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## Teaching Notes

*CCSS Math 1A is part 1 of the first course in a sequence of courses designed to provide students with a rigorous program of study in mathematics. Course content includes relationships between quantities, linear and exponential relationships, reasoning with equations as well as congruence, proof, and constructions. The course is designed to remain fluid to adapt to student needs as well as provide teaching strategies that allow students more time to learn math. This approach to learning should include, but is not limited to, in-depth, hands-on opportunities for students to solve problems. Students who successfully complete CCSS Math 1A should enroll in CCSS Math 1B and will take the Integrated Mathematics 1 Performance-Based Assessment (PBA) and the End-of-Year Assessment (EOY) at the end of CCSS Math 1B course. Counselor approval required*

*For the CCSS Math 1A/Math 1B course, curriculum and instruction has been modified so that a CCSS Math 1 is a two-year course. The content will be rigorous as defined by the New Learning Standards. The teacher will use teaching strategies that allows students more time to learn math differently. This approach to learning should include, but is not limited to, in-depth, hands-on opportunities for students to solve problems. Students achieve the same expected understanding of mathematics as in a traditional one-year math class.*

### ***Approximate Math 1A topic timeline:***

#### *1st Quarter -*

- *Teachers should understand each student's current instructional level and prepare appropriate intervention.*

# **CCSS Math 1A**

- *Solving equations and inequalities are the main curricular emphasis.*

## **2nd Quarter -**

- *Introduction of functions with an emphasis on the linear function.*

## **3rd Quarter -**

- *Continued work with the concept of function placing an emphasis on the linear function.*
- *Data analysis concepts of visualizations and central tendency.*

## **4th Quarter -**

- *The tools of Geometry,*
- *Geometric transformations*
- *Connecting Algebra and Geometry.*

## **Standards of Mathematical Practice**

### **Mathematically proficient students:**

1. *Make sense of problems and persevere in solving them.*
2. *Reason abstractly and quantitatively.*
3. *Construct viable arguments and critique the reasoning of others.*
4. *Model with mathematics*
5. *Use appropriate tools strategically.*
6. *Attend to precision.*
7. *Look for and make use of structure.*
8. *Look for and express regularity in repeated reasoning.*

## **From the K-8 Math Standards Progression.**

### **Key Advances from Grades K-8**

- *Students build on previous work with solving linear equations and systems of linear equations in two ways: (a) They extend to more formal solution methods, including attending to the structure of linear expressions, and (b) they solve linear inequalities.*
- *Students formalize their understanding of the definition of a function, particularly their understanding of linear functions, emphasizing the structure of linear expressions. Students also begin to work on exponential functions, comparing them to linear functions.*
- *Work with congruence and similarity motions that started in grades 6-8 progresses. Students also consider sufficient conditions for congruence of triangles.*
- *Work with the bivariate data and scatter plots in grades 6-8 is extended to working with lines of best fit.*

**Fluency Recommendations**

- A/G** *High school students should become fluent in solving characteristic problems involving the analytic geometry of lines, such as finding the equation of a line given a point and a slope. This fluency can support students in solving less routine mathematical problems involving linearity, as well as in modeling linear phenomena (including modeling using systems of linear inequalities in two variables).*
- G** *High school students should become fluent in using geometric transformation to represent relationships among geometric objects. This fluency provides a powerful tool for visualizing relationships, as well as a foundation for exploring ideas both within geometry (e.g., symmetry) and outside of geometry (e.g., transformations of graphs).*
- S** *Students should be able to create a visual representation of a data set that is useful in understanding possible relationships among variables.*

## Conceptual Category

### 1. Algebra A

## Domain

### 1.1. Reasoning with Equations and Inequalities REI

## Clusters

- Understand solving equations as a process of reasoning and explain the reasoning
- Solve equations and inequalities in one variable

## Pacing

- 15 days

## Standards Content Statements/Learning Targets

- ***A-REI.1 Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.***

### Learning Targets

*I can:*

- Understand, apply, and explain the results of using inverse operations.
- Justify the steps in solving equations by applying and explaining the properties of equality, inverse, and identity.
- Use the names of the properties and common sense explanations to explain the steps in solving an equation.

- ***A-REI.3 Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.***

### Learning Targets

*I can:*

- Write equations in equivalent forms to solve problems.
- Analyze and solve literal equations for a specified variable.
- Understand and apply the properties of inequalities.
- Verify that a given number or variable is a solution to the equation or inequality.
- Interpret the solution of an inequality in real terms.

## Content Elaborations

[Algebra, Grade K-5](#)

[Algebra, Grades 6-8](#)

[Algebra, High School](#)

## Content Vocabulary

*constant, coefficient, properties of operations, properties of equalities, like terms, variable, evaluate, justify, viable*

## Academic Vocabulary

*interpret, asserted*

## Formative Assessment

*Performance tasks, pretests, quizzes, interviews*

## Summative Assessment

*MVP assessments, teacher created assessments, PARCC*

## Resources

*Mathematics Vision Project, PARCC Model Content Frameworks*

## Enrichment Strategies

## Integrations

*Modeling projects*

## Intervention Strategies

# Conceptual Category

## 1. Algebra A

# Domain

## 1.2. Creating Equations CED

# Cluster

- *Create equations that describe numbers or relationships.*

# Pacing

- 15 days

# Standards Content Statements/Learning Targets

- ***A-CED.1 Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and exponential functions.***

### Learning Targets:

*I can:*

- *Create one variable linear equations and inequalities from contextual situations (stories).*
  - *Create one-variable exponential equations and inequalities from contextual situations (stories).*
  - *Solve and interpret the solution to multi-step linear equations and inequalities in context.*
  - *Use properties of exponents to solve and interpret the solution to exponential equations and inequalities in context.*
- ***A-CED.2 Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.***

### Learning Targets:

*I can:*

- *Write and graph an equation to represent a linear relationship.*
  - *Write and graph an equation to represent an exponential relationship.*
  - *Model a data set using an equation.*
  - *Choose the best form of an equation to model linear and exponential functions.*
- ***A-CED.3 Represent constraints by equations or inequalities and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context. For example, represent inequalities describing nutritional and cost constraints on combinations of different foods.***

## Learning Targets:

*I can:*

- *Determine whether a point is a solution to an equation or inequality.*
  - *Determine whether a solution has meaning in real-world context.*
  - *Write and graph equations and inequalities representing constraints in contextual situations.*
- ***A-CED.4 Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. For example, rearrange Ohm's law  $V = IR$  to highlight resistance  $R$ .***

## Learning Targets:

*I can:*

- *Extend the concepts used in solving numerical equations to rearranging formulas for a particular variable.*

## Content Elaborations

[Algebra, Grade K-5](#)

[Algebra, Grades 6-8](#)

[Algebra, High School](#)

## Content Vocabulary

*constant, variable, dependent variable, independent variable, inequality, +, <, >, greater than, less than, at most, at least, no more than, no less than, domain, range, scale, constraint, viable, formula, literal equation*

## Academic Vocabulary

*contextual, create*

## Formative Assessment

*performance tasks, pre-tests, quizzes, interviews*

## Summative Assessment

*MVP assessments, teacher created assessments, PARCC*

## Resources

*Mathematics Vision Project, PARCC Model Content Framework*

## Enrichment Strategies

## Integrations

*Modeling projects*

## Intervention Strategies



## Conceptual Category

### 1. Algebra A

## Domain

### 1.3. Reasoning with Equations and Inequalities REI

## Cluster, Notes & Standards

- Represent and solve equations and inequalities graphically

## Pacing

- 15 days

## Standards Content Statements/Learning Targets

- ***A-REI.10 Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line).***

### Learning Targets

*I can:*

- Identify solutions and non-solutions of linear and exponential equations.
- Graph points that satisfy linear and exponential equations.
- Understand that a continuous curve or line contains an infinite number of solutions.

- ***A-REI.11 Explain why the  $x$ -coordinates of the points where the graphs of the equations  $y = f(x)$  and  $y = g(x)$  intersect are the solutions of the equation  $f(x) = g(x)$ ; find the solutions approximately; e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include where  $f(x)$  and/or  $g(x)$  are linear or exponential.***

### Learning Targets

*I can:*

- Approximate solutions to systems of two equations using graphing technology.
- Approximate solutions to systems of two equations using tables of values.
- Explain why the  $x$ -coordinates of the points where the graphs of the equations  $y = f(x)$  and  $y = g(x)$  intersect are the solutions of the equation  $f(x) = g(x)$ .

- ***A-REI.12 Graph the solutions to a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.***

### Learning Targets

*I can:*

## CCSS Math 1A

- *Graph the solution to linear inequalities in two variables.*
- *Graph the solution to systems of linear inequalities in two variables.*
- *Identify the solutions as a region of the plane.*

### Content Elaborations

[Algebra, Grade K-5](#)

[Algebra, Grades 6-8](#)

[Algebra, High School](#)

### Content Vocabulary

*ordered pair, coordinate plane, solution, non-solution, sets, function, intersection, approximate, linear, exponential,  $f(x)$ ,  $g(x)$ , inequality, half-plane, solution region*

### Academic Vocabulary

*systems*

### Formative Assessment

*performance tasks, pre-tests, quizzes, interviews*

### Summative Assessment

*MVP assessments, teacher created assessments, PARCC*

### Resources

*Mathematics Vision Project, PARCC Model Content Frameworks*

### Enrichment Strategies

### Integrations

*Modeling projects*

### Intervention Strategies

## Conceptual Category

### 2. Number and Quantity *N*

## Domain

### 2.1. Quantities

## Cluster

- *Create equations that describe numbers or relationships.*

## Pacing

- *15 days*

## Standards Content Statements/Learning Targets

- *N-Q1 Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.*

### Learning Targets:

*I can:*

- *Select and use appropriate units of measurement for problems with and without context.*
- *Given a graph, draw conclusions and make inferences.*
- *Choose appropriate scales to create linear and exponential graphs.*
- *Determine from the labels on a graph what the units of the rate of change are (e.g., gallons per hour).*

- *N-Q2 Define appropriate quantities for the purpose of descriptive modeling.*

### Learning Targets:

*I can:*

- *Choose appropriate measures and units for problem situations.*
- *Create a relationship among different units (i.e., feet per second, bacteria per hour, miles per gallon).*

- *N-Q3 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.*

### Learning Targets:

*I can:*

- *Determine whether whole numbers, fractions, or decimals are most appropriate.*

## CCSS Math 1A

- Determine the appropriate power of ten reasonably measure a quantity.
- Determine the resulting accuracy in calculations.
- Determine what level of rounding should be used in a problem situation.

### Content Elaborations

[Number and Quantity, K-5](#)

[Number and Quantity, 3-5](#)

[Number and Quantity, 6-7](#)

[Number and Quantity, 6-8](#)

### Content Vocabulary

*scale, origin, units of measurement, descriptive model, unit rate, modeling, quantity, unit conversion, proportion, ratio, accuracy, precision*

### Academic Vocabulary

*interpret*

### Formative Assessment

*performance tasks, pre-tests, quizzes, interviews*

### Summative Assessment

*MVP assessments, teacher created assessments, PARCC*

### Resources

*Mathematics Vision Project, PARCC Model Content Framework*

### Enrichment Strategies

### Integrations

*Modeling projects*

### Intervention Strategies

## Conceptual Category

### 3. Functions

## Domain

### 3.1. Building Functions BF

## Cluster

- Build a function that describes a relationship between two quantities
- Build new functions from existing functions

## Pacing

- 20 days

## Standards Content Statements/Learning Targets

- **F.BF.1 Write a function that describes a relationship between two quantities.**
  - Determine an explicit expression, a recursive process, or steps for calculation from a context.
  - Combine standard function types using arithmetic operations. For example, build a function that models the temperature of a cooling body by adding a constant function to a decaying exponential, and relate these functions to the model.

### Learning Targets

I can:

- Given a linear or exponential context, find an expression, recursive process, or steps to model a context with mathematical representations.
  - Combine linear and/or exponential functions using addition, subtraction, multiplication, and division.
- **F.B.F.2 Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.**

### Learning Targets

I can:

- Write arithmetic sequences both recursively and with an explicit formula.
  - Write geometric sequences both recursively and with an explicit formula.
  - Model contextual situations with arithmetic or geometric sequences.
- **F.B.F.3 Identify the effect on the graph of replacing  $f(x)$  by  $f(x) + k$  for specific values of  $k$  (both positive and negative); find the value of  $k$  given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology.**

## Learning Targets

*I can:*

- *Perform vertical translations on linear and exponential graphs.*
- *Find the value of  $k$  given  $f(x)$  replaced by  $f(x) + k$  on a graph of a linear or exponential function.*
- *Relate the vertical translation of a linear function to its  $y$ -intercept.*
- *Describe what will happen to a function when  $f(x)$  is replaced by  $f(x) + k$ .*

## Content Elaborations

[Functions, High School](#)

[Modeling, High School](#)

## Content Vocabulary

*function, intercepts, explicit expression, recursive, arithmetic sequence, geometric sequence, recursive, explicit, translation, transformation,  $y$ -intercept, vertical shift*

## Academic Vocabulary

## Formative Assessment

*performance tasks, pre-tests, quizzes, interviews*

## Summative Assessment

*MVP assessments, teacher created assessments, PARCC*

## Resources

*Mathematics Vision Project, PARCC Model Content Framework*

## Enrichment Strategies

## Integrations

*Modeling projects*

## Intervention Strategies



## Conceptual Category

### 3. Functions F

## Domain

### 3.2. Linear, Quadratic, and Exponential Models LE

## Cluster

- Construct and compare linear, quadratic, and exponential models and solve problems.

## Pacing

- 20 days

## Standards Content Statements/Learning Targets

- ***F-LE.1 Distinguish between situations that can be modeled with linear functions and with exponential functions.***
  - Prove that linear functions grow by equal differences over equal intervals, and that exponential functions grow by equal factors over equal intervals.*
  - Recognize situations in which one quantity changes at a constant rate per unit interval relative to another.*
  - Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another.*

### Learning Targets

*I can:*

- *Justify the fact that linear functions grow by equal differences over equal intervals using tables and graphs.*
- *Justify the fact that exponential functions grow by equal factors over equal intervals using tables and graphs.*
- *Recognize situations that can be modeled linearly or exponentially and describe the rate of change per unit as constant or the growth factor as a constant percent.*
- ***F-LE.2 Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table).***

### Learning Targets

*I can:*

- *Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph.*
- *Construct linear and exponential functions, including arithmetic and geometric sequences, given the description of a relationship.*



## CCSS Math 1A

- Construct linear functions, including arithmetic sequences, given input-output pairs, including those in a table.
- **F-LE.3** Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function.

### Learning Targets

*I can:*

- Observe that a quantity increasing exponentially eventually exceeds a quantity increasing linearly using graphs and tables.

## Content Elaborations

[Functions, High School](#)

[Modeling, High School](#)

## Content Vocabulary

*exponential, linear, arithmetic, geometric, sequences, relationship, input-output, function, difference, interval, rate, factors, constant rate of change, percent rate per unit*

## Academic Vocabulary

## Formative Assessment

*performance tasks, pre-tests, quizzes, interviews*

## Summative Assessment

*MVP assessments, teacher created assessments, PARCC*

## Resources

*Mathematics Vision Project, PARCC Model Content Framework*

## Enrichment Strategies

## Integrations

*Modeling projects*

## Intervention Strategies

## Conceptual Category

### 3. Functions F

## Domain

### 3.3. Interpreting Functions IF

## Cluster

- Understand the concept of a function and use function notation
- Interpret functions that arise in applications in terms of the context.
- Analyze functions using different representations.

## Pacing

- 30 days

## Standards Content Statements/Learning Targets

- ***F.IF.1 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  $y = f(x)$ .***

### Learning Targets

*I can:*

- Understand the definition of a function
  - Identify functions, including functions represented in equations, tables, graphs, or context
  - Distinguish between domain and range
  - Write a relation in function notation
- ***F.IF.2 Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.***

### Learning Targets

*I can:*

- Write equations using function notation
  - Use function notation to evaluate functions for given inputs in the domain, including combinations and compositions of functions
  - Use function notation to express relationships between contextual variables
- ***F.IF.3 Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers. For example, the Fibonacci sequence is defined recursively by  $f(0) = f(1)$ ,  $f(n+1) = f(n) + f(n-1)$  for  $n >$  or equal to 1.***

## Learning Targets

*I can:*

- Recognize that sequences are functions.
  - Define and express a recursive sequence as a function.
  - Recognize that a sequence has a domain which is a subset of integers.
  - Generate a sequence given a recursive function.
- ***F.IF.4 For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features include: intercepts; and intervals where the function is increasing, decreasing, positive or negative.***

## Learning Targets

*I can:*

- Given a graph, identify key features such as  $x$  and  $y$  intercepts; intervals where the function is increasing, decreasing, positive, or negative.
  - Given a table of values, identify key features such as  $x$  and  $y$  intercepts; intervals where the function is increasing, decreasing, positive, or negative.
  - Find key features of a function and use them to graph the function.
  - Use interval notation and symbols of inequality to communicate key features of graphs.
- ***F.IF.5 Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes.***

## Learning Targets

*I can:*

- Identify domains of functions given a graph.
  - Graph a function, given a restricted domain.
  - Identify reasonability of a domain in a particular context.
- ***F.IF.6 Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.***

## Learning Targets

*I can:*

- Calculate rate of change given a linear function, from the equation or a table.
  - Calculate rate of change over a given interval in an exponential function from an equation or a table where the domain is a subset of the integers.
  - Use a graph to estimate the rate of change over an interval in a linear or exponential function.
- ***F.IF.7 Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.***
- a. Graph linear and quadratic functions and show intercepts, maxima, and minima.
  - b. Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.

- c. Graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior.
- d. Graph rational functions, identifying zeros and asymptotes when suitable factorizations are available, and showing end behavior.
- e. Graph exponential and logarithmic function, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.

## Learning Targets

I can:

- Graph linear functions and quadratic functions (with or without technology) given an explanation, and show key features such as intercepts, maxima, and minima.
- Graph square root, cube root, step (or greatest integer), absolute value, and piecewise defined functions.
- **F.IF.9 Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).** For example, given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum.

## Learning Targets

I can:

- Compare and contrast key features of various functions including differences in domain and range, intercepts, and rates of change.
- Compare and contrast two functions (linear and exponential and/or quadratic) when each is represented differently (algebraically, graphically, numerically in tables, or by verbal description).

## Content Elaborations

[Functions, High School](#)

[Modeling, High School](#)

## Content Vocabulary

domain, range, function, input, output, corresponding, set, element, notation, evaluate, recursive, sequence, subset, linear equation, quadratic equation, increasing, decreasing, positive, negative, intervals, intercepts, interval notation, integers, independent variable, dependent variable, rate of change, average, interval

## Academic Vocabulary

express, composition, combinations, evaluate, maximum, minimum, interpret, relate

## Formative Assessment

performance tasks, pre-tests, quizzes, interviews

## Summative Assessment

*MVP assessments, teacher created assessments, PARCC*

## Resources

*Mathematics Vision Project, PARCC Model Content Framework*

## Enrichment Strategies

## Integrations

*Modeling projects*

## Intervention Strategies

## Conceptual Category

### 4. Geometry G

## Domain

### 4.1. Congruence CO

## Cluster

- *Experiment with transformations in the plane*
- *Making geometric constructions*

## Pacing

- *20 days*

## Standards Content Statements/Learning Targets

- ***G-CO.1 Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.***

### Learning Targets

*I can:*

- *Define angle, circle, perpendicular line, parallel line, and line segment.*
- *Use precise definitions to identify and model an angle, circle, perpendicular line, parallel line, and line segment.*
- *Demonstrate mathematical notation for each term.*
- ***G-CO.2 Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch).***

### Learning Targets:

*I can:*

- *Represent reflections, rotations, and translations using a variety of media.*
- *Compare and contrast rigid and non-rigid transformations.*
- *Understand transformations as functions that take points in the plane as inputs and give other points as outputs.*
- ***G-CO.3 Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.***

Learning Targets:*I can:*

- Describe and identify lines and points of symmetry.
  - Describe rotations and reflections which take a rectangle, parallelogram, trapezoid, or regular polygon onto itself.
- **G-CO.4 Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.**

Learning Targets:*I can:*

- Through observations and conjectures develop definitions of rotations, reflections, and translations.
  - Define rotations, reflections, and translations using angles, circles, perpendicular lines, parallel lines, and line segments.
- **G-CO.5 Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.**

Learning Targets:*I can:*

- Perform rotations, reflections, and translations using a variety of methods.
  - Identify the sequence of transformations that will carry a given figure to another.
  - Understand that the composition of transformations is not commutative.
- **G-CO.12 Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc). Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.**

Learning Targets:*I can:*

- Perform the following constructions using a variety of tools and methods: copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a segment; and constructing a line parallel to a given line through a point not on the line.
  - Explain why these constructions result in the desired objects.
- **G-CO.13 Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle.**

Learning Targets:*I can:*

- Understand the properties of regular polygons.
- Construct congruent segments and perpendicular lines.



K-6, Geometry

Secondary, Geometry - Not Yet Available

## Content Vocabulary

*angle, circle, perpendicular line, parallel line, line segment, distance, arc, plane, translation, preserve, function in terms of input and output, rectangle, parallelogram, trapezoid, regular polygon, symmetry, transformation, reflection, rotation, conjecture, inductive reasoning, equilateral triangle, square, regular hexagon, inscribed, construction, segment, bisect*

## Academic Vocabulary

*perform, construct, copy*

## Formative Assessment

*performance tasks, pre-tests, quizzes, interviews*

## Summative Assessment

*MVP assessments, teacher created assessments, PARCC*

## Resources

*Mathematics Vision Project, PARCC Model Content Framework*

## Enrichment Strategies

## Integrations

*Modeling projects*

## Intervention Strategies

## Conceptual Category

### 5. Statistics and Probability S

## Domain

### 5.1. Interpreting Categorical and Quantitative Data ID

## Cluster

- Summarize, represent, and interpret data on a single count or measurement variable

## Pacing

- 20 days

## Standards Content Statements/Learning Targets

- ***S-ID.1 Represent data with plots on the real number line (dot plots, histograms, and boxplots).***

#### Learning Targets:

*I can:*

- Graph numerical data on a real number line using dot plots, histograms, and boxplots.
- Describe and give a simple interpretation of a graphical representation of data.
- Determine which type of data plot would be most appropriate for a specific situation.

- ***S-ID.2 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.***

#### Learning Targets:

*I can:*

- Given two sets of data or two graphs, identify similarities and differences in shape, center, and spread.
- Compare data sets and be able to summarize the similarities and differences between the shape and measures of centers and spreads of the data sets.

- ***S-ID.3 Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).***

#### Learning Targets:

*I can:*

- *Given two sets of data or two graphs, identify similarities and differences in shape, center, and spread.*
- *Interpret similarities and differences between the shape and measures of centers and spreads of data sets.*
- *State the effects of any existing outliers.*

## Content Elaborations

[K-5, Statistics and Probability](#)

[6-8, Statistics and Probability](#)

[High School, Statistics and Probability](#)

## Content Vocabulary

*dot plot, histogram, box plot, quartiles, lower extreme (minimum), upper extreme (maximum), median, outlier, mean, interquartile range, standard deviation, center, spread, shape, extreme data point (outliers), skewed*

## Academic Vocabulary

## Formative Assessment

*performance tasks, pre-tests, quizzes, interviews*

## Summative Assessment

*MVP assessments, teacher created assessments, PARCC*

## Resources

*Mathematics Vision Project, PARCC Model Content Framework*

## Enrichment Strategies

## Integrations

*Modeling projects*

## Intervention Strategies