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**Access**

**M/J Grade 8**

**Pre-Algebra**

**(#7812030)**

**Course Standards**

[MA.8.AR.1.1:](https://www.cpalms.org//PreviewStandard/Preview/15496) Apply the Laws of Exponents to generate equivalent algebraic expressions, limited to integer exponents and monomial bases.

**Clarifications:**
*Clarification 1:* Refer to the [K-12 Formulas (Appendix E)](https://cpalmsmediaprod.blob.core.windows.net/uploads/docs/standards/best/ma/appendixe.pdf) for the Laws of Exponents.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.8.AR.1.AP.1:](https://www.cpalms.org/PreviewAccessPoint/Preview/18233)  | Use the properties of integer exponents and product/quotient of powers with like bases to produce equivalent algebraic expressions limited to positive exponents and monomial bases. |  |  |  |
| EssentialUnderstandings | * Apply the concepts of addition, subtraction, multiplication, and division
* Draw a picture or use manipulatives to understand the different parts of an expression
* Use tools to solve a numerical expression with whole numbers
* Locate an exponent in an expression
* Produce the correct amount of base numbers to be multiplied given a graphic organizer or template
* Select the correct expanded form of what an exponent represents (e.g., 8³ = 8 × 8 × 8)
* Identify the number of times the base number will be multiplied based on the exponent
* Expand or simplify an expression (i.e., 53 = 5x 5 x5 = 125)
* Use tools (i.e., template, anchor chart) to support students in performing operations in the appropriate order and with numbers in different forms
* Use tools (i.e., number line, fraction tiles, calculator, and graphic representation) to model equivalent forms of numbers
* Use the Product of Powers to expand or simplify an expression:

image of the Product of Powers Use the Quotient of Powers to expand or simplify an expression:image of Quotient of Powers * Understand the following concepts, symbols, and vocabulary for exponent
 |  |  |  |
| Resources: |  |  |  |  |

[MA.8.AR.1.2:](https://www.cpalms.org//PreviewStandard/Preview/15497) Apply properties of operations to multiply two linear expressions with rational coefficients.

**Clarifications:**
*Clarification 1:* Problems are limited to products where at least one of the factors is a monomial.

*Clarification 2:* Refer to [Properties of Operations, Equality and Inequality (Appendix D)](https://cpalmsmediaprod.blob.core.windows.net/uploads/docs/standards/best/ma/appendixd.pdf).

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.8.AR.1.AP.2:](https://www.cpalms.org/PreviewAccessPoint/Preview/18234) | Use the distributive property to multiply a monomial by a linear expression. |  |  |  |
| EssentialUnderstandings | * Identify a similar distribution when given a choice of three (e.g., when shown a positive association, can select a second example of a positive association from three choices)
* Identify the associations between the variables using supports (e.g., use a template to determine the association, use a pre-made scatter plot transparency and place on top of a given scatter

image of a positive linear association, a negative linear association, a nonlinear association, and a no linear association.* Locate points on the x-axis and y-axis on an adapted grid (not necessarily numeric)
* Describe, in general, the direction of the points on the grid (for example, the points are increasing from left to right)
* Understand the following concepts and vocabulary: best fit line, variable, outliers, linear, nonlinear, positive association, negative association, no association
 |  |  |  |
| Resources: |  |  |  |  |

[MA.8.AR.1.3:](https://www.cpalms.org//PreviewStandard/Preview/15498) Rewrite the sum of two algebraic expressions having a common monomial factor as a common factor multiplied by the sum of two algebraic expressions.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.8.AR.1.AP.3:](https://www.cpalms.org/PreviewAccessPoint/Preview/18235)  | Rewrite the sum of two linear algebraic expressions having a common whole number monomial factor as the common factor multiplied by the sum of two linear algebraic expressions. |  |  |  |
| EssentialUnderstandings | * Use concrete representations to instruct
* Use manipulatives (pattern blocks, two-way counters, virtual) to represent the problem.
* Use a tool (such as an algebra tiles, mat, table or graphic organizer) to separate the expression into parts.

For example

|  |
| --- |
| 4xy + 10 = 2 (2xy + 5) |
|  | 4xy | + 10 |
| 2 | 2xy | + 5 |

* Create a model with objects to show the distributive property, factoring and combining like terms with other operations.
* Add, subtract, multiply, and divide terms.
* Divide each term by the same number.
 |  |  |  |
| Resources: |  |  |  |  |

[MA.8.AR.2.1:](https://www.cpalms.org//PreviewStandard/Preview/15499) Solve multi-step linear equations in one variable, with rational number coefficients. Include equations with variables on both sides.

**Clarifications:**
*Clarification 1:* Problem types include examples of one-variable linear equations that generate one solution, infinitely many solutions or no solution.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.8.AR.2.AP.1a:](https://www.cpalms.org/PreviewAccessPoint/Preview/18236)  | Identify the steps to solve a given multi-step equation in one variable, with integers coefficients. Include equations with variables on both sides. |  |  |  |
| Essential Understandings | * Identify the operations in an equation
* Identify the inverse operation in order to solve a single step in the equation
* Identify like terms and their opposites in the equation, when necessary
* Identify steps to simplify each side of the equation, when possible
* Order a list of steps to solve an equation
 |  |  |  |
| Resources: |  |  |  |  |
| [MA.8.AR.2.AP.1b:](https://www.cpalms.org/PreviewAccessPoint/Preview/18237) | Solve multi-step equations in one variable, with integers coefficients. Include equations with variables on both sides. |  |  |  |
| EssentialUnderstandings | * Use manipulatives or a graphic organizer to set up and solve a problem
* Identify the inverse operation in order to solve one-step equations
* Identify like terms in the equation3*x* + 2*x* = 12 - *x*
* Combine like terms in the equation, when possible

8 + 3x = 5x – 28 + 2 + 3x = 5x - 2 + 210 + 3x = 5x+3x –3x= 5x – 3x 2x* Simplify equations by combining terms, using the properties or inverse operations
* Identify inverse operations and use them to solve equations.
* Understand the following concepts, vocabulary, and symbols: +, -, ×, ÷, =, variable, like terms, reciprocal, inverse operation, and equation
 |  |  |  |
| Resources: |  |  |  |  |

[MA.8.AR.2.2:](https://www.cpalms.org//PreviewStandard/Preview/15500)Solve two-step linear inequalities in one variable and represent solutions algebraically and graphically.

**Clarifications:**
*Clarification 1:* Instruction includes inequalities in the forms px±q>r and p(x±q)>r, where p, q and r are specific rational numbers and where any inequality symbol can be represented.

*Clarification 2:* Problems include inequalities where the variable may be on either side of the inequality.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.8.AR.2.AP.2:](https://www.cpalms.org/PreviewAccessPoint/Preview/18238)  | Select a two-step inequality from a list that represents a real-world situation and use substitution to solve. |  |  |  |
| EssentialUnderstandings | * Match an inequality to its real-world context
* Identify the variable in the inequality
* Create a pictorial array of an inequality to translate wording
* Use tools, (i.e., manipulatives, algebra tiles, software, equation calculators, etc.) to substitute into inequalities
* Understand the following vocabulary and symbols: +, -, ×, ÷, =, <, >, <, > linear, variable, inequality, equation, exponent, rational
 |  |  |  |
| Resources: |  |  |  |  |

[MA.8.AR.2.3:](https://www.cpalms.org//PreviewStandard/Preview/15501) Given an equation in the form of x²=p and x³=q, where p is a whole number and q is an integer, determine the real solutions.

**Clarifications:**
*Clarification 1:* Instruction focuses on understanding that when solving x²=p, there is both a positive and negative solution.

*Clarification 2:* Within this benchmark, the expectation is to calculate square roots of perfect squares up to 225 and cube roots of perfect cubes from -125 to 125.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.8.AR.2.AP.3:](https://www.cpalms.org/PreviewAccessPoint/Preview/18239) | Given an equation in the form of 𝑥2 = 𝑝 and 𝑥3 = 𝑞, use tools to determine real solutions where *p* is a perfect square up to 144 and *q* is a perfect cube from –125 to 125. |  |  |  |
| EssentialUnderstandings | * Use manipulatives to make a square
* The area of the square is the perfect square
* The length of each side is the square root
* Use manipulatives to make a cube
* The volume of the cube is the perfect cube
* The length of each side is the cube root
* Use a multiplication table to identify perfect squares
* Identify the square root and cube root function button on a calculator
* Use a calculator to determine the square roots and cube roots of numbers from –125 to 125
* Use a calculator to find the squares and cubes of numbers ranging from -12 to 12
* Use manipulatives to divide numbers
* Identify the characteristics of an irrational number
* Identify non-perfect square roots and cube roots
* Understand the following vocabulary and symbols: square root, cube root, squaring, cubing, square root symbol, cube root symbol, perfect square, perfect cube, exponent, factor, multiple
 |  |  |  |
| Resources: |  |  |  |  |

[MA.8.AR.3.1:](https://www.cpalms.org//PreviewStandard/Preview/15502) Determine if a linear relationship is also a proportional relationship.

**Clarifications:**
*Clarification 1:* Instruction focuses on the understanding that proportional relationships are linear relationships whose graph passes through the origin.

*Clarification 2:* Instruction includes the representation of relationships using tables, graphs, equations and written descriptions.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.8.AR.3.AP.1:](https://www.cpalms.org/PreviewAccessPoint/Preview/18240) | Given a table, a graph, or equation, determine whether a linear relationship is proportional. |  |  |  |
| EssentialUnderstandings | * Identify the origin in a table or a graph
* Identify whether the linear relationship crosses the origin in a graph
* In a table or equation, use substitution to determine if the origin is a solution to the linear relationship
* Use manipulatives to solve the equation or build the graph to determine whether the linear relationship contains the origin
* Determine whether the equation is in the form y=kx (proportional) or y=kx + c (non-proportional), where k and c are constants and not equal 0
* Understand the following concepts, vocabulary, and symbols: linear, nonlinear, linear relationship, origin, proportional
 |  |  |  |
| Resources: |  |  |  |  |

[MA.8.AR.3.2:](https://www.cpalms.org//PreviewStandard/Preview/15503) Given a table, graph or written description of a linear relationship, determine the slope.

**Clarifications:**
*Clarification 1:* Problem types include cases where two points are given to determine the slope.

*Clarification 2:* Instruction includes making connections of slope to the constant of proportionality and to similar triangles represented on the coordinate plane.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.8.AR.3.AP.2:](https://www.cpalms.org/PreviewAccessPoint/Preview/18241) | Given a table or graph of a linear relationship, identify the slope. |  |  |  |
| EssentialUnderstandings | * Identify properties of a linear relationship on a graph (e.g., slope, increasing or decreasing, where does it cross the x- and y-axis)
* Given a table, identify if a linear relationship
* Given an equation, determine the slope
* For example, if y=6x, the slope is 6
* Understand that the slope, constant of proportionality and rate of change all describe a change in a mathematical relationship
* In a table, identify the slope as the change in y over the change in x (give an example)
* Understand the following concept, vocabulary, and symbol: function, slope, constant of proportionality, increase, decrease, rate of change, x-axis, y-axis, coordinate, rise, and run
 |  |  |  |
| Resources: |  |  |  |  |

[MA.8.AR.3.3:](https://www.cpalms.org//PreviewStandard/Preview/15504) Given a table, graph or written description of a linear relationship, write an equation in slope-intercept form.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.8.AR.3.AP.3:](https://www.cpalms.org/PreviewAccessPoint/Preview/18242) | Given a table or graph of a linear relationship, identify from a list, the equation in slope-intercept form. |  |  |  |
| EssentialUnderstandings | * Identify the slope, coordinate and/or y-intercept of an equation in slope intercept form
* Identify the change in the x variable and the change in y variable given a table
* Identify properties of a linear relationship on a graph (e.g., slope, increasing or decreasing, where does it cross the x- and y-axis)
* Identify the slope and the y-intercept of a graph or table
* Identify where the function increases or decreases on a graph
* Match the graph to a given slope and y-intercept
* Match a table to a given slope and y-intercept
* Identify where the linear relationship increases or decreases on a graph
* Indicate the point on a line that crosses the y-axis
* Count the distance up/down between two points on the coordinate plane (rise)
* Count the distance to the right, between two points on the coordinate plane (run)
* Understand the following concepts and vocabulary: x-axis, y-axis, x-intercept, y-intercept, line, rise, run, fall, slope, rate of change
* Interpret/define a line graph with coordinates for multiple points
* Identify coordinates (points) on a graph
 |  |  |  |
| Resources: |  |  |  |  |

[MA.8.AR.3.4:](https://www.cpalms.org//PreviewStandard/Preview/15505) Given a mathematical or real-world context, graph a two-variable linear equation from a written description, a table or an equation in slope-intercept form.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.8.AR.3.AP.4:](https://www.cpalms.org/PreviewAccessPoint/Preview/18243) | Graph a two-variable linear equation from a table or an equation in slope-intercept form. |  |  |  |
| EssentialUnderstandings | * Identify the slope of the equation in slope intercept form
* Identify the y-intercept of the equation in slope intercept form
* Identify and graph coordinates from a table
* Identify the y-intercept from a table
* Identify the slope from a table
* Identify whether the line will increase or decrease from a table
* Identify whether the line will increase or decrease from the equation
* Identify the slope and the y-intercept of a graph
* Draw a sketch given a point and a y-intercept
* Draw a sketch given a slope and a y-intercept
* Match the graph to a given slope and y-intercept
* Identify where the linear relationship increases or decreases on a graph
* Indicate the point on a line that crosses the y-axis
* Count the distance up/down between two points on the coordinate plane (rise)
* Count the distance to the right, between two points on the coordinate plane (run)
* Understand the following concepts and vocabulary: x-axis, y-axis, x-intercept, y-intercept, line, rise, run, fall, slope, rate of change
* Interpret/define a line graph with coordinates for multiple points
* Identify coordinates (points) on a graph
 |  |  |  |
| Resources: |  |  |  |  |

[MA.8.AR.3.5:](https://www.cpalms.org//PreviewStandard/Preview/15506) Given a real-world context, determine and interpret the slope and y-intercept of a two-variable linear equation from a written description, a table, a graph or an equation in slope-intercept form.

**Clarifications:**
*Clarification 1:* Problems include conversions with temperature and equations of lines of fit in scatter plots.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.8.AR.3.AP.5:](https://www.cpalms.org/PreviewAccessPoint/Preview/18244) | Given a real-world context, identify the slope and *y*-intercept of a two-variable linear equation from a table, a graph or an equation in slope-intercept form. |  |  |  |
| EssentialUnderstandings | * Identify coordinates (points) on a graph
* Count the distance up/down between two points on the coordinate plane (rise)
* Count the distance to the right, between two points on the coordinate plane (run)
* Identify the slope of the equation in slope intercept form
* Identify the slope of the equation in slope intercept form within the context of the problem
* Identify the y-intercept of the equation in slope intercept form
* Identify the y-intercept of the table, graph or equation in slope intercept form given a real-world context
* Identify the slope from a table
* Identify the slope of the table or graph given a real-world context
* Identify whether the linear relationship will increase or decrease from a table
* Identify whether the linear relationship will increase or decrease from the equation
* Identify where the linear relationship increases or decreases on a graph
* Understand the following concepts and vocabulary: x-axis, y-axis, x-intercept, y-intercept, line, rise, run, fall, slope, rate of change, table, graph, equation
* Identify what the variables mean in context
 |  |  |  |
| Resources: |  |  |  |  |

[MA.8.AR.4.1:](https://www.cpalms.org//PreviewStandard/Preview/15507) Given a system of two linear equations and a specified set of possible solutions, determine which ordered pairs satisfy the system of linear equations.

**Clarifications:**
*Clarification 1:* Instruction focuses on the understanding that a solution to a system of equations satisfies both linear equations simultaneously.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.8.AR.4.AP.1a:](https://www.cpalms.org/PreviewAccessPoint/Preview/18245)  | Given a system of two linear equations displayed on a graph, identify the solution of a system as the point where the two lines intersect. |  |  |  |
| Essential Understandings | * Identify the lines on the graph
* Identify whether the lines intersect
* Identify the coordinate of the intersection
* Understand that the solution of a linear system is the point where the lines intersect
* Understand that some linear systems do not have a solution
* Understand the following concepts, vocabulary, and symbols: +, -, ×, ÷, =, variable, equation, linear system, intersection, coordinates, coordinate plane, solution, slope, y-intercept, slope-intercept form
 |  |  |  |
| Resources: |  |  |  |  |
| [MA.8.AR.4.AP.1b:](https://www.cpalms.org/PreviewAccessPoint/Preview/18246)  | Identify the coordinates of the point of intersection for two linear equations plotted on a coordinate plane. |  |  |  |
| EssentialUnderstandings | * Identify the solution to a system (i.e., find when the two lines on the same graph cross)
* Use manipulatives or tools to identify the solution to the system
* Understand the following concepts, vocabulary, and symbols: +, -, ×, ÷, =, variable, equation, linear system, intersection, coordinates, coordinate plane, solution, slope, y-intercept, slope-intercept form
* Identify a coordinate that represents the solution
* Identify the x-coordinate and y-coordinate of a point on the graph
 |  |  |  |
| Resources: |  |  |  |  |

[MA.8.AR.4.2:](https://www.cpalms.org//PreviewStandard/Preview/15508) Given a system of two linear equations represented graphically on the same coordinate plane, determine whether there is one solution, no solution or infinitely many solutions.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.8.AR.4.AP.2:](https://www.cpalms.org/PreviewAccessPoint/Preview/18247) | Given a system of two linear equations represented graphically on the same coordinate plane, identify whether there is one solution or no solution. |  |  |  |
| EssentialUnderstandings | * Include defining one solution and no solution
* Understand that the solution of the system is the coordinate where the lines intersect
* Understand that some systems do not have a solution
* For example, parallel lines will never intersect; hence, their system would have no solution
* Identify whether the lines intersect
* Identify the coordinate of the intersection
* Manipulate lines on a graph to show no solution (parallel)
* Manipulate lines on a graph to show one solution (point of intersection)
 |  |  |  |
| Resources: |  |  |  |  |

[MA.8.AR.4.3:](https://www.cpalms.org//PreviewStandard/Preview/15509) Given a mathematical or real-world context, solve systems of two linear equations by graphing.

**Clarifications:**
*Clarification 1:* Instruction includes approximating non-integer solutions.

*Clarification 2:* Within this benchmark, it is the expectation to represent systems of linear equations in slope-intercept form only.

*Clarification 3:* Instruction includes recognizing that parallel lines have the same slope.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.8.AR.4.AP.3:](https://www.cpalms.org/PreviewAccessPoint/Preview/18248) | Given two sets of coordinates for two lines, plot the lines on a coordinate plane and describe or select the solution to a system of linear equations. |  |  |  |
| EssentialUnderstandings | * Determine whether the lines will intersect
* Describe the solution to the system of linear equations
* Identify the solution to a system (i.e., find when the two lines on the same graph cross) displayed graphically
* Select the solution of the system from a list
* Graph a line on a coordinate plane when given coordinates
* Use manipulatives or tools to graph a line
* Use manipulatives or tools to identify a solution to a system of linear equations
* Use the slope and the y-intercept of the line to determine if the lines will intersect
* Understand the following concepts, vocabulary, and symbols: +, -, ×, ÷, =, variable, equation, slope, y-intercept, intersection, coordinates, and coordinate plane
 |  |  |  |
| Resources: |  |  |  |  |

[MA.8.DP.1.1:](https://www.cpalms.org//PreviewStandard/Preview/15523) Given a set of real-world bivariate numerical data, construct a scatter plot or a line graph as appropriate for the context.

**Clarifications:**
*Clarification 1:* Instruction includes recognizing similarities and differences between scatter plots and line graphs, and on determining which is more appropriate as a representation of the data based on the context.

*Clarification 2:* Sets of data are limited to 20 points.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.8.DP.1.AP.1:](https://www.cpalms.org/PreviewAccessPoint/Preview/18264)  | Graph bivariate data using a scatter plot. |  |  |  |
| EssentialUnderstandings | * Locate points on the x-axis and y-axis on an adapted grid (not necessarily numeric)
* Understand the following concepts and vocabulary: best fit line, variable, outliers, positive association, negative association, no association, bivariate, scatter plot
* Graph a series of data points on a coordinate grid
* Identify what the x-axis and y-axis represent
* Enter data into a graph using manipulatives, as needed
* Understand basic information from simple graphs (e.g., interpret a scatter plot using the understanding that each point on the graph represents a relationship between two different variables). For example, the company sold $520 worth of ice cream when it was 22 degrees Celsius outside

image of a simple graph with the temperatures on the right and cups of coffee sold at the bottom |  |  |  |
| Resources: |  |  |  |  |

[MA.8.DP.1.2:](https://www.cpalms.org//PreviewStandard/Preview/15524) Given a scatter plot within a real-world context, describe patterns of association.

**Clarifications:**
*Clarification 1:* Descriptions include outliers; positive or negative association; linear or nonlinear association; strong or weak association.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.8.DP.1.AP.2:](https://www.cpalms.org/PreviewAccessPoint/Preview/18265)  | Given a scatter plot, identify whether the patterns of association are no association, positive association, negative association, linear or nonlinear. |  |  |  |
| EssentialUnderstandings | * Identify a similar distribution when given a choice of three (e.g., when shown a positive association, can select a second example of a positive association from three choices).
* Identify the associations between the variables using supports (E.g., use a template to determine the association, use a pre-made scatter plot transparency and place on top of a given scatter

image of a positive linear association, a negative linear association, a nonlinear association, and a no linear association.* Locate points on the x-axis and y-axis on an adapted grid (not necessarily numeric).
* Describe, in general, the direction of the points on the grid (for example, the points are increasing from left to right)
* Understand the following concepts and vocabulary
 |  |  |  |
| Resources: |  |  |  |  |

[MA.8.DP.1.3:](https://www.cpalms.org//PreviewStandard/Preview/15525) Given a scatter plot with a linear association, informally fit a straight line.

**Clarifications:**
*Clarification 1:* Instruction focuses on the connection to linear functions.

*Clarification 2:* Instruction includes using a variety of tools, including a ruler, to draw a line with approximately the same number of points above and below the line.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.8.DP.1.AP.3:](https://www.cpalms.org/PreviewAccessPoint/Preview/18266) | Given a scatter plot with a linear association, use tools to draw or place a line of fit. |  |  |  |
| EssentialUnderstandings | * Draw a line between two points on a graph.
* Draw a line between at least two points on the graph that approximates the general direction of the data
* Identify linear and non-linear associations in various scatter plots. For example:

an image of a linear a nonlinear association scatter plot* Identify when data points are close together or spread out (strong or weak association). For example:

|  |  |
| --- | --- |
| Strong Positive Linear Association | Weak Positive Linear Association |
| strong positive linear association graph   | Weak positive linear association graph   |

* Use appropriate tools (uncooked spaghetti noodle, clear ruler, Popsicle stick, etc.) to visually approximate the line of best fit.

image of graph paper and a scatter plot with a line of best fit drawn* Understand the following concepts and vocabulary: best fit line, variable, outliers, scatter plots, data points, linear associations, nonlinear associations.
* Given three choices, select the line of best fit.

image of graph paper and a scatter plot with three  lines of best fit drawn and asking which is the best fit |  |  |  |
| Resources: |  |  |  |  |

[MA.8.DP.2.1:](https://www.cpalms.org//PreviewStandard/Preview/15526) Determine the sample space for a repeated experiment.

**Clarifications:**
*Clarification 1:* Instruction includes recording sample spaces for repeated experiments using organized lists, tables or tree diagrams.

*Clarification 2:* Experiments to be repeated are limited to tossing a fair coin, rolling a fair die, picking a card randomly from a deck with replacement, picking marbles randomly from a bag with replacement and spinning a fair spinner.

*Clarification 3:* Repetition of experiments is limited to two times except for tossing a coin.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.8.DP.2.AP.1:](https://www.cpalms.org/PreviewAccessPoint/Preview/18267)  | Use a tool (table, list or tree diagram) to record results of a repeated experiment. |  |  |  |
| EssentialUnderstandings | * Record the result of an experiment
* Use a tree diagram to record the result (outcome) of a repeated experiment
* Use a table to record the result (outcome) of a repeated experiment
* Use a chart to capture the outcomes of coin flips or dice rolls
* Use items like coins to generate outcomes for a repeated experiment
* Use coins to represent the theoretical probability for a sample space – show rows of two coins each, one with heads face up and one with tails up; each row represents another stage of the experiment
* Using manipulatives and a chart to capture the outcomes of coin flips or dice rolls
* Given a set of items, identify items that are in the set and items that are not in the set
* Understand the following concepts, symbols, and vocabulary: probability, likelihood, experiment, outcome, event, chance event, compound event, simple event
 |  |  |  |
| Resources: |  |  |  |  |

[MA.8.DP.2.2:](https://www.cpalms.org//PreviewStandard/Preview/15527) Find the theoretical probability of an event related to a repeated experiment.

**Clarifications:**
*Clarification 1:* Instruction includes representing probability as a fraction, percentage or decimal.

*Clarification 2:* Experiments to be repeated are limited to tossing a fair coin, rolling a fair die, picking a card randomly from a deck with replacement, picking marbles randomly from a bag with replacement and spinning a fair spinner.

*Clarification 3:* Repetition of experiments is limited to two times except for tossing a coin.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.8.DP.2.AP.2:](https://www.cpalms.org/PreviewAccessPoint/Preview/18268) | Select the theoretical probability of an event related to a repeated experiment from a list. |  |  |  |
| EssentialUnderstandings | * Given a set of items, identify items that are in the set and items that are not in the set
* Identify the difference between theoretical and experimental probability
* Match a scenario with its theoretical probability
* Identify the possible outcomes of an experiment
* Given a set of items, identify the probability of selecting a specific item from the set
* Use a model to identify the probability of a chance event.
* Understand the value for probability of a chance event ranges between 0 and 1
* Identify the formula for finding theoretical probability of an event (theoretical probability = number of ways it can happen/total number of outcomes)
* Use items like coins to determine the probability of an outcome (1/2 heads)
* Understand the following concepts, symbols, and vocabulary: probability, likelihood, experiment, outcome event, chance event, compound event, simple event
 |  |  |  |
| Resources: |  |  |  |  |

[MA.8.DP.2.3:](https://www.cpalms.org//PreviewStandard/Preview/15528) Solve real-world problems involving probabilities related to single or repeated experiments, including making predictions based on theoretical probability.

**Clarifications:**
*Clarification 1:* Instruction includes making connections to proportional relationships and representing probability as a fraction, percentage or decimal.

*Clarification 2:* Experiments to be repeated are limited to tossing a fair coin, rolling a fair die, picking a card randomly from a deck with replacement, picking marbles randomly from a bag with replacement and spinning a fair spinner.

*Clarification 3:* Repetition of experiments is limited to two times except for tossing a coin.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.8.DP.2.AP.3:](https://www.cpalms.org/PreviewAccessPoint/Preview/18269) | Compare actual results of an experiment with its theoretical probability (e.g., make a statement that describes the relationship between the actual results of an experiment with its theoretical probability [e.g., more, less, same, different, equal]). |  |  |  |
| EssentialUnderstandings | * Identify the formula for finding theoretical probability of an event (theoretical probability = number of ways it can happen/total number of outcomes)
* Identify the formula for finding the experimental probability of an event (Experimental Probability = number of ways it actually happened/total number of outcomes)
* Identify the theoretical probability of an experiment (theoretical probability = number of ways it can happen/total number of outcomes)
* Identify the experimental probability of an experiment (Experimental Probability = number of ways it actually happened/total number of outcomes)
* Identify the characteristics of the theoretical and experimental probability
* Compare and describe the theoretical and experimental probability of an experiment
* Use the recorded results from an experiment to describe the experimental probability of a chance event
* Use the results from an experiment to describe the theoretical probability of a chance event
* Identify the similarities and differences between theoretical and experimental probability
* Identify the correct match for probabilities and results. e.g., Select a picture card that describes the relationship between the actual results of an experiment with its theoretical probabilities (e.g., more, less, same, different, equal)
* Understand the following concepts, symbols, and vocabulary: probability, likelihood, experiment, outcome, event, chance event, compound event, simple event
 |  |  |  |
| Resources: |  |  |  |  |

[MA.8.F.1.1:](https://www.cpalms.org//PreviewStandard/Preview/15510) Given a set of ordered pairs, a table, a graph or mapping diagram, determine whether the relationship is a function. Identify the domain and range of the relation.

**Clarifications:**
*Clarification 1:* Instruction includes referring to the input as the independent variable and the output as the dependent variable.

*Clarification 2:* Within this benchmark, it is the expectation to represent domain and range as a list of numbers or as an inequality.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.8.F.1.AP.1a:](https://www.cpalms.org/PreviewAccessPoint/Preview/18249) | Given a set of ordered pairs, a table or mapping diagram identify whether the relationship is a function. |  |  |  |
| Essential Understandings | * Identify the input and output values on a T-chart or function table
* Understand that, in a function, an input will only have one output
* Understand that the input values represent the domain, and the output values represent the range
* Using the values of the T-chart, graph the points

image of a table with two columns (input and Out Put), Ordered Pairs, and Graph* Use the vertical line test to determine whether a relation is a function or non-function
* Identify if the relation is a function given a table
* Identify whether a domain value repeats in the table
* Identify whether a domain value is connected to more than one range value in a mapping

image of a function and non function* Understand the following concepts, vocabulary, and symbols: table, mapping diagram, order pairs, function, input, output, vertical line test, domain, range
 |  |  |  |
| Resources: |  |  |  |  |
| [MA.8.F.1.AP.1b:](https://www.cpalms.org/PreviewAccessPoint/Preview/18250)  | Given a set of ordered pairs, a table or mapping diagram identify the domain and range of the relation. |  |  |  |
| EssentialUnderstandings | * Understand that the input values represent the domain, and the output values represent the range
* Identify the x coordinate in an ordered pair as an element in the domain
* Identify the y-coordinate in an ordered pair as an element in the range
* Identify the input values, in a table, as the domain and the output values as the range
* Using a mapping, identify the domain as the input values (arrow starts) and the range as the output values (arrow pointing at)
* Use a T-chart and manipulatives to pair the values in the domain to the values in the range
* Use a T-chart to predict the output (y-value)
* Understand the following related vocabulary: domain, range, table, mapping diagram, order pairs, function, input, output, domain, range
 |  |  |  |
| Resources: |  |  |  |  |

[MA.8.F.1.2:](https://www.cpalms.org//PreviewStandard/Preview/15511) Given a function defined by a graph or an equation, determine whether the function is a linear function. Given an input-output table, determine whether it could represent a linear function.

**Clarifications:**
*Clarification 1:* Instruction includes recognizing that a table may not determine a function.\

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.8.F.1.AP.2:](https://www.cpalms.org/PreviewAccessPoint/Preview/18251)  | Given a function displayed as a graph or an equation, identify whether the function is a linear function. |  |  |  |
| EssentialUnderstandings | * Identify a linear function on a graph as one that forms a straight line
* Identify a nonlinear function on a graph as one that does not make a straight line
* Understand the following concepts, vocabulary, and symbols: linear, nonlinear, function, exponent, variable, quadratic
* Label a function on a graph as being either linear or nonlinear
* Identify functions as linear or nonlinear given an equation or graph
* Use tools to identify whether the function displayed on a graph is linear (I.e., Ruler, pipe cleaner, Wikki Stix)
* Identify the exponent on each variable (for example, x has an exponent of 1, x2 has an exponent of 2)
* Y = 2x, y = x+5 (linear equations)
* Y=x2 (quadratic, nonlinear equation)
* Understand that linear functions have the highest exponent of 1
 |  |  |  |
| Resources: |  |  |  |  |

[MA.8.F.1.3:](https://www.cpalms.org//PreviewStandard/Preview/15512) Analyze a real-world written description or graphical representation of a functional relationship between two quantities and identify where the function is increasing, decreasing or constant.

**Clarifications:**
*Clarification 1:* Problem types are limited to continuous functions.

*Clarification 2:* Analysis includes writing a description of a graphical representation or sketching a graph from a written description.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.8.F.1.AP.3:](https://www.cpalms.org/PreviewAccessPoint/Preview/18252) | Given a functional relationship displayed as a graph, identify where the function is increasing, decreasing or constant. |  |  |  |
| EssentialUnderstandings | * Identify a graph that is increasing, decreasing and/or constant
* Understand that graphs are read from left to right
* Identify where the graph is increasing or decreasing or constant (Graphingstories.com)
* Define vocabulary in isolation with visual images
* Identify where the function increases or decreases on a graph
* Given a verbal description, determine whether the slope is increasing or decreasing
* Identify characteristics of a graph
* Match a description to a graph
* Use manipulatives to identify where a graph changes direction
* Use manipulatives to represent the relationship between two graphs (E.g., use uncooked spaghetti to describe the slope between an escalator (incline) and an elevator shaft (vertical))
* Identify coordinates (points) on a graph
* Describe the situation that may account for the characteristics in the graph
 |  |  |  |
| Resources: |  |  |  |  |

[MA.8.GR.1.1:](https://www.cpalms.org//PreviewStandard/Preview/15513) Apply the Pythagorean Theorem to solve mathematical and real-world problems involving unknown side lengths in right triangles.

**Clarifications:**
*Clarification 1:* Instruction includes exploring right triangles with natural-number side lengths to illustrate the Pythagorean Theorem.

*Clarification 2:* Within this benchmark, the expectation is to memorize the Pythagorean Theorem. *Clarification 3:* Radicands are limited to whole numbers up to 225.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.8.GR.1.AP.1:](https://www.cpalms.org/PreviewAccessPoint/Preview/18253)  | Find the hypotenuse of a two-dimensional right triangle using the Pythagorean Theorem. |  |  |  |
| EssentialUnderstandings | * Identify the formula for the Pythagorean Theorem
* Understand that every right triangle has exactly one right angle (90 degrees)
* Identify what each variable in the Pythagorean Theorem represents
* Label the legs and the hypotenuse of the given figure
* Measure the lengths of the legs and the hypotenuse of the given figure
* Use a graphic organizer to organize the measurements of the legs and hypotenuse, using appropriate tools as needed
* Use tools to find the square and square root of a number
* Use substitution or a graphic organizer to find the value of the missing side length
* Understand the following concepts and vocabulary: Pythagorean Theorem, length, right triangle, hypotenuse, leg, and angle
 |  |  |  |
| Resources: |  |  |  |  |

[MA.8.GR.1.2:](https://www.cpalms.org//PreviewStandard/Preview/15514) Apply the Pythagorean Theorem to solve mathematical and real-world problems involving the distance between two points in a coordinate plane.

**Clarifications:**
*Clarification 1:* Instruction includes making connections between distance on the coordinate plane and right triangles.

*Clarification 2:* Within this benchmark, the expectation is to memorize the Pythagorean Theorem. It is not the expectation to use the distance formula. *Clarification 3:* Radicands are limited to whole numbers up to 225. **Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.8.GR.1.AP.2:](https://www.cpalms.org/PreviewAccessPoint/Preview/18254) | Given the Pythagorean Theorem, determine lengths/distances between two points in a coordinate system by forming right triangles, with natural number side lengths. |  |  |  |
| EssentialUnderstandings | * Use the given two points to form a right triangle
* Understand that the length of a diagonal line may be different than the number of blocks it intersects
* Use the coordinate grid to count the measure of each side length of the drawn triangle
* Identify the formula for the Pythagorean Theorem
* Identify what each variable in the Pythagorean Theorem represents
* Label the legs and the hypotenuse of the given figure
* Measure the lengths of the legs and the hypotenuse of the given figure
* Use substitution or a graphic organizer to calculate a missing side using the Pythagorean Theorem, using appropriate tools as needed
* Enter information into the formula for the Pythagorean Theorem to solve problems
* Understand the following concepts and vocabulary: Pythagorean Theorem, length, right triangle, legs, hypotenuse, and angle
 |  |  |  |
| Resources: |  |  |  |  |

[MA.8.GR.1.3:](https://www.cpalms.org//PreviewStandard/Preview/15515) Use the Triangle Inequality Theorem to determine if a triangle can be formed from a given set of sides. Use the converse of the Pythagorean Theorem to determine if a right triangle can be formed from a given set of sides.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.8.GR.1.AP.3a:](https://www.cpalms.org/PreviewAccessPoint/Preview/18255) | Measure the sides of triangles to establish facts about the Triangle Inequality Theorem (i.e., the sum of two side lengths is greater than the third side). |  |  |  |
| Essential Understandings | * Identify the formula for the Triangle Inequality Theorem
* Identify what each variable in the Triangle Inequality Theorem represents
* Label the legs and the hypotenuse of the given figure
* Measure the lengths of the legs and the hypotenuse of the given figure
* Use substitution or a graphic organizer to organize the measurements of the legs and hypotenuse, using appropriate tools as needed
* Use tools (calculator, number line, graphic organizer, etc.) to determine whether the sum of the legs is greater than the hypotenuse
* Understand the following concepts and vocabulary: Pythagorean Theorem, Triangle Inequality Theorem, length, right triangle, hypotenuse, leg, and angle
 |  |  |  |
| Resources: |  |  |  |  |
| [MA.8.GR.1.AP.3b:](https://www.cpalms.org/PreviewAccessPoint/Preview/18256)  | Substitute the side lengths of a given figure into the Pythagorean Theorem to determine if a right triangle can be formed. |  |  |  |
| EssentialUnderstandings | * Identify the formula for the Pythagorean Theorem
* Identify what each variable in the Pythagorean Theorem represents
* Label the legs and the hypotenuse of the given figure
* Measure the lengths of the legs and the hypotenuse of the given figure
* Use tools to find the square and square root of a number.
* Use substitution or a graphic organizer to organize the measurements of the legs and hypotenuse, using appropriate tools as needed
* Use tools (calculator, number line, graphic organizer, etc.) to determine whether the sum of the legs is greater than the hypotenuse
* Identify whether the triangle is a right triangle based on its measurements
* Understand that every right triangle has exactly one right angle (90 degrees)
* Understand the following concepts and vocabulary: equality, square, square root, Pythagorean Theorem, length, right triangle, hypotenuse, leg, and angle
 |  |  |  |
| Resources: |  |  |  |  |

[MA.8.GR.1.4:](https://www.cpalms.org//PreviewStandard/Preview/15516) Solve mathematical problems involving the relationships between supplementary, complementary, vertical or adjacent angles.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.8.GR.1.AP.4:](https://www.cpalms.org/PreviewAccessPoint/Preview/18257) | Identify supplementary, complementary, vertical or adjacent angle relationships. |  |  |  |
| EssentialUnderstandings | * Given an angle measure, draw an angle
* Recognize that the angle measure of a straight line is 180 degrees
* Use a protractor to measure the missing angle
* Understand the following concepts and vocabulary: acute, obtuse, right, straight-line, transversal, vertical angles, corresponding angles, alternate interior angles, supplementary angles
* Match or identify angle measurements
* Describe angles and parallel lines using their characteristics, i.e., size, sides, lines, and angle measures
* Use appropriate tools as needed
* Use addition or subtraction to determine the missing angle measurement. (E.g., Angle ABC and Angle EDG are complementary. Angle ABC measures 35 degrees. Angle EDG has to measure 55 degrees because 90-35=55)
* Identify vertical angles, corresponding angles, and alternate interior angles. Understand that the angles are congruent

|  |  |  |
| --- | --- | --- |
| Relationship | Characteristics | Image |
| Adjacent | have a common vertex and a common side but do not overlap | image of Adjacent angles |
| Complementary | The sum of the two angle measurements equals 90 degrees | image of Complementary angles |
| Supplementary | The sum of two angles whose sum equals 180 degrees\*forms a straight line | image of Supplementary angles |
| Vertical | each of the pairs of opposite angles made by two intersecting lines | image of Vertical angles |

 |  |  |  |
| Resources: |  |  |  |  |

[MA.8.GR.1.5:](https://www.cpalms.org//PreviewStandard/Preview/15517) Solve problems involving the relationships of interior and exterior angles of a triangle.

**Clarifications:**
*Clarification 1:* Problems include using the Triangle Sum Theorem and representing angle measures as algebraic expressions.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.8.GR.1.AP.5:](https://www.cpalms.org/PreviewAccessPoint/Preview/18258)  | Given an image, solve simple problems involving the relationships of interior and exterior angles of a triangle. |  |  |  |
| EssentialUnderstandings | * Identify the interior angles of a triangle
* Identify the exterior angles of a triangle
* Understand that an interior angle and its exterior angle create a linear pair with a supplementary angle relationship
* Given a triangle, measure each angle
* Given a triangle, measure the angle with a missing measure using a tool, i.e., protractor
* Given a triangle, tear the angles off and put them together to make a straight line
* Given a triangle, subtract numbers from 180 using a table.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Angle A | Angle B | Angle A + Angle B | 180 - (Angle A + B) = Angle C | Angle A + Angle B + Angle C = 180 |
|  |  |  |  |  |

* Use addition or subtraction to determine the missing angle measurement in triangles. (E.g., Angle A = 60 degrees, Angle B = 40 degrees, Angle A + Angle B = 100 degrees, therefore Angle C = 180 – 100 = 80 degrees)
* Given a linear pair, measure the angle with the missing measurement, using a tool, i.e., protractor, virtual manipulative, etc.
* Given a triangle, use a ruler to construct an exterior angle.
* Recognize that a triangle consists of three angles that total 180 degrees
* Recognize that the angle measure of a straight line is 180 degrees
* Understand the following concepts and vocabulary: acute, obtuse, right, straight line, supplementary angles, exterior angle, interior angle, supplementary, protractor,
* Match or identify angle measurements
* Describe triangles by telling about their shape, sides, lines, and angles
 |  |  |  |
| Resources: |  |  |  |  |

[MA.8.GR.1.6:](https://www.cpalms.org//PreviewStandard/Preview/15518) Develop and use formulas for the sums of the interior angles of regular polygons by decomposing them into triangles.

**Clarifications:**
*Clarification 1:* Problems include representing angle measures as algebraic expressions.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.8.GR.1.AP.6:](https://www.cpalms.org/PreviewAccessPoint/Preview/18259)  | Use tools to calculate the sum of the interior angles of regular polygons when given the formula. |  |  |  |
| EssentialUnderstandings | * Identify the number of sides in a polygon
* Identify the number of sides in common polygons by name (square, rectangle, quadrilateral, pentagon, octagon, etc.)
* Understand that a regular polygon has sides and angles of equal measure
* Understand how to use the formula for the sum of interior angles:
* Sum of interior angles = 180(*n* – 2), where *n* is the number of sides
* Given a polygon, use a single vertex to construct triangles within the figure

image of a polygon* Understand that the sum of the interior angles in a triangle is 180 degrees
* Identify parts of a polygon (interior angles, sides, vertices)
 |  |  |  |
| Resources: |  |  |  |  |

[MA.8.GR.2.1:](https://www.cpalms.org//PreviewStandard/Preview/15519) Given a preimage and image generated by a single transformation, identify the transformation that describes the relationship.

**Clarifications:**
*Clarification 1:* Within this benchmark, transformations are limited to reflections, translations or rotations of images.

*Clarification 2:* Instruction focuses on the preservation of congruence so that a figure maps onto a copy of itself. **Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.8.GR.2.AP.1:](https://www.cpalms.org/PreviewAccessPoint/Preview/18260) | Given two figures on a coordinate plane, identify if the image is translated, rotated, or reflected. |  |  |  |
| EssentialUnderstandings | * Understand the following concepts and vocabulary: transformation, image, pre-image, 90-degree rotation, 180-degree rotation, 270-degree rotation, 360-degree rotation, clockwise, counter-clockwise, vertical, horizontal, x-axis, y-axis, origin, congruent, rotation, reflection, and translation
* Model a rotation, reflection, and translation on the coordinate plane using manipulatives
* Identify a rotation, reflection, and translation when it occurs on the coordinate plane
* Use manipulatives to demonstrate translations (sliding object)
* Use manipulatives to demonstrate rotation (rotating figure)
* Use manipulatives to demonstrate reflections (flipping object)
* Trace a figure and slide it over to translate the figure
* Trace a figure and rotate it around the origin to create a rotation
* Trace a figure and reflect it across the x-axis or y-axis to create a reflection
* Understand that a translation, rotation, or reflection does not change the size of the shape, only its positioning
* Understand that an image and its pre-image should be congruent for translations, reflections, and rotations
 |  |  |  |
| Resources: |  |  |  |  |

[MA.8.GR.2.2:](https://www.cpalms.org//PreviewStandard/Preview/15520) Given a preimage and image generated by a single dilation, identify the scale factor that describes the relationship.

**Clarifications:**
*Clarification 1:* Instruction includes the connection to scale drawings and proportions.

*Clarification 2:* Instruction focuses on the preservation of similarity and the lack of preservation of congruence when a figure maps onto a scaled copy of itself, unless the scaling factor is 1.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.8.GR.2.AP.2:](https://www.cpalms.org/PreviewAccessPoint/Preview/18261) | Given a preimage and image describe the effect the dilation has on the two figures. |  |  |  |
| EssentialUnderstandings | * Understand the following concepts and vocabulary: transformation, dilation, image, pre-image, scale drawing, scale factor, dimension, enlarge, reduce clockwise, counterclockwise, vertical, horizontal, x-axis, y-axis, origin, rotation, reflection, and translation
* Identify when shapes are similar, but different sizes (e.g., show the same shape at various sizes – 25%, 50%, 150% – when presented with two-dimensional or three-dimensional shapes)
* Use different size manipulatives of the same figure to demonstrate dilations

**image of three different sized circleslarge image of a red SUV above a smaller image of the same SUV*** Use the zoom in/zoom out feature on a copier or computer screen to demonstrate the increasing and/or decreasing size of an image
* Understand that a dilation does not change the shape itself, only its size
* Understand that the pre-image and its image will be similar, but may not be congruent
* Understand that multiplying makes an object bigger, and dividing (or multiplying by a fraction) makes an object smaller
* Use appropriate tools to solve a one-step equation
* Understand that a scale factor of 1 will create a congruent figure
* Understand scale factors greater than 1 will produce a larger image
* Understand that scale factors smaller than 1 will produce a smaller image
 |  |  |  |
| Resources: |  |  |  |  |

[MA.8.GR.2.3:](https://www.cpalms.org//PreviewStandard/Preview/15521) Describe and apply the effect of a single transformation on two-dimensional figures using coordinates and the coordinate plane.

**Clarifications:**

*Clarification 1:* Within this benchmark, transformations are limited to reflections, translations, rotations or dilations of images.
*Clarification 2:* Lines of reflection are limited to the x-axis, y-axis or lines parallel to the axes.

*Clarification 3:* Rotations must be about the origin and are limited to 90°, 180°, 270° or 360°.

*Clarification 4:* Dilations must be centered at the origin.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.8.GR.2.AP.3:](https://www.cpalms.org/PreviewAccessPoint/Preview/18262) | Identify the coordinates of the vertices of a common polygon after a single translation, rotation or dilation on the coordinate plane. |  |  |  |
| EssentialUnderstandings | * Understand the following vocabulary: vertex, side, dilation, reflection, rotations, translation, common polygon, coordinate, coordinate plane, scale factor, increasing and decreasing of size and scale
* Use manipulatives to demonstrate rotations, reflections, or translations
* Match or identify when a two-dimensional drawing has been dilated, rotated, reflected, or translated
* Trace a figure (pre-image) on a coordinate plane and slide it over to translate the figure. Identify the coordinates of the vertices in its new position (image)
* Trace a figure (pre-image) on a coordinate plane and rotate it to create a rotation
* Identify the coordinate of the vertices (image) in its new position
* Trace a figure (pre-image) on a coordinate plane and reflect it across either the x-axis or y-axis to create a reflection
* Identify the coordinates of the vertices in its new position (image)
* Given a figure on a coordinate plane, identify the coordinates of its vertices
* Using manipulatives identify two figures that are the same shape and size
* Using manipulatives identify two figures that are different sizes but the same shape. Use the two figures to find the coordinates of the vertices
* Draw two figures that are different sizes but the same shape on a coordinate plane. Identify the coordinates of each figure
 |  |  |  |
| Resources: |  |  |  |  |

[MA.8.GR.2.4:](https://www.cpalms.org//PreviewStandard/Preview/15522) Solve mathematical and real-world problems involving proportional relationships between similar triangles.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.8.GR.2.AP.4:](https://www.cpalms.org/PreviewAccessPoint/Preview/18263) | Use tools to solve mathematical problems using proportions between similar triangles. |  |  |  |
| EssentialUnderstandings | * Understand that similar triangles will have congruent angle measures, but may not have congruent side lengths
* Select two triangles that are the same shape
* Select two objects that have different shapes
* Use appropriate tools as needed to duplicate a shape (e.g., wiki sticks, computers, interactive white boards, markers, transparency film, patty paper, sheet protectors)
* Given two shapes, label (identify, point to, mark,) the corresponding parts of congruent figures
* Given two shapes, label (identify, point to, mark,) the corresponding parts of similar figures
* Describe the characteristics of two figures that are the same
* Describe the characteristics of two figures that are different (For example, in the figure below side A is twice the length of side a)

image of a large triangle and a small triangle* Understand the following concepts and vocabulary: similar, congruent, angles, corresponding, proportional, and transformation
* Identify vertices on a graph for each figure
* Identify vertices on a graph to determine the length of a leg of the triangle
* Identify the measures of the side lengths of a triangle
* Match a triangle with its proportional relationship
* Use an applet to manipulate similar and congruent figures
* Use a calculator to determine whether the sides of two figures are proportional
* Use a graphic organizer to determine whether the side lengths of two figures are proportional

|  |  |
| --- | --- |
| Figure |  |
| image of a large triangle and a small triangle | image of "big divided by small"image of A/a =B/b |
| image of a large triangle and a small triangle |  $\frac{AC}{DF}$= $\frac{AB}{DE}$ $\frac{6}{DF}$= $\frac{10}{5}$10 (DF) = 6 \* 510 (DF) = 30DF = 3 |

 |  |  |  |
| Resources: |  |  |  |  |

[MA.8.NSO.1.1:](https://www.cpalms.org//PreviewStandard/Preview/15489) Extend previous understanding of rational numbers to define irrational numbers within the real number system. Locate an approximate value of a numerical expression involving irrational numbers on a number line.

**Clarifications:**
*Clarification 1:* Instruction includes the use of number line and rational number approximations, and recognizing pi (π) as an irrational number.

*Clarification 2:* Within this benchmark, the expectation is to approximate numerical expressions involving one arithmetic operation and estimating square roots or pi (π).

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.8.NSO.1.AP.1:](https://www.cpalms.org/PreviewAccessPoint/Preview/18226)  | Locate approximations of irrational numbers on a number line. |  |  |  |
| EssentialUnderstandings | * Locate whole numbers on a number line
* Locate decimal numbers on a number line
* Locate fractions on a number line
* Use a calculator to find the square root of a number
* Use the square root of a number to place a value on the number line
* Round an irrational number to the nearest whole number
* Round an irrational number to the nearest tenths place
* Round an irrational number to the hundredths place
* Round an irrational number to the thousandths place
* Understand the following concepts, symbols, and vocabulary for: rational number, irrational number, square root, pi, fraction, decimal
 |  |  |  |
| Resources: |  |  |  |  |

[MA.8.NSO.1.2:](https://www.cpalms.org//PreviewStandard/Preview/15490) Plot, order and compare rational and irrational numbers, represented in various forms.

**Clarifications:**
*Clarification 1:* Within this benchmark, it is not the expectation to work with the number e.

*Clarification 2:* Within this benchmark, the expectation is to plot, order and compare square roots and cube roots.

*Clarification 3:* Within this benchmark, the expectation is to use symbols (<, > or =).

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.8.NSO.1.AP.2:](https://www.cpalms.org/PreviewAccessPoint/Preview/18227) | Use appropriate tools to plot, order, and compare simple square roots and cube roots for quantities less than 100. |  |  |  |
| EssentialUnderstandings | * Use manipulatives to make a square.
* The area of the square is the perfect square
* The length of each side is the square root
* Use manipulatives to make a cube
* The volume of the cube is the perfect cube
* The length of each side is the cube root
* Use a multiplication table to identify perfect squares and square roots
* Use a calculator to determine the squares and cubes of numbers ranging from -6 to 6
* Use a calculator to determine the square roots of numbers ranging from 0 to 36
* Use a calculator to determine the cubed roots of numbers ranging from -100 to 100
* Identify the square and cube functions on a calculator
* Identify the square root and cube root function button on a calculator
* Plot
* Locate whole numbers on a number line
* Use the square of a number to place a value on the number line (i.e., 32 = 9, plot 9 on the number line)
* Use the square root of a number to place a value on the number line (i.e., square root of 9 = 3, plot 3 on the number line)
* Use the cube of a number to place a value on the number line
* Use the cube root of a number to place a value on the number line
* Order
* Understand the relative size of quantities
* Identity quantities that are increasing or decreasing in size based on their relative value using manipulatives
* Arrange quantities using manipulatives based on their relative size
* Use a “number path” to order quantities
* Compare
* Use graphic organizers to compare two quantities
* Use manipulatives to compare two quantities
* Identify the least and greatest quantities
* Use appropriate tools to order the values represented by the quantities
* Use inequality symbols to compare quantities using manipulatives (i.e., snap cubes, base 10 blocks, etc.)
* Use inequality symbols to compare quantities using representations of the quantities (i.e., tally marks, pictures, numbers, etc.)
* Compare the values of the digits of two different numbers starting with the greatest place value position in order to identify which decimal is greater and which is lesser
 |  |  |  |
| Resources: |  |  |  |  |

[MA.8.NSO.1.3:](https://www.cpalms.org//PreviewStandard/Preview/15491) Extend previous understanding of the Laws of Exponents to include integer exponents. Apply the Laws of Exponents to evaluate numerical expressions and generate equivalent numerical expressions, limited to integer exponents and rational number bases, with procedural fluency.

**Clarifications:**
*Clarification 1:* Refer to the [K-12 Formulas (Appendix E)](https://cpalmsmediaprod.blob.core.windows.net/uploads/docs/standards/best/ma/appendixe.pdf) for the Laws of Exponents.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.8.NSO.1.AP.3:](https://www.cpalms.org/PreviewAccessPoint/Preview/18228) | Use the properties of integer exponents and product/quotient of powers with like bases to produce equivalent expressions. |  |  |  |
| EssentialUnderstandings | * Expand or simplify an expression (i.e., 53 = 5x 5 x5 = 125)
* Use the Product of Powers to simplify the expression:

**image of products of Power*** Use the Quotient of Powers to simplify the expression:

 **image of quotients of power*** Add and subtract integers (e.g., use manipulatives, a number line or calculator to add 2 + -5)
* Identify the number of times the base number will be multiplied based on the exponent
* Understand that a negative exponent will result in a fraction with a numerator of 1 (for example, 25-1= 1/25)
* Use manipulatives to demonstrate what an exponent represents (e.g., 8³ = 8 × 8 × 8)
* Select the correct expanded form of what an exponent represents (e.g., 8³ = 8 × 8 × 8)
* Produce the correct amount of base numbers to be multiplied given a graphic organizer or template
* Match an expression to its exponential expansion
* Match an expression to its exponential expansion using manipulatives or pictorial representation
* Use manipulatives to simplify an expression
* Use tools (i.e., graphic organizer, manipulatives, etc.) to combine like terms.
* Understand the following concepts, symbols, and vocabulary: base number, exponent, integer, expand, like terms
 |  |  |  |
| Resources: |  |  |  |  |

[MA.8.NSO.1.4:](https://www.cpalms.org//PreviewStandard/Preview/15492) Express numbers in scientific notation to represent and approximate very large or very small quantities. Determine how many times larger or smaller one number is compared to a second number.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.8.NSO.1.AP.4:](https://www.cpalms.org/PreviewAccessPoint/Preview/18229) | Multiply a single-digit number by the power of 10 using a calculator. Identify whether the number in scientific notation represents a very large or very small quantity. |  |  |  |
| EssentialUnderstandings | * Use base ten blocks to multiply a single digit number by 10, 100, 1000, etc.
* Use a calculator to multiply a single digit number by a power of 10
* Identify the manipulative that represents the power of 10
* Identify the product of powers of ten
* Add, subtract, multiply and divide numbers expressed in scientific notation with procedural fluency.
 |  |  |  |
| Resources: |  |  |  |  |

[MA.8.NSO.1.5:](https://www.cpalms.org//PreviewStandard/Preview/15493) Add, subtract, multiply and divide numbers expressed in scientific notation with procedural fluency.

**Clarifications:**
*Clarification 1:* Within this benchmark, for addition and subtraction with numbers expressed in scientific notation, exponents are limited to within 2 of each other.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.8.NSO.1.AP.5:](https://www.cpalms.org/PreviewAccessPoint/Preview/18230)  | Perform operations with numbers expressed in scientific notation using a calculator. |  |  |  |
| EssentialUnderstandings | * Select the appropriate base ten bundle to represent the number expressed in scientific notation
* Match the exponential form to the standard form of a number
* Understand the following concepts, symbols, and vocabulary: scientific notation, base number/digit term, exponent, positive and negative numbers
* Select the correct numeric representation for a given question (e.g., 5 × 10**-**9)
* Use a calculator to perform operations on numbers expressed in scientific notation
* Identify the operations to be performed on the numbers expressed in the scientific notation
* Determine the relative size of the answer based on the operation
* Determine the sign of the answer based on the terms in the problem
 |  |  |  |
| Resources: |  |  |  |  |

[MA.8.NSO.1.6:](https://www.cpalms.org//PreviewStandard/Preview/15494) Solve real-world problems involving operations with numbers expressed in scientific notation.

**Clarifications:**
*Clarification 1:* Instruction includes recognizing the importance of significant digits when physical measurements are involved.

*Clarification 2:* Within this benchmark, for addition and subtraction with numbers expressed in scientific notation, exponents are limited to within 2 of each other.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.8.NSO.1.AP.6:](https://www.cpalms.org/PreviewAccessPoint/Preview/18231) | Given a real-world problem, perform operations with numbers expressed in scientific notation using a calculator and interpret the answer in context. |  |  |  |
| EssentialUnderstandings | * Identify the number of times the base number will be multiplied based on the exponent
* Understand that a negative exponent will result in a fraction with a numerator of 1 (for example, 25-1= 1/25)
* Use manipulatives to demonstrate what an exponent represents (e.g., 8³ = 8 × 8 × 8)
* Select the correct expanded form of what an exponent represents (e.g., 8³ = 8 × 8 × 8)
* Produce the correct amount of base numbers to be multiplied given a graphic organizer or template
* Match an expression to its exponential expansion
* Match an expression to its exponential expansion using manipulatives or pictorial representation
* Use manipulatives to simplify an expression
* Use tools (i.e., graphic organizer, manipulatives, etc.) to combine like terms

Identify the quantities in the problemLabel the numerical terms with their quantity labelsUse a graphic organizer to set up a numerical expressionUse a graphic organizer to solve and interpret the answerUse pictorial representations to interpret the answer Use text marking strategies to identify the quantities and their numerical values* Understand the following concepts, symbols, and vocabulary: scientific notation, base number/digit term, exponent, positive and negative numbers
 |  |  |  |
| Resources: |  |  |  |  |

[MA.8.NSO.1.7:](https://www.cpalms.org//PreviewStandard/Preview/15495) Solve multi-step mathematical and real-world problems involving the order of operations with rational numbers including exponents and radicals.

**Clarifications:**
*Clarification 1:* Multi-step expressions are limited to 6 or fewer steps.

*Clarification 2:* Within this benchmark, the expectation is to simplify radicals by factoring square roots of perfect squares up to 225 and cube roots of perfect cubes from -125 to 125.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.8.NSO.1.AP.7:](https://www.cpalms.org/PreviewAccessPoint/Preview/18232)  | Use tools to solve multi-step mathematical problems, with four or fewer steps, involving the order of operations with rational numbers including exponents and perfect squares and/or square roots. |  |  |  |
| EssentialUnderstandings | * Create an array of objects into groups to model the role of equal groups in a multiplication or division situation
* Create a pictorial array for the mathematical equation and match the answer symbol (+ or -) following multiplication/division rules for an equation
* Use tools or objects, as needed, to solve expressions using the order of operations
* Use tools or objects to simplify exponents and perfect squares and/or square roots
* Use tools (i.e., template, anchor chart) to support students in performing operations in the appropriate order and with numbers in different forms
* Use tools (i.e., number line, fraction tiles, calculator, graphic representation) to model equivalent forms of numbers.
* Evaluate an expression using substitution with manipulatives (e.g., find the value of x + 4 when x = 2 using manipulatives)
* Use tools or models, like an input/output table or number line, to solve expressions using substitution
* Understand the following concepts, symbols, and vocabulary: expression, substitution, operations, input, output, set, simplify, variable, exponents, perfect squares, square root, math symbols +, -, ÷, ×, **image of the square root symbol**
 |  |  |  |
| Resources: |  |  |  |  |

[MA.K12.MTR.1.1:](https://www.cpalms.org//PreviewStandard/Preview/15875) Actively participate in effortful learning both individually and collectively.

Mathematicians who participate in effortful learning both individually and with others:

* Analyze the problem in a way that makes sense given the task.
* Ask questions that will help with solving the task.
* Build perseverance by modifying methods as needed while solving a challenging task.
* Stay engaged and maintain a positive mindset when working to solve tasks.
* Help and support each other when attempting a new method or approach.

**Clarifications:**
Teachers who encourage students to participate actively in effortful learning both individually and with others:

* Cultivate a community of growth mindset learners.
* Foster perseverance in students by choosing tasks that are challenging.
* Develop students’ ability to analyze and problem solve.
* Recognize students’ effort when solving challenging problems.

[MA.K12.MTR.2.1:](https://www.cpalms.org//PreviewStandard/Preview/15876) Demonstrate understanding by representing problems in multiple ways.

Mathematicians who demonstrate understanding by representing problems in multiple ways:

* Build understanding through modeling and using manipulatives.
* Represent solutions to problems in multiple ways using objects, drawings, tables, graphs and equations.
* Progress from modeling problems with objects and drawings to using algorithms and equations.
* Express connections between concepts and representations.
* Choose a representation based on the given context or purpose.

**Clarifications:**
Teachers who encourage students to demonstrate understanding by representing problems in multiple ways:

* Help students make connections between concepts and representations.
* Provide opportunities for students to use manipulatives when investigating concepts.
* Guide students from concrete to pictorial to abstract representations as understanding progresses.
* Show students that various representations can have different purposes and can be useful in different situations.

[MA.K12.MTR.3.1:](https://www.cpalms.org//PreviewStandard/Preview/15877) Complete tasks with mathematical fluency.

Mathematicians who complete tasks with mathematical fluency:

* Select efficient and appropriate methods for solving problems within the given context.
* Maintain flexibility and accuracy while performing procedures and mental calculations.
* Complete tasks accurately and with confidence.
* Adapt procedures to apply them to a new context.
* Use feedback to improve efficiency when performing calculations.

**Clarifications:**
Teachers who encourage students to complete tasks with mathematical fluency:

* Provide students with the flexibility to solve problems by selecting a procedure that allows them to solve efficiently and accurately.
* Offer multiple opportunities for students to practice efficient and generalizable methods.
* Provide opportunities for students to reflect on the method they used and determine if a more efficient method could have been used.

[MA.K12.MTR.4.1:](https://www.cpalms.org//PreviewStandard/Preview/15878) Engage in discussions that reflect on the mathematical thinking of self and others.

Mathematicians who engage in discussions that reflect on the mathematical thinking of self and others:

* Communicate mathematical ideas, vocabulary and methods effectively.
* Analyze the mathematical thinking of others.
* Compare the efficiency of a method to those expressed by others.
* Recognize errors and suggest how to correctly solve the task.
* Justify results by explaining methods and processes.
* Construct possible arguments based on evidence.

**Clarifications:**
Teachers who encourage students to engage in discussions that reflect on the mathematical thinking of self and others:

* Establish a culture in which students ask questions of the teacher and their peers, and error is an opportunity for learning.
* Create opportunities for students to discuss their thinking with peers.
* Select, sequence and present student work to advance and deepen understanding of correct and increasingly efficient methods.
* Develop students’ ability to justify methods and compare their responses to the responses of their peers.

[MA.K12.MTR.5.1:](https://www.cpalms.org//PreviewStandard/Preview/15879) Use patterns and structure to help understand and connect mathematical concepts.

Mathematicians who use patterns and structure to help understand and connect mathematical concepts:

* Focus on relevant details within a problem.
* Create plans and procedures to logically order events, steps or ideas to solve problems.
* Decompose a complex problem into manageable parts.
* Relate previously learned concepts to new concepts.
* Look for similarities among problems.
* Connect solutions of problems to more complicated large-scale situations.

**Clarifications:**
Teachers who encourage students to use patterns and structure to help understand and connect mathematical concepts:

* Help students recognize the patterns in the world around them and connect these patterns to mathematical concepts.
* Support students to develop generalizations based on the similarities found among problems.
* Provide opportunities for students to create plans and procedures to solve problems.

Develop students’ ability to construct relationships between their current understanding and more sophisticated ways of thinking.

[MA.K12.MTR.6.1:](https://www.cpalms.org//PreviewStandard/Preview/15880) Assess the reasonableness of solutions.

Mathematicians who assess the reasonableness of solutions:

* Estimate to discover possible solutions.
* Use benchmark quantities to determine if a solution makes sense.
* Check calculations when solving problems.
* Verify possible solutions by explaining the methods used.
* Evaluate results based on the given context.

**Clarifications:**
Teachers who encourage students to assess the reasonableness of solutions:

* Have students estimate or predict solutions prior to solving.
* Prompt students to continually ask, “Does this solution make sense? How do you know?”
* Reinforce that students check their work as they progress within and after a task.
* Strengthen students’ ability to verify solutions through justifications.

[MA.K12.MTR.7.1:](https://www.cpalms.org//PreviewStandard/Preview/15881) Apply mathematics to real-world contexts.

Mathematicians who apply mathematics to real-world contexts:

* Connect mathematical concepts to everyday experiences.
* Use models and methods to understand, represent and solve problems.
* Perform investigations to gather data or determine if a method is appropriate. • Redesign models and methods to improve accuracy or efficiency.

**Clarifications:**
Teachers who encourage students to apply mathematics to real-world contexts:

* Provide opportunities for students to create models, both concrete and abstract, and perform investigations.
* Challenge students to question the accuracy of their models and methods.
* Support students as they validate conclusions by comparing them to the given situation.
* Indicate how various concepts can be applied to other disciplines.

[ELA.K12.EE.1.1:](https://www.cpalms.org//PreviewStandard/Preview/15201) Cite evidence to explain and justify reasoning.

**Clarifications:**
K-1 Students include textual evidence in their oral communication with guidance and support from adults. The evidence can consist of details from the text without naming the text. During 1st grade, students learn how to incorporate the evidence in their writing.

2-3 Students include relevant textual evidence in their written and oral communication. Students should name the text when they refer to it. In 3rd grade, students should use a combination of direct and indirect citations.

4-5 Students continue with previous skills and reference comments made by speakers and peers. Students cite texts that they’ve directly quoted, paraphrased, or used for information. When writing, students will use the form of citation dictated by the instructor or the style guide referenced by the instructor.

6-8 Students continue with previous skills and use a style guide to create a proper citation.

9-12 Students continue with previous skills and should be aware of existing style guides and the ways in which they differ.

[ELA.K12.EE.2.1:](https://www.cpalms.org//PreviewStandard/Preview/15202) Read and comprehend grade-level complex texts proficiently.

**Clarifications:**
See [Text Complexity](https://cpalmsmediaprod.blob.core.windows.net/uploads/docs/standards/best/la/appendixb.pdf) for grade-level complexity bands and a text complexity rubric.

[ELA.K12.EE.3.1:](https://www.cpalms.org//PreviewStandard/Preview/15203) Make inferences to support comprehension.

**Clarifications:**
Students will make inferences before the words infer or inference are introduced. Kindergarten students will answer questions like “Why is the girl smiling?” or make predictions about what will happen based on the title page. Students will use the terms and apply them in 2nd grade and beyond.

[ELA.K12.EE.4.1:](https://www.cpalms.org//PreviewStandard/Preview/15204) Use appropriate collaborative techniques and active listening skills when engaging in discussions in a variety of situations.

**Clarifications:**
In kindergarten, students learn to listen to one another respectfully.

In grades 1-2, students build upon these skills by justifying what they are thinking. For example: “I think \_\_\_\_\_\_\_\_ because \_\_\_\_\_\_\_.” The collaborative conversations are becoming academic conversations.

In grades 3-12, students engage in academic conversations discussing claims and justifying their reasoning, refining and applying skills. Students build on ideas, propel the conversation, and support claims and counterclaims with evidence.

[ELA.K12.EE.5.1:](https://www.cpalms.org//PreviewStandard/Preview/15205) Use the accepted rules governing a specific format to create quality work.

**Clarifications:**
Students will incorporate skills learned into work products to produce quality work. For students to incorporate these skills appropriately, they must receive instruction. A 3rd grade student creating a poster board display must have instruction in how to effectively present information to do quality work.

[ELA.K12.EE.6.1:](https://www.cpalms.org//PreviewStandard/Preview/15206) Use appropriate voice and tone when speaking or writing.

**Clarifications:**
In kindergarten and 1st grade, students learn the difference between formal and informal language. For example, the way we talk to our friends differs from the way we speak to adults. In 2nd grade and beyond, students practice appropriate social and academic language to discuss texts.

[ELD.K12.ELL.MA.1:](https://www.cpalms.org//PreviewStandard/Preview/8642) English language learners communicate information, ideas and concepts necessary for academic success in the content area of Mathematics.

[ELD.K12.ELL.SI.1:](https://www.cpalms.org//PreviewStandard/Preview/8640) English language learners communicate for social and instructional purposes within the school setting.