FCAT Mathematics Content Matrix
Grade 3

Grades 3-5 Benchmark	Grade Level Expectations	Gr. 3 Clarification Statement	Grade 3 Content Limits
MA.A.1.2.1 Names whole numbers combining 3-digit numeration (hundreds, tens, ones) and the use of number periods, such as ones, thousands, and millions and associates verbal names, written word names, and standard numerals with whole numbers, commonly used fractions, decimals, and percents.	• reads, writes, and identifies whole numbers through hundred thousands or more • reads, writes, and identifies proper fractions with denominators including 2, 3, 4, 5, 6, 8, 10, and 100 • reads, writes, and identifies decimal notation in the context of money	Assessed with A.1.2.4	Assessed with A.1.2.4
MA.A.1.2.2 Understands the relative size of whole numbers, commonly used fractions, decimals, and percents.	• uses language and symbols (>, <, =) to compare the relative size of numbers in the same form • compares and orders whole numbers through hundred thousands or more, using concrete materials, number lines, drawings, and numerals • compares and orders commonly used fractions, including halves, thirds, fourths, fifths, sixths and eighths, using concrete materials	Students will compare relative size and order of whole numbers and fractions. MC	Numbers being compared should be in the same form. No more than 4 values should be compared. Number lines should include only whole numbers
MA.A.1.2.3 Understands concrete and symbolic representations of whole numbers, fractions, decimals, and percents in real-world situations.	• translates problem situations into diagrams and models using whole numbers, fractions, and decimal notation in the context of money	Assessed with A.1.2.4	Assessed with A.1.2.4
MA.A.1.2.4 Understands that numbers can be represented in a variety of equivalent forms using whole numbers, decimals, fractions, and percents. (Also assess A.1.2.1 and A.1.2.3)	• uses concrete materials to model equivalent forms of whole numbers and common fractions • identifies equivalent forms of numbers • knows that two numbers in different forms are equivalent or non-equivalent, using whole numbers, fractions, and decimals in the context of money	Students will identify equivalent forms of whole numbers, common fractions, and decimals in the context of money. MC	Items will include whole numbers; proper fractions with denominators including 2,3,4,5,6,8, and 10; and decimal notation in the context of money.
MA.A.2.2.1 Uses place-value concepts of grouping based upon powers of then (thousandths, hundredths, tenths, ones, tens, hundreds, thousands) within the decimal number system.	• knows the value of a given digit in whole numbers to hundred thousands, including writing and interpreting expanded forms of numbers • knows that the value of each place is 10 times that of the place to its right (for example, 1,000 = 10 x 100)	Students will identify the place value of a given digit in whole numbers or identify the digit having a given place value. MC	Expanded forms of numbers will not be assessed
MA.A.2.2.2 Recognizes and compares the decimal number system to the structure of other numbers systems such as the Roman number system or basis other than ten.	• compares the decimal (base 10) number system to the Roman numeral system using the Roman numerals I, V, X, L, and C	Not assessed	Not assessed

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Grades 3-5 Benchmark	Grade Level Expectations	Gr. 3 Clarification Statement	Grade 3 Content Limits
MA.A.3.2.1 Understands and explains the effects of addition, subtraction, and multiplication on whole numbers, decimals, and fractions, including mixed numbers, and the effects of division on whole numbers, including the inverse relationship of multiplication and division.	• explains and demonstrates the addition and subtraction of whole numbers (up to three digits or more) using concrete materials, drawings, symbols, and algorithms • explains the inverse relationship of addition and subtraction and demonstrates that relationship by writing related fact families • explains and demonstrates the meaning of multiplication (for the repeated addition, array, and area models) using manipulatives, drawings, number sentences, and story problems • explains and demonstrates the meaning of division and of remainders (for the repeated subtraction and partitive models) using manipulatives, drawings, number sentences, and story problems • solves multiplication basic facts using various strategies including the following: - modeling with concrete objects or drawings - skip counting, for example, to find 4 x 5, count 5, 10, 15, 20 - using doubles and near doubles, such as 3 x 8 = (2 x 8) + 8 - applying the commutative property of multiplication, such as 7 x 3 = 3 x 7 - applying the distributive property of multiplication, such as 8 x 7 = (8 x 5) + (8 x 2) - noting and applying patterns in the “facts tables,” such as the regularity in the “nines” - using the zero and identity properties of multiplication • explains the inverse relationship of multiplication and division and writes related fact families • predicts the relative size of solutions in addition, subtraction, multiplication, and division of whole numbers (for example, dividing a whole number by a smaller whole number results in another number that is smaller than the original number)	Student will identify the appropriate operation for a stated effect, the effect of an operation, or the relationship between operations. MC	Items will assess the effects of addition and subtraction of whole numbers up to three digits; the inverse relationship of addition and subtraction, the meaning of multiplication, and the meaning of division.

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Grades 3-5 Benchmark	Grade Level Expectations	Gr. 3 Clarification Statement	Grade 3 Content Limits
MA.A.3.2.2 Selects the appropriate operation to solve specific problems involving addition, subtraction, and multiplication of whole numbers, decimals, and fractions, and division of whole numbers.	• writes number sentences for given situations involving the addition, subtraction, multiplication, and division of whole numbers • uses problem-solving strategies to determine the operation needed to solve one-step problems involving addition, subtraction, multiplication, and division of whole numbers	Student will identify the appropriate operation, expression, or number sentence to solve a problem. MC	Items should include addition, subtraction, multiplication, and division of whole numbers.
MA.A.3.2.3 Adds, subtracts, and multiplies whole numbers, decimals, and fractions, including mixed numbers, and divides whole numbers to solve real-world problems, using appropriate methods of computing, such as mental mathematics, paper and pencil, and calculator.	• solves real-world problems involving addition, subtraction, multiplication, and division of whole numbers using an appropriate method (for example, mental math, paper and pencil, concrete materials, calculator) • explains the reason for choosing a particular computing method for a particular problem • solves real-world multiplication problems with whole numbers (two digits by one digit) using concrete materials, drawings, and paper and pencil • solves real-world division problems having divisors of one digit, dividends not exceeding two digits, with or without remainders	Students will solve real-world problems. MC	Items will assess addition, subtraction, multiplication, and division of whole numbers only.
MA.A.4.2.1 Uses and justifies different estimation strategies in a real-world problem situation and determines the reasonableness of results of calculations in a given problem situation. (Also assesses B.3.2.1)	• uses estimation strategies to determine a reasonable estimate of a quantity • estimates quantities of objects to 250 or more (for example, using a benchmark or reference set of fewer objects) • chooses estimation strategies (for example, front-end, rounding) in real-world problem situations and explains the choice	Students will determine a reasonable estimate in a real-world problem situation. MC	Items may use estimates involving measurements as described in B.3.2.1.
MA.A.5.2.1 Understands and applies basic number theory concepts, including primes, composites, factors, and multiples.	• knows multiples of whole numbers (with products to 60 or more) • uses a model to determine factors of whole numbers through 100 (for example, array) • uses tables and charts to determine multiples of whole numbers 1-10 (for example, hundred chart, calendar)	Students will recognize factors and multiples of whole numbers, and their characteristics. MC	Items will assess whole numbers with products to 60 and factors of whole numbers through 100.

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Grades 3-5 Benchmark	Grade Level Expectations	Gr. 3 Clarification Statement	Grade 3 Content Limits
MA.B.1.2.1 Uses concrete and graphic models to develop procedures for solving problems related to measurement including length, weight, time temperature, perimeter, area volume, and angles	• knows measurement concepts and can use oral and written language to communicate them • uses a wide variety of concrete objects to investigate measurement of length, weight, capacity, area, perimeter, and volume (for example, cubes, grid paper, string, squares) • knows about measurement of time including using A M and P M , clocks and calendars • knows temperature scales and uses thermometers • knows right angles (90°)	Not assessed	Not assessed
MA.B.1.2.2 Solves real-world problems involving length, weight, perimeter, area, capacity, volume, time, temperature, and angles.	• solves real-world problems involving measurement using concrete and pictorial models for the following: - length (for example, half-inch, centimeter) - weight (for example, pound, kilogram) - time (fifteen-, five-,and one-minute intervals) - capacity (for example, cup, liter) - temperature(Fahrenheit and Celsius) - angles (right) • solves real-world problems involving perimeter, area, and volume using concrete materials or graphic models • uses schedules, calendars, and elapsed time in hour intervals to solve real-world problems	Students will solve real-world measurement problems and identify right angles, their measures, or both. MC	Items will assess measurements of length (half-inch, inch, centimeter), weight (ounce, pound, gram, kilogram), time, capacity (cup, liter), temperature (Fahrenheit and Celsius), and right angles. Items may assess perimeter or area. Elapsed time will be assessed in hour intervals only.
MA.B.2.2.1 Uses direct (measured) and indirect (not measured) measures to calculate and compare measurable characteristics.	• calculates and compares measurable characteristics using manipulatives (for example, creates a meter using centimeter cubes) • devises nonstandard, indirect ways to compare lengths that cannot be physically compared (side-by-side) (for example, uses string to compare the lengths of crooked paths) • uses customary and metric units to compare length, weight, and capacity	Students will solve problems by calculating and/or comparing measurable characteristics. MC	Items will assess comparison of length, weight, or capacity. Items may use nonstandard units, standard customary units, or standard metric units. Items should not involve conversions.

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Grades 3-5 Benchmark	Grade Level Expectations	Gr. 3 Clarification Statement	Grade 3 Content Limits
MA.B.2.2.2 Selects and uses appropriate standard and nonstandard units of measurement, according to type and size. (Also assesses B.4.2.1)	• knows an appropriate unit of measure to determine the dimension(s) of a given object (for example, standard –student chooses centimeters instead of meters to measure a pencil; nonstandard –student chooses a paper clip instead of his or her hand to measure a pencil) • knows an appropriate unit of measure (standard or nonstandard) to measure weight and capacity	Students will identify and/or use appropriate units of measurement. MC	Items will involve determining appropriate measure of length, weight, or capacity for common objects. Customary and metric units may be used, but not in the same item. Items may include standard units of measurement in inches, feet, or yards; ounces or pounds; cups, pints, quarts, or gallons; or metric units of measurement in centimeters, meters, kilometers, grams, kilograms, or liters.
MA.B.3.2.1 Solves real-world problems involving estimates of measurement, including length, time, weight, temperature, money, perimeter, area, and volume.	• knows how to determine whether an accurate or estimated measurement is needed for a solution • using real-world settings, objects, graph paper, or charts, solves problems involving estimated measurements including the following: - length to nearest inch, centimeter - weight to nearest pound, kilogram - time to nearest half-hour interval - temperature to nearest five-degree interval - money to nearest $1 or $10 (combination of coin and currency) • knows how to estimate the area and perimeter of square and rectangular shapes using graph paper, geoboard or other manipulatives • knows how to estimate the volume of a rectangular prism using manipulatives	Assessed with A.4.2.1	Assessed with A.4.2.1
MA.B.4.2.1 Determines which units of measurements, such as seconds, square inches, and dollars per tankful, to use with answers to real-world problems.	• selects an appropriate measurement unit for labeling the solution to real-world problems	Assessed with B.2.2.2	Assesses with B.2.2.2

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Grades 3-5 Benchmark	Grade Level Expectations	Gr. 3 Clarification Statement	Grade 3 Content Limits
MA.B.4.2.2 Selects and uses appropriate instruments and technology, including scales, rulers, thermometers, measuring cups, protractors, and gauges, to measure in real-world situations.	• selects and uses the appropriate tool for situational measures (for example, measuring sticks, scales and balances, thermometers, measuring cups)	Students will identify appropriate tools or read measurements from tools. MC	Items will use the following measurement units: • length (half-inch, inch, centimeter) • weight (pound, kilogram) • capacity (1/2 cup, cup, pint, quart, liter) • temperature to the nearest degree (Fahrenheit and Celsius) • time (one-, five-, and fifteen-minute intervals)
MA.C.1.2.1 Given a verbal description, draws and/or models two-and three-dimensional shapes and uses appropriate geometric vocabulary to write a description of a figure or a picture composed of geometric figures.	• uses appropriate geometric vocabulary to describe two- and three-dimensional figures (for example, parallel and perpendicular lines, quadrilateral, right angle) • draws and classifies two-dimensional figures having up to six or more sides • uses appropriate geometric vocabulary to describe properties of two-dimensional figures	Students will identify geometric figures using appropriate geometric vocabulary. MC	Items may assess regular or irregular polygons up to 6 sides; circles; right angles; sides, bases, and vertices; points; or lines and line segments.
MA.C.2.2.1 Understands the concepts of spatial relationships, symmetry, reflections, congruency, and similarity. (Also assesses B.1.2.2, C.1.2.1, and C.3.2.1)	• uses manipulatives to solve problems requiring spatial visualization • knows symmetry, congruency, and reflections in geometric figures using concrete materials (for example, pattern blocks, geoboards, mirrors) • knows congruent and similar figures	Students will identify or classify figures and/or solve problems using the concepts of symmetry or congruency. MC	Items should use only two-dimensional shapes.
MA.C.2.2.2 Predicts, illustrates, and verifies which figures could result from a flip, slide, or turn of a given figure.	• explores flips, slides, and 180˚ turns using concrete and graphic materials (for example, pattern blocks, geoboards, dot paper) • knows the effect of a flip, slide, and 180˚ turn on a geometric figure • explores tessellations	Students will identify the results of a single flip (reflection), slide (translation), or turn (rotation) of a given figure. MC	Items will assess flips, slides, and 180º turns and their results on a geometric figure.
MA.C.3.2.1 Represents and applies a variety of strategies and geometric properties and formulas for two-and tree-dimensional shapes to solve real-world and mathematical problems. (Also assesses C.2.2.1)	• compares the concepts of area and perimeter through the use of concrete and graphic materials (for example, geoboards, color tiles, grid paper) • applies the concepts of area and perimeter of rectangles to solve real-world and mathematical problems through the use of concrete materials (for example, framing a photograph)	Students will use geometric figures and/or solve geometric problems by applying properties, formulas, and/or coordinate geometry. MC	The concepts of area and perimeter of rectangles will be assessed.

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MA.C.3.2.2 Identifies and plots positive ordered pairs (whole numbers) in a rectangular coordinate system (graph).	• knows how to identify, locate, and plot ordered pairs of whole numbers on a graph	Students will identify ordered pairs or the location of coordinates on a grid. MC	Items will assess ordered pairs of whole numbers in the first quadrant of a coordinate grid system.
MA.D.1.2.1 Describes a wide variety of patterns and relationships through models, such as manipulatives, tables, graphs, and rules using algebraic symbols. (Also assesses D.1.2.2)	• identifies missing parts in patterns • describes, extends, and creates numerical and geometric patterns through models (for example, concrete objects, drawings, simple number sequences) • poses and solves problems by identifying a predictable visual or numerical pattern (for example: Continue this pattern: + , - , = , + , + , - , - ,___ , ___, …)	Students will recognize and extend patterns and relationships. MC	Operations in patterns such as function tables will be limited to addition or subtraction. Patterns should be limited to one operation. Students should be asked to extend the pattern to the next step or to provide one missing element. The pattern given should be shown with at least two examples of the pattern repeated. A repeating pattern set should contain no more than four elements.
MA.D.1.2.2 Generalizes a pattern, relation, or function to explain how a change in one quantity results in a change in another. (Also assesses D.1.2.1)	• knows mathematical relationships in patterns (for example, the second number is two more than the first) • analyzes number patterns and states the rule for relationships (for example, 2, 4, 6, 8, …; the rule: +2) • discusses and explains the choice of the rule that applies to the pattern • identifies and extends a pattern according to the given rule • applies and explains the appropriate rule to complete a table or chart (for example, in the following table, the rule is “multiply by 6”): **1 2 3 4** **6 12 ? 24**	Not assessed	Not assesses

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MA.D.2.2.1 Represents a given simple problem situation using diagrams, models, and symbolic expressions translated from verbal phrases, or verbal phrases translated from symbolic expressions, etc. (also assesses D.2.2.2)	• uses concrete materials to model and solve a number sentence with a missing addend for simple word problems (for example, 13 + r = 15) • creates a simple word problem for a given number sentence, diagram, or model • knows that an equation is a number sentence stating that two quantities are equal (for example, identifies and provides examples and non-examples of equations)	Students will identify symbolic expressions translated from written phrases or identify written phrases from symbolic expressions. MC	Items should use only simple equations or simple inequalities (e.g., use <, >, =, or ≠) involving whole numbers. Variables used to represent numbers in problem situations should be geometric figures. In any given equation or expression, only one element at a time should be presented for the student to consider. Problem situations involving multiplication should represent the operation using the symbol "x" (e.g. 5 x).
MA.D. 2.2.2 Uses informal methods, such as physical models and graphs, to solve real-world problems involving equations and inequalities. (Also assesses D.2.2.1)	• uses physical models and graphs (for example, cubes, number lines) to solve real-world equations and inequalities • uses information from physical models and graphs to solve problems	Students will represent situations and/or solve problems involving equations or inequalities. MC	Problem situations should use only simple equations or inequalities (e.g., use = or ≠) involving only whole numbers. Variables used to represent numbers in problem situations should be geometric shapes. In any given equation or expression, a maximum of one variable at a time should presented for the student to consider. Problem situations involving multiplication should represent the operation using the symbol "x" (e.g., 5 x).
MA.E.1.2.1 Solves problems by generating, collecting, organizing, displaying, and analyzing data using histograms, bar graphs, circle graphs, line graphs, pictographs, and charts. (Also assesses E.1.2.3)	• identifies different parts of a graph (for example, titles, labels, key) • interprets and compares information from picto- and bar graphs including graphs from content-area materials and periodicals • generates questions, collects responses, and displays data in a table, pictograph or bar graph • interprets and explains orally and in writing displays of data	Students will analyze, interpret, or compare data using tables, graphs, or charts; use the data to solve problems; and/or identify the most appropriate data display. MC	Items will assess: • identifying different parts of a correct graph • interpreting and comparing information from charts, pictographs, single-bar graphs, and single-line graphs • recognizing appropriate displays for different kinds of data • recognizing appropriate scale increments • recognizing reasonable conclusions

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MA.E.1.2.2 Determines range, mean, median, and mode from sets of data. (Also assesses E.1.2.3)	• uses concrete materials to determine the mean in a set • identifies the median and mode from a set of numerical data • identifies the range in a set of numerical data • uses concrete materials, pictures, or graphs to display data and identify range, median, and mode	Students will determine range, median, and/or mode. MC	Data sets should contain no more than seven one-digit numbers. Items should not require students to calculate the median.
MA.E.1.2.3 Analyzes real-world data to recognize patterns and relationships of the measures of central tendency using tables, charts, histograms, bar graphs, line graphs, pictographs, and circle graphs generated by appropriate technology, including calculators and computers.	• uses a calculator to compare data • in class projects, constructs and discusses patterns in computer-generated graphs using real-world problems (for example, identify most popular pizza topping)	Assessed with E.1.2.1 and E.1.2.2	Assessed with E.1.2.1 and E.1.2.2
MA.E.2.2.1 Uses models, such as tree diagrams, to display possible outcomes and to predict events.	• determines the number of possible combinations of given items and displays them in an organized way (for example, lists all possible combinations of three shirts and two pairs of shorts) • represents all possible outcomes for a particular probability situation or event using models such as charts or lists • calculates the probability of a particular event occurring from a set of all possible outcomes	Students will identify possible outcomes or the number of outcomes from simple events. MC	Items will assess identifying all possible combinations of given events or objects. Items assessing probability will be classified as E.2.2.2. Items should not assess more than eight possible outcomes.
MA.E.2.2.2 Predicts the likelihood of simple events occurring.	• identifies and records the possible outcomes of simple experiments using concrete materials (for example, spinners, marbles in a bag, coin toss) • determines which outcomes are most likely to occur in certain situations (for example, spinning red is most likely to occur when a spinner is divided equally among red, blue, green, and red)	Students will determine the probability or likelihood of a simple event occurring. MC	Items will assess determining which outcomes are most likely, least likely, or equally likely to occur in certain situations.
MA.E.3.2.1 Designs experiments to answer class or personal questions, collects information, and interprets the results using statistics (range, mean, median, and mode) and pictographs, charts, bar graphs, circle graphs, and line graphs. (Also assesses E.3.2.2)	• designs appropriate questions for a survey • creates a pictograph or bar graph to present data from a given survey • explains the results from the data of a given survey	Not assessed	Not assessed

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MA.E.3.2.2 Uses statistical data about life situations to make predictions.	• uses statistical data to recognize trends • applies statistical data to make generalizations • explains generalizations	Assessed with E.3.2.1	Assessed with E.3.2.1