

alignment of standards

**alignment of intensive mathematics standards
with
sunshine state standards
and
ncee new standards**

Sunshine State Standards
Strand A: Number Sense, Concepts, and Operations

Course: Intensive Mathematics (Middle School)

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

Sunshine State Standards Benchmarks	Intensive Mathematics Standards	New Standards
<p>MA.A.1.3.1 The student associates verbal names, written word names, and standard numerals with integers, fractions, and decimals; numbers expressed as percents; numbers with exponents; numbers in scientific notation; radicals; absolute value; and ratio.</p>	<p>The student will:</p> <p>1.1 Represent integers on the number line. 1.2 Model situations with integers. 4.1 Model situations involving fractions, decimals, and percents.</p>	<p>The student:</p> <p>M7a Uses mathematical language and representations with appropriate accuracy, including numerical tables and equations, simple algebraic equations and formulas, charts, graphs, and diagrams.</p>
<p>MA.A.1.3.2 The student 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.</p>	<p>The student will:</p> <p>1.3 Compare integers using $<$, $=$, or $>$ symbols. 1.6 Find the absolute value for given real numbers. 4.3 Compare and order rational numbers. 5.1 Demonstrate the use of term 'ratio', 'proportion', and 'percent' to ask comparison questions.</p>	<p>The student:</p> <p>M1f Compares numbers using order relations, differences, ratios, proportions, percents, and proportional change.</p>
<p>MA.A.1.3.3 The student understands concrete and symbolic representations of rational and irrational numbers in real-world situations.</p>	<p>The student will:</p> <p>4.1 Model situations involving fractions, decimals, and percents. 5.3 Set up and solve proportions that arise in applications.</p>	<p>The student:</p> <p>M1d Understands and uses number systems: natural, integer, rational, and real. M1e Represent numbers in decimal or fraction from and in scientific notation, and graphs</p>

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

Sunshine State Standards Benchmarks	Intensive Mathematics Standards	New Standards
		<p>numbers on the number line and number pairs in the coordinate plane.</p>
<p>MA.A.1.3.4 The student understands that numbers can be represented in a variety of equivalent forms, including integers, fractions, decimals, scientific notation, exponents, radicals, and absolute value.</p>	<p>The student will:</p> <ul style="list-style-type: none"> 1.5 Find inverses for given integers. 3.2 Link area and dimensions of rectangles with products and factors. 4.2 Develop an understanding of the relationships between fractions, decimals, and percents. 4.4 Move flexibly between fractions, decimals, and percent representations. 5.2 Find equivalent ratios. 	<p>The student:</p> <p>M1e Represent numbers in decimal or fraction form and in scientific notation, and graphs numbers on the number line and number pairs in the coordinate plane.</p>

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Course: Intensive Mathematics (Middle School)

Standard 2: The student understands Number systems.

Sunshine State Standards Benchmarks	Intensive Mathematics Standards	New Standards
MA.A. 2.3.1 The student understands and exponential and scientific notation.	In Liberal Arts Mathematics	
MA.A. 2.3.2 The student understands the structure of number systems other than the decimal number system.	The student will: 3.1 Understand the relationships among factors, multiples, divisors, and products. 3.5 Demonstrates the Fundamental Theorem of Arithmetic with specified whole numbers.	The student: M1d Understand and uses number systems, natural, integer, rational, and real.

**Sunshine State Standards
Strand A: Number Sense, Concepts, and Operations**

Course: Intensive Mathematics (Middle School)

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

Sunshine State Standards Benchmarks	Intensive Mathematics Standards	New Standards
<p>MA.A. 3.3.1 The student 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.</p>	<p>The student will:</p> <p>1.4 Develop strategies for adding, subtracting, multiplying, and dividing integers.</p> <p>4.5 Add, subtract, multiply, and divide with fractions.</p> <p>4.6 Add, subtract, multiply, and divide with decimals.</p>	<p>The student:</p> <p>M1c Has facility with the mechanics of operations as well as understanding of their typical meaning and uses in applications.</p> <p>M1j Uses concepts such as prime, relatively prime, factor, divisor, multiple, and divisibility involving problems involving integers.</p>
<p>MA.A.3.3.2 The student 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.</p>	<p>The student will:</p> <p>1.7 Evaluate expression by applying the rule of order of operations.</p> <p>9.2 Recognize applications of the commutative and distributive properties.</p>	<p>The student:</p> <p>M1a Uses addition, subtraction, multiplication, division, exponentiation, and root-extraction in forming and working with numerical and algebraic expressions.</p> <p>M1b Understands and uses operations such as opposite, reciprocal, raising to a power, taking a root, and taking a logarithm.</p>
<p>MA.A.3.3.3 The student adds, subtracts, multiplies, and divides whole numbers, decimals, fractions, including mixed numbers, to solve real-world problems, using</p>	<p>The student will:</p> <p>3.3 Identify numbers as prime or composites and as odd or even based on their factors.</p>	<p>The student:</p> <p>M1k Uses a scientific calculator effectively and efficiently in carrying out complex</p>

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

Sunshine State Standards Benchmarks	Intensive Mathematics Standards	New Standards
appropriate methods of computing, such as mental mathematics, paper and pencil and calculators.	3.4 Develop strategies for finding factors and multiples of whole numbers. 3.6 Develop strategies to solve problems involving factors and multiples.	calculations. M3n Use technology such as graphics calculators to represent and analyze functions and their graphs.

Sunshine State Standards
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Standard 4: The student uses estimation in problem solving and computation.

Sunshine State Standards Benchmarks	Intensive Mathematics Standards	New Standards
MA.A.4.3.1 The student uses estimation strategies to predict results and to check the reasonableness of results.	Process inherent in all standards.	The student: M6b Uses a variety of methods to estimate the values, in appropriate units, of quantities met in applications, and rounds numbers used in applications to an appropriate degree of accuracy.

Sunshine State Standards
Strand A: Number Sense, Concepts, and Operations

Course: Intensive Mathematics (Middle School)

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

Sunshine State Standards Benchmarks	Intensive Mathematics Standards	New Standards
MA.A.5.3.1 The student uses concepts about numbers, including primes, factors, and multiples, to build number sequences.	3.1 Understand the relationships among factors, multiples, divisors, and products. 3.2 Link area and dimensions of rectangles with products and factors. 3.3 Identify numbers as prime or composites and as odd or even based on their factors.	The student: M3g Uses arithmetic sequences and geometric sequences and their sums, and sees these as the discrete forms of linear and exponential functions, respectively. M2j Investigates geometric patterns, including sequences of growing shapes.

**Sunshine State Standards
Strand B: Measurement**

Course: Intensive Mathematics (Middle School)

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

Sunshine State Standards Benchmarks	Intensive Mathematics Standards	New Standards
<p>MA.B.1.3.1 The student 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.</p>	<p>The student will:</p> <p>6.1 Find area and perimeters of rectangular shapes and non-rectangular shapes. 6.2 Develop procedures for finding areas and perimeters of rectangles, parallelograms, triangles, and circles.</p>	<p>The student:</p> <p>M2a Models situations geometrically to formulate and solve problems. M2b Works with two- and three-dimensional figures and their properties, including polygons and circle, cubes, and pyramids, and cylinders, cones, and spheres.</p>
<p>MA.B.1.3.2 The student uses concrete and graphic models to derive formulas for finding rates, distance, time, angle measures.</p>	<p>The student will:</p> <p>1.8 Sketch coordinate graphs in four quadrants. 6.7 Use models and representations of models to solve area and volume problems.</p>	<p>The student:</p> <p>M2e Knows, uses, and derives formulas for perimeter, circumference, area, surface area, and volume of many types of figures.</p>
<p>MA.B.1.3.3 The students 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.</p>	<p>The student will:</p> <p>7.3 Identify similar figures visually and by comparing sides and angles. 7.4 Recognize that lengths between similar figures change by a constant scale factor. 7.5 Determine and use scale factors to find unknown lengths.</p>	<p>The student:</p> <p>M2c Uses congruence and similarity in describing relationships between figures. M2g Works with similar triangles, and extends the ideas to include simple uses of the three basic trigonometric functions. M2n Solves problems involving scale, such as in maps and diagrams.</p>

**Sunshine State Standards
Strand B: Measurement**

Course: Intensive Mathematics (Middle School)

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

Sunshine State Standards Benchmarks	Intensive Mathematics Standards	New Standards
MA.B.1.3.4 The student constructs, interprets, and uses scale drawings such as those based on number lines and maps to solve real-world problems.	The student will: 7.3 Identify similar figures visually and by comparing sides and angles. 7.4 Recognize that lengths between similar figures change by a constant scale factor. 7.5 Determine and use scale factors to find unknown lengths.	The student: M2c Uses congruence and similarity in describing relationships between figures. M2g Works with similar triangles, and extends the ideas to include simple uses of the three basic trigonometric functions. M2n Solves problems involving scale, such as in maps and diagrams.

**Sunshine State Standards
Strand B: Measurement**

Course: Intensive Mathematics (Middle School)

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

Sunshine State Standards Benchmarks	Intensive Mathematics Standards	New Standards
<p>MA.B.2.3.1 The student uses direct (measure) and indirect (not measure) measures to compare a given characteristic in either metric or customary units.</p>	<p>The student will:</p> <p>6.3 Find areas of parallelograms, triangles, and trapezoids. 6.4 Find areas and circumferences of circles. 6.5 Find volumes and surface areas for rectangular prisms. 6.6 Find volume and surface areas for cylinders. 6.7 Use models and representations of models to solve area and volume problems.</p>	<p>The student:</p> <p>M2k Works with geometric measures of length, area, volume, and angle; and non-geometric measures such as weight and time. M2m Understands the structure of standard measurement systems, both SI and customary, including unit conversions and dimensional analysis.</p>
<p>MA.B.2.3.2 The student solves problems involving units of measure and converts answers to a larger or smaller unit within either the metric or customary system.</p>	<p>The student will:</p> <p>9.1 Write symbolic sentences that communicate their reasoning.</p>	<p>The student:</p> <p>M2l Use quotient measures, such as speed and density, that give “per unit” amounts, and uses product measures, such as person-hours.</p>

Sunshine State Standards Strand B: Measurement		Course: Intensive Mathematics (Middle School)
Standard 3: The student estimates measurements in real-world situations.		
Sunshine State Standards Benchmarks	Intensive Mathematics Standards	New Standards
MA.B.3.3.1 The student solves real-world mathematical problems involving estimates of measurements including length, time, weight/mass, temperature, money, perimeter, area, and volume in either customary or metric units.	Inherent in all standards.	The student: M6b Uses a variety of methods to estimate the values, in appropriate units, of quantities met in applications, and round numbers used in applications to an appropriate degree of accuracy.

**Sunshine State Standards
Strand B: Measurement**

Course: Intensive Mathematics (Middle School)

Standard 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.

Sunshine State Standards Benchmarks	Intensive Mathematics Standards	New Standards
MA.B.4.3.1 The student selects appropriate units of measurement and determine and applies significant digits in a real-world context.	The student: 6.7 Use models and representations of models to solve area and volume problems	The student: M6b Uses a variety of methods to estimate the values, in appropriate units, of quantities met in applications, and round numbers used in applications to an appropriate degree of accuracy.
MA.B.4.3.2 The student selects and uses appropriate instruments, technology to measure quantities in order to achieve specified degree of accuracy in a problem situation.	The student: 6.7 Use models and representations of models to solve area and volume problems.	The student: M6b Uses a variety of methods to estimate the values, in appropriate units, of quantities met in applications, and round numbers used in applications to an appropriate degree of accuracy.

Sunshine State Standards
Strand C: Geometry and Spatial Sense

**Course: Intensive Mathematics (Middle
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Standard 1: The student describes, draws, identifies, and analyzes two- and three-dimensional shapes.

Sunshine State Standards Benchmarks	Intensive Mathematics Standards	New Standards
MA.C.1.3.1 The students understands the basic properties of, and relationships pertaining to, regular and irregular geometric shapes in two and three-dimensions.	The student will: 7.1 Recognize, classify, and analyze polygons.	The student: M2b Works with two- and three-dimensional figures and their properties, including polygons and circles, cubes and pyramids, and cylinders, cones, and spheres.

**Sunshine State Standards
Strand C: Geometry and Spatial Sense**

Course: Intensive Mathematics (Middle School)

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

Sunshine State Standards Benchmarks	Intensive Mathematics Standards	New Standards
<p>MA.C.2.3.1 The student understands geometric concepts of symmetry, reflections, congruency, similarity, perpendicularity, parallelism, and transformations, including flips, slides, turns, and enlargements.</p>	<p>The student will:</p> <p>7.2 Recognize and describe symmetries of figures.</p> <p>7.6 Perform transformations of figures, including reflections, translations, and rotations.</p>	<p>The student:</p> <p>M2b Analyzes figures in terms of their symmetries using, for example, concepts of reflection, rotation, and translation.</p>
<p>MA.C.2.3.2 The student predicts and verifies patterns involving tessellations.</p>	<p>The student will:</p> <p>6.5 Find volumes and surface areas for rectangular prisms.</p> <p>6.6 Find volumes and surface areas for cylinders.</p> <p>6.7 Use models and representations of models to solve area and volume problems.</p> <p>7.7 Reason about spatial relationships.</p>	<p>The student:</p> <p>M2d Visualizes objects, paths, and regions in space, including intersections and cross sections of three-dimensional figures, and describes these using geometric language.</p>

Sunshine State Standards
Strand C: Geometry and Spatial Sense

Course: Intensive Mathematics (Middle School)

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

Sunshine State Standards Benchmarks	Intensive Mathematics Standards	New Standards
<p>MA.C.3.3.1 The student represents and applies geometric properties and relationships to solve real-world and mathematical problems.</p>	<p>The student will:</p> <p>5.3 Set up and solve proportions that arise in applications.</p> <p>7.4 Recognize that lengths between similar figures change by a constant scale factor.</p> <p>7.5 Determine and use scale factors to find unknown lengths.</p>	<p>The student:</p> <p>M2f Uses the Pythagorean Theorem in many types of situations, and works through more than one proof of this theorem.</p> <p>M2g Works with similar triangles, and extends the ideas to include simple uses of the three basic trigonometric functions.</p>
<p>MA.C.3.3.2 The student identifies and plots ordered pairs in all four quadrants of a rectangular coordinate system and applies simple properties of lines.</p>	<p>The student will:</p> <p>1.8 Sketch coordinate graphs in four quadrants.</p>	<p>The student:</p> <p>M2o Represent geometric curves and graphs of functions in standard coordinate systems.</p>

**Sunshine State Standards
Strand D: Algebraic Thinking**

Course: Intensive Mathematics (Middle School)

Standard 1: The describes, analyzes, and generalizes a wide variety of patterns, relations, and functions.

Sunshine State Standards Benchmarks	Intensive Mathematics Standards	New Standards
<p>MA.D.1.3.1 The student describes a wide variety of patterns, relationships, and functions through models, such as manipulatives, tables, graphs, expression, equations, and inequalities.</p>	<p>The student will:</p> <p>9.1 Write symbolic sentences that communicate their reasoning.</p>	<p>The student will:</p> <p>M3a Model given situations with formulas and functions, and interprets given formulas and functions in terms of situations.</p> <p>M3b Describes, generalizes, and uses basic types of functions, linear, exponential, power, rational, square and square root, and cube and cube root.</p> <p>M3i Represent functional relationships in formulas, tables, and graphs, and translates between pairs of these.</p>
<p>MA.D.1.3.2 The student creates and interprets tales, graphs, equations, and verbal descriptions to explain cause-and-effect relationships.</p>	<p>The student will:</p> <p>7.4 Recognize that lengths between similar figures change by a constant scale factor.</p>	<p>The student:</p> <p>M3h Defines, uses and manipulates expressions involving variables, parameters, constants, and unknowns In work with formulas, functions, equations, and inequalities.</p>

**Sunshine State Standards
Strand D: Algebraic Thinking**

Course: Intensive Mathematics (Middle School)

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

Sunshine State Standards Benchmarks	Intensive Mathematics Standards	New Standards
<p>MA.D.2.3.1 The student represents and solves real-world problems graphically, with algebraic expressions, equations, and inequalities.</p>	<p>The student will: 9.1 Write symbolic sentences that communicate their reasoning.</p>	<p>The student: M3co Use functions to analyze patterns and represent their structure.</p>
<p>MA.D.2.3.2 The student uses algebraic problem-solving strategies to solve real-world problems involving linear equations and inequalities.</p>	<p>The student will: 9.1 Write symbolic sentences that communicate their reasoning. 9.2 Recognize application of the commutative and distributive properties.</p>	<p>The student: M3j Solve equations symbolically, graphically, and numerically, especially linear, quadratic and exponential equations, and know how to use the quadratic formula for solving quadratic equations.</p>

**Sunshine State Standards
Strand E: Data Analysis and Probability**

Course: Intensive Mathematics (Middle School)

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

Sunshine State Standards Benchmarks	Intensive Mathematics Standards	New Standards
<p>MA.E.1.4.1 The student collects, organizes, and displays data in a variety of forms, including tables, line graphs, charts, and bar graphs, to determine how different ways of presenting data can lead to different interpretations.</p>	<p>The student will:</p> <p>2.1 Explore the process of data investigation, such as posing questions, collecting data, analyzing data, and making interpretations to answer questions.</p> <p>2.2 Represent data using line graphs, bar graphs, stem-and leaf plots, and coordinate graphs.</p>	<p>The student:</p> <p>M4a Organizes, analyzes, and displays single-variable data, choosing appropriate frequency distribution, circle graphs, line plots, histograms, and summary statistics.</p> <p>M4b Organizes, analyzes, and displays two-variables data using scatter plots, estimated regression lines, and computer generated regression lines, and correlation coefficients.</p>
<p>MA.E.1.3.2 The student understands and applies the concepts of range and central tendency (mean, median, and mode).</p>	<p>The student will:</p> <p>2.3 Explore ways of describing data such as measures of center (mode, median, mean) and range or variability in the data.</p>	<p>The student:</p> <p>M4f Interpret representations of data, compares distributions of data, and critiques conclusions and the use of statistics, both in school materials and in public documents.</p>
<p>MA.E.1.3.3 The student 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.</p>	<p>The student will:</p> <p>2.4 Develop strategies for comparing data.</p>	<p>The student:</p> <p>M4c Uses sampling technique to draw inferences about large populations.</p> <p>M4d Understand that making an inference about a population from a sample always involves</p>

Sunshine State Standards Strand E: Data Analysis and Probability		Course: Intensive Mathematics (Middle School)
Standard 1: The student understands and uses the tools of data analysis for managing information.		
Sunshine State Standards Benchmarks	Intensive Mathematics Standards	New Standards
		uncertainty and that the role of statistics is to estimate the size of that uncertainty.

Sunshine State Standards
Strand E: Data Analysis and Probability

Course: Intensive Mathematics (Middles School)

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

Sunshine State Standards Benchmarks	Intensive Mathematics Standards	New Standards
MA. 2.3.1 The student compares experimental results with mathematical expectations of probabilities..	The student will: 8.1 Describe the relationship between experimental and theoretical probabilities. 8.2 represent possible outcomes in tables, grids, and tree diagrams.	The student: M4j Constructs appropriate sample spaces, and applies the addition and multiplication principles for probabilities

**Sunshine State Standards
Strand E: Data Analysis and Probability**

Course: Intensive Mathematics (Middle School)

Standard 3: The student uses statistical methods to make inferences and valid arguments about real-world situations.

Sunshine State Standards Benchmarks	Intensive Mathematics Standards	New Standards
<p>MA.E.3.3.1 The student 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.</p>	<p>The student will: 8.1 Interpret statements of probability.</p>	<p>The student: M4g Explores questions of experimental design use of control graphs, and reliability. M4n Designs simulations including Monte Carlo simulations to estimate probabilities. M4o Works with the normal distribution in some of its basic applications.</p>
<p>MA.E.3.3.2 The student identifies the common uses and misuses of probability and statistical analysis in the everyday world.</p>	<p>The student will: 8.1 Interpret statements of probability.</p>	<p>The student: M4g Explores questions of experimental design, use of control graphs, and reliability.</p>