



Note: Levels A-I represent Grade Levels K-8;

**Florida - Grade 8 -Math  
Standards /Benchmarks 2005**

**PLATO Courseware Covering  
Florida - Grade 8 - Math**

**Number Sense, Concepts, and Operations**

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

**Math Expeditions I** - Compare Numbers to Millions; **Math Fundamentals** - Percent Concepts 1&2; **Algebra 1** - Absolute Value of a Number; Equations with Absolute Value;

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.

**Math Expeditions I** - Compare Whole Numbers and Decimals; Order Numbers to Millions; Order Numbers and Decimals; Compare and Order Fractions;

3. understands concrete and symbolic representations of rational numbers and irrational numbers in real-world situations.

**Math Expeditions I** - Compare Rational Numbers; Order Rational Numbers; Round Numbers Through Billions; Round Decimals; Solve Rates and Proportions;

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.

**Math Expeditions I** - Write Decimals and Fractions as Percents; Write Ratios; Find Numbers from Percents; **Math Fundamentals** - Addition Properties; Multiplication Properties 2; Decimal Fractions 2; Problem Solving 5;

<p><b>Standard 2: The student understands number systems.</b> (MA.A.2.3)</p>			
<p>1. understands and uses exponential and scientific notation.</p>			<p><b><u>Math Expeditions I</u></b> - Write in Scientific Notation; <b><u>Algebra 1</u></b> - Positive and Negative Exponents; Integer Exponents and the Product Rule; Integer Exponents and the Quotient Rule; Integer Exponents and the Power Rule 1&amp;2;</p>
<p>2. understands the structure of number systems other than the decimal number system.</p>			<p><b><u>Math Expeditions I</u></b> - Identify Place Value to Billions; Recognize Place Value in Decimals; PLATO doesn't cover other systems.</p>
<p><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> (MA.A.3.30)</p>			
<p>1. understands and explains the effects of addition, numbers, fractions, including mixed numbers, and decimals, including the inverse relationships of positive and negative numbers.</p>			<p><b><u>Math Expeditions I</u></b> - Add Numbers up to 6-digits; Add Decimals; Subtract Numbers up to 6-digits; Subtract Decimals; Add and Subtract Different Fractions; Add Mixed Numbers; Subtract Mixed Numbers; <b><u>Math Fundamentals</u></b> - Addition Skills 3; Division Review; Decimals Review; <b><u>Algebra 1</u></b> - Additive Inverse of an Integer; Integer Sums; Integer Differences; Integer Product; Integer Quotient; Adding Fractions; Subtracting Fractions;</p>
<p>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.</p>			<p><b><u>Math Fundamentals</u></b> - Multiplication Skills 5,6,7; Multiplication Review II; Subtraction Skills 4; Subtraction Review; Problem Solving 6; <b><u>Algebra 1</u></b> - Multiplicative Inverse of a Fraction; Product of Fractions; Quotient of Fractions;</p>

<p>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.</p>			<p><b><u>Math Expeditions I</u></b> - Multiply by 1-digit Numbers; Multiply by 2,3, or 4-digit Numbers; Multiply Decimals; Divide by Whole Numbers; Divide Decimals by Whole Numbers; Divide by Decimals; Multiply Fractions and Mixed Numbers; Divide Fractions; Add and Subtract Decimals; Multiply Decimals; Divide Decimals; Find Percents; Solve Percents; <b><u>Math Fundamentals</u></b> - Addition Skills 4; Addition REview; Problem Solving 2; Division Skills 6,7,8; Division Review II; Problem Solving 3; <b><u>Algebra 1</u></b> - Mental Math with Whole Numbers; Mental Math with Fractions and Percents;</p>
<p><b>Standard 4: The student uses estimation in problem solving and computation. (MA.A.4.3)</b></p>			
<p>1. uses estimation strategies to predict results and to check the reasonableness of results.</p>			<p><b><u>Math Expeditions I</u></b> - Estimate Sums; Estimate Differences; Estimate Products; Estimate Quotients; <b><u>Algebra 1</u></b> - Estimation Basics; Estimation by Clustering;</p>
<p><b>Standard 5: The student understands and applies theories related to numbers. (MA.A.5.3)</b></p>			
<p>1. uses concepts about numbers, including primes, factors, and multiples, to build number sequences.</p>			<p><b><u>Math Fundamentals</u></b> - Multiples and Common Denominators; <b><u>Algebra 1</u></b> - Prime and Composite; Basic Set Concepts; Elements of a Set; Basic Set Concept: Subsets; Basic Set Concepts: Roster and Set Builder Forms; Union of 2 Sets; Intersection of 2 Sets;</p>
<p><b>Measurement</b></p>			
<p><b>Standard 1: The student measures quantities in the real world and uses the measures to solve problems. (MA.B.1.3)</b></p>			

<p>1. uses concrete and graphic models to derive formulas for finding perimeter, area, surface area, circumference, and volume of two- and threedimensional shapes, including rectangular solids and cylinders.</p>			<p><b><u>Math Expeditions I</u></b> - Find the Perimeter; Find the Area; Find the Surface Area; <b><u>Geometry and Measurement 2</u></b> - Area and Volume of Cylinders; Area and Volume of Cones; The Distance Formula; Slope; Coordinates in 3 Dimensions;</p>
<p>2. uses concrete and graphic models to derive formulas for finding rates, distance, time, and angle measures.</p>			<p><b><u>Applied Math</u></b> - Time Applications; Clocks and Time Zones; Using Base, Rate, and Portion;</p>
<p>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.</p>			<p><b><u>Geometry and Measurement 2</u></b> - The Sum of the Angles in a Triangle; The Pythagorean Theorem 2; Solving Right Triangle Problems; 30-60 Degree Right Triangles; Proportionality; A Sense of Proportion; Not Everything is Created Equal;</p>
<p>4. constructs, interprets, and uses scale drawings such as those based on number lines and maps to solve real-world problems.</p>			<p><b><u>Math Problem Solving</u></b> - Planning a Park;</p>
<p><b>Standard 2: The student compares, contrasts, and converts within systems of measurement (both standard/nonstandard and metric/customary). (MA.B.2.3)</b></p>			
<p>1. uses direct (measured) and indirect (not measured) measures to compare a given characteristic in either metric or customary units.</p>			<p><b><u>Geometry and Measurement 2</u></b> - Metric Measurement;</p>
<p>2. solves problems involving units of measure and converts answers to a larger or smaller unit within either the metric or customary system.</p>			<p><b><u>Applied Math</u></b> - Math Conversions; Converting Linear Measurements; Converting Weight Measurement; Converting Volume Measurement; Using Linear Measurement Tools;</p>
<p><b>Standard 3: The student estimates measurements in real-world problem situations. (MA.B.3.3)</b></p>			

<p>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.</p>			<p><b><u>Math Expeditions I</u></b> - Find the Volume; <b><u>Geometry and Measurement 1</u></b> - Area, part2; Volume;</p>
<p><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. (MA.B.4.3)</b></p>			
<p>1. selects appropriate units of measurement and determines and applies significant digits in a realworld context. (Significant digits should relate to both instrument precision and to the least precise unit of measurement.); 2. selects and uses appropriate instruments, technology, and techniques to measure quantities in order to achieve specified degrees of accuracy in a problem situation.</p>			<p><b><u>Math Expeditions I</u></b> - Measure Angles; <b><u>Geometry and Measurement 2</u></b> - Area and Volume of Cylinders; Area and Volume of Cones;</p>
<p><b>Geometry and Spatial Sense</b></p>			
<p><b>Standard 1: The student describes, draws, identifies, and analyzes two- and three-dimensional shapes. (MA.C.1.3)</b></p>			
<p>1. understands the basic properties of, and relationships pertaining to, regular and irregular geometric shapes in two and three dimensions.</p>			<p><b><u>Math Expeditions I</u></b> - Classify Points, Lines, and Angles; Identify Geometric Shapes; <b><u>Geometry and Measurement 2</u></b> - Postulates and Theorems; Points, Lines, and Planes;</p>
<p><b>Standard 2: The student visualizes and illustrates ways in which shapes can be combined, subdivided, and changed. (MA.C.2.3)</b></p>			

<p>1. understands the geometric concepts of symmetry, reflection, congruency, similarity, perpendicularity, parallelism, and transformations, including flips, slides, turns, and enlargements.</p>			<p><b><u>Math Expeditions I</u></b> - Identify Congruent and Similar; <b><u>Geometry and Measurement 2</u></b> - Congruent Angles; Congruent Triangles, part 2; Angles in Pairs; Symmetry; Translations; Rotations;</p>
<p>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).</p>			<p><b><u>Algebra 1</u></b> - Patterns and Sequences;</p>
<p><b>Standard 3: The student uses coordinate geometry to locate objects in both two and three dimensions and to describe objects algebraically. (MA.C.3.3)</b></p>			
<p>1. represents and applies geometric properties and relationships to solve real-world and mathematical problems.</p>			<p><b><u>Math Expeditions I</u></b> - Find the Circumference; <b><u>Geometry and Measurement 2</u></b> - Area of Right Triangles and Parallelograms; Area of Any Triangle; Area of Trapezoids and Rhombuses;</p>
<p>2. identifies and plots ordered pairs in all four quadrants of a rectangular coordinate system (graph) and applies simple properties of lines.</p>			<p><b><u>Math Expeditions I</u></b> - Locate Coordinate Points; <b><u>Algebra 1</u></b>- Coordinate Plane; Identifying Points on a Coordinate Plane; Ordered Pairs as Solutions to a Linear Equation;</p>
<p><b>Algebraic Thinking</b></p>			
<p><b>Standard 1: The student describes, analyzes, and generalizes a wide variety of patterns, relations, and functions. (MA.D.1.3)</b></p>			
<p>1. describes a wide variety of patterns, relationships, and functions through models, such as manipulatives, tables, graphs, expressions, equations, and inequalities.</p>			<p><b><u>Algebra 1</u></b> - Patterns and Sequence; Functions; Describing Functions with Equations, Tables, and Graphs; Linear Patterns;</p>

<p>2. creates and interprets tables, graphs, equations, and verbal descriptions to explain cause-and-effect relationships.</p>			<p><b><u>Algebra 1</u></b> - Graphs, Slopes and y-Intercepts; Interpreting Graphs to Solve Problems;</p>
<p><b>Standard 2: The student uses expressions, equations, inequalities, graphs, and formulas to represent and interpret situations. (MA.D.2.3)</b></p>			
<p>1. represents and solves real-world problems graphically, with algebraic expressions, equations, and inequalities.</p>			<p><b><u>Algebra 1</u></b> - Graphing Linear Equations in 2 Variables; Solving and Graphing Systems of Equations; Solving Problems with Systems of Linear Equations;</p>
<p>2. uses algebraic problem-solving strategies to solve real-world problems involving linear equations and inequalities.</p>			<p><b><u>Algebra 1</u></b> - Graphing a Solution Set on a Number Line; Solving and Graphing Equations in 1 Variable; Solving Problems with Linear Equations in 1 Variable; Linear Inequalities in 1 Variable, Parts 1,2,&amp;3;</p>
<p><b>Data Analysis and Probability</b></p>			
<p><b>Standard 1: The student understands and uses the tools of data analysis for managing information. (MA.E.1.3)</b></p>			
<p>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.</p>			<p><b><u>Math Expeditions I</u></b> - Data from Graphs; <b><u>Data Skills</u></b> - Constructing Graphs and Charts;</p>
<p>2. understands and applies the concepts of range and central tendency (mean, median, and mode).</p>			<p><b><u>Math Expeditions I</u></b> - Find Range, Median, Mode, and Mean;</p>

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.			<u><b>Algebra 1</b></u> - Mean, Median, and Mode;
<b>Standard 2: The student identifies patterns and makes predictions from an orderly display of data using concepts of probability and statistics. (MA.E.2.3)</b>			
1. compares experimental results with mathematical expectations of probabilities.			<u><b>Math Expeditions I</b></u> - Find Probabilities and Outcomes; <u><b>Algebra 1</b></u> - Probability and Possible Outcomes;
2. determines odds for and odds against a given situation.			<u><b>Algebra 1</b></u> - Probability of an Event;
<b>Standard 3: The student uses statistical methods to make inferences and valid arguments about real-world situations. (MA.E.3.3)</b>			
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.			<u><b>Algebra 1</b></u> - Solving Problems with Mean, Median, and Mode;
2. identifies the common uses and misuses of probability and statistical analysis in the everyday world.			<u><b>Algebra 1</b></u> - Solving Problems with Probability;
<u><b>Courses Used in this Alignment:</b></u> Math Expeditions; Math Fundamentals; Geometry and Measurement 1 & 2; Math Problem Solving; Algebra I and II; Applied Math; Data Skills;			