Dover Area School District Curriculum K-U-D
Fourth Grade Math

	Eligible Content	Know	Understand	Do
C.C.2.1.4.B.1- Apply place value concepts to show an understanding of multi-digit whole numbers.	M04.A-T.1.1.1 Demonstrate an understanding that in a multi-digit whole number (through 1,000,000), a digit in one place represents ten times what it represents in the place to its right. Example: Recognize that in the number 770, the 7 in the hundreds place is ten times the 7 in the tens place. M04.A-T.1.1.2 Read and write whole numbers in expanded, standard, and word form through 1,000,000. M04.A-T.1.1.3 Compare two multi-digit numbers through 1,000,000 based on meanings of the digits in each place, using >, =, and < symbols. M04.A-T.1.1.4 Round multi-digit whole numbers (through 1,000,000) to any place.	standard form, digits, value, expanded form, rounding, approximate, millions, estimation, front end estimation, close to estimation	Understanding place-value allows us to compare quantities and values.	Recognize the value of a specific digit in a multi-digit whole number. Read and write whole numbers. Compare quantities and values. Round multi-digit whole numbers.
C.C.2.1.4.B.2- Use place value understanding and properties of operations to perform multi-digit arithmetic.	M04.A-T.2.1.1 Add and subtract multi-digit whole numbers (limit sums and subtrahends up to and including 1,000,000). M04.A-T.2.1.2 Multiply a whole number of up to four digits by a one-digit whole number and multiply 2 two-digit numbers. M04.A-T.2.1.3 Divide up to four-digit dividends by one-digit divisors with answers written as whole-number quotients and remainders. M04.A-T.2.1.4 Estimate the answer to addition, subtraction, and multiplication problems using whole numbers through six digits (for multiplication, no more than 2 digits × 1 digit, excluding powers of 10).	number model, unknown quantity, U.S. traditional addition, U.S. traditional subtraction, regroup, array, row, column, square number, factor, product, factor pair, divisibility, multiples, prime, composite, extended multiplication facts, partition, decompose, distributive property, partial products multiplication, commutative property, lattice multiplication, dividend, divisor, quotient, extended division fact, remainder, partial quotient, equivalent names (for numbers)	Understading place-value allows us to problem solve using the four operations.	Add and subtract multi-digit whole numbers. Multiply multi-digit whole numbers. Divide multi-digit whole numbers. Estimate and perform calculations with multi-digit quantities and values.
2.1.4.C1 Extend the understanding of fractions to show equivalence and ordering	M04.A-F.1.1.1 Recognize and generate equivalent fractions. M04.A-F.1.1.2 Compare two fractions with different numerators and different denominators (denominators limited to 2, 3, 4, 5, 6, 8, 10, 12, and 100) using the symbols >, =, or < and justify the conclusions.	equivalent fractions, denominator, numerator, unit interval, equivalent fractions rule, benchmark fraction, common denominator, common numerator	Understanding that fractions can be equal or be represented in different ways.	Identify and create equivalent fractions. Compare fractions.

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2.1.4.C2 Build fractions from unit fractions by applying and extending previous understanding of operations of whole numbers	M04.A-F.2.1.1 Add and subtract fractions with a common denominator (denominators limited to 2, 3, 4, 5, 6, 8, 10, 12, and 100; answers do not need to be simplified; and no improper fractions as the final answer). M04.A-F.2.1.2 Decompose a fraction or a mixed number into a sum of fractions with the same denominator (denominators limited to 2, 3, 4, 5, 6, 8, 10, 12, and 100), recording the decomposition by an equation. Justify decompositions (e.g., by using a visual fraction model). Example 1: 3/8 = 1/8 + 1/8 + 1/8 OR 3/8 = 1/8 + 2/8 Example 2: 2 1/12 = 1 + 1 + 1/12 = 12/12 + 12/12 + 1/12 M04.A-F.2.1.3 Add and subtract mixed numbers with a common denominator (denominators limited to 2, 3, 4, 5, 6, 8, 10, 12, and 100; no regrouping with subtraction; fractions do not need to be simplified; and no improper fractions as the final answers). M04.A-F.2.1.4 Solve word problems involving addition and subtraction of fractions referring to the same whole or set and having like denominators (denominators limited to 2, 3, 4, 5, 6, 8, 10, 12, and 100). M04.A-F.2.1.5 Multiply a whole number by a unit fraction (denominators limited to 2, 3, 4, 5, 6, 8, 10, 12, and 100 and final answers do not need to be simplified or written as a mixed number). Example: 5 × (1/4) = 5/4 M04.A-F.2.1.6 Multiply a whole number by a non-unit fraction (denominators limited to 2, 3, 4, 5, 6, 8, 10, 12, and 100 and final answers do not need to be simplified or written as a mixed number). Example: 3 × (5/6) = 15/6 M04.A-F.2.1.7 Solve word problems involving multiplication of a whole number by a fraction (denominators limited to 2, 3, 4, 5, 6, 8, 10, 12, and 100).	unit fraction, decomposing, mixed number, like denominators, fraction addition equation,	Understanding how fractions are part of a whole allows us to solve problems.	Add and subtract fractions. Decompose fractions. Add and subtract mixed numbers. Add and subtract fractions to solve problems. Multiply a whole number by a fraction. Multiply whole numbers and fractions to solve problems.
CC.2.1.4.C.3- Connect decimal notation to fractions, and compare decimal fractions (base 10 denominator, e.g., 19/100)	M04.A-F.3.1.1 Add two fractions with respective denominators 10 and 100. Example: Express 3/10 as 30/100, and add 3/10 + 4/100 = 30/100 + 4/100 = 34/100. M04.A-F.3.1.2 Use decimal notation for fractions with denominators 10 or 100. Example: Rewrite 0.62 as 62/100 and vice versa. M04.A-F.3.1.3 Compare two decimals to hundredths using the symbols >, =, or <, and justify the conclusions.	tenths, hundredths, decimal	Understanding that fractions and decimals both represent parts of a whole which can be used to solve problems.	Add and subtract decimals. Convert fractions with demoninators of 10 or 100 to decimal notation Compare decimals to the hundredths place.

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2.2.4.A1 Represent and solve problems involving the four operations.	M04.B-O.1.1.1 Interpret a multiplication equation as a comparison. Represent verbal statements of multiplicative comparisons as multiplication equations. Example 1: Interpret 35 = 5 × 7 as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Example 2: Know that the statement 24 is 3 times as many as 8 can be represented by the equation 24 = 3 × 8 or 24 = 8 × 3. M04.B-O.1.1.2 Multiply or divide to solve word problems involving multiplicative comparison, distinguishing multiplicative comparison from additive comparison. Example: Know that 3 × 4 can be used to represent that Student A has 4 objects and Student B has 3 times as many objects not just 3 more objects. M04.B-O.1.1.3 Solve multi-step word problems posed with whole numbers using the four operations. Answers will be either whole numbers or have remainders that must be interpreted yielding a final answer that is a whole number. Represent these problems using equations with a symbol or letter standing for the unknown quantity. M04.B-O.1.1.4 Identify the missing symbol (+, –, ×, ÷, =, <, and >) that makes a number sentence true (single-digit divisor only).	Comparison statements, quantity, multiplicative comparison statements, multiplicative relationship, additive comparison, half-dozen, at least, at most, remainder	Understanding the four operations allows us to solve problems.	Compare multiplicative statements and equations. Apply multiplicative or additive comparisons to solve problems. Solve multi step word problems and analyze remainders. Complete true number sentences.
2.2.4.A2 Develop and/or apply number theory concepts to find factors and multiples.	M04.B-O.2.1.1 Find all factor pairs for a whole number in the interval 1 - 100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the interval 1 - 100 is a multiple of a given 1 digit number. Determine whether a given whole number in the interval 1 - 100 is prime or composite.		Understanding number theory concepts allows us to represent numbers in various ways.	Identify factors, multiplies, and determine if a number is prime or composite.
CC.2.2.4.A.4- Generate and analyze patterns using one rule.	M04.B-O.3.1.1 Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. Example 1: Given the rule “add 3” and the starting number 1, generate terms in the resulting sequence and observe that the terms alternate between odd and even numbers. Example 2: Given the rule “increase the number of sides by 1” and starting with a triangle, observe that the tops of the shapes alternate between a side and a vertex. M04.B-O.3.1.2 Determine the missing elements in a function table (limit to +, –, or × and to whole numbers or money). M04.B-O.3.1.3 Determine the rule for a function given a table (limit to +, –, or × and to whole numbers).	function machine, input, output, rectangular numbers	Understanding operations allows use to recognize, describe, extend, and create a variety of patterns.	Generate patterns and identify pattern features. Complete function tables.
C.C.2.3.4.A.1- Draw lines and angles and identify these in two-dimensional figures.	M04.C-G.1.1.1 Draw points, lines, line segments, rays, angles (right, acute, and obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures. M04.C-G.1.1.2 Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles. M04.C-G.1.1.3 Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into mirroring parts. Identify line-symmetric figures and draw lines of symmetry (up to two lines of symmetry).	Line, line segment, parallel,intersect, ray, end point, perpendicular, vertex, right angle, obtuse angle, acute angle, right triangle, trapezoid, kite, polygon	Understanding properties of shapes allows us to classify geometic figures.	Create and identify two-dimensional figures. Categorize two-dimensional figures. Create and/or Identify and draw line symmetry.

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CC.2.3.4.A.2- Classify two- dimensional figures by properties of their lines and angles.	M04.C-G.1.1.1 Draw points, lines, line segments, rays, angles (right, acute, and obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures. M04.C-G.1.1.2 Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles. M04.C-G.1.1.3 Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into mirroring parts. Identify line-symmetric figures and draw lines of symmetry (up to two lines of symmetry).	Line, line segment, parallel,intersect, ray, end point, perpendicular, vertex, right angle, obtuse angle, acute angle, right triangle, trapezoid, kite, polygon, acute triangle, obtuse triangle, right triangle, equilateral triangle, isosceles triangle, properties, scalene triangle, attribute, adjacent, arc, degree, straight angle, reflex angle	Understanding properties of shapes allows us to classify geometic figures.	Create and identify two-dimensional figures. Categorize two-dimensional figures. Create and/or identify multiple lines of symmetry
CC.2.3.4.A.3 - Regoanzie symmetric shapes and draw lines of symmetry	M04.C-G.1.1.1 Draw points, lines, line segments, rays, angles (right, acute, and obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures. M04.C-G.1.1.2 Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles. M04.C-G.1.1.3 Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into mirroring parts. Identify line-symmetric figures and draw lines of symmetry (up to two lines of symmetry).	line of symmetry, symmetrical, mirror image, symmetry, rotation, clockwise, counter clockwise, quarter turn,	Understanding attributes of geometric figures allows us to identify line-symmerty in figures.	Create and identify two-dimensional figures. Categorize two-dimensional figures. Create and/or identify multiple lines of symmetry
C.C.2.4.4.A.1- Solve problems involving measurement and conversions from a larger unit to a smaller unit.	M04.D-M.1.1.1 Know relative sizes of measurement units within one system of units including standard units (in., ft, yd, mi; oz., lb; and c, pt, qt, gal), metric units (cm, m, km; g, kg; and mL, L), and time (sec, min, hr, day, wk, mo, and yr). Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. A table of equivalents will be provided. Example 1: Know that 1 kg is 1,000 times as heavy as 1 g. Example 2: Express the length of a 4-foot snake as 48 in. M04.D-M.1.1.2 Use the four operations to solve word problems involving distances, intervals of time (such as elapsed time), liquid volumes, masses of objects; money, including problems involving simple fractions or decimals; and problems that require expressing measurements given in a larger unit in terms of a smaller unit. M04.D-M.1.1.3 Apply the area and perimeter formulas for rectangles in real-world and mathematical problems (may include finding a missing side length). Whole numbers only. The formulas will be provided. M04.D-M.1.1.4 Identify time (analog or digital) as the amount of minutes before or after the hour. Example 1: 2:50 is the same as 10 minutes before 3:00. Example 2: Quarter past six is the same as 6:15.	measurement scale, convert, perimeter, formula, length, width, centimeter, meter, metric, millimeter, liter, milliliter, mass, gram, kilogram, weight, ton, pound, ounce, cup, pint, quart, gallon, fluid ounce	Understanding measurement conversions allows us to solve measurement problems.	Unit conversions. Solve word problems involving measurement conversions. Solve area and perimeter problems. There are multiple names for the same time.
2.4.4.A.2 Translate information from one type of data display to another.	M04.D-M.2.1.1 Make a line plot to display a data set of measurements in fractions of a unit (e.g., intervals of 1/2, 1/4, or 1/8). M04.D-M.2.1.2 Solve problems involving addition and subtraction of fractions by using information presented in line plots (line plots must be labeled with common denominators, such as 1/4, 2/4, 3/4). M04.D-M.2.1.3 Translate information from one type of display to another (table, chart, bar graph, or pictograph).	line plot, intervals, data	Understand that data can be represented in different formats.	Display the same set of data in different formats. Use fractional data represented on line plots to solve problems.

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2.4.4.A.4 Represent and interpret data involving fractions using information provided in a line plot.	M04.D-M.2.1.1 Make a line plot to display a data set of measurements in fractions of a unit (e.g., intervals of 1/2, 1/4, or 1/8). M04.D-M.2.1.2 Solve problems involving addition and subtraction of fractions by using information presented in line plots (line plots must be labeled with common denominators, such as 1/4, 2/4, 3/4). M04.D-M.2.1.3 Translate information from one type of display to another (table, chart, bar graph, or pictograph).	line plot, intervals, data	Understand that data represented on line plots can be used to solve problems.	Display the same set of data in different formats. Use fractional data represented on line plots to solve problems.
2.4.4.A.6 measure angles and use properties of adjacent angles to solve problems	M04.D-M.3.1.1 Measure angles in whole-number degrees using a protractor. With the aid of a protractor, sketch angles of specified measure. M04.D-M.3.1.2 Solve addition and subtraction problems to find unknown angles on a diagram in real-world and mathematical problems. (Angles must be adjacent and non-overlapping.)	reflex angle, half-circle protractor, base line, supplementary angles, complementary angles, full-circle protractor	Understanding concepts of angles allows us to measure and create angles.	Measure angles using a protractor. Solve real wordl angle measure problems.