

### Third Grade Math Extended Indicators

<b>MA 3.1</b>	<b>NUMBER: Students will communicate number sense concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.</b>
<b>MA 3.1.1</b>	<b>Numeric Relationships: Students will demonstrate, represent, and show relationships among whole numbers and simple fractions within the base-ten number system.</b>
MA 3.1.1.a	Read, write, and demonstrate multiple equivalent representations for numbers up to 100,000 using objects, visual representations, including standard form, word form, expanded form, and expanded notation.
<b>MAE 3.1.1.a</b>	<b>Read, write, and demonstrate whole numbers up to 20 that are equivalent representations including visual models, standard form, and word form.</b>
MA 3.1.1.b	Compare whole numbers through the hundred thousands and represent the comparisons using the symbols $>$ , $<$ , or $=$ .
<b>MAE 3.1.1.b</b>	<b>Compare and order whole numbers, 1- 20.</b>
MA 3.1.1.c	Round a whole number to the tens or hundreds place, using place value understanding or a visual representation.
<b>MAE 3.1.1.c</b>	<b>Identify a number closer to a given number on a number line, 1-20.</b>
MA 3.1.1.d	Represent and understand a fraction as a number on a number line.
<b>MAE 3.1.1.d</b>	<b>Represent halves and wholes on a number line.</b>
MA 3.1.1.e	Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers.
<b>MAE 3.1.1.e</b>	<b>Given a model, represent a whole number (1–3) as a fraction with a denominator of 2, 3, or 4.</b>
MA 3.1.1.f	Show and identify equivalent fractions using visual representations including pictures, manipulatives, and number lines.
MA 3.1.1.g	Find parts of a whole and parts of a set using visual representations.
<b>MAE 3.1.1.g</b>	<b>Identify parts of a set as one-half, one-fourth, or the whole of the set, limited to four objects.</b>
MA 3.1.1.h	Explain and demonstrate how fractions $\frac{1}{4}$ , $\frac{1}{2}$ , $\frac{3}{4}$ , and a whole relate to time, measurement, and money, and demonstrate using visual representations.
MA 3.1.1.i	Compare and order fractions having the same numerators or denominators using visual representations, comparison symbols, and verbal reasoning.
<b>MAE 3.1.1.i</b>	<b>Use a model to compare unit fractions one-half, one-third, and one-fourth.</b>
<b>MA 3.1.2</b>	<b>Operations: Students will demonstrate the meaning of multiplication and division with whole numbers and compute accurately.</b>
MA 3.1.2.a	Add and subtract within 1,000 with or without regrouping.
<b>MAE 3.1.2.a</b>	<b>Add and subtract, through 20 without regrouping.</b>
MA 3.1.2.b	Select and apply the appropriate methods of computation when solving one- and two-step addition and subtraction problems with four-digit whole numbers through the thousands (e.g., visual representations, mental computation, paper-pencil).

MA 3.1.2.c	Use drawings, words, arrays, symbols, repeated addition, equal groups, and number lines to explain the meaning of multiplication.
<b>MAE 3.1.2.c</b>	<b>Use a model to show multiplication as repeat addition with a product no greater than 20.</b>
MA 3.1.2.d	Use words and symbols to explain the meaning of the Zero Property and Identity Property of multiplication.
MA 3.1.2.e	Multiply one-digit whole numbers by multiples of 10 in the range of 10 to 90.
<b>MAE 3.1.2.e</b>	<b>Multiply one and two by ten, twenty, and thirty up to 60.</b>
MA 3.1.2.f	Use objects, drawings, arrays, words, and symbols to explain the relationship between multiplication and division (e.g., if $3 \times 4 = 12$ then $12 \div 3 = 4$ ).
<b>MAE 3.1.2.f</b>	<b>Count the number of twos in four, six, and eight and the number of threes in six and nine, using a model.</b>
MA 3.1.2.g	Fluently (i.e., automatic recall based on understanding) multiply and divide within 100.
MA 3.1.2.h	Determine the reasonableness of whole number sums and differences in real-world problems using estimation, compatible numbers, mental computations, or other strategies.
<b>MA 3.2</b>	<b>ALGEBRA: Students will communicate algebraic concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.</b>
<b>MA 3.2.1</b>	<b>Algebraic Relationships: Students will demonstrate, represent, and show relationships with expressions and equations.</b>
MA 3.2.1.a	Identify arithmetic patterns (including patterns in the addition or multiplication tables) using properties of operations.
<b>MAE 3.2.1.a</b>	<b>Identify the next term in numeric and non-numeric AB patterns.</b>
MA 3.2.1.b	Interpret a multiplication equation as equal groups (e.g., interpret $4 \times 6$ as the total number of objects in four groups of six objects each). Represent verbal statements of equal groups as multiplication equations.
<b>MAE 3.2.1.b</b>	<b>Identify a multiplication equation as representing equal groups up to 20.</b>
<b>MA 3.2.2</b>	<b>Algebraic Processes: Student will apply the operational properties when multiplying and dividing.</b>
MA 3.2.2.a	Apply the commutative, associative, and distributive properties as strategies to multiply and divide.
MA 3.2.2.b	Solve one-step whole number equations involving addition, subtraction, multiplication, or division, including the use of a letter to represent the unknown quantity.
<b>MAE 3.2.2.b</b>	<b>Solve a one-step equation for sums and differences 0–9.</b>
<b>MA 3.2.3</b>	<b>Applications: Students will solve real-world problems involving equations with whole numbers.</b>

MA 3.2.3.a	Solve real-world problems involving two-step equations (involving two operations) involving whole numbers using addition and subtraction.
<b>MAE 3.2.3.a</b>	<b>Solve a one-step real-world problem using addition or subtraction 0–9.</b>
MA 3.2.3.b	Write an equation (e.g., one operation, one variable) to represent real-world problems involving whole numbers.
<b>MAE 3.2.3.b</b>	<b>Identify a one-step equation that represents a real-world problem with a variable limited to addition or subtraction with sums and differences 0–9.</b>
<b>MA 3.3</b>	<b>GEOMETRY: Students will communicate geometric concepts and measurement concepts, using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.</b>
<b>MA 3.3.1</b>	<b>Characteristics: Students will identify and describe geometric characteristics and create two- and three-dimensional shapes.</b>
MA 3.3.1.a	Identify the number of sides, angles, and vertices of two-dimensional shapes.
<b>MAE 3.3.1.a</b>	<b>Identify the number of sides or angles in a regular polygon.</b>
MA 3.3.1.b	Sort quadrilaterals into categories (e.g., rhombuses, squares, and rectangles).
<b>MAE 3.3.1.b</b>	<b>Identify two-dimensional shapes, circles, triangles, rectangles, or squares from a collection of circles, rectangles, and squares.</b>
MA 3.3.1.c	Draw lines to separate two-dimensional figures into equal areas, and express the area of each part as a unit fraction of the whole.
<b>MAE 3.3.1.c</b>	<b>Identify a line that separates a symmetric two-dimensional shape into halves.</b>
<b>MA 3.3.2</b>	<b>Coordinate Geometry: Students will determine location, orientation, and relationships on the coordinate plane.</b>
	<b>No additional indicator(s) at this level. Mastery is expected at previous grade levels.</b>
<b>MA 3.3.3</b>	<b>Measurement: Students will perform and compare measurements and apply formulas.</b>
MA 3.3.3.a	Find the perimeter of polygons given the side lengths, and find an unknown side length.
<b>MAE 3.3.3.a</b>	<b>Find the perimeter of a rectangle given the side lengths and a figure.</b>
MA 3.3.3.b	Tell and write time to the minute using both analog and digital clocks.
<b>MAE 3.3.3.b</b>	<b>Tell time to the hour.</b>
MA 3.3.3.c	Solve real-world problems involving addition and subtraction of time intervals, and find elapsed time.
<b>MAE 3.3.3.c</b>	<b>Add whole numbers of hours to find elapsed time.</b>
MA 3.3.3.d	Identify and use the appropriate tools and units of measurement, both customary and metric, to solve real-world problems involving length, weight, mass, liquid volume, and capacity (within the same system and unit).

MA 3.3.3.e	Estimate and measure length to the nearest half inch, quarter inch, and centimeter.
<b>MAE 3.3.3.e</b>	<b>Measure length to the nearest inch using a model of an object.</b>
MA 3.3.3.f	Use concrete and pictorial models to measure areas in square units by counting square units.
MA 3.3.3.g	Find the area of a rectangle with whole number side lengths by modeling with unit squares, and show that the area is the same as would be found by multiplying the side lengths.
<b>MAE 3.3.3.g</b>	<b>Find the area of a square by counting whole number unit squares.</b>
MA 3.3.3.h	Identify and draw rectangles with the same perimeter and different areas or with the same area and different perimeters.
<b>MAE 3.3.3.h</b>	<b>Identify congruent non-square rectangles.</b>
<b>MA 3.4</b>	<b>DATA: Students will communicate data analysis/probability concepts, using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.</b>
<b>MA 3.4.1</b>	<b>Representations: Students will create displays that represent data.</b>
MA 3.4.1.a	Create scaled pictographs and scaled bar graphs to represent a data set—including data collected through observations, surveys, and experiments—with several categories.
<b>MAE 3.4.1.a</b>	<b>Identify a characteristic of a bar graph or a pictograph. (e.g., quantities, comparisons)</b>
MA 3.4.1.b	Represent data using line plots where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters.
<b>MAE 3.4.1.b</b>	<b>Identify the scale of a bar graph and/or the key of a pictograph.</b>
<b>MA 3.4.2</b>	<b>Analysis &amp; Applications: Students will analyze data to address the situation.</b>
MA 3.4.2.a	Solve problems and make simple statements about quantity differences (e.g., how many more and how many less) using information represented in pictographs and bar graphs.
<b>MAE 3.4.2.a</b>	<b>Solve a problem using a bar graph or a pictograph.</b>
<b>MA 3.4.3</b>	<b>Probability: Students will interpret and apply concepts of probability.</b>
	<b>No additional indicator(s) at this level.</b>