and dividing rational expressions 1**](http://www.khanacademy.org/math/algebra2/rational-expressions/multi-div-rational-exp/v/multiplying-and-dividing-rational-expressions-1)[**Multiplying and dividing rational expressions 2**](http://www.khanacademy.org/math/algebra2/rational-expressions/multi-div-rational-exp/v/multiplying-and-dividing-rational-expressions-2)[**Multiplying and dividing rational expressions 3**](http://www.khanacademy.org/math/algebra2/rational-expressions/multi-div-rational-exp/v/multiplying-and-dividing-rational-expressions-3) |
| ***Adding & Subtracting Rational Expressions***  |
| [**Adding and subtracting rational expressions**](http://www.khanacademy.org/math/algebra2/rational-expressions/rational_expressions/v/adding-and-subtracting-rational-expressions)[**Adding and subtracting rational expressions 2**](http://www.khanacademy.org/math/algebra2/rational-expressions/rational_expressions/v/adding-and-subtracting-rational-expressions-2)[**Adding and subtracting rational expressions 3**](http://www.khanacademy.org/math/algebra2/rational-expressions/rational_expressions/v/adding-and-subtracting-rational-expressions-3)[**Subtracting rational expressions**](http://www.khanacademy.org/math/algebra2/rational-expressions/rational_expressions/v/subtracting-rational-expressions)[**Simplifying first for subtracting rational expressions**](http://www.khanacademy.org/math/algebra2/rational-expressions/rational_expressions/v/simplifying-first-for-subtracting-rational-expressions) |
| **Unit 5: Quadratic Functions** |
| **Activity 29***Introduction to Quadratic Functions*29-1 Learning Targets:* Model a real-world situation with a quadratic function.
* Identify quadratic functions.
* Write a quadratic function in standard form.

29-2 Learning Targets:* Graph a quadratic function.
* Interpret key features of the graph of a quadratic function.
 | ***Graphing Parabolas*** |
| [**Graphing a parabola with a table of values**](http://www.khanacademy.org/math/algebra/quadratics/solving_graphing_quadratics/v/graphing-a-quadratic-function)[**Graphing a parabola by finding the roots and vertex**](http://www.khanacademy.org/math/algebra/quadratics/solving_graphing_quadratics/v/quadratic-functions-3)[**Graphing a parabola using roots and vertex**](http://www.khanacademy.org/math/algebra/quadratics/solving_graphing_quadratics/v/graphing-a-parabola-using-roots-and-vertex)[**Graphing a parabola in vertex form**](http://www.khanacademy.org/math/algebra/quadratics/solving_graphing_quadratics/v/graphing-a-parabola-in-vertex-form) |
| ***Vertex and Axis of Symmetry*** |
| [**Parabola vertex and axis of symmetry**](http://www.khanacademy.org/math/algebra/quadratics/solving_graphing_quadratics/v/quadratic-functions-2)[**Finding the vertex of a parabola example**](http://www.khanacademy.org/math/algebra/quadratics/solving_graphing_quadratics/v/finding-the-vertex-of-a-parabola-example)[**Multiple examples graphing parabolas using roots and vertices**](http://www.khanacademy.org/math/algebra/quadratics/solving_graphing_quadratics/v/graphs-of-quadratic-functions) |
| **Activity 30***Graphing Quadratic Functions* 30-1 Learning Targets:* Graph translations of the quadratic parent function.
* Identify and distinguish among transformations.

30-2 Learning Targets:* Graph vertical stretches and shrinks of the quadratic parent function.
* Identify and distinguish among transformations.

30-3 Learning Targets:* Graph reflections of the quadratic parent function.
* Identify and distinguish among transformations.
* Compare functions represented in different ways.
 | **N/A** |
| **Activity 31***Solving Quadratic Equations by Graphing and Factoring*31-1 Learning Targets:* Use a graph to solve a quadratic equation.
* Use factoring to solve a quadratic equation.
* Describe the connection between the zeros of a quadratic function and the x-intercepts of the function's graph.

31-2 Learning Targets:* Identify the axis of symmetry of the graph of a quadratic function.
* Identify the vertex of the graph of a quadratic function.

31-3 Learning Targets:* Use the axis of symmetry, the vertex, and the zeros to graph a quadratic function.
* Interpret the graph of a quadratic function.
 | **Solving Quadratic Equations** |
|  |
| ***Vertex and Axis of Symmetry*** |
| [**Parabola vertex and axis of symmetry**](http://www.khanacademy.org/math/algebra/quadratics/solving_graphing_quadratics/v/quadratic-functions-2)[**Finding the vertex of a parabola example**](http://www.khanacademy.org/math/algebra/quadratics/solving_graphing_quadratics/v/finding-the-vertex-of-a-parabola-example)[**Multiple examples graphing parabolas using roots and vertices**](http://www.khanacademy.org/math/algebra/quadratics/solving_graphing_quadratics/v/graphs-of-quadratic-functions) |
| **Activity 32***Algebraic Methods of Solving Quadratic Equations*32-1 Learning Targets:* Solve quadratic equations by the square root method.
* Provide examples of quadratic equations having a given number of real solutions.

32-2 Learning Targets:* Solve quadratic equations by completing the square.
* Complete the square to analyze a quadratic function.

32-3 Learning Targets:* Derive the quadratic formula.
* Solve quadratic equations using the quadratic formula.

32-4 Learning Targets:* Choose a method to solve a quadratic equation.
* Use the discriminant to determine the number of real solutions of a quadratic equation.

32-5 Learning Targets:* Use the imaginary unit i to write complex numbers.
* Solve a quadratic equation that has complex solutions.
 | ***The Square Root Method***  |
| [**Solving quadratic equations by square roots**](http://www.khanacademy.org/math/algebra/quadratics/quadratics-square-root/v/solving-quadratic-equations-by-square-roots)[**Example: Solving simple quadratic**](http://www.khanacademy.org/math/algebra/quadratics/quadratics-square-root/v/simple-quadratic-equation) |
| ***Completing the Square***  |
| [**Solving quadratic equations by completing the square**](http://www.khanacademy.org/math/algebra/quadratics/completing_the_square/v/solving-quadratic-equations-by-completing-the-square)[**Example 1: Completing the square**](http://www.khanacademy.org/math/algebra/quadratics/completing_the_square/v/ex1-completing-the-square)[**Example 2: Completing the square**](http://www.khanacademy.org/math/algebra/quadratics/completing_the_square/v/ex2-completing-the-square)[**Example 3: Completing the square**](http://www.khanacademy.org/math/algebra/quadratics/completing_the_square/v/completing-the-square-to-solve-quadratic-equations) |
| ***The Quadratic Formula***  |
| [**How to use the quadratic formula**](http://www.khanacademy.org/math/algebra/quadratics/quadratic-formula/v/using-the-quadratic-formula)[**Example: Quadratics in standard form**](http://www.khanacademy.org/math/algebra/quadratics/quadratic-formula/v/quadratic-equations-in-standard-form)[**Example 1: Using the quadratic formula**](http://www.khanacademy.org/math/algebra/quadratics/quadratic-formula/v/quadratic-formula-1)[**Example 2: Using the quadratic formula**](http://www.khanacademy.org/math/algebra/quadratics/quadratic-formula/v/quadratic-formula-2)[**Example 3: Using the quadratic formula**](http://www.khanacademy.org/math/algebra/quadratics/quadratic-formula/v/quadratic-formula-3)[**Example 4: Applying the quadratic formula**](http://www.khanacademy.org/math/algebra/quadratics/quadratic-formula/v/application-problem-with-quadratic-formula)[**Example 5: Using the quadratic formula**](http://www.khanacademy.org/math/algebra/quadratics/quadratic-formula/v/applying-the-quadratic-formula) |
| ***Choosing a Method and Using the Discriminant***  |
| [**Discriminant of quadratic equations**](http://www.khanacademy.org/math/algebra2/polynomial_and_rational/quad_formula_tutorial/v/discriminant-of-quadratic-equations)[**Discriminant for types of solutions for a quadratic**](http://www.khanacademy.org/math/algebra2/polynomial_and_rational/quad_formula_tutorial/v/discriminant-for-types-of-solutions-for-a-quadratic) |
| ***Complex Solutions***  |
| [**Example: Complex roots for a quadratic**](http://www.khanacademy.org/math/algebra2/polynomial_and_rational/quad_formula_tutorial/v/complex-roots-from-the-quadratic-formula) |
| **Activity 33***Applying Quadratic Equations*33-1 Learning Targets:* Write a quadratic function to fit data.
* Use a quadratic model to solve problems.

33-2 Learning Targets:* Solve quadratic equations.
* Interpret the solutions of a quadratic equation in a real-world context.
 | ***Fitting Data with Quadratic and Exponential Functions*** |
| [**Comparing models to fit data**](http://www.khanacademy.org/math/probability/regression/prob-stats-scatter-plots/v/comparing-models-to-fit-data)[**Comparing exponential and quadratic models**](http://www.khanacademy.org/math/algebra2/exponential_and_logarithmic_func/exp_growth_decay/v/comparing-exponentials-quadratics) |
| **Activity 34***Modeling with Functions*34-1 Learning Targets:* Construct linear, quadratic, and exponential models for data.
* Graph and interpret linear, quadratic, and exponential functions.

34-2 Learning Targets:* Identify characteristics of linear, quadratic, and exponential functions.
* Compare linear, quadratic, and exponential functions.

34-3 Learning Targets:* Compare piecewise-defined, linear, quadratic, and exponential functions.
* Write a verbal description that matches a given graph.
 | ***Modeling with Functions*** |
| [**Comparing exponential and quadratic models**](http://www.khanacademy.org/math/algebra2/exponential_and_logarithmic_func/exp_growth_decay/v/comparing-exponentials-quadratics)[**Constructing linear and exponential functions from data**](http://www.khanacademy.org/math/algebra2/exponential_and_logarithmic_func/exp_growth_decay/v/constructing-linear-and-exponential-functions-from-data)[**Constructing linear and exponential functions from graph**](http://www.khanacademy.org/math/algebra2/exponential_and_logarithmic_func/exp_growth_decay/v/constructing-linear-and-exponential-functions-from-graph) |
| **Activity 35***Systems of Equations*35-1 Learning Targets:* Write a function to model a real-world situation.
* Solve a system of equations by graphing.

35-2 Learning Targets:* Write a system of equations to model a real-world situation.
* Solve a system of equations algebraically.
 | ***Solving Systems of Nonlinear Equations*** |
| [**Systems of nonlinear equations 1**](http://www.khanacademy.org/math/algebra2/systems_eq_ineq/non-linear-systems-tutorial/v/systems-of-nonlinear-equations-1)[**Systems of nonlinear equations 2**](http://www.khanacademy.org/math/algebra2/systems_eq_ineq/non-linear-systems-tutorial/v/systems-of-nonlinear-equations-2)[**Systems of nonlinear equations 3**](http://www.khanacademy.org/math/algebra2/systems_eq_ineq/non-linear-systems-tutorial/v/systems-of-nonlinear-equations-3)[**Non-linear systems of equations 1**](http://www.khanacademy.org/math/algebra2/systems_eq_ineq/non-linear-systems-tutorial/v/non-linear-systems-of-equations-1)[**Non-linear systems of equations 2**](http://www.khanacademy.org/math/algebra2/systems_eq_ineq/non-linear-systems-tutorial/v/non-linear-systems-of-equations-2)[**Non-linear systems of equations 3**](http://www.khanacademy.org/math/algebra2/systems_eq_ineq/non-linear-systems-tutorial/v/non-linear-systems-of-equations-3) |
| **Unit 6: Probability and Statistics** |
| **Activity 36***Measures of Center and Spread*36-1 Learning Targets:* Interpret differences in center and spread of data in context.
* Compare center and spread of two or more data sets.
* Determine the mean absolute deviation of a set of data.

36-2 Learning Targets:* Interpret differences in center and spread of data in context.
* Compare center and spread of two or more data sets.
* Determine the mean absolute deviation of a set of data.
 | ***Mean, Median, Mode*** |
| [**Statistics intro: Mean, median and mode**](http://www.khanacademy.org/math/probability/descriptive-statistics/central_tendency/v/statistics-intro-mean-median-and-mode)[**Finding mean, median and mode**](http://www.khanacademy.org/math/probability/descriptive-statistics/central_tendency/v/mean-median-and-mode)[**Exploring the mean and median**](http://www.khanacademy.org/math/probability/descriptive-statistics/central_tendency/v/exploring-mean-and-median-module) |
| ***Distribution*** |
| [**Comparing means of distributions**](http://www.khanacademy.org/math/probability/descriptive-statistics/central_tendency/v/comparing-distribution-means)[**Means and medians of different distributions**](http://www.khanacademy.org/math/probability/descriptive-statistics/central_tendency/v/comparing-means-and-medians)[**Variance of a population**](http://www.khanacademy.org/math/probability/descriptive-statistics/variance_std_deviation/v/variance-of-a-population) |
| **Activity 37***Dot and Box Plots and the Normal Distribution*37-1 Learning Targets:* Construct representations of univariate data in a real-world context.
* Describe characteristics of a data distribution, such as center, shape, and spread, using graphs and numerical summaries.
* Compare distributions, commenting on similarities and differences among them.

37-2 Learning Targets:* Use modified box plots to summarize data in a way that shows outliers.
* Compare distributions, commenting on similarities and differences among them.
 | ***Box and Whisker*** |
| [**Box and whisker plot**](http://www.khanacademy.org/math/probability/descriptive-statistics/box-and-whisker-plots/v/reading-box-and-whisker-plots)[**Constructing a box and whisker plot**](http://www.khanacademy.org/math/probability/descriptive-statistics/box-and-whisker-plots/v/constructing-a-box-and-whisker-plot) |
| ***Range*** |
| [**Finding the range and mid-range**](http://www.khanacademy.org/math/probability/descriptive-statistics/box-and-whisker-plots/v/range-and-mid-range)[**Introduction to the normal distribution**](http://www.khanacademy.org/math/probability/statistics-inferential/normal_distribution/v/introduction-to-the-normal-distribution) |
| **Activity 38***Correlation*38-1 Learning Targets:* Describe a linear relationship between two numerical variables in terms of direction and strength.
* Use the correlation coefficient to describe the strength and direction of a linear relationship between two numerical variables.

38-2 Learning Targets:* Calculate correlation.
* Distinguish between correlation and causation.
 | ***Correlation*** |
| [**Constructing a scatter plot**](http://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-data/cc-8th-scatter-plots/v/constructing-scatter-plot)[**Correlation and causality**](http://www.khanacademy.org/math/probability/regression/regression-correlation/v/correlation-and-causality) |
| **Activity 39***The Best-Fit Line*39-1 Learning Targets:* Describe the linear relationship between two numerical variables using the best-fit line.
* Use the equation of the best-fit line to make predictions and compare the predictions to actual values.

39-2 Learning Targets:* Use technology to determine the equation of the best-fit line.
* Describe the linear relationship between two numerical variables using the best-fit line.
* Use residuals to investigate whether a given line is an appropriate model of the relationship between numerical variables.

39-3 Learning Targets:* Interpret the slope of the best-fit line in the context of the data.
* Distinguish between scatter plots that show a linear relationship and those where the relationship is not linear.

39-4 Learning Targets:* Create a residual plot given a set of data and the equation of the best-fit line.
* Use residuals to investigate whether a line is an appropriate description of the relationship between numerical variables.
 | ***Line of Best-fit***  |
| [**Fitting a line to data**](http://www.khanacademy.org/math/probability/regression/regression-correlation/v/fitting-a-line-to-data)[**Estimating the line of best fit exercise**](http://www.khanacademy.org/math/probability/regression/regression-correlation/v/estimating-the-line-of-best-fit-exercise)[**Comparing models to fit data**](http://www.khanacademy.org/math/probability/regression/prob-stats-scatter-plots/v/comparing-models-to-fit-data)[**Interpreting a trend line**](http://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-data/cc-8th-patterns-in-data/v/interpreting-trend-line) |
| **Activity 40***Bivariate Data*40-1 Learning Targets:* Summarize bivariate categorical data in a two-way frequency table.
* Interpret frequencies and relative frequencies in two-way tables.

40-2 Learning Targets:* Interpret frequencies and relative frequencies in two-way tables.
* Recognize and describe patterns of association in two-way tables.
 | ***Two-way Frequency Tables*** |
| [**Two-way frequency tables and Venn diagrams**](http://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-data/two-way-tables/v/two-way-frequency-tables-and-venn-diagrams)[**Two-way relative frequency tables**](http://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-data/two-way-tables/v/two-way-relative-frequency-tables)[**Interpreting two way tables**](http://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-data/two-way-tables/v/interpreting-two-way-tables) |
| ***Categorical Date*** |
| [**Analyzing trends in categorical data**](http://www.khanacademy.org/math/probability/statistical-studies/categorical-data/v/analyzing-trends-categorical-data) |