	Fifth Grade Math Extended Indicators
MA 5.1	**NUMBER: Students will communicate number sense concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.**
MA 5.1.1	**Numeric Relationships: Students will demonstrate, represent, and show relationships among whole numbers, fractions, and decimals within the base-ten number system.**
MA 5.1.1.a	Determine multiple equivalent representations for whole numbers and decimals through the thousandths place using standard form, word form, and expanded notation.
MAE 5.1.1.a	**Identify representations of whole numbers up to 200.**
MA 5.1.1.b	Compare whole numbers, fractions, mixed numbers, and decimals through the thousandths place and represent comparisons using symbols <, >, or =.
MAE 5.1.1.b	**Compare and order whole numbers using symbols <, >, and = up to 200.**
MA 5.1.1.c	Round whole numbers and decimals to any given place.
MAE 5.1.1.c	**Round whole numbers to the nearest tens place up to 200 using a number line.**
MA 5.1.1.d	Recognize and generate equivalent forms of commonly used fractions, decimals, and percents (e.g., halves, thirds, fourths, fifths, and tenths).
MAE 5.1.1.d	**Use models to identify equivalent fractions between thirds, fourths, halves, and one whole.**
MA 5.1.1.e	Write powers of 10 with exponents.
MA 5.1.2	**Operations: Students will demonstrate the meaning of operations and compute accurately with whole numbers, fractions, and decimals.**
MA 5.1.2.a	Multiply multi-digit whole numbers using the standard algorithm.
MAE 5.1.2.a	**Multiply a two-digit number by a single-digit number.**
MA 5.1.2.b	Divide four-digit whole numbers by a two-digit divisor, with and without remainders using the standard algorithm.
MAE 5.1.2.b	**Divide a two-digit whole number by a single-digit number with no remainder.**
MA 5.1.2.c	Multiply a whole number by a fraction or a fraction by a fraction using models and visual representations.
MAE 5.1.2.c	**Multiply 1/3, 1/2, or 1/4 by 2, 3, and 4.**
MA 5.1.2.d	Divide a unit fraction by a whole number and a whole number by a unit fraction.
MAE 5.1.2.d	**Divide a whole number by 1/3, 1/2, or 1/4 using a visual model (e.g., 3 divided by one-half).**
MA 5.1.2.e	Explain division of a whole number by a fraction using models and visual representations.
MA 5.1.2.f	Interpret a fraction as division of the numerator by the denominator.

MA 5.1.2.g	Add, subtract, multiply, and divide decimals to the hundredths using concrete models or drawings and strategies based on place value, properties of operations (i.e., Commutative, Associative, Distributive, Identity, Zero), and/or relationships between operations.
MA 5.1.2.h	Add and subtract fractions and mixed numbers with unlike denominators.
MAE 5.1.2.h	**Add and subtract fractions with like denominators using a visual model without regrouping.**
MA 5.1.2.i	Determine the reasonableness of computations involving whole numbers, fractions, and decimals.
MA 5.1.2.j	Multiply and divide by powers of 10.
MAE 5.1.2.j	**Multiply a one-digit whole number by 100.**
MA 5.2	**ALGEBRA: Students will communicate algebraic concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.**
MA 5.2.1	**Algebraic Relationships: Students will demonstrate, represent, and show relationships with expressions and equations.**
MA 5.2.1.a	Form ordered pairs from a rule such as $y = 2x$, and graph the ordered pairs on a coordinate plane.
MAE 5.2.1.a	**Identify the location of the ordered pairs on a coordinate plane (1st quadrant).**
MA 5.2.2	**Algebraic Processes: Students will apply the operational properties when evaluating expressions and solving equations.**
MA 5.2.2.a	Interpret and evaluate numerical or algebraic expressions using order of operations (excluding exponents).
MAE 5.2.2.a	**Evaluate a numerical expression with addition or subtraction and multiplication, 1–5.**
MA 5.2.3	**Applications: Students will solve real-world problems involving equations with fractions and mixed numbers.**
MA 5.2.3.a	Solve real-world problems involving addition and subtraction of fractions and mixed numbers with like and unlike denominators.
MAE 5.2.3.a	**Solve real-world problems with addition or subtraction of fractions limited to like denominators without regrouping involving halves, thirds, and fourths.**
MA 5.3	**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 5.3.1	**Characteristics: Students will identify and describe geometric characteristics and create two- and three-dimensional shapes.**
MA 5.3.1.a	Identify three-dimensional figures including cubes, cones, pyramids, prisms, spheres, and cylinders.
MAE 5.3.1.a	**Identify three-dimensional models limited to cube, cylinder, and cone.**
MA 5.3.1.b	Identify faces, edges, and vertices of rectangular prisms.
MAE 5.3.1.b	**Identify the faces, edges, and vertices of a cube.**
MA 5.3.1.c	Justify the classification of two-dimensional figures based on their properties.
MAE 5.3.1.c	**Sort triangles, rectangles, and squares by number of sides and/or angles.**
MA 5.3.2	**Coordinate Geometry: Students will determine location, orientation, and relationships on the coordinate plane.**
MA 5.3.2.a	Identify the origin, *x* axis, and *y* axis of the coordinate plane.
MA 5.3.2.b	Graph and name points in the first quadrant of the coordinate plane using ordered pairs of whole numbers.
MAE 5.3.2.b	**Identify the *x*- or *y*-coordinate of whole-numbered points in quadrant I.**
MA 5.3.3	**Measurement: Students will perform and compare measurements and apply formulas.**
MA 5.3.3.a	Recognize that solid figures have volume that is measured in cubic units.
MA 5.3.3.b	Use concrete models to measure the volume of rectangular prisms in cubic units by counting cubic units.
MAE 5.3.3.b	**Find the volume of a rectangular prism by counting unit cubes.**
MA 5.3.3.c	Generate conversions within the customary and metric systems of measurement.
MAE 5.3.3.c	**Convert whole-numbers of feet to inches using a model.**
MA 5.4	**DATA: Students will communicate data analysis/probability concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.**
MA 5.4.1	**Representations: Students will create displays that represent data.**
	No additional indicator(s) at this level. Mastery is expected at previous grade levels.
MA 5.4.2	**Analysis & Applications: Students will analyze data to address the situation.**
MA 5.4.2.a	Use observations, surveys, and experiments to collect, represent, and interpret the data using tables (e.g., frequency charts) and bar graphs.

MAE 5.4.2.a	**Interpret information in a bar graph using two data points.**
MA 5.4.2.b	Formulate questions that can be addressed with data and make predictions about the data.
MAE 5.4.2.b	**Solve a problem with addition or subtraction of whole numbers using information from a bar graph.**
MA 5.4.3	**Probability: Students will interpret and apply concepts of probability.**
	No additional indicator(s) at this level.