	Fourth Grade Math Extended Indicators
MA 4.1	**NUMBER: Students will communicate number sense concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.**
MA 4.1.1	**Numeric Relationships: Students will demonstrate, represent, and show relationships among fractions and decimals within the base-ten number system.**
MA 4.1.1.a	Read, write, and demonstrate multiple equivalent representations for whole numbers up to one million and decimals to the hundredths, using objects, visual representations, standard form, word form, and expanded notation.
MAE 4.1.1.a	**Identify representations of numbers 0–100.**
MA 4.1.1.b	Recognize a digit in one place represents ten times what it represents in the place to its right and 1/10 what it represents in the place to its left.
MA 4.1.1.c	Classify a number up to 100 as prime or composite.
MAE 4.1.1.c	**Identify odd and even numbers up to 20.**
MA 4.1.1.d	Determine whether a given whole number up to 100 is a multiple of a given one-digit number.
MAE 4.1.1.d	**Count by twos and fives, and tens with numbers, models, or objects up to 40.**
MA 4.1.1.e	Determine factors of any whole number up to 100.
MAE 4.1.1.e	**Identify the factors of 4, 6, 10, 15, and 20.**
MA 4.1.1.f	Compare whole numbers up to one million and decimals through the hundredths place using >, <, and = symbols, and visual representations.
MAE 4.1.1.f	**Use symbols <, >, and = to compare whole numbers up to 40.**
MA 4.1.1.g	Round a multi-digit whole number to any given place.
MAE 4.1.1.g	**Round a 2-digit number, 1–100, to the nearest ten using a number line.**
MA 4.1.1.h	Use decimal notation for fractions with denominators of 10 or 100.
MAE 4.1.1.h	**Identify decimals on a number line from 0 to 1 (tenths only).**
MA 4.1.1.i	Generate and explain equivalent fractions by multiplying by an equivalent fraction of 1.
MA 4.1.1.j	Explain how to change a mixed number to a fraction and how to change a fraction to a mixed number.
MA 4.1.1.k	Compare and order fractions having unlike numerators and unlike denominators using visual representations (number line), comparison symbols and verbal reasoning (e.g., using benchmarks or common numerators or common denominators).
MAE 4.1.1.k	**Compare and order mixed numbers with fourths and halves less than 3.**
MA 4.1.1.l	Decompose a fraction into a sum of fractions with the same denominator in more than one way, and record each decomposition with an equation and a visual representation.

MA 4.1.2	**Operations: Students will demonstrate the meaning of addition and subtraction of whole numbers and fractions and compute accurately.**
MA 4.1.2.a	Add and subtract multi-digit numbers using the standard algorithm.
MA 4.1.2.b	Multiply a four-digit whole number by a one-digit whole number.
MAE 4.1.2.b	**Multiply 2's, 5's and 10's by a single digit number.**
MA 4.1.2.c	Multiply a two-digit whole number by a two-digit whole number using the standard algorithm.
MAE 4.1.2.c	**Multiply two-digit multiples of 10 by 2 or 5.**
MA 4.1.2.d	Divide up to a four-digit whole number by a one-digit divisor with and without a remainder.
MAE 4.1.2.d	**Identify numbers 2–20 in equal-size groups.**
MA 4.1.2.e	Use drawings, words, and symbols to explain the meaning of addition and subtraction of fractions with like denominators.
MA 4.1.2.f	Add and subtract fractions and mixed numbers with like denominators.
MAE 4.1.2.f	**Add and subtract halves to halves, thirds to thirds, fourths to fourths, and fifths to fifths…to a whole.**
MA 4.1.2.g	Multiply a fraction by a whole number.
MA 4.1.2.h	Determine the reasonableness of whole number products and quotients in real-world problems using estimation, compatible numbers, mental computations, or other strategies.
MA 4.2	**ALGEBRA: Students will communicate algebraic concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.**
MA 4.2.1	**Algebraic Relationships: Students will demonstrate, represent, and show relationships with expressions and equations.**
MA 4.2.1.a	Create a simple algebraic expression or equation using a variable for an unknown number to represent a math process (e.g., $3 + n = 15$, $81 \div n = 9$).
MAE 4.2.1.a	**Solve simple one-step single-digit equations using addition or subtraction.**
MA 4.2.1.b	Generate and analyze a number or shape pattern to follow a given rule, such as $y = 3x + 5$ is a rule to describe a relationship between two variables and can be used to find a second number when a first number is given.
MA 4.2.2	**Algebraic Processes: Students will apply the operational properties when evaluating expressions and solving equations.**
MA 4.2.2.a	Solve one- and two-step problems that use any or all of the four basic operations and include the use of a letter to represent the unknown quantity.
MAE 4.2.2.a	**Evaluate numerical expressions using order of operations using numbers 1 through 5.**

MA 4.2.3	**Applications: Students will solve real-world problems involving equations with fractions.**
MA 4.2.3.a	Solve real-world problems involving multi-step equations comprised of whole numbers using the four operations, including interpreting remainders.
MAE 4.2.3.a	**Solve addition and subtraction real-world problems with addition and subtraction up to 40 without regrouping.**
MA 4.2.3.b	Solve real-world problems involving addition and subtraction of fractions and mixed numbers with like denominators.
MAE 4.2.3.b	**Solve addition real-world problems with halves and fourths.**
MA 4.3	**GEOMETRY: Students will communicate geometric concepts and measurement concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.**
MA 4.3.1	**Characteristics: Students will identify and describe geometric characteristics and create two- and three-dimensional shapes.**
MA 4.3.1.a	Recognize angles as geometric shapes that are formed where two rays share a common endpoint.
MA 4.3.1.b	Classify an angle as acute, obtuse, or right.
MAE 4.3.1.b	**Compare larger and smaller angles.**
MA 4.3.1.c	Identify and draw points, lines, line segments, rays, angles, parallel lines, perpendicular lines, and intersecting lines, and recognize them in two-dimensional figures.
MAE 4.3.1.c	**Identify parallel and intersecting lines.**
MA 4.3.1.d	Classify two-dimensional shapes based on the presence or absence of parallel and perpendicular lines, or the presence or absence of specific angles.
MAE 4.3.1.d	**Identify acute, right, and obtuse triangles.**
MA 4.3.1.e	Identify right triangles.
MAE 4.3.1.e	**Identify right angles.**
MA 4.3.1.f	Measure angles in whole number degrees using a protractor.
MA 4.3.1.g	Sketch angles of a specified measure.
MAE 4.3.1.g	**Identify 45°, 90° and 180° angles without measuring.**
MA 4.3.1.h	Recognize and draw lines of symmetry in two-dimensional shapes.
MAE 4.3.1.h	**Identify a line of symmetry in a rectangle, square, or circle.**
MA 4.3.2	**Coordinate Geometry: Students will determine location, orientation, and relationships on the coordinate plane.**

	No additional indicator(s) at this level. Mastery is expected at previous grade levels.
MA 4.3.3	**Measurement: Students will perform and compare measurements and apply formulas.**
MA 4.3.3.a	Apply perimeter and area formulas for rectangles.
MAE 4.3.3.a	**Identify the area of a rectangle by counting unit squares.**
MA 4.3.3.b	Identify and use the appropriate tools, operations, and units of measurement, both customary and metric, to solve real-world problems involving time, length, weight, mass, capacity, and volume.
MA 4.3.3.c	Generate simple conversions from a larger unit to a smaller unit within the customary and metric systems of measurement.
MAE 4.3.3.c	**Identify the number of inches in one or two feet using a model of a ruler.**
MA 4.4	**DATA: Students will communicate data analysis/probability concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.**
MA 4.4.1	**Representations: Students will create displays that represent data.**
MA 4.4.1.a	Represent data using line plots where the horizontal scale is marked off in appropriate units (e.g., whole numbers, halves, quarters, or eighths).
MAE 4.4.1.a	**Interpret information in a line plot using two data points.**
MA 4.4.2	**Analysis & Applications: Students will analyze data to address the situation.**
MA 4.4.2.a	Solve problems involving addition or subtraction of fractions using information presented in line plots.
MAE 4.4.2.a	**Solve a problem with addition or subtraction of whole numbers using information from a line plot.**
MA 4.4.3	**Probability: Students will interpret and apply concepts of probability.**
	No additional indicator(s) at this level.