Maryland
STATE DEPARTMENT OF EDUCATION

DRAFT Grade 5 Standards

Maryland College and Career Ready Standards for Mathematics

Standards Crosswalk Document

Mathematics Branch

May 2025

Number and Operation Sense (NOS)

Previously Number and Operations in Base Ten (NBT); Operations and Algebraic Thinking (OA); Number and Operations – Fractions (NF)

5.NOS.A UNDERSTAND THE PLACE VALUE SYSTEM.

PREVIOUSLY 5.NBT.A.1

2025 MD Index	2025 Standards Statement	2010 Index	2010 Previous Standards Statement
5.NOS.A.1	Explain that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and $\frac{1}{10}$ of what it represents in the place to its left.	**5.NBT.A.1**	Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and $\frac{1}{10}$ of what it represents in the place to its left.
5.NOS.A.2	Explain patterns in the number of zeros of the product when multiplying a number by powers of 10 and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole number exponents to denote powers of 10.	**5.NBT.A.2**	Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole number exponents to denote powers of 10.
5.NOS.A.3	Read, write, and compare decimals to thousandths. a. Read and write decimals to thousandths using base-ten numerals, number names, and expanded form (e.g. $347.392 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times (\frac{1}{10}) + 9 (\frac{1}{100}) + 2 (\frac{1}{1000})$). b. Estimate decimal quantities by reasoning about their location on a number line, their relationship to benchmark numbers (e.g. 0, 0.25, 0.5, 0.75, 1) and rounding to any place. c. Compare two decimals to thousandths by reasoning about the values of the digits and the location on the number line. Record the results of comparisons with the symbols >, =, <.	**5.NBT.A.3** **5.NBT.A.4**	Read, write, and compare decimals to the thousandths. a. Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g. $347.392 = 3\times 100 + 4\times 10 + 7\times 1 + 3\times \frac{1}{10} + 9\times \frac{1}{100} + 2\times \frac{1}{1000}$ b. Compare two decimals to the thousandths based on meanings of the digits in each place, using >, =, < symbols to record the results of comparisons. Use place value understanding to round decimals to any place.

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5.NOS.B PERFORM OPERATIONS ON MULTI-DIGIT WHOLE NUMBERS AND WITH DECIMALS TO HUNDREDTHS.

PREVIOUSLY 5.NBT.B

2025 MD Index	2025 Standards Statement	2010 Index	2010 Previous Standards Statement
5.NOS.B.4	Fluently multiply multi-digit whole numbers. a. Apply estimation strategies to estimate products. b. Use computational strategies (e.g., partial products, doubling and halving) efficiently to multiply. c. Use a standard algorithm to multiply. d. Determine and explain when a strategy or algorithm is most efficient.	**5.NBT.B.5**	Fluently multiply multi-digit whole numbers using the standard algorithm.
5.NOS.B.5	Divide multi-digit whole numbers with up to four-digit dividends and two-digit divisors. a. Apply estimation strategies to estimate quotients. b. Use partial quotients efficiently to divide. c. Use properties of operations and/or the inverse relationship between multiplicate and division to divide. d. Represent and explain the computation by connecting rectangular arrays, area models, and/or equations to the meaning of division.	**5.NBT.B.6**	Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

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2025 MD Index	2025 Standards Statement	2010 Index	2010 Previous Standards Statement
5.NOS.B.6	Apply and extend previous understanding of addition and subtraction of whole numbers to add and subtract decimals to hundredths. a. Apply estimation strategies to estimate sums and differences of decimals. b. Use concrete models, drawings, strategies based on place value (e.g., partial sums), properties of operations and/or the inverse relationship between addition and subtract to add and subtract decimals in context. c. Use an algorithm to add and subtract decimals. d. Determine and explain when a strategy or algorithm is or is not needed.	**5.NBT.B.7**	Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.
5.NOS.B.7	Apply and extend previous understanding of multiplication and division of whole numbers to multiply and divide decimals to hundredths in context. a. Apply estimation strategies to estimate products and quotients. b. Use concrete models, drawings, and arrays to multiply and divide. c. Use strategies based on place value (e.g., partial products, partial quotients) to multiply and divide. d. Use properties of operations and/or the inverse relationship between multiplication and division to multiply and divide. e. Represent and explain the computation by connecting concrete models, drawings, and/or equations to the meaning of multiplication and division.	**Not applicable**	Content separated from previous 5.NBT.B.7 as separate standard.

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5.NOS.C USE EQUIVALENT FRACTIONS AS A STRATEGY TO ADD AND SUBTRACTION FRACTIONS.

PREVIOUSLY 5.NF.A

2025 MD Index	2025 Standards Statement	2010 Index	2010 Previous Standards Statement
5.NOS.C.8	Add and subtract fractions with unlike denominators. a. Estimate sums and differences by reasoning about benchmark numbers and assess reasonableness of answers (e.g., $\frac{2}{3}+\frac{3}{4}$ will be more than 1 because both fractions are greater than $\frac{1}{2}$). b. Apply and extend whole number addition and subtraction strategies (e.g. counting on, making a whole, partial sums, compensation, properties of operations, the inverse relationship between addition and subtraction) to add and subtract fractions. c. Use equivalent fractions to produce an equivalent sum or difference of fractions with like denominators (e.g. $\frac{2}{3}+\frac{5}{4}=\frac{8}{12}+\frac{15}{12}=\frac{23}{12}$. In general, $\frac{a}{b}+\frac{c}{d}=\frac{(ad+bc)}{bd}$).	**5.NF.A.1**	Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. For example, $\frac{2}{3}+\frac{5}{4}=\frac{8}{12}+\frac{15}{12}=\frac{23}{12}$. In general, $\frac{a}{b}+\frac{c}{d}=\frac{(ad+bc)}{bd}$.
5.NOS.C.9	Solve problems in context involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators using visual fraction models and/or equations to represent the problem.	**5.NF.A.2**	Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. For example, recognize an incorrect result $\frac{2}{5}+\frac{1}{2}=\frac{3}{7}$ by observing $\frac{3}{7}<\frac{1}{2}$.

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5.NOS.D APPLY AND EXTEND PREVIOUS UNDERSTANDINGS OF MULTIPLICATION AND DIVISION TO MULTIPLICATION AND DIVISION TO MULTIPLY AND DIVIDE FRACTIONS.

PREVIOUSLY 5.NF.B

2025 MD Index	2025 Standards Statement	2010 Index	2010 Previous Standards Statement
5.NOS.D.10	Interpret a fraction as division of the numerator by the denominator ($\frac{a}{b} = a \div b$) in context using visual fraction models and equations to represent the problem (e.g., interpret $\frac{3}{4}$ as the result of dividing 3 by 4, noting that $\frac{3}{4}$ multiplied by 4 equals 3 so when 3 wholes are shared equally among 4 people each person has a share of size $\frac{3}{4}$).	**5.NF.B.3**	Interpret a fraction as division of the numerator by the denominator ($\frac{a}{b} = a \div b$). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem. For example, interpret $\frac{3}{4}$ dividing 3 by 4, noting that $\frac{3}{4}$ as the result of multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people each person has a share of size $\frac{3}{4}$. If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?

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2025 MD Index	2025 Standards Statement	2010 Index	2010 Previous Standards Statement
5.NOS.D.11	Apply and extend previous understandings of multiplication to multiply a whole number by a fraction ($\frac{c}{d} \times b$). a. Estimate products by reasoning about benchmark numbers and assess reasonableness of answers (e.g., $\frac{3}{4} \times 2$ will be less than 2 because I am creating a fractional part of 2). b. Multiply a whole number by a fraction (e.g., interpret $\frac{c}{d} \times b$ as $\frac{c}{d}$ of *b* when $\frac{c}{d}$ is greater than or less than 1).	**5.NF.B.4**	Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction. a. Interpret the product $\frac{a}{b} \times q$ as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations $a \times b \div q$. For example, use a visual fraction model to show $\frac{2}{3} \times 4 = \frac{8}{3}$, and create a story context for this equation. Do the same with $\frac{2}{3} \times \frac{4}{5} = \frac{8}{15}$. In general, $\frac{a}{b} \times \frac{c}{d} = \frac{ac}{bd}$. b. Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles and represent fraction products as rectangular areas.
5.NOS.D.12	Apply and extend previous understandings of multiplication to multiply a fraction by a fraction. a. Estimate products by reasoning about benchmark numbers and assess reasonableness of answers (e.g., $\frac{1}{2} \times \frac{3}{4}$ will be less than $\frac{3}{4}$ because I will have one half of $\frac{3}{4}$). b. Apply and extend whole number multiplication strategies (e.g. area models). c. Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths and show that the area is the same as would be found by multiplying the side lengths.	**Not applicable**	Content separated from previous 5.NF.B.4 as separate standard.

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2025 MD Index	2025 Standards Statement	2010 Index	2010 Previous Standards Statement
5.NOS.D.13	Apply and extend previous understandings of multiplication to multiply a fraction by a fraction, with one or both factors greater than 1. a. Estimate products by reasoning about benchmark numbers and assess reasonableness of answers. b. Apply and extend whole number multiplication strategies (e.g. area model, partial products).	**Not applicable**	Content separated from previous 5.NF.B.4 as separate standard.
5.NOS.D.14	Interpret multiplication as scaling (sizing) in context. a. Compare the size of a product to the size of one factor based on the size of the other factor, without performing the indicated multiplication. b. Explain why multiplying a given number by a fraction greater than a 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explain why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relate the principle of fraction equivalence $\frac{a}{b}=\frac{n\times a}{n\times b}$ to the Identify Property of Multiplication.	**5NF.B.5**	Interpret multiplication as scaling (sizing) by: a. Comparing the size of a product to the size of one factor based on the size of the other factor, without performing the indicated multiplication. b. Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence $\frac{a}{b}=\frac{n\times a}{n\times b}$ to the effect of multiplying $\frac{a}{b}$ by 1.
5.NOS.D.15	Solve problems in contexts involving multiplication of fractions and mixed numbers, (e.g., by using visual fraction models or equations to represent the problem).	**5.NF.B.6**	Solve real-world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.

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2025 MD Index	2025 Standards Statement	2010 Index	2010 Previous Standards Statement
5.NOS.D.16	Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions in context. a. Extend estimation strategies to estimate quotients and assess reasonableness of answers. b. Use visual fraction models and equations to interpret division of a unit fraction by a non-zero whole number and compute quotients. c. Use visual fraction models and equations to interpret division of a whole number by a unit fraction and compute quotients. d. Represent and explain the computation by connecting visual fraction models and/or equations to the meaning of division with unit fractions.	**5.NF.B.7**	Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions. Interpret division of a unit fraction. a. Interpret division of a unit fraction by a non-zero whole number and compute such quotients. For example, create a story context for $\frac{1}{3} \div 4$ and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $\frac{1}{3} \div 4 = \frac{1}{12}$ because $\frac{1}{12} \times 4 = \frac{1}{3}$. b. Interpret division of a whole number by a unit fraction and compute such quotients. For example, create a story context for $4 \div \frac{1}{5}$. and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $4 \div \frac{1}{5} = 20$ because $20 \times \frac{1}{5} = 4$. c. Solve real-world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem. For example, how much chocolate will each person get if 3 people share $\frac{1}{2}$ lb. of chocolate equally. How many $\frac{1}{3}$-cup servings are in 2 cups of raisins?

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Algebraic Thinking (AT)

Previously Operations and Algebraic Thinking (OA)

5.AT.A WRITE AND INTERPRET NUMERICAL EXPRESSIONS.

PREVIOUSLY 5.OA.A

2025 MD Index	2025 Standards Statement	2010 Index	2010 Previous Standards Statement
5.AT.A.1	Interpret and evaluate numerical expressions with grouping symbols (e.g. parentheses, brackets, or braces).	**5.OA.A.1**	Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.
5.AT.A.2	Write expressions that record calculations with numbers and interpret numerical expressions without evaluating them.	**5.OA.A.2**	Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. For example, express the calculation “add 8 and 7, then multiply by 2” as 2 × (8 + 7). Recognize that 3 × (18932 + 921) is three times as large as 18932 + 921, without having to calculate the indicated sum or product.

5.AT.B ANALYZE PATTERNS AND RELATIONSHIPS.

PREVIOUSLY 5.OA.B

2025 MD Index	2025 Standards Statement	2010 Index	2010 Previous Standards Statement
5.AT.B.3	Generate and analyze number patterns. a. Generate a number pattern that follows a given rule and identify relationships between the numbers within the pattern. b. Generate two numerical patterns using two given rules and identify relationships between corresponding terms. c. Use tables, ordered pairs, and graphs to represent the relationship between quantities.	**5.OA.B.3**	Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. For example, given the rule “Add 3” and the starting number 0, and given the rule “Add 6” and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so.

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Geometric Reasoning (GR)

Previously Measurement and Data (MD); Geometry (G)

5.GR.A UNDERSTAND RELATIONSHIPS BETWEEN MEASUREMENT UNITS.

PREVIOUSLY 5.MD.A CONVERT LIKE MEASUREMENT UNITS WITHIN A GIVEN MEASUREMENT SYSTEM.

2025 MD Index	2025 Standards Statement	2010 Index	2010 Previous Standards Statement
5.GR.A.1	Apply the relationship between measurement units within a given measurement system to convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m) and use these conversions in solving multi-step problems.	**5.MD.A.1**	Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m) and use these conversions in solving multi-step problems.

5.GR.B CLASSIFY TWO-DIMENSIONAL FIGURES BASED ON PROPERTIES.

PREVIOUSLY 5.G.B CLASSIFY TWO-DIMENSIONAL FIGURES IN A HIERARCHY BASED ON PROPERTIES.

2025 MD Index	2025 Standards Statement	2010 Index	2010 Previous Standards Statement
5.GR.B.2	Explain that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category (e.g., all rectangles have four right angles and squares are rectangles, so all squares have four right angles).	**5.G.B.3**	Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles.
5.GR.B.3	Classify two-dimensional figures based on properties. a. Classify triangles based on properties (e.g., angle measure, side lengths). b. Classify quadrilaterals in a hierarchy based on properties (e.g., side lengths, angle measures, presence of parallel or perpendicular sides).	**5.G.B.4**	Classify two-dimensional figures in a hierarchy based on properties.

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5.GR.C UNDERSTAND CONCEPTS OF VOLUME AND RELATE VOLUME TO MULTIPLICATION.

PREVIOUSLY 5.MD.C GEOMETRIC MEASUREMENT: UNDERSTAND CONCEPTS OF VOLUME AND RELATE VOLUME TO MULITPLICATION AND TO ADDITION.

2025 MD Index	2025 Standards Statement	2010 Index	2010 Previous Standards Statement
5.GR.C.4	Identify volume as an attribute of three-dimensional figures and measure volume by counting cubic units (e.g., non-standard equal-sized units, cubic centimeters, cubic inches, and cubic feet) that fill a figure without gaps or overlaps.	**5.MD.C.3**	Recognize volume as an attribute of solid figures and understand concepts of volume measurement. a. A cube with side length of one unit, called a "unit cube," is said to have "one cubic unit" of volume, and can be used to measure volume. a. A solid figure which can be packed without gaps or overlaps using n unit cubes is said to have a volume of n cubic units.
Not applicable	Content embedded in 5.GR.C.4.	**5.MD.C.4**	Measure volumes by counting cubes, using cubic cm. cubic in., cubic ft., and improvised units.
5.GR.C.5	Relate volume to the operations of multiplication and addition and solve problems in context. a. Find the volume of a right rectangular prism with whole-number side lengths by filling it with unit cubes in layers and show that the volume is the same as would be found by multiplying the edge lengths, or by multiplying the height by the area of the base. Represent products of three whole numbers as volumes, (e.g., to represent the associative property of multiplication). b. Apply the formulas V = (l)(w)(h) and V = (B)(h) for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths to solve problems in the context. c. Determine the volumes of composite figures by decomposing them into non-overlapping right rectangular prisms and adding their volumes to solve problems in context	**5.MD.C.5**	Relate volume to the operations of multiplication and addition, and solve real-world and mathematical problems involving volume a. Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication b. Apply the formulas V = (l)(w)(h) and V = (b)(h) for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real-world and mathematical problems. c. Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non- overlapping parts, applying this technique to solve real-world problems.

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5.GR.D GRAPH POINTS ON A COORDINATE PLANE TO SOLVE CONTEXTUAL AND MATHEMATICAL PROBLEMS.

PREVIOUSLY 5.G.A GRAPH POINTS ON THE COORDINATE PLANE TO SOLVE REAL-WORLD AND MATHEMATICAL PROBLEMS.

2025 MD Index	2025 Standards Statement	2010 Index	2010 Previous Standards Statement
5.GR.D.6	Define the coordinate system as a pair of perpendicular lines called axes that intersect at the origin. Use understanding that the coordinate values represent the distance from the origin on the x-axis and y-axis to graph and name coordinate points in the first quadrant using ordered pairs.	**5.G.A.1**	Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y- axis and y-coordinate).
5.GR.D.7	Represent problems by graphing points in the first quadrant of the coordinate plane and interpreting coordinate values of points in the context of the situation.	**5.G.A.2**	Represent real-world mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.

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Reasoning with Data and Statistics (DS)

Previously Measurement and Data (MD)

5.DS.A REPRESENT AND INTERPRET DATA.

PREVIOUSLY 5.MD.B

2025 MD Index	2025 Standards Statement	2010 Index	2010 Previous Standards Statement
5.DS.A.1	Ask and answer questions by collecting, organizing and summarizing data, recognizing the importance of context when analyzing data. a. Create scaled data visualization (e.g. bar graphs for categorical data; line plots with fraction units of halves, fourths, and eighths for numerical data) to display data and communicate relationships or support a claim. b. Summarize data presented in scaled visualizations (e.g. bar graphs, circle graphs, line plots, line graphs) by identifying the mode, the range, and any gaps in data and draw conclusions. c. Evaluate whether a data visualization accurately represents the data and allows for accurate interpretation given the context.	**5.MD.B.2**	Make a line plot to display a data set of measurements in fractions of a unit (1/2 , 1/4 , 1/8). Use operations for this grade to solve problems involving information presented in line plots. For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.

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