Grade 4 Mathematics

This document provides correlations between the 2023 Indiana Academic Standards and the 2020 Indiana Academic Standards for easy reference.

The 2023 Indiana Academic Standards resulted from the standards streamlining process required by Indiana Code 20-31-3-1(c-d) and were adopted by the Indiana State Board of Education in June 2023. Standards designated as essential (E) are shaded in gray and all standards were renumbered to avoid gaps in sequencing.

2023 Indiana Academic Standard		2020 Indiana Academic Standard	
Domain: Number Sense		**Domain: Number Sense**	
Number	**Text**	**Number**	**Text**
4.NS.1	Read and write whole numbers up to 1,000,000. Use words, models, standard form, and expanded form to represent and show equivalent forms of whole numbers up to 1,000,000.	**4.NS.1**	Read and write whole numbers up to 1,000,000. Use words, models, standard form and expanded form to represent and show equivalent forms of whole numbers up to 1,000,000.
4.NS.2	Model mixed numbers and improper fractions using visual fraction models such as number lines and area models. Use a visual fraction model to show the equivalency between whole numbers and whole numbers as fractions.	**4.NS.3**	Express whole numbers as fractions and recognize fractions that are equivalent to whole numbers. Name and write mixed numbers using objects or pictures. Name and write mixed numbers as improper fractions using objects or pictures.
4.NS.3	Use fraction models to represent two equivalent fractions with attention to how the number and size of the parts differ even though the fractions themselves are the same size. Use this principle to generate equivalent fractions. [In grade 4, limit denominators of fractions to 2, 3, 4, 5, 6, 8, 10, 25,	**4.NS.4**	Explain why a fraction, a/b, is equivalent to a fraction, $(n \times a)/(n \times b)$, by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions. [In

	100.] (E)		grade 4, limit denominators of fractions to 2, 3, 4, 5, 6, 8, 10, 25, 100.]
4.NS.4	Compare two fractions with different numerators and different denominators (e.g., by creating common denominators or numerators, or by comparing to a benchmark, such as 0, 1/2, and 1). Explain why comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols > , = , or < , and justify the conclusions (e.g., by using a visual fraction model). (E)	**4.NS.5**	Compare two fractions with different numerators and different denominators (e.g., by creating common denominators or numerators, or by comparing to a benchmark, such as 0, 1/2, and 1). Recognize comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions (e.g., by using a visual fraction model).
4.NS.5	Write tenths and hundredths in decimal and fraction notations. Use words, models, standard form, and expanded form to represent decimal numbers to hundredths. Mentally calculate fraction and decimal equivalents for halves and fourths (e.g., 1/2 = 0.5 = 0.50, 7/4 = 1 3/4 = 1.75). (E)	**4.NS.6**	Write tenths and hundredths in decimal and fraction notations. Use words, models, standard form and expanded form to represent decimal numbers to hundredths. Know the fraction and decimal equivalents for halves and fourths (e.g., 1/2 = 0.5 = 0.50, 7/4 = 1 3/4 = 1.75).
4.NS.6	Compare two decimals to hundredths by reasoning about their size based on the same whole. Record the results of comparisons with the symbols > , = , or < , and justify the conclusions (e.g., by using a visual model). (E)	**4.NS.7**	Compare two decimals to hundredths by reasoning about their size based on the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions (e.g., by using a visual model).
4.CA.4	Investigate the mathematical relationship between factors and multiples for whole numbers from 1-100, including the set of factors and multiples for given numbers. Identify sets of factors and multiples for any given whole number up to 100.	**4.NS.8**	Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number.

4.NS.7	Use place value understanding to round multi-digit whole numbers to any given place value.	**4.NS.9**	Use place value understanding to round multi-digit whole numbers to any given place value.
		4.NS.2	Compare two whole numbers up to 1,000,000 using >, =, and < symbols.
2023 Indiana Academic Standard		**2020 Indiana Academic Standard**	
Domain: Computation and Algebraic Thinking		**Domains: Computation and Algebraic Thinking**	
Number	**Text**	**Number**	**Text**
4.CA.1	Multiply a whole number of up to four digits by a one-digit whole number and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Describe the strategy and explain the reasoning. (E)	**4.C.2**	Multiply a whole number of up to four digits by a one-digit whole number and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Describe the strategy and explain the reasoning.
4.CA.2	Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Describe the strategy and explain the reasoning. (E)	**4.C.3**	Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Describe the strategy and explain the reasoning.
4.CA.3	Show how the order in which two numbers are multiplied (commutative property) and how numbers are grouped in multiplication (associative property) will not change the product. Use these properties to show that numbers can be multiplied in any order. Investigate and apply the distributive property. (E)	**4.C.7**	Show how the order in which two numbers are multiplied (commutative property) and how numbers are grouped in multiplication (associative property) will not change the product. Use these properties to show that numbers can be multiplied in any order. Understand and use the distributive property.

4.CA.4	Investigate the mathematical relationship between factors and multiples for whole numbers from 1-100, including the set of factors and multiples for given numbers. Identify sets of factors and multiples for any given whole number up to 100.	**4.NS.8**	Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number.
4.CA.5	Solve real-world problems with whole numbers involving multiplicative comparison (e.g., by using drawings and equations with a symbol for the unknown number to represent the problem), distinguishing multiplicative comparison from additive comparison. [In grade 4, division problems should not include a remainder.] (E)	**4.AT.4**	Solve real-world problems with whole numbers involving multiplicative comparison (e.g., by using drawings and equations with a symbol for the unknown number to represent the problem), distinguishing multiplicative comparison from additive comparison. [In grade 4, division problems should not include a remainder.]
4.CA.6	Add and subtract fractions with common denominators using visual fraction models. Decompose non-unit fractions to represent them as iterations of unit fractions. (E)	**4.C.5**	Add and subtract fractions with common denominators. Decompose a fraction into a sum of fractions with common denominators. Understand addition and subtraction of fractions as combining and separating parts referring to the same whole.
4.CA.7	Add and subtract mixed numbers with common denominators (e.g., by replacing each mixed number with an equivalent fraction and/or by using properties of operations and the relationship between addition and subtraction).	**4.C.6**	Add and subtract mixed numbers with common denominators (e.g., by replacing each mixed number with an equivalent fraction and/or by using properties of operations and the relationship between addition and subtraction).
4.CA.8	Solve real-world problems involving addition and subtraction of fractions referring to the same whole and having common denominators (e.g., by using visual fraction models and equations to represent the problem). (E)	**4.AT.5**	Solve real-world problems involving addition and subtraction of fractions referring to the same whole and having common denominators (e.g., by using visual fraction models and equations to represent the problem).

4.CA.9	Describe the relationship between two terms and use it to find a second number when a first number is given. Generate a number pattern that follows a given rule.	**4.AT.6**	Describe a relationship between two variables and use to find a second number when a first number is given. Generate a number pattern that follows a given rule.
		4.C.1	Add and subtract multi-digit whole numbers fluently using a standard algorithmic approach.
		4.C.4	Multiply fluently within 100.
		4.AT.1	Solve real-world problems involving addition and subtraction of multi-digit whole numbers (e.g., by using drawings and equations with a symbol for the unknown number to represent the problem).
		4.AT.2	Recognize and apply the relationships between addition and multiplication, between subtraction and division, and the inverse relationship between multiplication and division to solve real-world and other mathematical problems.
		4.AT.3	Interpret a multiplication equation as a comparison (e.g., interpret 35 = 5 × 7 as a statement that 35 is 5 times as many as 7, and 7 times as many as 5). Represent verbal statements of multiplicative comparisons as multiplication equations.

2023 Indiana Academic Standard		2020 Indiana Academic Standard	
Domain: Geometry		**Domain: Geometry**	
Number	**Text**	**Number**	**Text**
4.G.1	Identify, describe, and draw parallelograms, rhombuses, and trapezoids using appropriate tools (e.g., ruler, straightedge, and technology).	**4.G.1**	Identify, describe, and draw parallelograms, rhombuses, and trapezoids using appropriate tools (e.g., ruler, straightedge and technology).
4.G.2	Identify, describe, and draw rays, angles (right, acute, obtuse), and perpendicular and parallel lines using appropriate tools (e.g., ruler, straightedge and technology). Identify these in two-dimensional figures.	**4.G.4**	Identify, describe, and draw rays, angles (right, acute, obtuse), and perpendicular and parallel lines using appropriate tools (e.g., ruler, straightedge and technology). Identify these in two-dimensional figures.
4.G.3	Classify triangles and quadrilaterals based on the presence or absence of parallel or perpendicular lines, or right, acute,or obtuse angles.	**4.G.5**	Classify triangles and quadrilaterals based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles (right, acute, obtuse).
		4.G.2	Recognize and draw lines of symmetry in two-dimensional figures. Identify figures that have lines of symmetry.
		4.G.3	Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint.
2023 Indiana Academic Standard		**2020 Indiana Academic Standard**	
Domain: Measurement		**Domain: Measurement**	
Number	**Text**	**Number**	**Text**

4.M.1	Measure length to the nearest quarter-inch, eighth-inch, and millimeter.. (E)	**4.M.1**	Measure length to the nearest quarter-inch, eighth-inch, and millimeter.
4.M.2	Within given measurement systems, convert larger units to smaller units, including km, m, cm; kg, g; lb, oz; l, ml; hr, min, sec., and use these conversions to solve real-world problems. (E)	**4.M.2**	Know relative sizes of measurement units within one system of units, including km, m, cm; kg, g; lb, oz; l, ml; hr, min, sec. Express measurements in a larger unit in terms of a smaller unit within a single system of measurement. Record measurement equivalents in a two-column table.
4.M.3	Use the four operations to solve real-world problems involving distances, intervals of time, volumes, masses of objects, and money. Include addition and subtraction problems involving simple fractions and problems that require expressing measurements given in a larger unit in terms of a smaller unit. (E)	**4.M.3**	Use the four operations to solve real-world problems involving distances, intervals of time, volumes, masses of objects, and money. Include addition and subtraction problems involving simple fractions and problems that require expressing measurements given in a larger unit in terms of a smaller unit.
4.M.4	Apply the area and perimeter formulas for rectangles to solve real-world and other mathematical problems. Investigate the area of complex shapes composed of rectangles by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts; apply this technique to solve real-world problems and other mathematical problems. (E)	**4.M.4**	Apply the area and perimeter formulas for rectangles to solve real-world problems and other mathematical problems. Recognize area as additive and find the area of complex shapes composed of rectangles by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts; apply this technique to solve real-world problems and other mathematical problems.
		4.M.5	Understand that an angle is measured with reference to a circle, with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. Understand an angle that

			turns through 1/360 of a circle is called a "one-degree angle," and can be used to measure other angles. Understand an angle that turns through n one-degree angles is said to have an angle measure of n degrees.
		4.M.6	Measure angles in whole-number degrees using appropriate tools. Sketch angles of specified measure.
2023 Indiana Academic Standard		**2020 Indiana Academic Standard**	
Domain: Data Analysis		**Domain: Data Analysis**	
Number	**Text**	**Number**	**Text**
4.DA.1	Formulate questions that can be addressed with data. Collect, organize, and graph data from observations, surveys, and experiments using line plots with whole number intervals, single- and scaled bar graphs, and frequency tables. Solve real-world problems by analyzing and interpreting the data using grade-level computation and comparison strategies. (E)	**4.DA.1**	Formulate questions that can be addressed with data. Use observations, surveys, and experiments to collect, represent, and interpret the data using tables (including frequency tables), line plots, and bar graphs.
4.DA.2	Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Solve problems involving addition and subtraction of fractions by using data displayed in line plots.	**4.DA.2**	Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Solve problems involving addition and subtraction of fractions by using data displayed in line plots.
		4.DA.3	Interpret data displayed in a circle graph.