



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

**Florida - Grade 6 -Math
/Benchmarks 2005**

Standards

**PLATO Courseware Covering
Florida - Grade 6 - 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 G - Compare Numbers to Millions; Order Numbers to Millions; Write Ratios; (Note: PLATO provides online tools that show associations between written names and figures;); **Algebra 1** - Absolute Value of a Number;

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 G - Identify Place Value to Billions; Recognize Place Value in Decimals; Round Numbers Through Millions; Round Decimals; Compare and Order Fractions;

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

Algebra 1 - Basic Set Concepts: Elements in a Set;

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 G - Decimals and Fractions as Percents; **Math Fundamentals** - Equivalent Fractions; Comparing Fractions; Improper Fractions and Mixed Numbers; Basic Terms Review; Decimal Fractions 1;

<p>Standard 2: The student understands number systems. (MA.A.2.3)</p>			
<p>1. understands and uses exponential and scientific notation.</p>			<p><u>Math Expeditions I</u> - Write in Scientific Notation;</p>
<p>2. understands the structure of number systems other than the decimal number system.</p>			<p>Plato does not cover this standard;</p>
<p>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. (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><u>Math Fundamentals</u> - Meaning of Addition; Multiples and Common Denominators; Adding and Subtracting Fractions 1; Adding Mixed Numbers; Subtracting Mixed Numbers 1; Multiplying Fractions; Dividing Fractions 1; Multiplying and Dividing Mixed Numbers 1; Adding and Subtracting Decimals; Multiplying Decimals; Dividing Decimals; <u>Algebra 1</u> - The Additive Inverse of Integers;</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><u>Math Expeditions G</u> - Solve Problems Using Rates and Proportions; Find Percents of Numbers; Solve Problems using Percents; <u>Math Fundamentals</u> - Meaning of Subtraction; Subtraction Facts; Subtraction Skills 1; Meaning of Multiplication; Multiplication Facts 1 & 2; <u>Algebra 1</u>- Order of Operations; Adding Integers; Subtracting Integers; Multiplying Integers; Dividing Integers;</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><u>Math Expeditions G</u> - Add Numbers up to 3-digits; Add Numbers up to 6-digits; Subtract 1, 2, or 3-digit Numbers; Subtract Numbers up to 6-digits; Subtract Numbers with Zeros; Multiply by 1-digit Numbers; Multiply by 2, 3, or 4-digit Numbers; Divide up to 5-digit by 1-digit Numbers; Divide 3, 4, or 5-digits by 1-digit Numbers; 2- or 4-digit divided by 2-digit,multiples of ten; 2 or 3 digits divided by 2-digit, 1-digit quotient; Divide by 2-digits, 2-digit quotient; Divide by 2-digits, 2-digit quotient; 3, 4, or 5-digits divided by 2-digits; 4, 5, or 6-digits divided by 3-digits; Add and Subtract Different Fractions; Add Mixed Numbers; Subtract Mixed Numbers; Multiply Fractions and Mixed Numbers; Divide Fractions and Mixed Numbers; <u>Math Fundamentals</u> - Addition Facts 1 & 2; Meaning of Division; Division Facts; Division Skills 1&2;</p>
<p>Standard 4: The student uses estimation in problem solving and computation. (MA.A.4.3)</p>			
<p>1. uses estimation strategies to predict results and to check the reasonableness of results.</p>			<p><u>Math Expeditions G</u> - Estimate Sums; Estimate Differences; Estimate Products; Estimate Quotients;</p>
<p>Standard 5: The student understands and applies theories related to numbers. (MA.A.5.3)</p>			
<p>1. uses concepts about numbers, including primes, factors, and multiples, to build number sequences.</p>			<p><u>Math Fundamentals</u> - Multiples and Common Denominators; <u>Algebra 1</u> - Odd and Even Numbers; Prime and Composite;</p>
<p>Measurement</p>			
<p>Standard 1: The student measures quantities in the real world and uses the measures to solve problems. (MA.B.1.3)</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.			<u>Math Expeditions G</u> - Find the Perimeter; Find the Area; Find the Surface Area;
2. uses concrete and graphic models to derive formulas for finding rates, distance, time, and angle measures.			<u>Math Expeditions G</u> - Measure Angles; <u>Geometry and Measurement 1</u> - Area, part 1; Volume;
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.			<u>Math Fundamentals</u> - Linear Measurement; <u>Geometry and Measurement 1</u> - Circles/Arcs/Circumference; The Pythagorean Theorem 1;
4. constructs, interprets, and uses scale drawings such as those based on number lines and maps to solve real-world problems.			<u>Geometry and Measurement 1-</u> Using Geometry;
Standard 2: The student compares, contrasts, and converts within systems of measurement (both standard/nonstandard and metric/customary). (MA.B.2.3)			
1. uses direct (measured) and indirect (not measured) measures to compare a given characteristic in either metric or customary units.			In-Class Activity;
2. solves problems involving units of measure and converts answers to a larger or smaller unit within either the metric or customary system.			<u>Geometry and Measurement 1</u> - Metric Measurement;
Standard 3: The student estimates measurements in real-world problem situations. (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.			<u>Math Expeditions G</u> - Find the Volume; <u>Math Fundamentals</u> - Area Measurement; Volume and Capacity Measurement;

<p>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)</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><u>Math Fundamentals</u> - Measurement Review; Problem Solving 7;</p>
<p>Geometry and Spatial Sense</p>			
<p>Standard 1: The student describes, draws, identifies, and analyzes two- and three-dimensional shapes. (MA.C.1.3)</p>			
<p>1. understands the basic properties of, and relationships pertaining to, regular and irregular geometric shapes in two and three dimensions.</p>			<p><u>Math Expeditions G</u> - Identify Geometric Shapes; Classify Points, Lines, and Angles; <u>Math Fundamentals</u> - Plane Figures 1 & 2; Figure Comparison; Common 3-dimensional Figures; Basic Figures Review; <u>Geometry and Measurement 1</u> - Special Angles 1 & 2;</p>
<p>Standard 2: The student visualizes and illustrates ways in which shapes can be combined, subdivided, and changed. (MA.C.2.3)</p>			
<p>1. understands the geometric concepts of symmetry, r e f l e c t i o n s , c o n g r u e n c y , s i m i l a r i t y , p e r p e n d i c u l a r i t y , p a r a l l e l i s m , a n d t r a n s f o r m a t i o n s , i n c l u d i n g f l i p s , s l i d e s , t u r n s , a n d e n l a r g e m e n t s .</p>			<p><u>Math Expeditions G</u> - Identify Congruent and Similar; <u>Geometry and Measurement 2</u> - Congruent Angles; 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><u>Algebra 1</u> - Patterns and Sequence;</p>
<p>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)</p>			
<p>1. represents and applies geometric properties and relationships to solve real-world and mathematical problems.</p>			<p><u>Math Expeditions G</u> - Find the Circumference; <u>Math Problem Solving</u> - Planning a Park;</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><u>Math Expeditions G</u> - Locate Coordinate Points; <u>Algebra 1</u> - Coordinate Plane; Identifying Points on a Coordinate Plane;</p>
<p>Algebraic Thinking</p>			
<p>Standard 1: The student describes, analyzes, and generalizes a wide variety of patterns, relations, and functions. (MA.D.1.3)</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><u>Algebra 1</u> - 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><u>Algebra 1</u> - Graphing Linear Equations in 2 Variables; <u>Data Skills</u> - Reading Graphical Data;</p>
<p>Standard 2: The student uses expressions, equations, inequalities, graphs, and formulas to represent and interpret situations. (MA.D.2.3)</p>			

1. represents and solves real-world problems graphically, with algebraic expressions, equations, and inequalities.			<u>Algebra 1</u> - Linear Equations in 1 Variable: Solving by Inspection; Linear Equations in 1 Variable: Isolating the Variable; Simple Equations in 1 Variable: Isolating the Variable; Linear Inequalities in 1 Variable: part 1;
2. uses algebraic problem-solving strategies to solve real-world problems involving linear equations and inequalities.			<u>Algebra 1</u> - Using Linear Equations to Solve Problems;
Data Analysis and Probability			
Standard 1: The student understands and uses the tools of data analysis for managing information. (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.			<u>Math Expeditions G</u> - Data From Graphs; <u>Data Skills</u> - Computing Graphical Data;
2. understands and applies the concepts of range and central tendency (mean, median, and mode).			Math Expeditions G - Find Range, Median, Mode, and Mean;
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>Algebra 1</u> - Mean, Median, and Mode;
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)			
1. compares experimental results with mathematical expectations of probabilities.			<u>Math Expeditions H</u> - Find Probabilities and Outcomes; <u>Algebra 1</u> - Probability and Possible Outcomes;

2. determines odds for and odds against a given situation.			<u>Algebra 1</u> - Probability of an Event;
Standard 3: The student uses statistical methods to make inferences and valid arguments about real-world situations. (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.			<u>Algebra 1</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>Algebra 1</u> - Solving Problems with Probability;
<u>Courses Used:</u> Math Expeditions; Math Fundamentals; Algebra 1; Geometry and Measurement 1 & 2; Data Skills;			