

FLORIDA COMPREHENSIVE ASSESSMENT TEST (FCAT)

The Florida Comprehensive Assessment Test, or FCAT, is part of a state-wide initiative to raise academic standards for students in the State of Florida. FCAT, started in the 1997-98 school year, is a standardized, criterion-referenced test that focuses on reading and mathematics skills which are outlined in the Sunshine State Standards (the state prescribed description of skills that students in Florida should learn). The reading section evaluates students' ability to understand the meaning of informational and literary passages. In the math section, students need to be able to do basic math operations and answer questions utilizing measurement, geometry, algebra, and data analysis. Because the test contains multiple choice and open-ended questions, students are challenged to perform what are called "higher order thinking skills" like drawing conclusions, providing evidence to support an answer, making predictions, etc.

FCAT is now administered to all students in grades 3 – 10 and results are reported publicly in summary form as well as part of the State Accountability Report (school grading). Generally, scores are reported as percentages of students in each of five achievement levels (Level 1 = lowest, Level 5 = highest), and specifically the percentage of students scoring in Levels 3-5 (Level 3 is considered on grade level).

Passing the 10th grade FCAT reading and math test is now required to receive a regular diploma for all those students who entered 9th grade in the fall of 1999 or later. Students have multiple opportunities to pass in their junior and senior years if they do not pass FCAT on the first attempt.

CONTENT ASSESSED BY FCAT

READING

Grade 4

Reporting Categories: Constructs Meaning From Informational Text
 Constructs Meaning From Literature (Literary Text)

BENCHMARKS	GRADE 4	ITEM TYPES		
		MC	SR	ER
LA.A.1.2.3 Uses simple strategies to determine meaning and increase vocabulary for reading, including the use of prefixes, suffixes, root words. multiple meanings, antonyms, synonyms, and word relationships.		I and L		
LA.A.2.2.1 Reads text and determines the main idea or essential message, identifies relevant supporting details and facts, and arranges events in chronological order.		I and L	I and L	I and L
LA.A.2.2.2 Identifies the author's purpose in a simple text. (Includes LA.A.2.2.3 Recognizes when a text is primarily intended to persuade.)		I and L	I and L	
LA.A.2.2.6 Recognizes the difference between fact and opinion presented in a text.			I and L	
LA.A.2.2.7 Recognizes the use of comparison and contrast in a text.		I and L	I and L	
LA.A.2.2.8 Selects and uses a variety of appropriate reference materials, including multiple representations of information such as maps, charts, and photos, to gather information for research projects. (Includes LA.A.2.2.5 Reads and organizes information for a variety of purposes, including making a report, conducting interviews, taking a test, and performing an authentic task.)		I and L	I and L	I and L
LA.E.1.2.2 Understands the development of plot and how conflicts are resolved in a story.		L	L	
LA.E. 1.2.3 Knows the similarities and differences among the characters, settings, and events presented in various texts.		I and L	I and L	I and L
LA.E. 2.2.1 Recognizes cause-and-effect relationships in literary texts. (Applies to fiction, nonfiction, poetry, and drama.)		I and L	I and L	

MC =Multiple Choice I = Informational Text
 SR =Short Response L = Literature (Literary Text)
 ER = Extended Response

CONTENT ASSESSED BY FCAT

READING

Grade 10

Reporting Categories: Constructs Meaning From Informational Text
Constructs Meaning From Literature (Literary Text)

BENCHMARKS	GRADE 10		ITEM TYPES	
	MC	SR	ER	
LA.A.1.4.2 Selects and uses strategies to understand words and text, and to make and confirm inferences from what is read, including interpreting diagrams, graphs, and statistical illustrations.	I and L	I and L		
LA.A.2.2.7 Recognizes the use of comparison and contrast in a text.	I and L	I and L		
LA.A.2.4.1 Determines the main idea and identifies relevant details, methods of development, and their effectiveness in a variety of types of written material.	I and L	I and L		
LA.A.2.4.2 Determines the author's purpose and point of view and their effects on the text. (Includes LA.A.2.4.5 Identifies devices of persuasion and methods of appeal and their effectiveness.)	I and L	I and L	I and L	
LA.A.2.4.4 Locates, gathers, analyzes, and evaluates written information for a variety of purposes, including research projects, real-world tasks, and self-improvement. (Includes	I and L	I and L	I and L	
LA.A.2.4.6 Selects and uses appropriate study and research skills and tools according to the type of information being gathered or organized, including almanacs, government publications, microfiche, news sources, and information services.)	I and L	I and L	I and L	
LA.A.2.4.7 Analyzes the validity and reliability of primary source information and uses the information appropriately.	I	I	I	
LA.A.2.4.8 Synthesizes information from multiple sources to draw conclusions.	I and L	I and L	I and L	
LA.E.2.2.1 Recognizes cause-and-effect relationships in literary text. [Applies to fiction, nonfiction, poetry, and drama.]	I and L	I and L		
LA.E.2.4.1 Analyzes the effectiveness of complex elements of Plot, such as setting, major events, problems, conflicts, and resolutions.	I and L	I and L		
MC = Multiple Choice SR = Short Response ER = Extended Response	I = Informational Text L = Literature (Literary Text)			

Content Assessed by FCAT

Mathematics

A: Number Sense, Concepts, and Operations

1. The student understands the different ways numbers are represented and used in the real world.

Grade 5 Benchmark

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.

(Assessed with A.1.2.3 and A.1.2.4)

MA.A.1.2.2 understands the relative size of whole numbers, commonly used fractions, decimals, and percents.

MC,GR

MA.A.1.2.3 understands concrete and symbolic representations of whole numbers, fractions, numbers, decimals, and percents in real-world situations. (Also assesses A.1.2.1)

MC

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 assesses A.1.2.1)

MC,GR

Grade 8 Benchmark

MA.A.1.3.1 associates verbal names, written word names, and standard numerals with integers, fractions, decimals; numbers expressed as percents; numbers with exponents; numbers in scientific notation; radicals; absolute value; and ratios.

(Assessed with A.1.3.4)

MA.A.1.3.2 understands the relative size of integers, fractions, and decimals; numbers expressed as percents; numbers with exponents; numbers in scientific notation; radicals; absolute value; and ratios. MC

MA.A.1.3.3 understands concrete and symbolic representations of rational numbers and irrational numbers in real-world situations.

(Assessed with D.2.3.1)

MA.A.1.3.4 understands that numbers can be represented in a variety of equivalent forms, including integers, fractions, decimals, percents, scientific notation, exponents, radicals, and absolute value. (Also assesses A.1.3.1)

MC, GR

Grade 10 Benchmark

MA.A.1.4.1 associates verbal names, written word names and standard numerals with integers, rational numbers, irrational numbers, real numbers, and complex numbers.

(Assessed with A.1.4-3)

MA.A.1.4.2 understands the relative size of integers, rational numbers, irrational numbers, and real numbers.

MC

MA.A.1.4.3 understands concrete and symbolic representations of real and complex numbers in real-world situations. (Also assesses A.1.4.1)

MC

MA.A.1.4.4 understands that numbers can be represented in a variety of equivalent forms, including integers, fractions, decimals, scientific notation, exponents, radicals, absolute value, and logarithms.

MC, GR

MC = multiple choice, GR = gridded response, SR = short response, ER = extended response
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Content Assessed by FCAT

Mathematics

A: Number Sense, Concepts, and Operations

2. The student understands number systems.

Grade 5 Benchmark

MA.A.2.2.1 uses place-value concepts of grouping based upon powers of ten (thousandths, hundredths, tenths, ones, tens, hundreds, thousands) within the decimal number system. GR

MA.A.2.2.2 recognizes and compares the real decimal number system to the structure of other number systems such as the Roman numeral system or bases other than ten.
(Not assessed)

Grade 8 Benchmark

MA.A.2.3.1 understands and uses exponential and scientific notation.

MC, GR

MA.A.2.3.2 understands the structure of number systems other than the decimal number system.

(Not assessed)

Grade 10 Benchmark

MA.A.2.4.1 understands and uses the basic concepts of limits and infinity.

(Not assessed)

MA.A.2.4.2 understands and uses the number system.

(Assessed with A.3.4.1, A.3.4.2, and A.3.4.3)

MA.A.2.4.3 understands the structure of the complex number system.
(Not assessed)

3. The Student understands the effects of operations on numbers and their relationships among these operations, selects appropriate operations, and computes for problem solving.

Grade 5 Benchmark

MA.A.3.3.2.1 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. MC

Grade 8 Benchmark

MA.A.3.3.1 understands and explains the effects of addition, subtraction, multiplication, and division on whole numbers, fractions, including mixed numbers, and decimals, including the inverse relationships of positive and negative numbers.
MC

Grade 10 Benchmark

MA.A.3.4.1 understands and explains the effects of addition, subtraction, multiplication, and division on real numbers, including square roots, exponents, and appropriate inverse relationships. (Also assesses A.2.4.2)

MC, GR

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Content Assessed by FCAT

Mathematics

A: Number Sense, Concepts, and Operations

3. The student understands the effects of operations on numbers and the relationships among these operations, selects appropriate operations, and computes for problem solving.

Grade 5 Benchmark

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.

MC

MA.A.3.2.3 adds, subtracts, and multiplies whole numbers, decimals, and fractions, roots and including mixed numbers, and divides whole numbers to solve real-world problems, using mathematics, paper appropriate methods of computing, such as mental mathematics, paper and pencil, and calculator. MC, GR

Grade 8 Benchmark

MA.A.3.3.2 selects the appropriate operation to solve problems involving addition, subtraction, multiplication, and division of rational numbers, ratios, proportions, and percents, including the appropriate application of the algebraic order of operations.

MC, GR

MA.A.3.3.3 adds, subtracts, multiplies, and divides whole numbers, decimals, and fractions, including mixed numbers, to solve real-world problems, using appropriate methods of computing, such as mental mathematics, paper and pencil, and calculator. MC, GR

Grade 10 Benchmark

MA.A.3.4.2 selects and justifies alternative strategies, such as using properties of numbers, including inverse, identity, distributive, associative, transitive, that allow operational shortcuts for computational procedures in real-world or mathematical problems. (Also assesses A.2.4.2) SR

MA.A.3.4.3 adds, subtracts, multiplies, and divides real numbers, including square exponents, using appropriate methods of computing, such as mental and pencil, and calculator. (Also assesses A.2.4.2) MC, GR

4: The student uses estimation in problem solving and computation.

Grade 5 Benchmark

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) SR

Grade 8 Benchmark

MA.A.4.3.1 uses estimation strategies to predict results and to check the reasonableness of results. (Also assesses A.4.2.1, 13.2.3.1, and B. 3.3. 1) SR

Grade 10 Benchmark

MA.A.4.4.1 uses estimation strategies in complex situations to predict results and to check the reasonableness of results. (Also assesses A.4.2.1 and B.3.4.1) SR

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Content Assessed by FCAT

Mathematics

A: Number Sense, Concepts, and Operations

5. The student understands and applies theories related to numbers.

Grade 5 Benchmark

MA.A.5.2.1 understands and applies basic number theory concepts, including primes, composites, factors, and multiples.

MC

Grade 8 Benchmark

MA.A.5.3.1 uses concepts about numbers, including primes, factors, and multiples, to build number sequences.

(Assessed with D.1.3.1 and D.1.3.2)

Grade 10 Benchmark

MA.A.5.4.1 applies special number relationships such as sequences and series to real-world problems.

(Not assessed)

B: Measurement

1. The student measures quantities in the real world and uses the measures to solve problems.

Grade 5 Benchmark

MA.B.1.2.1 uses concrete and graphic models to develop procedures for solving problems related area, to measurement including length, weight, time, temperature, perimeter, area, volume, and angle.

(Not assessed)

MA.B.1.2.2 solves real-world problems to involving length, weight, perimeter, area, capacity, volume, time, temperature, and angles. MC,GR

Grade 8 Benchmark

MA.B.1.3.1 uses concrete and graphic models to derive formulas for finding perimeter, area, surface area, circumference, and volume of two- and three-dimensional shapes, including rectangular solids and cylinders. (Also assesses B.1.2.2 and B.2.3.1) GR, SR

MA.B.1.3.2 uses concrete and graphic models to derive formulas for finding rates, distance, time, and angle measures. (Also assesses B.1.2.2 and B.2.3.1) GR SR

Grade 10 Benchmark

MA.B.1.4.1 uses concrete and graphic models to derive formulas for finding perimeter, surface area, circumference, and volume of two and three-dimensional shapes, including rectangular solids, cylinders, cones, and pyramids. (Also assesses B.1.2.2) GR, SR

MA.B.1.4.2 uses concrete and graphic models to derive formulas for finding rate, distance, time, angle measures, and arc lengths. (Also assesses B.1.2.2) MC, SR

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Mathematics

B: Measurement

1. The student is measures quantities in the real world and uses the measures to solve problems. (continued)

Grade 5 Benchmark

Grade 8 Benchmark

Grade 10 Benchmark

MA.B.1.3.3 understands and describes how the change of a figure in such dimensions as length, width, height, or radius affects its other measurements such as perimeter, area, surface area, and volume. MC, GR

MA.B.1.4.3 relates the concepts of measurement to similarity and proportionality in real-world situations.

(Assessed with C.3.4.1)

MA.B.1.3.4 constructs, interprets, and uses scale drawings such as those based on number lines and maps to solve real-world problems. (Also assesses B.2.3.1) MC, GR

2 The student compares, contrasts, and converts within systems of measurement (both standard/nonstandard and metric/customary).

MA.B.2.2.1 uses direct (measured) and indirect (not measured) measures to calculate and compare measurable characteristics.

MC, GR

MA.B.2.3.1 uses direct (measured) and indirect (not measured) measures to compare a given characteristic in either metric or customary units.

(Assessed with A.4.3.1, B.1.3.1, B.1.3.2, and B.1.3.4)

MA.B.2.4.1 selects and uses direct (measured) or indirect (not measured) methods of measurement as appropriate.

MC

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) MC

MA.B.2.3.2 solves problems involving units of measure and converts answers to a larger or smaller unit within either the metric or customary system. MC, GR

MA.B.2.4.2 solves real-world problems involving rated measures (miles per hour, feet per second).

MC, GR

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Content Assessed by FCAT

Mathematics

B: Measurement

3. The student estimates measurements in real-world problem situations.

Grade 5 Benchmark

MA.B.3.2.1 solves real-world problems involving estimates of measurements, including length, time, weight, temperature, money, perimeter, area, and volume.

(Assessed with A.4.2.1)

Grade 8 Benchmark

MA.B.3.3.1 solves real-world and mathematical problems involving estimates of measurements including length, time, weight/mass, temperature, money, perimeter, area, and volume, in either customary or metric units.

(Assessed with A.4.3.1)

Grade 10 Benchmark

MA.B.3.4.1 solves real-world and mathematical problems involving estimates of measurements, including length, time, weight/mass, temperature, money, perimeter, area, and volume, and estimates the effects of measurement errors on calculations.

(Assessed with A.4.4.1)

4. The student selects, and uses appropriate units and instruments for measurement to achieve the degree of precision and accuracy required in real-world situations.

Grade 5 Benchmark

MA.B.4.2.1 determines which units of measurement, such as seconds, square inches, dollars per tankful, to use with answers to real-world problems.

(Assessed with B.2.2.2)

Grade 8 Benchmark

MA.B.4.3.1 selects appropriate units of measurement and determines and applies significant digits in a real-world context. (Significant digits should relate to both instrument precision and to the least precise unit of measurement.)

(Not assessed)

Grade 10 Benchmark

MA.B.4.4.1 determines the level of accuracy and precision, including absolute and relative errors or tolerance, required in real-world measurement situations.

(Not assessed)

MA.B.4.2.2 selects and uses appropriate instruments and technology, including scales, rulers, thermometers, measuring cups, specified protractors, and gauges, to measure in real-world situations.

MC

MA.B.4.3.2 selects and uses appropriate instruments, technology, and techniques to measure quantities in order to achieve specified degrees of accuracy in a problem situation.

(Not assessed)

MA.B.4.4.2 selects and uses appropriate instruments, technology, and techniques to measure quantities in order to achieve degrees of accuracy in a problem situation.

(Not assessed)

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Mathematics

C: Geometry and Spatial Sense

1. The student describes, draws, identifies and analyzes two- and three-dimensional shapes.

Grade 5 Benchmark

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. SR

Grade 8 Benchmark

MA.C.1.3.1 understands the basic properties of, and relationships pertaining to, regular and irregular geometric shapes in two and three dimensions. MC, GR

Grade 10 Benchmark

MA.C.1.4.1 uses properties and relationships of geometric shapes to construct formal and informal proofs. MC, SR

2. The student visualizes and illustrates ways in which shapes can be combined, subdivided and changed.

Grade 5 Benchmark

MA.C.2.2.1 understands the concepts of spatial relationships, symmetry, reflections, congruency, and similarity.

MC, SR

Grade 8 Benchmark

MA.C.2.3.1 understands the geometric concepts of symmetry, reflections, congruency, similarity, perpendicularity, parallelism, and transformations, including flips, slides, turns, and enlargements.

MC, SR

Grade 10 Benchmark

MA.C.2.4.1 understands geometric concepts such as perpendicularity, parallelism, tangency, congruency, similarity, reflections, symmetry, and transformations including flips, slides, turns, enlargements, rotations, and fractals.

MC

MA.C.2.2.2 predicts, illustrates, and verifies which figures could result from a flip, slide, or turn of a given figure.

MC

MA.C.2.3.2 predicts and verifies patterns involving tessellations (a covering of a plane with congruent copies of the same pattern with no holes and no overlaps, like floor tiles).

MC

MA.C.2.4.2 analyzes and applies geometric relationships involving planar cross-sections (the intersection of a plane and a three dimensional figure).

MC

MC = multiple choice, GR = gridded response, SR = short response, ER = extended response
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Mathematics

C: Geometry and Spatial Sense

3. The student uses coordinate geometry, to locate objects in both two and three dimensions and to describe objects algebraically.

Grade 5 Benchmark

MA.C.3.2.1 represents and applies a variety of strategies and geometric properties and formulas for two- and three-dimensional including shapes to solve real-world and mathematical problems.

MC, GR, ER

MA.C.3.2.2 identifies and plots positive ordered pairs (whole numbers) in a rectangular coordinate system (graph).

MC

Grade 8 Benchmark

MA.C.3.3.1 represents and applies geometric properties and relationships to solve real-world and mathematical problems. (Also

assesses C.3.2.1)

MC, GR, ER

MA.C.3.3.2 identifies and plots ordered pairs in all four quadrants of a rectangular coordinate system (graph) and applies simple properties of lines.

MC, SR

Grade 10 Benchmark

MA.C.3.4.1 represents and applies geometric properties and relationships to solve real world and mathematical problems

ratio, proportion, and properties of right triangle trigonometry. (Also assesses B.1.4.3, C.2.4.1, and C.3.2.1)

MC, GR, ER

MA.C.3.4.2 using a rectangular coordinate system (graph), applies and algebraically verifies properties of two- and three dimensional figures, including distance, midpoint, slope, parallelism, and perpendicularity. (Also assesses D.2.4.1)

MC, GR, SR

MC = multiple choice, GR = gridded response, SR = short response, ER = extended response
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Content Assessed by FCAT

Mathematics

D: Algebraic Thinking

1. The student describes, and generalizes a wide variety of patterns, relations, and functions.

Grade 5 Benchmark	Grade 8 Benchmark	Grade 10 Benchmark
<p>MA.D.1.2.1 describes a wide variety of patterns and relationships through models, such as manipulatives, tables, graphs, rules using algebraic symbols.</p> <p style="text-align: center;">(Assessed with D.1.2.2) MC, GR</p>	<p>MA.D.1.3.1 describes a wide variety of patterns, relationships, and functions through models, such as manipulatives, tables, graphs, expressions, equations, and inequalities. (Also assesses A.5.3.1)</p> <p style="text-align: center;">MC, GR</p>	<p>MA.D.1.4.1 describes, analyzes, and generalizes relationships, patterns, and functions using words, symbols, variables, tables, and graphs.</p> <p style="text-align: center;">MC, GR</p>
<p>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)</p> <p style="text-align: center;">SR</p>	<p>MA.D.1.3.2 creates and interprets tables, graphs, equations, and verbal descriptions to explain cause-and-effect relationships. (Also assesses A.5.3.1)</p> <p style="text-align: center;">MC, GR, SR</p>	<p>MA.D.1.4.2 determines the impact when changing parameters of given functions.</p> <p style="text-align: center;">SR</p>

2. The student uses expressions, equations, graphs, and formulas to represent and interpret situations.

Grade 5 Benchmark	Grade 8 Benchmark	Grade 10 Benchmark
<p>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)</p> <p style="text-align: center;">MC, SR</p>	<p>MA.D.2.3.1 represents and solves real-world problems graphically, with algebraic expressions, equations, and inequalities. (Also assesses A.1.3.3)</p> <p style="text-align: center;">MC, SR</p>	<p>MA.D.2.4.1 represents real-world problem situations using finite graphs, matrices, sequences, series, and recursive relations.</p> <p style="text-align: center;">(Assessed with C.3.4.2 and D.2.4.2)</p>
<p>MA.D.2.2.2 uses informal methods, such as physical models and graphs to solve real-world problems involving equations and inequalities.</p> <p style="text-align: center;">MC,GR</p>	<p>MA.D.2.3.2 uses algebraic problem-solving strategies to solve real-world problems involving linear equations and inequalities.</p> <p style="text-align: center;">MC, GR</p>	<p>MA.D.2.4.2 uses systems of equations and inequalities to solve real-world problems graphically, algebraically, and with matrices. (Also assesses D.2.3.1, D.2.3.2, and D.2.4.1)</p> <p style="text-align: center;">MC, GR, SR</p>

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 Florida Department of Education, Student Assessment Services Section

Content Assessed by FCAT

Mathematics

E: Data Analysis and Probability

1. The student understands and uses the tools of data analysis for managing information.

Grade 5 Benchmark

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)

MC, GR, ER

MA.E.1.2.2 determines range, mean, median, central and mode from sets of data. (Also assesses E.1.2.3)

MC, GR

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.

(Assessed with E.1.2.1 and E.1.2.2)

Grade 8 Benchmark

MA.E.1.3.1 collects, organizes, and displays data in a variety of forms, including tables, line graphs, charts, bar graphs, to determine how different ways of presenting data can lead to different interpretations. (Also assesses E. 1. 3.3)

MC, ER

MA.E.1.3.2 understands and applies the concepts of range and central tendency (mean, median, and mode). (Also assesses E.1.3.3)

MC, GR

MA.E.1.3.3 analyzes real-world data by applying appropriate formulas for measures of central tendency and organizing data in a quality display, using appropriate technology, including calculators and computers.

(Assessed with E.1.3.1 and E.1.3.2)

Grade 10 Benchmark

MA.E.1.4.1 interprets data that has been collected, organized, and displayed in charts, tables, and plots. (Also assesses E.1.3.1 and E.1.4.3)

MC, ER

MA.E.1.4.2 calculates measures of tendency (mean, median, and mode) and dispersion (range, standard deviation, and variance) for complex sets of data and determines the most meaningful measure to describe the data. (Also assesses E.1.4.3)

MC, GR

MA.E.1.4.3 analyzes real-world data and makes predictions of larger Populations by applying formulas to calculate measures of central tendency and dispersion using the sample population data, and using appropriate technology, including calculators and computers.

(Assessed with E.1.4.1 and E.1.4.2)

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Content Assessed by FCAT

Mathematics

E: Data Analysis and Probability

2. The student identifies patterns and makes predictions from an orderly display of data using concepts of probability and statistics.

Grade 5 Benchmark

MA.E.2.2.1 uses models, such as tree diagrams, to display possible outcomes and to predict events.

SR

MA.E.2.2.2 predicts the likelihood of simple events occurring.

MC

Grade 8 Benchmark

MA.E.2.3.1 compares experimental results with mathematical expectations of probabilities.

SR

MA.E.2.3.2 determines odds for and odds against a given situation. (Also assesses E.2.2.2)

MC, GR

Grade 10 Benchmark

MA.E.2.4.1 determines probabilities using counting procedures, tables, tree diagrams, and formulas for permutations and combinations. (Also assesses E.2.4.2)

MC, GR

MA.E.2.4.2 determines the probability for simple and compound events as well as independent and dependent events. (Assessed with E.2.4.1)

3. The student uses statistical methods to make inferences and valid arguments about realworld situations.

Grade 5 Benchmark

MA.E.3.2.1 designs experiments to answer class or personal questions, collects information, and interprets the results using statistics (range, reports mean, median, and mode) and pictographs, charts, bar graphs, circle graphs, and line graphs.

MC

MA.E.3.2.2 uses statistical data about life situations to make predictions and justifies reasoning.

SR

Grade 8 Benchmark

MA.E.3.3.1 formulates hypotheses, designs experiments, collects and interprets data, and evaluates hypotheses by making inferences and drawing conclusions based on statistics (range, mean, median, and mode) and tables, graphs, and charts.

MC, SR

MA.E.3.3.2 identifies the common uses and misuses of probability and statistical analysis in the everyday world.

MC

Grade 10 Benchmark

MA.E.3.4.1 designs and performs real-world statistical experiments that involve more than one variable, then analyzes results and findings.

MC, GR

MA.E.3.4.2 explains the limitations of using statistical techniques and data in making inferences and valid arguments.

SR

MC = multiple choice, GR = gridded response, SR = short response, ER = extended response
Florida Department of Education, Student Assessment Services Section

Appendix B-FCAT Mathematics Content
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