Middle School Grades (6-8)

SSS - Essential Work Skills Crosswalk - Math

Math Standard MA.A **Math SSS/Benchmark** 1.3.1 **FCAT Concept** H

Description *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.*

Essential Skill	Essential Skill Description
m01	Perform operations with signed (positive and negative) numbers, including decimals, ratios, percents, and fractions.
m19	Understand the definitions and properties of rational and irrational numbers.
m24	Understand the basic properties and laws of exponents and scientific notation.

Math Standard MA.A **Math SSS/Benchmark** 1.3.2 **FCAT Concept** H

Description *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.*

Essential Skill	Essential Skill Description
m01	Perform operations with signed (positive and negative) numbers, including decimals, ratios, percents, and fractions.
m19	Understand the definitions and properties of rational and irrational numbers.
m24	Understand the basic properties and laws of exponents and scientific notation.

Math Standard MA.A **Math SSS/Benchmark** 1.3.3 **FCAT Concept** H

Description *Understands concrete and symbolic representations of rational numbers and irrational numbers in real-world situations.*

Essential Skill	Essential Skill Description
m01	Perform operations with signed (positive and negative) numbers, including decimals, ratios, percents, and fractions.
m19	Understand the definitions and properties of rational and irrational numbers.
m24	Understand the basic properties and laws of exponents and scientific notation.

Math Standard	MA.A	Math SSS/Benchmark	1.3.4	FCAT Concept	H

Description *Understands that numbers can be represented in a variety of equivalent forms, including integers, fractions, decimals, percents, scientific notation, exponents, radicals, and absolute value.*

Essential Skill	Essential Skill Description
m01	Perform operations with signed (positive and negative) numbers, including decimals, ratios, percents, and fractions.
m19	Understand the definitions and properties of rational and irrational numbers.

Math Standard	MA.A	Math SSS/Benchmark	2.3.1	FCAT Concept	H

Description *Understands and uses exponential and scientific notation.*

Essential Skill	Essential Skill Description
m24	Understand the basic properties and laws of exponents and scientific notation.

Math Standard	MA.A	Math SSS/Benchmark	2.3.2	FCAT Concept	L

Description *Understands the structure of number systems other than the decimal number system.*

Essential Skill	Essential Skill Description
No Essential Work Skill	

Math Standard	MA.A	Math SSS/Benchmark	3.3.1	FCAT Concept	H

Description *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.*

Essential Skill	Essential Skill Description
m01	Perform operations with signed (positive and negative) numbers, including decimals, ratios, percents, and fractions.

Math Standard	MA.A	Math SSS/Benchmark	3.3.2	FCAT Concept	H

Description *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.*

Essential Skill	Essential Skill Description
m01	Perform operations with signed (positive and negative) numbers, including decimals, ratios, percents, and fractions.

Math Standard	MA.A	Math SSS/Benchmark	3.3.3	FCAT Concept	H

Description *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.*

Essential Skill	Essential Skill Description
m01	Perform operations with signed (positive and negative) numbers, including decimals, ratios, percents, and fractions.

Math Standard	MA.A	Math SSS/Benchmark	4.3.1	FCAT Concept	H

Description *Uses estimation strategies to predict results and to check the reasonableness of results.*

Essential Skill	Essential Skill Description
m33	Use the technique of dimensional analysis to convert units of measure (e.g., convert km/hr to m/min) including drawing to scale and applying ratios. Understand and use various techniques for estimating, making and converting measure; and using these to perform dimensional analysis.

Math Standard	MA.A	Math SSS/Benchmark	5.3.1	FCAT Concept	H

Description *Uses concepts about numbers, including primes, factors, and multiples, to build number sequences.*

Essential Skill	Essential Skill Description
m22	Understand factoring a composite number into its prime factors, and how to find the largest monomial factor of a polynomial to write the polynomial as the product of the monomial and a polynomial.
m62	Understand the characteristics of algorithms and how they are used for finding the greatest common denominator of two numbers and the solutions of quadratic equations.

Math Standard	MA.B	Math SSS/Benchmark	1.3.1	FCAT Concept	H

Description *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.*

Essential Skill	Essential Skill Description
m13	Compute the perimeter and area of two-dimensional figures.
m17	Compute the volume of three-dimensional figures (solids).
m30	Know how to measure circle quantities (e.g., area, angle formed by two secants, circumference, length of segments, etc.)

Math Standard	MA.B	Math SSS/Benchmark	1.3.2	FCAT Concept	H

Description *Uses concrete and graphic models to derive formulas for finding rates, distance, time, and angle measures.*

Essential Skill	Essential Skill Description
	No Essential Work Skill

Math Standard	MA.B	Math SSS/Benchmark	1.3.3	FCAT Concept	H

Description *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.*

Essential Skill	Essential Skill Description
m13	Compute the perimeter and area of two-dimensional figures.
m17	Compute the volume of three-dimensional figures (solids).
m30	Know how to measure circle quantities (e.g., area, angle formed by two secants, circumference, length of segments, etc.)

Math Standard	MA.B	Math SSS/Benchmark	1.3.4	FCAT Concept	H

Description *Constructs, interprets, and uses scale drawings such as those based on number lines and maps to solve real-world problems.*

Essential Skill	Essential Skill Description
	No Essential Work Skill

Math Standard	MA.B	Math SSS/Benchmark	2.3.1	FCAT Concept	H

Description *Uses direct (measured) and indirect (not measured) measures to compare a given characteristic in either metric or customary units.*

Essential Skill	Essential Skill Description
m33	Use the technique of dimensional analysis to convert units of measure (e.g., convert km/hr to m/min) including drawing to scale and applying ratios. Understand and use various techniques for estimating, making and converting measure; and using these to perform dimensional analysis.

Math Standard	MA.B	Math SSS/Benchmark	2.3.2	FCAT Concept	H

Description *Solves problems involving units of measure and converts answers to a larger or smaller unit within either the metric or customary system.*

Essential Skill	Essential Skill Description
m33	Use the technique of dimensional analysis to convert units of measure (e.g., convert km/hr to m/min) including drawing to scale and applying ratios. Understand and use various techniques for estimating, making and converting measure; and using these to perform dimensional analysis.

Math Standard	MA.B	Math SSS/Benchmark	3.3.1	FCAT Concept	H

Description *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.*

Essential Skill	Essential Skill Description
m13	Compute the perimeter and area of two-dimensional figures.
m17	Compute the volume of three-dimensional figures (solids).

Math Standard	MA.B	Math SSS/Benchmark	4.3.1	FCAT Concept	L

Description *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 last precise unit of measurement.)*

Essential Skill	Essential Skill Description
m33	Use the technique of dimensional analysis to convert units of measure (e.g., convert km/hr to m/min) including drawing to scale and applying ratios. Understand and use various techniques for estimating, making and converting measure; and using these to perform dimensional analysis.

Math Standard	MA.B	Math SSS/Benchmark	4.3.2	FCAT Concept	L

Description *Selects and uses appropriate instruments, technology, and techniques to measure quantities in order to achieve specified degrees of accuracy in a problem situation.*

Essential Skill	Essential Skill Description
m33	Use the technique of dimensional analysis to convert units of measure (e.g., convert km/hr to m/min) including drawing to scale and applying ratios. Understand and use various techniques for estimating, making and converting measure; and using these to perform dimensional analysis.

Math Standard	MA.C	Math SSS/Benchmark	1.3.1	FCAT Concept	H

Description *Understands the basic properties of, and relationships pertaining to, regular and irregular geometric shapes in two and three dimensions.*

Essential Skill	Essential Skill Description
m16	Understand the properties and classification of triangles by sides (i.e., scalene, isosceles, and equilateral).
m21	Use the Pythagorean theorem to compute side lengths of right triangles.
m26	Understand the properties and classification of polygons (e.g., triangle, quadrilaterals, pentagon, hexagon, etc.) as well as knowledge of geometric shapes.
m27	Understand the properties and classification of quadrilaterals by orientation (e.g., parallelogram, rectangle, rhombus, square, and trapezoid).
m29	Know the classification and properties of solid figures such as prisms, rectangular solids, pyramids, right circular cylinders, cones, and spheres.

Math Standard	MA.C	Math SSS/Benchmark	2.3.1	FCAT Concept	H

Description *Understands the geometric concepts of symmetry, reflections, congruency, similarity, perpendicularity, parallelism, and transformations, including flips, slides, turns, and enlargements.*

Essential Skill	Essential Skill Description
m02	Understand the characteristics of parallel, perpendicular, and intersecting lines.
m49	Apply transformation concepts to understand and create congruent and similar figures.
m55	Understand the concepts of symmetry and transformations and graphically apply line reflections, rotation, translations, and dilation.

Math Standard	MA.C	Math SSS/Benchmark	2.3.2	FCAT Concept	H

Description *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).*

Essential Skill	Essential Skill Description
m55	Understand the concepts of symmetry and transformations and graphically apply line reflections, rotation, translations, and dilation.

Math Standard	MA.C	Math SSS/Benchmark	3.3.1	FCAT Concept	H

Description *Represents and applies geometric properties and relationships to solve real-world and mathematical problems.*

Essential Skill	Essential Skill Description
	No Essential Work Skill

Math Standard	MA.C	Math SSS/Benchmark	3.3.2	FCAT Concept	H

Description *Identifies and plots ordered pairs in all four quadrants of a rectangular coordinate system (graph) and applies simple properties of lines.*

Essential Skill	Essential Skill Description
m23	Know the components and properties of the rectangular coordinate system, (i.e., x - y axis, origin, quadrants, abscissa (x-coordinate) and ordinate (y-coordinate), and the general representation of a point (x,y)).

Math Standard	MA.D	Math SSS/Benchmark	1.3.1	FCAT Concept	H

Description *Describes a wide variety of patterns, relationships, and functions through models, such as manipulatives, tables, graphs, expressions, equations, and inequalities.*

Essential Skill	Essential Skill Description
m40	Understand appropriate terminology used to define relations and functions and their properties (e.g., domain, range, function composition, inverses, etc.).

Math Standard	MA.D	Math SSS/Benchmark	1.3.2	FCAT Concept	H

Description *Creates and interprets tables, graphs, equations, and verbal descriptions to explain cause-and-effect relationships.*

Essential Skill	Essential Skill Description
	No Essential Work Skill

Math Standard	MA.D	Math SSS/Benchmark	2.3.1	FCAT Concept	H

Description *Represents and solves real-world problems graphically, with algebraic expressions, equations, and inequalities.*

Essential Skill	Essential Skill Description
m07	Understand the use of variables in expressions such as 4x, x+2, and 2x-1, solve for the variable, and know how to represent expressions such as "twice the number" or "four more than the number" using variables.
m11	Use addition and multiplication to simplify an algebraic expression by identifying the order of operations and techniques necessary to carry out the operations (e.g., 5-3(x-2) = 5-3x+6 = 11-3x).
m35	Find the solution of linear equations and inequalities where the variable appears on both sides and in which one or both sides must be simplified before solving the equation (e.g., solve x+2(x-3) = -4x+5 for x).
m47	Know how to represent the solution set of an open sentence (e.g., x<-1) on a number line.
m52	Find the solution of proportions with monomial and binomial terms (e.g., x/(x-2) = 6/5, therefore, x = 12).

Math Standard	MA.D	Math SSS/Benchmark	2.3.2	FCAT Concept	H

Description *Uses algebraic problem-solving strategies to solve real-world problems involving linear equations and inequalities.*

Essential Skill	Essential Skill Description
m07	Understand the use of variables in expressions such as 4x, x+2, and 2x-1, solve for the variable, and know how to represent expressions such as "twice the number" or "four more than the number" using variables.
m11	Use addition and multiplication to simplify an algebraic expression by identifying the order of operations and techniques necessary to carry out the operations (e.g., 5-3(x-2) = 5-3x+6 = 11-3x).
m35	Find the solution of linear equations and inequalities where the variable appears on both sides and in which one or both sides must be simplified before solving the equation (e.g., solve x+2(x-3) = -4x+5 for x).
m47	Know how to represent the solution set of an open sentence (e.g., x<-1) on a number line.
m52	Find the solution of proportions with monomial and binomial terms (e.g., x/(x-2) = 6/5, therefore, x = 12).

Math Standard	MA.E	Math SSS/Benchmark	1.3.1	FCAT Concept	H

Description *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.*

Essential Skill	Essential Skill Description
m05	Understand the best procedures for statistical data collection, organization, and display including making estimates and predictions and drawing inferences.

Math Standard	MA.E	Math SSS/Benchmark	1.3.2	FCAT Concept	H

Description *Understands and applies the concepts of range and central tendency (mean, median, and mode).*

Essential Skill	Essential Skill Description
m15	Understand the characteristics of measures of central tendency (i.e., mean, median, and mode).

Math Standard	MA.E	Math SSS/Benchmark	1.3.3	FCAT Concept	H

Description *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.*

Essential Skill	Essential Skill Description
m05	Understand the best procedures for statistical data collection, organization, and display including making estimates and predictions and drawing inferences.

Math Standard	MA.E	Math SSS/Benchmark	2.3.1	FCAT Concept	H

Description *Compares experimental results with mathematical expectations of probabilities.*

Essential Skill	Essential Skill Description
m20	Understand the characteristic differences between theoretical and empirical probability (e.g., the theoretic probability of rolling a six and a die is 1/6 ; empirical probability is derived from repeated experimentation or accumulated statistics).
m25	Determine the probability of single and compound events using the basic premise that the probability of an event is equal to the number of ways it can occur divided by the total number of outcomes.

Math Standard	MA.E	Math SSS/Benchmark	2.3.2	FCAT Concept	H

Description *Determines odds for and odds against a given situation.*

Essential Skill	Essential Skill Description
	No Essential Work Skill

Math Standard	MA.E	Math SSS/Benchmark	3.3.1	FCAT Concept	H

Description *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.*

Essential Skill	Essential Skill Description
m05	Understand the best procedures for statistical data collection, organization, and display including making estimates and predictions and drawing inferences.
m15	Understand the characteristics of measures of central tendency (i.e., mean, median, and mode).
m36	Understand the characteristics of measures of dispersion (i.e., range, mean deviation, variance, and standard deviation).

Math Standard	MA.E	Math SSS/Benchmark	3.3.2	FCAT Concept	H

Description *Identifies the common uses and misuses of probability and statistical analysis in the everyday world.*

Essential Skill	Essential Skill Description
m05	Understand the best procedures for statistical data collection, organization, and display including making estimates and predictions and drawing inferences.
m15	Understand the characteristics of measures of central tendency (i.e., mean, median, and mode).
m25	Determine the probability of single and compound events using the basic premise that the probability of an event is equal to the number of ways it can occur divided by the total number of outcomes.
m36	Understand the characteristics of measures of dispersion (i.e., range, mean deviation, variance, and standard deviation).