

BENCHMARKS ASSESSED AT GRADES 3–5

Grade 3	Grade 4	Grade 5
Big Idea 1: Develop understandings of multiplication and division and strategies for basic multiplication facts and related division facts.	Big Idea 1: Develop quick recall of multiplication facts and related division facts and fluency with whole number multiplication.	Big Idea 1: Develop an understanding of and fluency with division of whole numbers.
MA.3.A.1.1 Model multiplication and division including problems presented in context: repeated addition, multiplicative comparison, array, how many combinations, measurement, and partitioning.	MA.4.A.1.1 Use and describe various models for multiplication in problem-solving situations, and demonstrate recall of basic multiplication and related division facts with ease. (Assessed with MA.4.A.1.2.)	MA.5.A.1.1 Describe the process of finding quotients involving multi-digit dividends using models, place value, properties and the relationship of division to multiplication.
MA.3.A.1.2 Solve multiplication and division fact problems by using strategies that result from applying number properties.	MA.4.A.1.2 Multiply multi-digit whole numbers through four digits fluently, demonstrating understanding of the standard algorithm, and checking for reasonableness of results, including solving real-world problems. (Also assesses MA.4.A.1.1.)	MA.5.A.1.2 Estimate quotients or calculate them mentally depending on the context and numbers involved. (Assessed with MA.5.A.1.4.)
MA.3.A.1.3 Identify, describe, and apply division and multiplication as inverse operations.		MA.5.A.1.3 Interpret solutions to division situations including those with remainders depending on the context of the problem. (Assessed with MA.5.A.1.4.)
		MA.5.A.1.4 Divide multi-digit whole numbers fluently, including solving real-world problems, demonstrating understanding of the standard algorithm and checking the reasonableness of results. (Also assesses MA.5.A.1.2 and MA.5.A.1.3.)

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Big Idea 2: Develop an understanding of fractions and fraction equivalence.	Big Idea 2: Develop an understanding of decimals, including the connection between fractions and decimals.	Big Idea 2: Develop an understanding of and fluency with addition and subtraction of fractions and decimals.
MA.3.A.2.1 Represent fractions, including fractions greater than one, using area, set and linear models.	MA.4.A.2.1 Use decimals through the thousandths place to name numbers between whole numbers. (Assessed with MA.4.A.2.3 and MA.4.A.2.4.)	MA.5.A.2.1 Represent addition and subtraction of decimals and fractions with like and unlike denominators using models, place value or properties. (Also assesses MA.5.A.6.1.)
MA.3.A.2.2 Describe how the size of the fractional part is related to the number of equal sized pieces in the whole. (Assessed with MA.3.A.2.3.)	MA.4.A.2.2 Describe decimals as an extension of the base-ten number system. (Assessed with MA.4.A.2.3 and MA.4.A.2.4.)	MA.5.A.2.2 Add and subtract fractions and decimals fluently and verify the reasonableness of results, including in problem situations. (Also assesses MA.5.A.2.3 and MA.5.A.6.1.)
MA.3.A.2.3 Compare and order fractions, including fractions greater than one, using models and strategies. (Also assesses MA.3.A.2.2.)	MA.4.A.2.3 Relate equivalent fractions and decimals with and without models, including locations on a number line. (Also assesses MA.4.A.2.1 and MA.4.A.2.2.)	MA.5.A.2.3 Make reasonable estimates of fraction and decimal sums and differences, and use techniques for rounding. (Assessed with MA.5.A.2.2.)
MA.3.A.2.4 Use models to represent equivalent fractions, including fractions greater than one, and identify representations of equivalence.	MA.4.A.2.4 Compare and order decimals, and estimate fraction and decimal amounts in real-world problems. (Also assesses MA.4.A.2.1 and MA.4.A.2.2.)	MA.5.A.2.4 Determine the prime factorization of numbers. (Also assesses MA.5.A.6.1.)

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Big Idea 3: Describe and analyze properties of two-dimensional shapes.	Big Idea 3: Develop an understanding of area and determine the area of two-dimensional shapes.	Big Idea 3: Describe three-dimensional shapes and analyze their properties, including volume and surface area.
MA.3.G.3.1 Describe, analyze, compare and classify two-dimensional shapes using sides and angles—including acute, obtuse, and right angles—and connect these ideas to the definition of shapes.	MA.4.G.3.1 Describe and determine area as the number of same-sized units that cover a region in the plane, recognizing that a unit square is the standard unit for measuring area.	MA.5.G.3.1 Analyze and compare the properties of two-dimensional figures and three-dimensional solids (polyhedra), including the number of edges, faces, vertices, and types of faces.
MA.3.G.3.2 Compose, decompose, and transform polygons to make other polygons, including concave and convex polygons with three, four, five, six, eight, or ten sides.	MA.4.G.3.2 Justify the formula for the area of the rectangle “area = base × height.”	MA.5.G.3.2 Describe, define and determine surface area and volume of prisms by using appropriate units and selecting strategies and tools.
MA.3.G.3.3 Build, draw and analyze two-dimensional shapes from several orientations in order to examine and apply congruence and symmetry.	MA.4.G.3.3 Select and use appropriate units, both customary and metric, strategies, and measuring tools to estimate and solve real-world area problems.	
Supporting Idea: Algebra		
MA.3.A.4.1 Create, analyze, and represent patterns and relationships using words, variables, tables and graphs.	MA.4.A.4.1 Generate algebraic rules and use all four operations to describe patterns, including nonnumeric growing or repeating patterns.	MA.5.A.4.1 Use the properties of equality to solve numerical and real world situations.
	MA.4.A.4.2 Describe mathematics relationships using expressions, equations, and visual representations.	MA.5.A.4.2 Construct and describe a graph showing continuous data, such as a graph of a quantity that changes over time. (Assessed with MA.5.S.7.1 and MA.5.S.7.2.)
	MA.4.A.4.3 Recognize and write algebraic expressions for functions with two operations.	

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Supporting Idea: Geometry and Measurement		
MA.3.G.5.1 Select appropriate units, strategies and tools to solve problems involving perimeter.	MA.4.G.5.1 Classify angles of two-dimensional shapes using benchmark angles (i.e. 45°, 90°, 180°, and 360°).	MA.5.G.5.1 Identify and plot ordered pairs on the first quadrant of the coordinate plane.
MA.3.G.5.2 Measure objects using fractional parts of linear units such as $\frac{1}{2}$, $\frac{1}{4}$, and $\frac{1}{10}$.	MA.4.G.5.2 Identify and describe the results of translations, reflections, and rotations of 45, 90, 180, 270, and 360 degrees, including figures with line and rotational symmetry.	MA.5.G.5.2 Compare, contrast, and convert units of measure within the same dimension (length, mass, or time) to solve problems.
MA.3.G.5.3 Tell time to the nearest minute and to the nearest quarter hour, and determine the amount of time elapsed.		MA.4.G.5.3 Identify and build a three-dimensional object from a two-dimensional representation of that object and vice versa.
		MA.5.G.5.4 Derive and apply formulas for areas of parallelograms, triangles, and trapezoids from the area of a rectangle.
Supporting Idea: Number and Operations		
MA.3.A.6.1 Represent, compute, estimate and solve problems using numbers through hundred thousands.	MA.4.A.6.1 Use and represent numbers through millions in various contexts, including estimation of relative sizes of amounts or distances.	MA.5.A.6.1 Identify and relate prime and composite numbers, factors and multiples within the context of fractions. (Assessed with MA.5.A.2.1, MA.5.A.2.2 and MA.5.A.2.4.)
MA.3.A.6.2 Solve non-routine problems by making a table, chart, or list and searching for patterns.	MA.4.A.6.2 Use models to represent division as: <ul style="list-style-type: none"> • the inverse of multiplication • as partitioning • as successive subtraction 	
	MA.4.A.6.3 Generate equivalent fractions and simplify fractions.	MA.5.A.6.3 Describe real-world situations using positive and negative numbers.
	MA.4.A.6.4 Determine factors and multiples for specified whole numbers.	MA.5.A.6.4 Compare, order, and graph integers, including integers shown on a number line.

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Supporting Idea: Number and Operations (Continued)		
	MA.4.A.6.5 Relate halves, fourths, tenths, and hundredths to decimals and percents.	MA.5.A.6.5 Solve non-routine problems using various strategies including “solving a simpler problem” and “guess, check, and revise.”
	MA.4.A.6.6 Estimate and describe reasonableness of estimates; determine the appropriateness of an estimate versus an exact answer.	
Supporting Idea: Data Analysis		
MA.3.S.7.1 Construct and analyze frequency tables, bar graphs, pictographs, and line plots from data, including data collected through observations, surveys, and experiments.		MA.5.S.7.1 Construct and analyze line graphs and double bar graphs. (Also assesses MA.5.A.4.2.)
		MA.5.S.7.2 Differentiate between continuous and discrete data and determine ways to represent those using graphs and diagrams. (Also assesses MA.5.A.4.2.)