

Florida Sunshine State Standards, Grade 7,  
Correlated to *Glencoe Mathematics: Applications and Concepts*, Course 2

Sunshine State Standards and Grade Level Expectations, Grade 7	Student Edition Lesson
<b>Strand A: Number Sense, Concepts, and Operations</b>	
<b>Standard 1: The student understands the different ways numbers are represented and used in the real world.</b>	
<b>Benchmark MA.A.1.3.1: The student 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.</b>	
1. knows word names and standard numerals for integers, fractions, decimals, ratios, numbers expressed as percents, numbers with exponents, numbers expressed in scientific notation, and numbers expressed using the square root radical.	1-2, 1-9, 3-1, 5-1, 5-4, 5-5, 5-6, 7-1, 7-2, 11-1, 11-2
2. reads and writes whole numbers and decimals in expanded form, including exponential notation.	1-2
<b>Benchmark 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.</b>	
1. compares and orders integers, fractions, decimals, numbers with exponents, and numbers expressed as percents or in scientific notation, including ordering on a number line.	1-2, 1-9, 3-1, 3-2, 5-8, 6-1
<b>Benchmark MA.A.1.3.3: The student understands concrete and symbolic representations of rational numbers and irrational numbers in real-world situations.</b>	
1. knows examples of rational and irrational numbers in real-world situations, including the irrational numbers $\pi$ and $\sqrt{2}$ .	5-8, 11-2
2. describes the meanings of rational and irrational numbers using physical or graphical displays.	3-4, 5-3, 5-8, 11-2
3. constructs models to represent rational numbers.	3-4a, 3-5a, 3-5, 5-3, 5-5, 5-8, 6-1, 11-1
<b>Benchmark MA.A.1.3.4: The student understands that numbers can be represented in a variety of equivalent forms, including integers, fractions, decimals, percents, scientific notation, exponents, radicals, and absolute value.</b>	
1. knows the relationships among fractions, decimals, and percents.	5-4, 5-5, 5-6, 5-8, 7-5, 7-6
2. expresses a given quantity in a variety of ways (for example, integers, fractions, decimals, numbers expressed as a percent, numbers expressed in scientific notation, ratios).	1-9, 3-1, 5-3, 5-4, 5-5, 5-6, 5-8, 7-1, 7-2, 7-5, 7-6
3. knows whether numbers expressed in different forms are equal.	1-6, 1-9, 3-1, 5-4, 5-6, 5-8, 11-1
4. converts a number expressed in one form to its equivalent in another form.	1-2, 1-6, 1-9, 5-4, 5-5, 5-6, 5-8, 7-5, 7-6, 11-1
<b>Standard 2: The student understands number systems.</b>	
<b>Benchmark MA.A.2.3.1: The student understands and uses exponential and scientific notation.</b>	
1. expresses whole numbers in exponential notation (for example, $36 = 6^2$ ).	1-2, 5-1
2. evaluates numerical expressions that contain exponential notation.	1-2, 1-3, 3-6, 3-7
3. expresses numbers greater than one in scientific notation.	1-9

4. expresses numbers in scientific notation as numbers in standard form.	1-9
<b>Benchmark MA.A.2.3.2: The student understands the structure of number systems other than the decimal number system.</b>	
1. applies knowledge of the decimal number system and of non-place-value systems.	1-2
<b>Standard 3: The student understands the effects of operations on numbers and the relationships among these operations, selects appropriate operations, and computes for problem solving.</b>	
<b>Benchmark 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.</b>	
1. knows the effects of the four basic operations on whole numbers, fractions, mixed numbers, and decimals.	1-1, 3-4a, 3-4, 3-5a, 3-5, 3-6a, 3-6, 3-7, 5-3, 6-2, 6-3, 6-4, 6-5, 6-6
2. uses models or pictures to show the effects of addition, subtraction, multiplication, and division on whole numbers, decimals, fractions, mixed numbers, and integers.	1-1, 1-7b, 3-4a, 3-4, 3-5a, 3-5, 3-6, 3-7, 6-2, 6-3, 6-4, 7-8a
3. applies the properties of rational numbers to solve problems (commutative, associative, distributive, identity, equality, inverse).	1-6, 3-4, 4-2, 4-3, 4-4, 6-2, 6-4, 6-5, 6-6
4. knows the inverse relationship of positive and negative numbers.	3-4a, 3-4, 3-5a, 3-5, 3-6, 3-7
<b>Benchmark 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.</b>	
1. knows the appropriate operation to solve real-world problems involving fractions, decimals, and integers.	1-1, 1-3, 1-5a, 1-7b, 3-4, 3-5, 3-6a, 3-6, 3-7, 6-2, 6-3, 6-4, 6-5, 6-6, 6-7, 6-8
2. solves real-world problems involving decimals and fractions using two- or three-step problems.	1-1, 1-3, 1-7b, 6-2, 6-3, 6-7
3. solves real-world problems involving percents (for example, discounts, simple interest, taxes, tips).	7-7, 7-8a, 7-8, 8-2, 8-5, 8-6, 8-6b
4. applies order of operations to solve problems (parentheses, exponents, multiplication, division, addition, and subtraction).	1-3, 1-4, 1-6
5. knows proportional relationships and uses tables, graphs, or “constant ratio” relationships to solve and explain problems.	6-9a, 7-2b, 7-3, 7-3b, 10-6
<b>Benchmark MA.A.3.3.3: The student 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.</b>	
1. solves multi-step real-world problems involving whole numbers, fractions or decimals using appropriate methods of computation, such as mental computation, paper and pencil, and calculator.	1-1, 1-3, 1-5a, 1-5, 3-6a, 3-7, 5-2A, 6-2, 6-3, 6-7, 11-7a
<b>Standard 4: The student uses estimation in problem solving and computation.</b>	
<b>Benchmark MA.A.4.3.1: The student uses estimation strategies to predict results and to check the reasonableness of results.</b>	
1. knows an appropriate estimation technique for a given situation using whole numbers, fractions and decimals.	6-1, 6-2, 6-3, 6-4, 8-1, 8-1b
2. estimates to predict results and check reasonableness of results.	1-1, 3-6a, 6-2, 6-3, 6-4, 6-6, 8-1b, 11-2
3. determines whether an exact answer is needed or an estimate would be sufficient.	8-1b

<b>Standard 5: The student understands and applies theories related to numbers.</b>	
<b>Benchmark MA.A.5.3.1: The student uses concepts about numbers, including primes, factors, and multiples, to build number sequences.</b>	
1. knows if numbers are prime or composite.	5-1a, 5-1
2. finds the greatest common factor and least common multiple of two or more numbers.	5-2, 5-7
3. determines the prime factorization of a composite number.	5-1, 5-2, 5-7
4. applies number theory concepts to determine the terms in a sequence.	1-7, 1-7b, 5-1a, 5-1, 5-7
5. applies number theory concepts, including divisibility rules, to solve real-world or mathematical problems.	5-1a, 5-1, 5-2, 5-7
<b>Strand B: Measurement</b>	
<b>Standard 1: The student measures quantities in the real world and uses the measures to solve problems.</b>	
<b>Benchmark 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.</b>	
1. uses concrete or graphic models to create formulas for finding volumes of solids (prisms and cylinders).	12-2, 12-3
2. uses concrete or graphic models to create formulas for finding surface area of prisms and cylinders.	12-4a, 12-4, 12-5
3. solves and explains problems involving perimeter, area, and circumference.	6-8, 6-9, 11-4, 11-5a, 11-5, 11-6, 11-7a, 11-7
<b>Benchmark MA.B.1.3.2: The student uses concrete and graphic models to derive formulas for finding rates, distance, time, and angle measures.</b>	
1. finds the measure of an angle by measuring with a protractor or applying angle relationships (for example, corresponding, complementary, supplementary, interior, exterior).	10-1a, 10-1, 10-3, 10-3b, 10-4b
2. develops and uses the distance formula in solving real-world problems ( $d = rt$ ).	4-3, 4-6, 10-7a
<b>Benchmark MA.B.1.3.3: The student 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.</b>	
1. given a two- or three-dimensional figure, creates a new figure by increasing or decreasing the original dimensions.	6-8, 8-4
2. knows the relationships between the perimeters, areas, surface areas, or volumes of the original figure and those of the newly created figure.	6-8, 7-2b, 8-4, 11-4, 11-6, 12-2, 12-3, 12-4a, 12-4, 12-5
3. solves real world or mathematical problems involving perimeter, area, circumference, surface area and volume and how these are affected by changes in the dimensions of the figures.	6-8, 6-9a, 6-9, 8-4, 11-4, 11-6, 12-2, 12-3, 12-4, 12-5
<b>Benchmark 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.</b>	
1. knows an appropriate scale needed to produce a proportional drawing or model.	7-4, 7-4b
2. knows proportional relationships used in scale drawings.	7-4, 7-4b
3. produces a scale drawing.	7-4, 7-4b
<b>Standard 2: The student compares, contrasts, and converts within systems of measurement (both standard/nonstandard and metric/customary).</b>	
<b>Benchmark MA.B.2.3.1: The student uses direct (measured) and indirect (not measured) measures to compare a given characteristic in either metric or customary units.</b>	
1. measures length, weight or mass, and capacity or volume using customary or metric units.	6-7, 12-2, 12-3

2. knows relationships between metric units of mass and capacity (for example, one cubic centimeter of water weighs one gram).	1-8
3. finds measures of length, weight or mass, and capacity or volume using proportional relationships and properties of similar geometric figures (for example, using shadow measurement and properties of similar triangles to find the height of a flag pole).	7-3, 7-4, 7-4b, 10-6
<b>Benchmark 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.</b>	
1. compares units of measurement within a system (metric or customary).	1-8, 6-7
2. performs operations on measurements within either the metric or customary system (for example, finds three times 27 inches and expresses the answer in yards).	1-8, 6-7
3. selects the appropriate unit of measurement when solving real-world problems (for example linear, square, and cubic units).	1-8, 6-8
4. solves problems using the metric or customary system involving conversions within the same system.	1-8, 6-7
<b>Standard 3: The student estimates measurements in real-world problem situations.</b>	
<b>Benchmark MA.B.3.3.1: The student 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.</b>	
1. knows whether an exact answer is needed or if an estimate is sufficient.	12-6
2. estimates solutions to real-world problems by estimating the length, volume or capacity, weight or mass, perimeter, or area of objects or shapes in either customary and metric units.	11-4, 11-5, 11-6, 11-7, 12-2, 12-3
3. estimates solutions to real-world problems involving measurement, including estimates of time, temperature, and money.	2-2a, 4-3, 4-4a, 6-3b, 8-1b
<b>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.</b>	
<b>Benchmark MA.B.4.3.1: The student 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).</b>	
1. selects appropriate units of measurement in a real-world context.	12-6
2. knows that measurements are always approximate and that the degree of accuracy of a measurement depends upon the precision of the instrument.	12-6
3. knows the precision of different measuring instruments.	12-6
4. determines the appropriate precision unit for a given situation.	12-6
<b>Benchmark MA.B.4.3.2: The student selects and uses appropriate instruments, technology, and techniques to measure quantities in order to achieve specified degrees of accuracy in a problem situation.</b>	
1. selects a measurement tool (for example, scales, rulers, thermometers, measuring cups, protractors, gauges) appropriate to a given situation.	12-6
2. measures accurately with the measurement tools to the specified degree of accuracy for the task and in keeping with the precision of the measurement tool.	10-1a, 12-6

<b>Strand C: Geometry and Spatial Sense</b>	
<b>Standard 1: The student describes, draws, identifies, and analyzes two- and three-dimensional shapes.</b>	
<b>Benchmark MA.C.1.3.1: The student understands the basic properties of, and relationships pertaining to, regular and irregular geometric shapes in two- and three-dimensions.</b>	
1. identifies, draws, and uses symbolic notation to denote the basic properties of geometric terms including lines (intersecting, skew, parallel, perpendicular) and congruent figures.	10-3b
2. determines the measure of various types of angles using a protractor or angle relationships (including complementary, supplementary, and vertical angles).	10-1a, 10-1, 10-3, 10-3b
3. compares and describes the attributes of regular and irregular polygons (for example, parallelogram, trapezoid, pentagon, hexagon).	10-5, 10-7
4. identifies and classifies triangles and quadrilaterals.	10-5, 10-7
5. knows the attributes of and draws three-dimensional figures (pyramid, cone, sphere, hemisphere).	12-1a, 12-1, 12-2, 12-3
6. knows the properties of two- and three-dimensional figures.	6-9a, 6-9, 10-4, 10-5, 12-2, 12-3
<b>Standard 2: The student visualizes and illustrates ways in which shapes can be combined, subdivided, and changed.</b>	
<b>Benchmark MA.C.2.3.1: The student understands the geometric concepts of symmetry, reflections, congruency, similarity, perpendicularity, parallelism, and transformations, including flips, slides, turns, and enlargements.</b>	
1. uses manipulatives and drawings to solve problems requiring spatial visualization.	10-4, 10-7a, 11-5a, 11-6, 12-1a, 12-1b
2. describes and applies the properties of parallelism, perpendicularity, and symmetry in real-world contexts.	10-9
3. recognizes, draws, and describes congruent and similar figures.	10-6, 10-8
4. creates and describes the attributes of a figure either congruent or similar to a given figure.	10-1b
5. identifies and performs the various transformations (reflection, translation, rotation) of a given figure on a coordinate plane.	10-8, 10-8b, 10-9, 10-9b
<b>Benchmark MA.C.2.3.2: The student 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).</b>	
1. predicts and verifies whether a given shape or shapes will tessellate.	10-7
2. given a simple tessellated pattern, determines the shape(s) and transformation(s).	10-7
3. tessellates using reflection, translation, or rotation and any desired combinations.	10-8
<b>Standard 3: The student uses coordinate geometry to locate objects in both two- and three-dimensions and to describe objects algebraically.</b>	
<b>Benchmark MA.C.3.3.1: The student represents and applies geometric properties and relationships to solve real-world and mathematical problems.</b>	
1. observes, explains, and makes conjectures regarding geometric properties and relationships (among angles, lines, regular and irregular polygons).	6-9a, 10-1, 10-4, 10-4b, 10-7, 11-3a, 11-3
2. creates and solves angle measurement problems for triangles.	10-4, 11-3a, 11-3
3. demonstrates the Pythagorean relationship in right triangles using models or diagrams (for example, manipulatives, dot, graph, or isometric paper).	11-3a, 11-3
4. given two sides of a right triangle, uses the Pythagorean Theorem to find the length of the third side.	11-3

<b>Benchmark MA.C.3.3.2: The student identifies and plots ordered pairs in all four quadrants of a rectangular coordinate system (graph) and applies simple properties of lines.</b>	
1. identifies each quadrant and the characteristics of points in each quadrant (positive and negative).	3-3
2. identifies and plots ordered pairs in all four quadrants of the coordinate system.	3-3, 6-9a
<b>Strand D: Algebraic Thinking</b>	
<b>Standard 1: The student describes, analyzes, and generalizes a wide variety of patterns, relations, and functions</b>	
<b>Benchmark MA.D.1.3.1: The student describes a wide variety of patterns, relationships, and functions through models, such as manipulatives, tables, graphs, expressions, equations, and inequalities.</b>	
1. uses manipulatives and graphic materials to generate tables and charts (for example, input, output) to develop algebraic expressions, equations, or formulas.	1-4, 4-6a, 4-6, 6-9a
2. given instances of a pattern, expresses a generalization of the pattern using algebraic expressions.	1-4, 4-6, 6-9a
3. given an algebraic expression of a relationship or pattern, supplies specific instances of the relationship or pattern.	1-4, 1-5a, 1-7, 1-7b
4. predicts outcomes based on a generalization of a pattern or relationship.	1-4, 1-5a, 1-7, 1-7b, 3-6a, 4-6a, 6-9a
<b>Benchmark MA.D.1.3.2: The student creates and interprets tables, graphs, equations, and verbal descriptions to explain cause-and-effect relationships.</b>	
1. interprets and creates tables, function tables, and graphs (all four quadrants).	1-4, 3-2, 4-6a, 4-6
2. writes expressions and equations to describe relationships.	1-4, 1-5, 4-1, 4-6
3. graphs equations to explain cause-and-effect relationships.	4-6
<b>Standard 2: The student uses expressions, equations, inequalities, graphs, and formulas to represent and interpret situations.</b>	
<b>Benchmark MA.D.2.3.1: The student represents and solves real-world problems graphically, with algebraic expressions, equations, and inequalities.</b>	
1. translates verbal expressions and sentences into algebraic expressions and equations.	3-1, 4-1, 4-2, 4-3, 4-4
2. translates algebraic expressions, equations, or formulas representing real-world relationships into verbal expressions or sentences.	4-1, 11-3, 11-4, 11-5, 11-6, 12-2, 12-3, 12-4, 12-5
3. given an algebraic equation or expression of a real-world application, substitutes integral values for variables and simplifies the results.	1-4, 1-5, 1-5, 6-2
4. uses pictures, models, manipulatives or other strategies to solve one-step and simple multistep linear equations.	1-5, 3-4a, 3-5a, 4-2a, 4-2, 4-3, 4-4
5. graphs solutions to equations and inequalities on a number line.	4-5
6. graphs linear equations on the coordinate plane from a table of values.	4-6
<b>Benchmark MA.D.2.3.2: The student uses algebraic problem-solving strategies to solve real-world problems involving linear equations and inequalities.</b>	
1. knows how to solve linear equations and inequalities representing real-world situations, using pictures, models, manipulatives (such as algebra tiles), or other strategies.	4-2, 4-3, 4-4, 4-5
2. simplifies algebraic expressions with one variable.	1-6

<b>Strand E: Data Analysis and Probability</b>	
<b>Standard 1: The student understands and uses the tools of data analysis for managing information.</b>	
<b>Benchmark MA.E.1.3.1: The student 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.</b>	
1. generates and collects data for analysis.	2-1, 2-2, 2-3, 2-4b, 2-5, 2-8, 4-6a, 8-3a, 9-6, 9-6b
2. interprets and analyzes data presented in a variety of forms, including box-and-whisker graphs and scatter plots.	1-5a, 2-1, 2-2a, 2-2, 2-3, 2-4b, 2-5, 2-6, 2-6b, 2-7, 2-7b, 2-8, 3-6a, 4-6a
3. constructs, interprets, and explains displays of data, such as tables and graphs (circle graphs, single- and multiple- bar graphs, and single and multiple-line graphs) and explains how different displays of data lead to different interpretations.	2-1, 2-2a, 2-2, 2-3, 2-4b, 2-5, 2-6, 2-6b, 2-7, 2-7b, 2-8, 5-2A, 8-3a, 10-2
<b>Benchmark MA.E.1.3.2: The student understands and applies the concepts of range and central tendency (mean, median, and mode).</b>	
1. finds the range, mean, median, and mode of data from a table, chart, or graph.	2-3, 2-4, 2-4b, 2-5, 2-6, 2-6b, 2-8
2. draws conclusions from an analysis of range and central tendency of a set of real-world data.	1-5a, 2-3, 2-4, 2-4b, 2-5, 2-6, 2-6b, 2-8
<b>Benchmark 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.</b>	
1. applies and analyzes appropriate measures of central tendency (mode, mean, median, range) for a set of data.	2-3, 2-4, 2-4b, 2-6, 2-6b, 2-8
2. uses technology, such as graphing calculators and computer spreadsheets, to analyze data and create graphs.	2-6b, 2-7b
<b>Standard 2: The student identifies patterns and makes predictions from an orderly display of data using concepts of probability and statistics.</b>	
<b>Benchmark MA.E.2.3.1: The student compares experimental results with mathematical expectations of probabilities.</b>	
1. obtains experimental results using manipulatives.	9-6a, 9-6, 9-6b, 9-7
2. explains observed difference between mathematical and experimental results.	9-6a, 9-6, 9-6b
3. calculates simple mathematical probabilities for independent and dependent events.	9-1, 9-7, 11-8
<b>Benchmark MA.E.2.3.2: The student determines odds for and odds against a given situation.</b>	
1. computes the mathematical odds for and against a specified outcome in given real-world experiments.	9-6
<b>Standard 3: The student uses statistical methods to make inferences and valid arguments about real-world situations.</b>	
<b>Benchmark 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.</b>	
1. formulates a hypothesis and designs an experiment.	8-3a, 9-2, 9-3, 9-4, 9-5a, 9-5, 9-6a, 9-6, 9-6b

2. performs the experiment and collects, organizes, and displays the data.	8-3a, 9-2, 9-3, 9-4, 9-5a, 9-5, 9-6a, 9-6, 9-6b
3. evaluates the hypothesis by making inferences and drawing conclusions based on statistical results.	8-3a, 8-3, 9-2, 9-3, 9-4, 9-5a, 9-5, 9-6a, 9-6, 9-6b
<b>Benchmark MA.E.3.3.2: The student identifies the common uses and misuses of probability or statistical analysis in the everyday world.</b>	
1. knows appropriate uses of statistics and probability in real-world situations.	2-8, 9-1, 9-6b, 9-7
2. knows when statistics and probability are used in misleading ways.	2-8, 9-6b