Maryland
STATE DEPARTMENT OF EDUCATION

DRAFT Grade 6

Maryland College and Career Ready Standards for Mathematics

Standards Crosswalk Document

Mathematics Branch

May 2025

Number and Operation Sense (NOS)

Previously The Number System (NS)

6.NOS.A APPLY AND EXTEND PREVIOUS UNDERSTANDINGS OF MULTIPLICATION AND DIVISION TO DIVIDE FRACTIONS BY FRACTIONS.

PREVIOUSLY 6.NS.A

2025 MD Index	2025 Standards Statement	2010 Index	2010 Previous Standards Statement
6.NOS.A.1	Divide fractions by fractions in context. a. Extend estimation strategies to estimate quotients and assess the reasonableness of answers. b. Use and connect concrete and visual fraction models (e.g., linear, regional/area, and set models) and equations to divide. c. Represent and explain the calculation by connecting fraction models, and/or equations to the meaning of division.	**6.NS.A.1**	Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem. For example, create a story context for $\frac{2}{3} \div \frac{3}{4}$ and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that $\frac{2}{3} \div \frac{3}{4} = \frac{8}{9}$ because $\frac{3}{4}$ of $\frac{8}{9}$ is $\frac{2}{3}$. In general, $\frac{a}{b} \div \frac{c}{d} = \frac{a \cdot d}{b \cdot c}$. How much chocolate will each person get if 3 people share $\frac{1}{2}$lb chocolate equally? How many $\frac{3}{4}$-cup servings are in $\frac{2}{3}$ of a cup of yogurt? How wide is a rectangular strip of land with length $\frac{3}{4}$ mi and area $\frac{1}{2}$ square mi?

6.NOS.B COMPUTE FLUENTLY WITH MULTI-DIGIT NUMBERS AND FIND COMMON FACTORS AND MULTIPLES.

PREVIOUSLY 6.NS.B

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6.NOS.B.2	Fluently divide multi-digit numbers. a. Extend estimation strategies to estimate products and assess the reasonableness of answers. b. Use strategies (e.g., partial quotients, inverse relationship between multiplication and division). c. Use a standard algorithm. d. Determine and explain when a strategy or algorithm is most efficient.	**6.NS.B.2**	Fluently divide multi-digit numbers using the standard algorithm.
6.NOS.B.3	Fluently multiply and divide multi-digit decimals to the thousandths in context. a. Extend estimation strategies to estimate products and quotients and assess the reasonableness of answers. b. Generalize whole number strategies to multiply and divide decimals. c. Use a standard algorithm to multiply and divide decimals. d. Determine and explain when a strategy or algorithm is most efficient.	**6.NS.B.3**	Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.
6.NOS.B.4	Identify the common factors and multiples of two whole numbers. a. Identify the greatest common factor of two whole numbers within 100. b. Identify the least common multiple of two whole numbers within 12. c. Express the sum of two whole numbers within 100 using the distributive property to factor out the common factor of the addends (e.g., express 36 + 8 as 4(9 + 2)).	**6.NS.B.4**	Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor. For example, express 36 + 8 as 4(9 + 2).

6.NOS.C APPLY AND EXTEND PREVIOUS UNDERSTANDING OF NUMBERS TO THE SYSTEM OF RATIONAL NUMBERS.

PREVIOUSLY 6.NS.C

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6.NOS.C.5	Use previous understanding of rational numbers as positive and negative numbers to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge). Use rational numbers to represent quantities in context and explain the meaning of 0 in each situation.	**6.NC.C.5**	Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.
6.NOS.C.6	Represent a rational number as a point on vertical or horizontal number lines. Represent points on a number line with negative numbers. a. Estimate quantities by reasoning about their location on a number line, their relationship to benchmark numbers, and by rounding. b. Locate and interpret the positions of rational numbers on a number line. c. Recognize and locate opposite signs of rational numbers as indicating locations on opposite sides of 0 on the number line.	**6.NS.C.6**	Understand a rational number as a point on the number line. Extend number lines and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates. a. Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, e.g., $-(-3)$, and that 0 is its own opposite. b. Understand signs of numbers in ordered pairs as indicating locations in quadrants of the Coordinate Plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes. c. Find and position integers and other rational numbers on a horizontal or vertical number line; find and position pairs of integers and other rational numbers on a Coordinate Plane.

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6.NOS.C.7	Intersect perpendicular number lines at the point (0,0) as the x-axis and y-axis to introduce the four quadrants of the Coordinate Plane. Represent points on the plane with positive and negative coordinates. a. Use understanding of the relationship between signs and value of coordinates in ordered pairs to reason about the location of an ordered pair without plotting. b. Locate and interpret the positions of rational numbers on the Coordinate Plane, including how changes in the signs of ordered pairs reflect their location into different quadrants	**Not applicable**	Content separated from 6.NS.C.6 as separate standard.
6.NOS.C.8	Order and identify the absolute value of rational numbers. a. Interpret statements of inequality as statements about the relative position of two numbers on a number line (e.g., interpret −3 > −7 as a statement that –3 is located to the right of –7 on a horizontal number line). b. Write, interpret, and explain statements of order for rational numbers in context (e.g., write −3℃ > −7℃ to express the fact that −3℃ is warmer than −7℃). c. Use understanding of the absolute value of a rational number as its distance from 0 on the number line to interpret absolute value as magnitude for a positive or negative quantity in context (e.g., for an account balance of –30 dollars, write $\lvert -30 \rvert = 30$ to describe the size of the debt in dollars).	**6.NS.C.7**	Understand ordering and absolute value of rational numbers. a. Interpret statements of inequality as statements about the relative position of two numbers on a number line. For example, interpret −3 > −7 as a statement that –3 is located to the right of –7 on a number line oriented from left to right. b. Write, interpret, and explain statements of order for rational numbers in realworld contexts. For example, write −3℃ > −7℃ to express the fact that −3℃ is warmer than −7℃. c. Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation. For example, for an account balance of –30 dollars, write $\lvert -30 \rvert = 30$ to describe the size of the debt in dollars. d. Distinguish comparisons of absolute value from statements about order. For example, recognize that an account balance less than –30 dollars represents a debt greater than 30 dollars.

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6.NOS.C.9	Solve problems in context by graphing points (with the same first coordinate or the same second coordinate) in all four quadrants of the Coordinate Plane. a. Explain points with the same x-coordinate or y-coordinate are located on same horizontal/vertical line. b. Use absolute value to calculate length of vertical and horizontal lines on Coordinate Plane.	**6.NS.C.8**	Solve real-world and mathematical problems by graphing points in all four quadrants of the Coordinate Plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.

Algebraic Thinking (AT)

Previously Ratios and Proportional Relationships (RP) and Expressions and Equations (EE)

6.AT.A UNDERSTANDING RATIO CONCEPTS AND USE RATIO REASONING TO SOLVE.

PREVIOUSLY 6.RP.A

2025 MD Index	2025 Standards Statement	2010 Index	2010 Previous Standards Statement
6.AT.A.1	Use ratio language in context (e.g., "__ to __," "for every," "per") to describe a ratio relationship between two quantities, including part to part and part to whole (e.g., "The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak.")	**6.RP.A.1**	Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. For example, "The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak." "For every vote candidate A received, candidate C received nearly three votes."
6.AT.A.2	Represent and use unit rates, written as fractions ($\frac{a}{b}, b \neq 0$) with whole number numerators and denominators, in context. a. Use unit rate language in the context of a ratio relationship (e.g., "The recipe has a ratio of 3 cups of flour to 4 cups of sugar so there is $\frac{3}{4}$ cup of flour for each cup of sugar.") b. Solve unit rate problems, for example those involving unit pricing and constant speed (e.g., "*If it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed?*").	**6.RP.A.2**	Understand the concept of a unit rate $\frac{a}{b}$ associated with a ratio $a:b$ with $b \neq 0$ and use rate language in the context of a ratio relationship. For example, "This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is $\frac{3}{4}$ cup of flour for each cup of sugar." "We paid $75 for 15 hamburgers, which is a rate of $5 per hamburger." (Expectations for unit rates in this grade are limited to non-complex fractions.)

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6.AT.A.3	Use ratio and rate reasoning to solve problems in context by reasoning about tables of equivalent ratios, tape diagrams, double number lines, or the Coordinate Plane. a. Generate, compare and find missing values of equivalent ratios and unit rates using multiple representations. b. Plot the pairs of values on the Coordinate Plane (in quadrant 1) to represent unit rates and make connections between representations. c. Use ratio reasoning to convert measurement units (e.g., money, time, length within the same system); manipulate and transform units appropriately when multiplying or dividing quantities.	**6.RP.A.3**	Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number lines, or equations. a. Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the Coordinate Plane. Use tables to compare ratios b. b. Solve unit rate problems including those involving unit pricing and constant speed. For example, if it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed? c. c. Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means $\frac{30}{100}$ times the quantity); solve problems involving finding the whole, given a part and the percent. d. d. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.
6.AT.A.4	Find a percent of a quantity in context as a rate per 100 (e.g., 30% of a quantity means $\frac{30}{100}$ times the quantity), including finding the whole given a part and the percent, by using tables, tape diagrams, and double number lines.	**Not applicable**	Content separated from 6.RP.A.3 as separate standard.

6.AT.B APPLY AND EXTEND PREVIOUS UNDERSTANDINGS OF ARITHMETIC TO ALGEBRAIC EXPRESSIONS.
PREVIOUSLY 6.EE.A

2025 MD Index	2025 Standards Statement	2010 Index	2010 Previous Standards Statement
6.AT.B.5	Write numerical expressions involving whole number exponents and positive rational number bases. Use technology to evaluate numerical expressions involving whole number exponents and positive rational number bases.	**6.EE.A.1**	Write and evaluate numerical expressions involving whole-number exponents.
6.AT.B.6	Write, read, and evaluate expressions in which letters stand for numbers. a. Write expressions that record operations with numbers and with letters standing for numbers (e.g., express the calculation "Subtract y from 5" as 5 − y). b. Identify parts of an expression using mathematical language (e.g., sum, term, product, factor, quotient, coefficient) and view one or more parts of an expression as a single unit (e.g., describe the expression 2(8 + 7) as a product of two factors; view (8 + 7) as both a single unit and a sum of two terms). c. Evaluate expressions given specific values of their variables in context. Include expressions that involve arithmetic operations and whole number exponents.	**6.EE.A.2**	Write, read, and evaluate expressions in which letters stand for numbers. a. Write expressions that record operations with numbers and with letters standing for numbers. For example, express the calculation "Subtract y from 5" as $5 - y$. b. Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity. For example, describe the expression 2(8 + 7) as a product of two factors; view (8 + 7) as both a single entity and a sum of two terms. c. Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations). For example, use the formulas $V = s^3$ and $A = 6 \cdot s^2$ to find the volume and surface area of a cube with sides of length $s = \frac{1}{2}$.

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6.AT.B.7	Apply the properties of operations (e.g., distributive, associative, commutative, etc.) to generate equivalent algebraic expressions and to identify when two expressions are equivalent (e.g., apply the distributive property to the expression $3(2 + x)$ to produce the equivalent expression $6 + 3x$; apply the distributive property to the expression $24x + 18y$ to produce the equivalent expression $6(4x + 3y)$; apply properties of operations to $y + y + y$ to produce the equivalent expression $3y$.)	**6.EE.A.3**	Apply the properties of operations to generate equivalent expressions. For example, apply the distributive property to the expression $3(2 + x)$ to produce the equivalent expression $6 + 3x$; apply the distributive property to the expression $24x + 18y$ to produce the equivalent expression $6(4x + 3y)$; apply properties of operations to $y + y + y$ to produce the equivalent expression $3y$.
Not applicable	Content embedded in 6.AT.B.7.	**6.EE.A.4**	Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them). For example, the expressions $y + y + y$ and $3y$ are equivalent because they name the same number regardless of which number y stands for.

6.AT.C REASON ABOUT AND SOLVE ONE-VARIABLE EQUATIONS AND INEQUALITIES

PREVIOUSLY 6.EE.B

2025 MD Index	2025 Standards Statement	2010 Index	2010 Previous Standards Statement
Not applicable	Content embedded in 6.AT.C.8 and 6.AT.C.10.	**6.EE.B.5**	Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.
Not applicable	Content embedded in 6.AT.C.8 and 6.AT.C.10	**6.EE.B.6**	Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.

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6.AT.C.8	Solve problems in context by writing and solving equations and interpreting the solutions in context. a. Explain that a variable can represent an unknown number and use substitution to determine whether a given number makes an equation true. b. Write and solve one-step equations of the form $x+p=q,\ x-p=q,\ px=q\ and\ \frac{x}{p}=q$ for cases in which *p, q* and *x* are all nonnegative rational numbers. c. Represent solutions of such equations on a number line.	**6.EE.B.7**	Solve real-world and mathematical problems by writing and solving equations of the form $x+p=q\ and\ p\cdot x=q$ for cases in which p, q and x are all nonnegative rational numbers.
6.AT.C.9	Write an inequality of the form $x > c$ (using ≥ , >, ≤ , <) represent a constraint or condition in context. Recognize that inequalities of this form have infinitely many solutions; represent solutions of such inequalities on number lines.	**6.EE.B.8**	Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions; represent solutions of such inequalities on number lines.
6.AT.C.10	Solve problems in context by writing and solving inequalities and interpreting solution sets in context. a. Explain that a variable can represent an unknown number in a set and use substitution to determine whether a given number in a set makes an inequality true. b. Write and solve one-step inequalities of the form $x+p>q,\ x-p>q,\ px>q\ and\ \frac{x}{p}>q$ (using ≥ , >, ≤ , < for case in which p and q are nonnegative rational numbers. c. Represent solutions of such inequalities on a number line.	**Not applicable**	Standard added to support application of 6.EE.B.5.

6.AT.D REPRESENT AND ANALYZE QUANTITATIVE RELATIONSHIPS BETWEEN DEPENDENT AND INDEPENDENT VARIABLES
PREVIOUSLY 6.EE.C

2025 MD Index	2025 Standards Statement	2010 Index	2010 Previous Standards Statement
6.AT.D.11	Use variables to represent two quantities in context that change in relationship to one another. a. Write an equation (one-step) to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. b. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation (e.g., in a problem involving motion at constant speed, list and graph ordered pairs of distances and times and write the equation d = 65t to represent the relationship between distance and time.	**6.EE.C.9**	Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables and relate these to the equation. For example, in a problem involving motion at constant speed, list and graph ordered pairs of distances and times and write the equation d = 65t to represent the relationship between distance and time.

Geometric Reasoning (GR)

Previously Geometry (G)

6.GR.A SOLVE PROBLEMS IN CONTEXT INVOLVING AREA, SURFACE AREA, AND VOLUME

PREVIOUSLY 6.G.A

2025 MD Index	2025 Standards Statement	2010 Index	2010 Previous Standards Statement
6.GR.A.1	Find the area of triangles, quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and quadrilaterals to solve problems.	**6.G.A.1**	Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.
6.GR.A.2	Find the volume of a right rectangular prism with fractional edge lengths. a. By packing prisms with unit cubes and using estimation to show that the volume can be found by multiplying the edge lengths of the prism. b. Apply the formulas $V=lwh$ and $V=B\cdot h$ (B is the area of the base) to find the volumes of right rectangular prisms with fractional edge lengths in context.	**6.G.A.2**	Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas $V=lwh$ and $V=B\cdot h$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.
6.GR.A.3	Draw polygons in the Coordinate Plane given coordinates for the vertices; use coordinates to find the length of a side joining endpoints with the same first coordinate or the same second coordinate. Apply these techniques in context	**6.G.A.3**	Draw polygons in the Coordinate Plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.
6.GR.A.4	Represent three-dimensional figures (triangular prism, rectangular prism, pyramid) using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures to solve problems.	**6.G.A.4**	Represent three-dimensional figures using nets made up of rectangles and triangles and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.

Reasoning with Data and Statistics (DS)

Previously Statistics and Probability (SP)

6.DS.A EXTEND UNDERSTANDING OF STATISTICAL VARIABILITY

PREVIOUSLY 6.SP.A

2025 MD Index	2025 Standards Statement	2010 Index	2010 Previous Standards Statement
6.DS.A.1	Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers (e.g., "How old am I?" is not a statistical question, but "How old are the students in my school?" is a statistical question because one anticipates variability in students' ages).	**6.SP.A.1**	Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers. For example, "How old am I?" is not a statistical question, but "How old are the students in my school?" is a statistical question because one anticipates variability in students' ages.
6.DS.A.2	Explain how a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.	**6.SP.A.2**	Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.
6.DS.A.3	Recognize that a measure of center (median and/or mean) for a numerical data set summarizes all the values with a single number, while a measure of variation describes how its values vary with a single number.	**6.SP.A.3**	Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.

6.DS.B SUMMARIZE AND DESCRIBE DISTRIBUTIONS

PREVIOUSLY 6.SP.B

2025 MD Index	2025 Standards Statement	2010 Index	2010 Previous Standards Statement
6.DS.B.4	Interpret numerical data in plots on a number line, including line plots, histograms, and box plots.	**6.SP.B.4**	Display numerical data in plots on a number line, including dot plots, histograms, and box plots.

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6.DS.B.5	Summarize numerical data sets in relation to their context. a. Report the number of observations. b. Describe the nature of the attribute under investigation, including how it was measured and its units of measurement. c. Give quantitative measures of center (median and/or mean) and variability (interquartile range), as well as describing outliers with reference to the context in which the data were gathered. d. Relate the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.	**6.SP.B.5**	Summarize numerical data sets in relation to their context, such as by: a. Reporting the number of observations. b. Describing the nature of the attribute under investigation, including how it was measured and its units of measurement. c. Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered. d. Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.