**Access logo
Providing Resources that facilitate the teaching and learning of Access Points.**

**Access M/J Mathematics**

**Grade 6**

**(#7812015)**

**Course Standards**

[MA.6.AR.1.1:](https://www.cpalms.org//PreviewStandard/Preview/15430) Given a mathematical or real-world context, translate written descriptions into algebraic expressions and translate algebraic expressions into written descriptions.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.6.AR.1.AP.1:](https://www.cpalms.org/PreviewAccessPoint/Preview/18163) | Write or select an algebraic expression that represents a real-world situation. |  |  |  |
| Essential  Understandings | * Use manipulatives to represent a situation (i.e., John has five apples, and he gives some to Jim = 5 – x) * When given a verbal expression (i.e., eight plus y), students must select the appropriate algebraic expression (8 + y) * Identify key words that signal operations to support students in recognizing operations in word problems * Use math tools like a graphic organizer or manipulatives to support students in illustrating the expression before selecting or writing from a real-world situation * Understand the following concepts, symbols, and vocabulary: expression, math symbols +, -, x, ÷, =, terms and like terms |  |  |  |
| Resources: |  |  |  |  |

[MA.6.AR.1.2:](https://www.cpalms.org//PreviewStandard/Preview/15431) Translate a real-world written description into an algebraic inequality in the form of *x*> *a*, *x*< *a*, *x*≥ *a* or *x*≤ *a*. Represent the inequality on a number line.

**Clarifications:**  
*Clarification 1:* Variables may be on the left or right side of the inequality symbol.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.6.AR.1.AP.2:](https://www.cpalms.org/PreviewAccessPoint/Preview/18164) | Write or select an inequality that represents a real-world situation. |  |  |  |
| Essential  Understandings | * Use objects to compare whole numbers * Use objects to represent inequalities with whole numbers * Use pictures/tables to represent inequalities with whole numbers (i.e., input/output chart or graphic organizer) * Understand the difference between a true and a false mathematical statement * Use tools, like number lines and manipulatives, to support students in identifying appropriate inequality statements * Understand the following concept and vocabulary of inequality * Understand the following symbols +, -, ÷, =, ×, <, >, ≠, ≤, ≥ |  |  |  |
| Resources: |  |  |  |  |

[MA.6.AR.1.3:](https://www.cpalms.org//PreviewStandard/Preview/15432) Evaluate algebraic expressions using substitution and order of operations.

**Clarifications:**  
*Clarification 1:* Within this benchmark, the expectation is to perform all operations with integers.

*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.6.AR.1.AP.3:](https://www.cpalms.org/PreviewAccessPoint/Preview/18165) | Solve an expression using substitution with no more than two operations. |  |  |  |
| Essential  Understandings | * Evaluate an expression using substitution with manipulatives (e.g., find the value of x + 4 when x = 2 using manipulatives) * Use tools or objects to solve expressions with whole numbers * 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, math symbols +, -, ÷, × |  |  |  |
| Resources: |  |  |  |  |

[MA.6.AR.1.4:](https://www.cpalms.org//PreviewStandard/Preview/15433) Apply the properties of operations to generate equivalent algebraic expressions with integer coefficients.

**Clarifications:**  
*Clarification 1:* Properties include associative, commutative and distributive.

*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.6.AR.1.AP.4:](https://www.cpalms.org/PreviewAccessPoint/Preview/18166) | Use tools or models to combine like terms in an expression with no more than 4 operations. |  |  |  |
| Essential  Understandings | * Use manipulatives or visual model to combine like terms (i.e., demonstrate 5x + 3x by combining 5 blue blocks and 3 blue blocks) * Identify what is and what is not a like term (e.g., 3 oranges and 5 apples are not like terms; 3 oranges and 5 oranges are like terms) * Use tools, as needed, to complete the four operations with integers such as number lines, calculators, counters, algebra tiles interactive whiteboards, T-tables * Explicitly teach strategies for determining the operation required to solve a single step problem * Use adding and subtracting strategies to combine like terms * Use arrays or input/output tables to model substitution * Use a template for simplifying an expression * Use grids or graphic organizers to create arrays * Understand the following concepts, symbols, and vocabulary: like terms, combine, variables, expression, positive integer, negative integer, math symbols +, -, x, ÷ |  |  |  |
| Resources: |  |  |  |  |

[MA.6.AR.2.1:](https://www.cpalms.org//PreviewStandard/Preview/15434) Given an equation or inequality and a specified set of integer values, determine which values make the equation or inequality true or false.

**Clarifications:**  
*Clarification 1:* Problems include the variable in multiple terms or on either side of the equal sign or inequality symbol.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.6.AR.2.AP.1:](https://www.cpalms.org/PreviewAccessPoint/Preview/18167) | Choose which values, from a set of 5 or fewer integers, make an equation or inequality true. |  |  |  |
| Essential  Understandings | * Determine which of the following values make the inequality 𝑥 + 1 < 2 true: −4, −2, 0, 1 * Understand the difference between a true and a false mathematical statement * Evaluate an equations or inequality using substitution with manipulatives (e.g., find the value of x + 4 when x = 2 using manipulatives) * Use tools or objects to solve equations or inequalities with whole numbers * Use tools or models, like an input/output table or number line, to solve equations or inequalities using substitution * Understand the following concepts, symbols, and vocabulary: expression, substitution, operations, input, output, set, simplify, variable, math symbols +, -, ÷, ×, <, >, =, ≤, ≥ |  |  |  |
| Resources: |  |  |  |  |

[MA.6.AR.2.2:](https://www.cpalms.org//PreviewStandard/Preview/15435) Write and solve one-step equations in one variable within a mathematical or real-world context using addition and subtraction, where all terms and solutions are integers.

**Clarifications:**  
*Clarification 1:* Instruction includes using manipulatives, drawings, number lines and inverse operations. *Clarification 2:* Instruction includes equations in the forms x+p=q and p+x=q, where x,p and q are any integer.

*Clarification 3:* Problems include equations where the variable may be on either side of the equal sign.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.6.AR.2.AP.2:](https://www.cpalms.org/PreviewAccessPoint/Preview/18168) | Solve real world, one-step linear equations using addition and subtraction involving integers. |  |  |  |
| Essential  Understandings | * Solve one-step equations with the variable on the left side and right side of the equation * Use objects to solve one-step addition and subtraction equations with integers * Use objects to solve one-step addition and subtraction equations with whole numbers * Match a representation of an equation with a variable to a real-world problem. * Use a model to illustrate properties of equality by setting up an equation in which both sides are equal. (For example: x + 4 = 9; x + 4 – 4 = 9 - 4) * Understand the following concepts, symbols, and vocabulary: variable, integer, solution, equation, +, -, = |  |  |  |
| Resources: |  |  |  |  |

[MA.6.AR.2.3:](https://www.cpalms.org//PreviewStandard/Preview/15436) Write and solve one-step equations in one variable within a mathematical or real-world context using multiplication and division, where all terms and solutions are integers.

**Clarifications:**  
*Clarification 1:* Instruction includes using manipulatives, drawings, number lines and inverse operations. *Clarification 2:* Instruction includes equations in the forms , where p≠0, and px=q.

*Clarification 3:* Problems include equations where the variable may be on either side of the equal sign.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.6.AR.2.AP.3:](https://www.cpalms.org/PreviewAccessPoint/Preview/18169) | Solve real world, one-step linear equations using multiplication and division involving integers. |  |  |  |
| Essential  Understandings | * Solve one-step equations with the variable on the left side and right side of the equation * Use objects to solve one-step multiplication and division equations with integers * Use objects to solve one-step multiplication and division equations with whole numbers * Match a representation of an equation with a variable to a real-world problem * Use a model to illustrate properties of equality by setting up an equation in which both sides are equal (for example: 4x = 12; 4x ÷ 4 = 12 ÷ 4) * Understand the following concepts, symbols, and vocabulary: variable, integer, solution, equation, ×, ÷, = |  |  |  |
| Resources: |  |  |  |  |

[MA.6.AR.2.4:](https://www.cpalms.org//PreviewStandard/Preview/15437) Determine the unknown decimal or fraction in an equation involving any of the four operations, relating three numbers, with the unknown in any position.

**Clarifications:**  
*Clarification 1:* Instruction focuses on using algebraic reasoning, drawings, and mental math to determine unknowns.

*Clarification 2:* Problems include the unknown and different operations on either side of the equal sign. All terms and solutions are limited to positive rational numbers.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.6.AR.2.AP.4:](https://www.cpalms.org/PreviewAccessPoint/Preview/18170) | Solve a one-step equation using fractions with like denominators or decimals with place value ranging from the thousand to the thousandths. |  |  |  |
| Essential  Understandings | * Solve one-step equations with the variable on the left side and right side of the equation * Use objects to solve one-step equations with fractions with like denominators using all four operations * Use objects to solve one-step equations with decimals using all four operations * Use tools or models to solve one-step equation using fractions or decimals * Use a model to illustrate properties of equality by setting up an equation in which both sides are equal (for example: 4x = 1.2; 4x ÷ 4 = 1.2 ÷ 4) * Understand the following concepts, symbols, and vocabulary: variable, fraction, decimal, solution, equation, +, -, ×, ÷, = |  |  |  |
| Resources: |  |  |  |  |

[MA.6.AR.3.1:](https://www.cpalms.org//PreviewStandard/Preview/15438) Given a real-world context, write and interpret ratios to show the relative sizes of two quantities using appropriate notation: begin mathsize 12px style a over b end style, a to b, or a:b where b ≠ 0.

**Clarifications:**

*Clarification 1:* Instruction focuses on the understanding that a ratio can be described as a comparison of two quantities in either the same or different units.  
*Clarification 2:*Instruction includes using manipulatives, drawings, models and words to interpret part-to-part ratios and part-to-whole ratios.

*Clarification 3:* The values of a and b are limited to whole numbers.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.6.AR.3.AP.1:](https://www.cpalms.org/PreviewAccessPoint/Preview/18171) | Given a real-world context, write and interpret ratios to show the relative sizes of two quantities using notation: a/b, a to b, or a:b where b ≠ 0 with guidance and support. |  |  |  |
| Essential  Understandings | * Use a template to support students in writing a ratio using notation * Write the same ratio relationship using different notation * Given a scenario, students can use manipulatives to represent the ratio relationship. (e.g., Each person wants 2 eggs and there are 4 people, how many eggs do you need for the whole group?) * Use data presented in tables or graphs and manipulatives to answer questions about ratios * Given a scenario, students can create a ratio relationship using appropriate notation. (e.g., Each person wants 2 eggs and there are 4 people, how many eggs do you need for the whole group? Answer: 8 eggs: 4 people) * Understand the following concepts, symbols, and vocabulary: ratio, relationship, notation, per, each, :, /, to |  |  |  |
| Resources: |  |  |  |  |

[MA.6.AR.3.2:](https://www.cpalms.org//PreviewStandard/Preview/15439) Given a real-world context, determine a rate for a ratio of quantities with different units. Calculate and interpret the corresponding unit rate.

**Clarifications:**  
*Clarification 1:* Instruction includes using manipulatives, drawings, models and words and making connections between ratios, rates and unit rates.

*Clarification 2:* Problems will not include conversions between customary and metric systems.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.6.AR.3.AP.2:](https://www.cpalms.org/PreviewAccessPoint/Preview/18172) | Given a rate, calculate the unit rate for a ratio with different units. |  |  |  |
| Essential  Understandings | * Enter data into a T-chart to demonstrate unit rate * Use a table with visuals or objects to answer questions about a unit rate * Use or create visual images to illustrate the ratio from a word problem or verbal expression   image of a rectangle with an upper and lower portion. The upper portion has 2 smiley faces and a single teddy bear. The second image has 4 smiley faces and two teddy bears   * Use a visual T-chart to answer questions about a unit rate and ratio (for example: A T-shirt launcher can launch 5 shirts in 20 minutes. What is the rate in shirts per hour?)  |  |  | | --- | --- | | T-shirts | Minutes | | 5 | 20 | | 10 | 40 | | 15 | 60 |  * Use tools or models to calculate the unit rate * Use graphic organizers to support students’ understanding of ratio and unit rate * Understand the following concepts, symbols, and vocabulary: ratio, rate, unit rate, per, each, numerator, denominator, calculate, different, equivalent, multiple, factor |  |  |  |
| Resources: |  |  |  |  |

[MA.6.AR.3.3:](https://www.cpalms.org//PreviewStandard/Preview/15440) Extend previous understanding of fractions and numerical patterns to generate or complete a two- or three-column table to display equivalent part-to-part ratios and part-to-part-to-whole ratios.

**Clarifications:**  
*Clarification 1:* Instruction includes using two-column tables (e.g., a relationship between two variables) and three-column tables (e.g., part-to-part-to-whole relationship) to generate conversion charts and mixture charts.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.6.AR.3.AP.3:](https://www.cpalms.org/PreviewAccessPoint/Preview/18173) | Given a visual representation, write or select a ratio which describes the ratio relationship between part-to-part and part-to-whole ratios. |  |  |  |
| Essential  Understandings | * Given two groups of manipulatives, students can identify the pattern by matching the manipulatives to the picture representation * Given two groups of manipulatives, students can identify the quantities in the relationship * Identify the structure of a ratio in a given context (e.g., in words, with a colon, in a fraction notation) * Demonstrate an understanding that a ratio is a comparison of two quantities * Understand that a ratio is either part-to-whole (some to all) or part-to-part (which must be listed in the correct order of the context) * Match/identify a simple ratio (1: X) to the relationship between two quantities * Given a situation, use objects or calculate to set up a ratio * Recognize the meaning of the placement of numbers in a ratio for a given situation * Write or select a ratio in three ways: number to number (1 to 2) expressed as a fraction (1/2) or using a colon (1:2) * Represent a part-to-whole ratio as the ratio of objects (e.g., red hats) to the total number of objects (red and green hats) * Represent a part-to-part ratio as the ratio of the number of one object (red hats) to the number of other objects (green hats) from a set of objects (red and green hats) * Understand the following concepts, symbols, and vocabulary: ratio, part-to-part, part-to-whole, rate, proportion, portions per person, portions per total. :, / , to |  |  |  |
| Resources: |  |  |  |  |

[MA.6.AR.3.4:](https://www.cpalms.org//PreviewStandard/Preview/15441) Apply ratio relationships to solve mathematical and real-world problems involving percentages using the relationship between two quantities.

**Clarifications:**

*Clarification 1:* Instruction includes the comparison of to in order to determine the percent, the part or the whole.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.6.AR.3.AP.4:](https://www.cpalms.org/PreviewAccessPoint/Preview/18174) | Calculate a percentage of quantity as rate per 100 using models (e.g., percent bars or 10 x 10 grids). |  |  |  |
| Essential  Understandings | * State a relationship to a quantity out of 100 * These will need to be very small concrete numbers (e.g., select three from an object bundle of 100) * Use tools to create visual representations of percentages and rates per 100 * Use tools to convert fractions into decimals that can be displayed on a 10x10 grid * Use tools to convert decimals into percentages * Use anchor charts to support students in remembering the steps for the process of converting between forms * Understand that a fraction is expressed as a percentage by converting it to an equivalent fraction with a denominator of 100 * Express a percentage as a fraction (a/100) * Understand that hundreds (base ten fractions) and percentages are the same, though the symbolic notation is different * Understand the following concepts, symbols, and vocabulary: ratio, rate, equivalent, percent, percentage, decimal, fraction, %, / |  |  |  |
| Resources: |  |  |  |  |

[MA.6.AR.3.5:](https://www.cpalms.org//PreviewStandard/Preview/15874) Solve mathematical and real-world problems involving ratios, rates and unit rates, including comparisons, mixtures, ratios of lengths and conversions within the same measurement system.

**Clarifications:**  
*Clarification 1:* Instruction includes the use of tables, tape diagrams and number lines.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.6.AR.3.AP.5a:](https://www.cpalms.org/PreviewAccessPoint/Preview/18175) | Use tools, models or manipulatives to solve problems involving ratio relationships including mixtures and ratios of length. |  |  |  |
| Essential Understandings | * Given a scenario, use manipulatives to represent the ratio relationship * (e.g., One pitcher of lemonade needs 2 cups of sugar. How many cups of sugar do you need for 2 pitchers of lemonade? OR Last year Ben’s plant was 4 inches tall, and Jenny’s was 3 inches tall. If the height of both children’s plants doubled last year, what would the ratio of the present height of Ben's plant to the present height of Jenny’s plant?) * Given a scenario, write or select a ratio relationship * Use tables, tape diagrams, or number lines to model real-life data * Interpret data presented in tables, tape diagrams, number lines, and manipulatives * Understand the following concepts, symbols, and vocabulary: data, tables, tape diagram, ratio, relationship, mixture, length, percent, rate, symbols (:, /, to) |  |  |  |
| Resources: |  |  |  |  |
| [MA.6.AR.3.AP.5b:](https://www.cpalms.org/PreviewAccessPoint/Preview/18176) | Use tools, models or manipulatives to solve ratio, rate or unit rate problems involving conversions within the same measurement system. |  |  |  |
| Essential  Understandings | * Given a scenario, use manipulatives to represent the ratio relationship * Given a scenario, write or select a ratio relationship * Use tables, tape diagrams, or number lines to model real-life data * Interpret data presented in tables, tape diagrams, number lines, and manipulatives * Use Anchor charts to support students with conversion processes * Multiply and divide using concrete objects * Use a ratio to solve a measurement conversion problem * Multiply and divide whole numbers * Use the conversions on the reference sheet to solve problems within the same measurement system * Understand the following concepts, symbols, and vocabulary: data, tables, tape diagram, ratio, relationship, measurement terms, percent, unit rate, symbols (:, /, to) |  |  |  |
| Resources: |  |  |  |  |

[MA.6.DP.1.1:](https://www.cpalms.org//PreviewStandard/Preview/15449) Recognize and formulate a statistical question that would generate numerical data.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.6.DP.1.AP.1:](https://www.cpalms.org/PreviewAccessPoint/Preview/18184) | Identify statistical questions from a list that would generate numerical data. |  |  |  |
| Essential  Understandings | * Understand the difference between statistical and nonstatistical question * (Example) How many minutes did you work on homework last night? vs. (Non-example) Did you work on homework last night? * Generate statistical questions * Given a list of questions, determine which questions could have a range of answers (i.e., How old are the students in the class? How many brothers and/or sisters does each student have? etc.) * Sort questions as statistical and nonstatistical * Understand the following concepts, symbols, and vocabulary: data, statistical, nonstatistical |  |  |  |
| Resources: |  |  |  |  |

[MA.6.DP.1.2:](https://www.cpalms.org//PreviewStandard/Preview/15450) Given a numerical data set within a real-world context, find and interpret mean, median, mode and range.

**Clarifications:**  
*Clarification 1:* Numerical data is limited to positive rational numbers.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.6.DP.1.AP.2a:](https://www.cpalms.org/PreviewAccessPoint/Preview/18185) | Use tools to identify and calculate the mean, median, mode and range represented in a set of data with no more than five elements. |  |  |  |
| Essential Understandings | * Use a number line to record responses in numerical order. * Identify the smallest number and the largest number in the range (range) * Create a number sentence that represents the range of responses (range) * Count the number of responses in each category set (mode) * Identify the category with the most responses (mode) * Use manipulatives to add the numbers in a given data set (mean) * Use manipulatives to divide the sum of a data set (mean) * Add and divide numbers in a data set using tools, as needed, to determine the mean (mean) * Identify the mean of a data set from manipulatives or pictorial representations (mean) * Identify the lowest to highest value in a data set given a number line (median) * Arrange data from lowest to highest (median) * Identify the median * Understand the following concepts, symbols, and vocabulary: data set, mode, most, mean, average, range, median, middle |  |  |  |
| Resources: |  |  |  |  |
| [MA.6.DP.1.AP.2b:](https://www.cpalms.org/PreviewAccessPoint/Preview/18186) | Identify and explain what the mean and mode represent in a set of data with no more than five elements. |  |  |  |
| Essential  Understandings | * Use a number line to record responses in numerical order * Count the number of responses in each category set (mode) * Identify the category with the most responses (mode) * Identify the number/category that occurs most often in a visual display (mode) * Explain the mode in the context of the problem (mode) * Use manipulatives to add the numbers in a given data set (mean) * Use manipulatives to divide the sum of a data set (mean) * Identify the mean of a data set from manipulatives or pictorial representations (mean) * Add and divide numbers in a data set using tools, as needed, to determine the mean (mean) * Explain the mean in the context of the problem (mean) * Understand the following concepts, symbols, and vocabulary: data set, mode, most, mean, average. |  |  |  |
| Resources: |  |  |  |  |

[MA.6.DP.1.3:](https://www.cpalms.org//PreviewStandard/Preview/15451) Given a box plot within a real-world context, determine the minimum, the lower quartile, the median, the upper quartile and the maximum. Use this summary of the data to describe the spread and distribution of the data.

**Clarifications:**  
*Clarification 1:* Instruction includes describing range, interquartile range, halves and quarters of the data.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.6.DP.1.AP.3:](https://www.cpalms.org/PreviewAccessPoint/Preview/18187) | Given a box plot identify the value of the minimum, the lower quartile, the median, the upper quartile and the maximum. |  |  |  |
| Essential  Understandings | * Match the vocabulary to the corresponding part of the box plot * Use a number line to match the appropriate value to its corresponding parts in the box plot * Identify the lowest to highest value in a data set given a number line and matching symbols * Arrange data from lowest to highest * Identify the median * Find the lower quartile by identifying the middle value between the minimum and the median of the data set * Find the upper quartile by identifying the middle value between the maximum and the median of the data set * data set broke into quartiles * Understand the following concepts, symbols, and vocabulary: box plot, minimum, lower quartile, median, upper quartile, maximum |  |  |  |
| Resources: |  |  |  |  |

[MA.6.DP.1.4:](https://www.cpalms.org//PreviewStandard/Preview/15452) Given a histogram or line plot within a real-world context, qualitatively describe and interpret the spread and distribution of the data, including any symmetry, skewness, gaps, clusters, outliers and the range.

**Clarifications:**  
*Clarification 1:* Refer to [K-12 Mathematics Glossary (Appendix C)](https://cpalmsmediaprod.blob.core.windows.net/uploads/docs/standards/best/ma/appendixc.pdf).

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.6.DP.1.AP.4:](https://www.cpalms.org/PreviewAccessPoint/Preview/18188) | Given a histogram or a line plot, describe the physical features of the graph. |  |  |  |
| Essential  Understandings | * Use manipulative to display the frequency of a data set on a line * Identify places on the graph where there is an increase/decrease from one point to the next * Identify places on the graph where the data is constant from one point to the next * Define math terms histogram, line plot, data points, increase, decrease, initial value, x and y access, range * Use the graphing story below to help students understand that the graph models the increases and decreases of the ball bounce |  |  |  |
| Resources: |  |  |  |  |

[MA.6.DP.1.5:](https://www.cpalms.org//PreviewStandard/Preview/15453) Create box plots and histograms to represent sets of numerical data within real-world contexts.

**Clarifications:**  
*Clarification 1:* Instruction includes collecting data and discussing ways to collect truthful data to construct graphical representations.

*Clarification 2:* Within this benchmark, it is the expectation to use appropriate titles, labels, scales and units when constructing graphical representations.

*Clarification 3:* Numerical data is limited to positive rational numbers.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.6.DP.1.AP.5:](https://www.cpalms.org/PreviewAccessPoint/Preview/18189) | Create histograms to represent sets of numerical data with 10 or fewer elements. |  |  |  |
| Essential  Understandings | * Use manipulatives to sort items by characteristics * Sort manipulatives by characteristics and graph the quantities on a histogram * Use the maximum and minimum values to create a range for each category * Use anchor charts to support students in remembering the steps to create a histogram   Example:   1. Calculate the range of a data set. 2. Divide the range by the number of groups you want and round up. 3. Use the class width to create your groups.   **a table with two columns (classes and Frequency. In the Classes Column, there are single rows with the following values 12-21, 21-30,30-39,39-48,48-57,57-66. There is no data in the frequency rows.**   1. Find the frequency for each group. 2. Graph the frequency of each group on the histogram. |  |  |  |
| Resources: |  |  |  |  |

[MA.6.DP.1.6:](https://www.cpalms.org//PreviewStandard/Preview/15454) Given a real-world scenario, determine and describe how changes in data values impact measures of center and variation.

**Clarifications:**  
*Clarification 1:* Instruction includes choosing the measure of center or measure of variation depending on the scenario.

*Clarification 2:* The measures of center are limited to mean and median. The measures of variation are limited to range and interquartile range.

*Clarification 3:* Numerical data is limited to positive rational numbers.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.6.DP.1.AP.6:](https://www.cpalms.org/PreviewAccessPoint/Preview/18190) | Calculate and identify changes (increase or decrease) in the median, mode or range when a data value is added or subtracted from a data set. |  |  |  |
| Essential  Understandings | * Identify the median * Identify the mode * Identify the range * Determine if the added value is the same as an existing value * Determine if the subtracted value is the same as a remaining value * Determine if the data point in question changes the mode * Identify the maximum and minimum of the data set * Identify if the data point in question is less than the minimum or greater than the maximum * Determine if the data point in question changes the range * Determine if the data point in question changes the median |  |  |  |
| Resources: |  |  |  |  |

[MA.6.GR.1.1:](https://www.cpalms.org//PreviewStandard/Preview/15442) Extend previous understanding of the coordinate plane to plot rational number ordered pairs in all four quadrants and on both axes. Identify the x- or y-axis as the line of reflection when two ordered pairs have an opposite x- or y-coordinate.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.6.GR.1.AP.1:](https://www.cpalms.org/PreviewAccessPoint/Preview/18177) | Plot integer ordered pairs in all four quadrants and on both axes. |  |  |  |
| Essential  Understandings | * Recognize the axes and coordinates of labeled points on a coordinate plane * Identify the quadrants on a coordinate grid * Use tools or manipulatives to graph ordered pairs on a coordinate plane (i.e., pegboards, floor coordinate grids, straws on graph paper, smartboard) * Identify that in an ordered pair, the first coordinate is the location on the x-axis and the second is the location on the y-axis * Draw a coordinate plane and label it with the x- and y-axis * Locate axes where positive and negative points are found (e.g., negative numbers are found on the left and/or bottom axes) * Label the numbers from -10 to 10 on a number line. * Use coordinates to graph points on a coordinate plane * Use coordinates to identify points that have been plotted on a coordinate plane * Understand the following concepts, symbols, and vocabulary: x-axis, y-axis, quadrant, coordinate plane, coordinate, graph, order pairs, positive numbers, negative numbers, and origin |  |  |  |
| Resources: |  |  |  |  |

[MA.6.GR.1.2:](https://www.cpalms.org//PreviewStandard/Preview/15443) Find distances between ordered pairs, limited to the same x-coordinate or the same y-coordinate, represented on the coordinate plane.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.6.GR.1.AP.2:](https://www.cpalms.org/PreviewAccessPoint/Preview/18178) | Count the distance between two ordered pairs with the same x coordinate or the same y coordinate. |  |  |  |
| Essential  Understandings | * Circle two numbers on a number line and move finger when counting to find the distance between the two numbers * Write a subtraction sentence to find the difference between two points on a number line * Understand the following concepts, symbols, and vocabulary: x-axis, y-axis, coordinate plane, coordinate, graph, order pairs, positive numbers, and negative numbers |  |  |  |
| Resources: |  |  |  |  |

[MA.6.GR.1.3:](https://www.cpalms.org//PreviewStandard/Preview/15444) Solve mathematical and real-world problems by plotting points on a coordinate plane, including finding the perimeter or area of a rectangle.

**Clarifications:**  
*Clarification 1:* Instruction includes finding distances between points, computing dimensions of a rectangle or determining a fourth vertex of a rectangle. *Clarification 2:* Problems involving rectangles are limited to cases where the sides are parallel to the axes.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.6.GR.1.AP.3:](https://www.cpalms.org/PreviewAccessPoint/Preview/18179) | Given a rectangle plotted on the coordinate plane, find the perimeter or area of the rectangle. |  |  |  |
| Essential  Understandings | * Using a coordinate grid, count the length of the side of a rectangle * Using a coordinate grid, count the number of squares inside the rectangle to determine the area * Using a coordinate grid, count the distance around the outside of the rectangle to determine the perimeter * Using the coordinates of a figure on a coordinate grid, subtract the x or y value that changes to find the length of the side * Use tools to calculate the area of a rectangle using the formula A=L x W * Use tools to calculate the perimeter of a rectangle using the formula P=2(L + W) * Understand the following concepts, symbols, and vocabulary: length, width, side length, distance, side, parallel, perpendicular, area, perimeter, rectangle, coordinate plane, coordinate grid math symbols: +, -, x, = |  |  |  |
| Resources: |  |  |  |  |

[MA.6.GR.2.1:](https://www.cpalms.org//PreviewStandard/Preview/15445) Derive a formula for the area of a right triangle using a rectangle. Apply a formula to find the area of a triangle.

**Clarifications:**  
*Clarification 1:* Instruction focuses on the relationship between the area of a rectangle and the area of a right triangle.

*Clarification 2:* Within this benchmark, the expectation is to know from memory a formula for the area of a triangle.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.6.GR.2.AP.1:](https://www.cpalms.org/PreviewAccessPoint/Preview/18180) | Given the formula, find the area of a triangle. |  |  |  |
| Essential  Understandings | * Identify the parts of a triangle * Match the parts of the triangle to the parts of the formula * Identify the side lengths of a triangle * Use tools to support substitution of side measurements into the formula * Use tools to calculate the area of a triangle. * Use formula to find the area A=½ (Base x Height) * Understand the following concepts, symbols, and vocabulary: base, height, area, and triangle |  |  |  |
| Resources: |  |  |  |  |

[MA.6.GR.2.2:](https://www.cpalms.org//PreviewStandard/Preview/15446) Solve mathematical and real-world problems involving the area of quadrilaterals and composite figures by decomposing them into triangles or rectangles.

**Clarifications:**  
*Clarification 1:* Problem types include finding area of composite shapes and determining missing dimensions.

*Clarification 2:* Within this benchmark, the expectation is to know from memory a formula for the area of a rectangle and triangle.

*Clarification 3:* Dimensions are limited to positive rational numbers.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.6.GR.2.AP.2:](https://www.cpalms.org/PreviewAccessPoint/Preview/18181) | Decompose quadrilaterals and composite figures into simple shapes (rectangles or triangles) to measure area. |  |  |  |
| Essential  Understandings | * Recognize simple shapes within a larger shape * Identify the dimensions (base, height, length, width, etc.) of smaller shapes * Multiply fractions and whole numbers * Use manipulatives, like tangrams, to support breaking composite shapes into smaller shapes * Use tools or manipulatives to support calculating area * Given a picture, identify the dimensions of two-dimensional shapes * Understand the following concepts, symbols, and vocabulary: quadrilaterals, rectangles, squares, triangles, area, base, height, length, width |  |  |  |
| Resources: |  |  |  |  |

[MA.6.GR.2.3:](https://www.cpalms.org//PreviewStandard/Preview/15447) Solve mathematical and real-world problems involving the volume of right rectangular prisms with positive rational number edge lengths using a visual model and a formula.

**Clarifications:**  
*Clarification 1:* Problem types include finding the volume or a missing dimension of a rectangular prism.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.6.GR.2.AP.3:](https://www.cpalms.org/PreviewAccessPoint/Preview/18182) | Given a real-world problem, find the volume of a rectangular prism using a visual model and the formula. |  |  |  |
| Essential  Understandings | * Recognize simple shapes within a larger shape * Identify the dimensions (base, height, length, width, etc.) of smaller shapes * Multiply fractions and whole numbers * Given a picture, identify the dimensions of two-dimensional and three-dimensional shapes * Use manipulatives, like tangrams, to support breaking composite shapes into smaller shapes * Use tools to support substitution of side measurements into the formula * Identify the faces and the base of a rectangular prism * Understand the following concepts, symbols, and vocabulary: polygon, rectangles, squares, volume, and prism |  |  |  |
| Resources: |  |  |  |  |

[MA.6.GR.2.4:](https://www.cpalms.org//PreviewStandard/Preview/15448) Given a mathematical or real-world context, find the surface area of right rectangular prisms and right rectangular pyramids using the figure’s net.

**Clarifications:**  
*Clarification 1:* Instruction focuses on representing a right rectangular prism and right rectangular pyramid with its net and on the connection between the surface area of a figure and its net.

*Clarification 2:* Within this benchmark, the expectation is to find the surface area when given a net or when given a three-dimensional figure.

*Clarification 3:* Problems involving right rectangular pyramids are limited to cases where the heights of triangles are given.

*Clarification 4:* Dimensions are limited to positive rational numbers.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.6.GR.2.AP.4:](https://www.cpalms.org/PreviewAccessPoint/Preview/18183) | Find the surface area of right rectangular prisms by adding the areas of the shapes forming the two-dimensional nets. |  |  |  |
| Essential  Understandings | * Use manipulatives (hands-on shapes) to construct and deconstruct three-dimensional figures using nets (net: unfolded form of a 3-D figure) * e.g., cut a cereal box along its edges to form a net and allow students to take apart and reconstruct the box to see the connection * Use a picture and the vocabulary to match the three-dimensional shape to its net * Match a side of the net to its corresponding side on the three-dimensional shape * Demonstrate surface area of a cube by covering all sides * Demonstrate surface area of a rectangular prism by covering all sides * Find the area of all the sides of a three-dimensional figure and add them together to find the surface area   three-dimensional figure with values   * Understand the following concepts, symbols, and vocabulary: surface area, net, rectangular prism. |  |  |  |
| Resources: |  |  |  |  |

[MA.6.NSO.1.1:](https://www.cpalms.org//PreviewStandard/Preview/15416) Extend previous understanding of numbers to define rational numbers. Plot, order and compare rational numbers.

**Clarifications:**  
*Clarification 1:* Within this benchmark, the expectation is to plot, order and compare positive and negative rational numbers when given in the same form and to plot, order and compare positive rational numbers when given in different forms (fraction, decimal, percentage).

*Clarification 2:* Within this benchmark, the expectation is to use symbols (<, > or =).

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.6.NSO.1.AP.1:](https://www.cpalms.org/PreviewAccessPoint/Preview/18147) | Plot, order, and compare rational numbers (positive and negative integers within 10 from 0, fractions with common denominators, decimals up to the hundredths and percentages) in the same form. |  |  |  |
| Essential  Understandings | * Interactive number lines with positive and negative numbers * Use manipulatives to support students in comparing the size of rational numbers * Label number lines * Label points on a number line * Use manipulatives on the number line to identify the number with the greatest value by determining which number is furthest to the right on the number line * Use manipulatives (fractions bars, base ten blocks, etc.) to determine the relative size of fractions and decimals * Virtual manipulatives for online instruction * Use inequality symbols (<, >, or =) to label which number has the greatest value * Vocabulary: integers, numerators, denominators, decimal place value (tenths, hundredths, thousandths), positive & negative numbers |  |  |  |
| Resources: |  |  |  |  |

[MA.6.NSO.1.2:](https://www.cpalms.org//PreviewStandard/Preview/15417) Given a mathematical or real-world context, represent quantities that have opposite direction using rational numbers. Compare them on a number line and explain the meaning of zero within its context.

**Clarifications:**  
*Clarification 1:* Instruction includes vertical and horizontal number lines, context referring to distances, temperatures and finances and using informal verbal comparisons, such as, lower, warmer or more in debt.

*Clarification 2:* Within this benchmark, the expectation is to compare positive and negative rational numbers when given in the same form.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.6.NSO.1.AP.2:](https://www.cpalms.org/PreviewAccessPoint/Preview/18148) | Represent positive and negative numbers in the same form on a number line given a real-world situation and explain the meaning of zero within its context. |  |  |  |
| Essential  Understandings | * Describe negative numbers as numbers less than zero * Understand less/same/more in context (e.g., temperature, ground level) * Use vertical number lines, in addition to horizontal number lines, to illustrate negative numbers * Select pictorial representations of less than zero in the real-world scenarios * Understand the meaning of zero and where is falls on the number line * Recognize that on a number line all the numbers to the right of zero are positive and all the numbers to the left of zero are negative * Recognize that negative numbers have a negative symbol (-) before the number * Recognize that positive numbers either have a (+) symbol or no symbol before the number * Vocabulary: integers, numerators, denominators, decimal place value (tenths, hundredths, thousandths), positive & negative numbers |  |  |  |
| Resources: |  |  |  |  |

[MA.6.NSO.1.3:](https://www.cpalms.org//PreviewStandard/Preview/15418) Given a mathematical or real-world context, interpret the absolute value of a number as the distance from zero on a number line. Find the absolute value of rational numbers.

**Clarifications:**  
*Clarification 1:* Instruction includes the connection of absolute value to mirror images about zero and to opposites.

*Clarification 2:* Instruction includes vertical and horizontal number lines and context referring to distances, temperature and finances.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.6.NSO.1.AP.3:](https://www.cpalms.org/PreviewAccessPoint/Preview/18149) | Find absolute value of a rational number ranging from –30 to 30 using a number line. |  |  |  |
| Essential  Understandings | * Use counting to support students in determining the distance from zero to the selected number value on the number line * Use a placeholder or manipulatives to support students in determining the value to count to when determining the distance from zero * Define absolute value * Identify the value of the number and the distance of that number from zero on a number line * Match the positive and the negative value of the same number on the number line * Identify absolute values of numbers * Identify absolute value symbols, i.e., |-5| * Vocabulary: positive & negative numbers, absolute value, distance from zero, zero |  |  |  |
| Resources: |  |  |  |  |

[MA.6.NSO.1.4:](https://www.cpalms.org//PreviewStandard/Preview/15419) Solve mathematical and real-world problems involving absolute value, including the comparison of absolute value.

**Clarifications:**  
*Clarification 1:* Absolute value situations include distances, temperatures and finances.

*Clarification 2:* Problems involving calculations with absolute value are limited to two or fewer operations.

*Clarification 3:* Within this benchmark, the expectation is to use integers only.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.6.NSO.1.AP.4:](https://www.cpalms.org/PreviewAccessPoint/Preview/18150) | Use manipulatives, models or tools to compare absolute value in mathematical and real-world problems. |  |  |  |
| Essential  Understandings | * Use manipulatives, like number lines or playing cards, to compare quantities * Model distance from zero to compare relative size of the quantities * Identify the value of the number and the distance of that number from zero on a number line * Identify absolute values of numbers * Identify absolute value symbols, i.e., |-5| * Create a life-size number line on the classroom floor for the students to practice walking the distance from zero * Create individual number lines on student desks * Vocabulary: absolute value, positive and negative numbers, zero, compare |  |  |  |
| Resources: |  |  |  |  |

[MA.6.NSO.2.1:](https://www.cpalms.org//PreviewStandard/Preview/15420) Multiply and divide positive multi-digit numbers with decimals to the thousandths, including using a standard algorithm with procedural fluency.

**Clarifications:**  
*Clarification 1:* Multi-digit decimals are limited to no more than 5 total digits.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.6.NSO.2.AP.1:](https://www.cpalms.org/PreviewAccessPoint/Preview/18151) | Solve one-step multiplication and division problems involving positive decimals whose place value ranges from the tens to the hundredths places. |  |  |  |
| Essential  Understandings | * Understand and apply the concepts of multiplication and division * Identify a decimal * Given a context, choose the correct operation * Relate decimals to pictorial representations * 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 following multiplication or division rules for an equation * Understanding the steps of the standard algorithm for multiplication and division - See images below for examples of the standard algorithm as a visual model and numerical process * Understand the following symbols, concepts, and vocabulary: place value, +, -, ×, ÷, fractions, decimal (*a/b, a*). * Use mnemonic devices to help students remember the process for Division Family to assist with algorithm: Dad (divide), Mom (multiply), Sister (subtraction), Brother (bring down), and Rover (repeat or remainder) * Math tools: * Base Ten Manipulatives * Tables and Graphic organizers * Calculator * Place Value Table * Multiplication and Division Tables * Division template |  |  |  |
| Resources: |  |  |  |  |

[MA.6.NSO.2.2:](https://www.cpalms.org//PreviewStandard/Preview/15421) Extend previous understanding of multiplication and division to compute products and quotients of positive fractions by positive fractions, including mixed numbers, with procedural fluency.

**Clarifications:**  
*Clarification 1:* Instruction focuses on making connections between visual models, the relationship between multiplication and division, reciprocals and algorithms.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.6.NSO.2.AP.2:](https://www.cpalms.org/PreviewAccessPoint/Preview/18152) | Use tools to calculate the product and quotient of positive fractions by positive fractions, including mixed numbers, using the standard algorithms. |  |  |  |
| Essential  Understandings | * Use a template to support modeling using the standard algorithm * Construct a template for multiplying fractions * Example for standard algorithm for multiplying fractions * Anchor chart for multiplying mixed numbers   an image of an anchored chart   * Understand the following symbols, concepts, and vocabulary: product, quotient, fraction, mixed numbers, math symbols +, ÷ - x, = |  |  |  |
| Resources: |  |  |  |  |

[MA.6.NSO.2.3:](https://www.cpalms.org//PreviewStandard/Preview/15422) Solve multi-step real-world problems involving any of the four operations with positive multi-digit decimals or positive fractions, including mixed numbers.

**Clarifications:**  
*Clarification 1:* Within this benchmark, it is not the expectation to include both decimals and fractions within a single problem.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.6.NSO.2.AP.3a:](https://www.cpalms.org/PreviewAccessPoint/Preview/18153) | Solve one-step real-world problems involving any of the four operations with positive decimals ranging from the hundreds to hundredth place value. |  |  |  |
| Essential Understandings | * Understand and apply the concepts of addition, subtraction, multiplication, and division * Identify a fraction and decimal * Given a context, choose the correct operation (e.g., altogether, take away). * Relate fractions and decimals to pictorial representations * Understand the following symbols, concepts, and vocabulary: +, -, ×, ÷, fraction, decimal (a/b, a), place value |  |  |  |
| Resources: |  |  |  |  |
| [MA.6.NSO.2.AP.3b:](https://www.cpalms.org/PreviewAccessPoint/Preview/18154) | Solve one-step real-world problems involving any of the four operations with positive fractions and mixed numbers with like denominators. |  |  |  |
| Essential  Understandings | * Understand and apply the concepts of addition, subtraction, multiplication, and division * Identify a fraction and decimal * Given a context, choose the correct operation (e.g., altogether, take away) * Relate fractions and decimals to pictorial representations. * Understand the meaning of “fractions greater than 1” (Note: replaces the language of “improper fractions”) * Understand converting mixed numbers into fractions greater than 1 * Understand the following symbols, concepts, and vocabulary: +, -, ×, ÷, fraction, decimal (a/b, a), mixed number * Use Anchor charts to support modeling multiplying mixed numbers |  |  |  |
| Resources: |  |  |  |  |

[MA.6.NSO.3.1:](https://www.cpalms.org//PreviewStandard/Preview/15423) Given a mathematical or real-world context, find the greatest common factor and least common multiple of two whole numbers.

**Clarifications:**  
*Clarification 1:* Within this benchmark, expectations include finding greatest common factor within 1,000 and least common multiple with factors to 25.

*Clarification 2*: Instruction includes finding the greatest common factor of the numerator and denominator of a fraction to simplify a fraction.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.6.NSO.3.AP.1:](https://www.cpalms.org/PreviewAccessPoint/Preview/18155) | Use tools to find the greatest common factor and least common multiple of two whole numbers 50 or less. |  |  |  |
| Essential  Understandings | * Using manipulatives to separate two given sets into the largest possible evenly divided groups, with each group containing the same number (e.g., 12 manipulatives will have three groups of four; eight manipulatives will have two groups of four) * Identify multiples of whole numbers using a hundreds chart or multiplication table with markers * Identify factors of whole numbers using a hundreds chart or multiplication table with markers * Understand related vocabulary (factor, multiple, least, common) |  |  |  |
| Resources: |  |  |  |  |

[MA.6.NSO.3.2:](https://www.cpalms.org//PreviewStandard/Preview/15424) Rewrite the sum of two composite whole numbers having a common factor, as a common factor multiplied by the sum of two whole numbers.

**Clarifications:**  
*Clarification 1:* Instruction includes using the distributive property to generate equivalent expressions.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.6.NSO.3.AP.2:](https://www.cpalms.org/PreviewAccessPoint/Preview/18156) | Use the distributive property to express a number as the sum of two whole numbers multiplied by a common factor. |  |  |  |
| Essential  Understandings | * Apply the concepts of addition, subtraction, multiplication, and division using manipulatives * Use base ten blocks to represent the numbers in the distributive property (for example, 4 (9 + 2) would look like nine blocks plus two blocks repeated four times) * 20 + 12 = 4 (5 + 3)   an image of base 10 blocks for 20+12 = 4 (5+3)   * Draw a picture representing the distributive property * Use the distributive property to write simple expressions using area * Understand that when using the distributive property, all the numbers inside the parentheses are multiplied by the number outside the parentheses |  |  |  |
| Resources: |  |  |  |  |

[MA.6.NSO.3.3:](https://www.cpalms.org//PreviewStandard/Preview/15425) Evaluate positive rational numbers and integers with natural number exponents.

**Clarifications:**  
*Clarification 1:* Within this benchmark, expectations include using natural number exponents up to 5.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.6.NSO.3.AP.3a:](https://www.cpalms.org/PreviewAccessPoint/Preview/18157) | Identify what an exponent represents (e.g., 8³= 8 × 8 × 8). |  |  |  |
| Essential Understandings | * 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 * Understand the following concepts, symbols, and vocabulary: base number, exponent |  |  |  |
| Resources: |  |  |  |  |
| [MA.6.NSO.3.AP.3b:](https://www.cpalms.org/PreviewAccessPoint/Preview/18158) | Solve numerical expressions involving whole-number bases and exponents (e.g., 5 + 24 x 6 = 101). |  |  |  |
| Essential  Understandings | * Apply the concepts of addition, subtraction, multiplication, and division * Draw a picture or use manipulatives to understand the different parts of an expression * Solve a numerical expression with whole numbers using tools, as needed (i.e., calculator, multiplication chart) * Locate an exponent in an expression. * Understand the following concepts, symbols, and vocabulary for exponent |  |  |  |
| Resources: |  |  |  |  |

[MA.6.NSO.3.4:](https://www.cpalms.org//PreviewStandard/Preview/15426) Express composite whole numbers as a product of prime factors with natural number exponents.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.6.NSO.3.AP.4:](https://www.cpalms.org/PreviewAccessPoint/Preview/18159) | Use a tool to show the prime factors of a number (e.g., 20 = 2 x 2 x 5). |  |  |  |
| Essential  Understandings | * Use tools (such as, Multiplication Chart, Calculator, Prime Factorization Calculator) to identify factors * Understand and use divisibility rules to find factors * Understand and use factor trees to illustrate prime factorization 48=2 \* 2 \* 2 \* 2 \* 3   + image of a factor trees to illustrate prime factorization 48=2 * 2 * 2 * 2 * 3 * Identify or list the factors of a numbers * Identify whether a number is prime or composite * Vocabulary: Prime number, composite number, factor, multiple, divisible, factorization |  |  |  |
| Resources: |  |  |  |  |

[MA.6.NSO.3.5:](https://www.cpalms.org//PreviewStandard/Preview/15427) Rewrite positive rational numbers in different but equivalent forms including fractions, terminating decimals and percentages.

**Clarifications:**  
*Clarification 1:* Rational numbers include decimal equivalence up to the thousandths place.

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.6.NSO.3.AP.5:](https://www.cpalms.org/PreviewAccessPoint/Preview/18160) | Rewrite a positive rational number 3 or less, as a fraction, decimal or a percent. |  |  |  |
| Essential  Understandings | * Use models or manipulatives to support students in converting between forms * Use tools to support students in understanding equivalent forms (i.e., a calculator to convert from a fraction to a decimal or a hundred-grid chart to model converting from a decimal to a percent) * Use anchor charts to support students in remembering the process for converting between number forms (fractions, decimals, and percent) * Vocabulary: positive rational number, fraction, terminating decimal, percent, equivalent, conversion, mixed number |  |  |  |
| Resources: |  |  |  |  |

[MA.6.NSO.4.1:](https://www.cpalms.org//PreviewStandard/Preview/15428) Apply and extend previous understandings of operations with whole numbers to add and subtract integers with procedural fluency.

**Clarifications:**  
*Clarification 1:* Instruction begins with the use of manipulatives, models and number lines working towards becoming procedurally fluent by the end of grade 6*.   
Clarification 2:* Instruction focuses on the inverse relationship between the operations of addition and subtraction. If p and q are integers, then p-q=p+(-q) and p+q=p-(-q).

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.6.NSO.4.AP.1:](https://www.cpalms.org/PreviewAccessPoint/Preview/18161) | Use tools to add and subtract integers between 50 and −50. |  |  |  |
| Essential  Understandings | * Use number lines to illustrate addition and subtraction with integers * Use both vertical and horizontal number lines to perform operations * Using manipulatives to assist adding and subtracting integers * Create life-size number line to model the adding and subtracting with integers * Use Anchor charts to help students to determine the sign of the answer when adding and subtracting integers * Use visual displays to illustrate why the signs of the answers may be positive or negative * Understand the following concepts, symbols, and vocabulary: positive and negative numbers, integers, math symbols -, +, = |  |  |  |
| Resources: |  |  |  |  |

[MA.6.NSO.4.2:](https://www.cpalms.org//PreviewStandard/Preview/15429) Apply and extend previous understandings of operations with whole numbers to multiply and divide integers with procedural fluency.

**Clarifications:**  
*Clarification 1:* Instruction includes the use of models and number lines and the inverse relationship between multiplication and division, working towards becoming procedurally fluent by the end of grade 6.

*Clarification 2:* Instruction focuses on the understanding that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers where q≠0, then , and .

**Related Access Points**

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [MA.6.NSO.4.AP.2:](https://www.cpalms.org/PreviewAccessPoint/Preview/18162) | Use tools to multiply and divide integers between 20 and -20. |  |  |  |
| Essential  Understandings | * Use manipulatives (two color counters) to support multiplying and dividing integers * Use multiplication table to support multiplication and division * Use Anchor charts to help students find the sign of the answer to the problem * Use visual displays to illustrate why the signs of the answers may be positive or negative * Understand the following concepts, symbols, and vocabulary: positive and negative numbers, integers, math symbols x, ÷, = |  |  |  |
| 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) 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.