

CORRELATION
of
the 10 UNDERSTANDING MATH PLUS PROGRAMS
with
California State Board of Education ACADEMIC CONTENT STANDARDS

For Grade 7

Note: a. The Understanding Math PLUS series of programs consist of 10 programs written for Kindergarten to 10th Grade.

The 10 programs are:

Understanding Fractions	Understanding Whole Numbers and Integers
Understanding Probability	Understanding Percent
Understanding Exponents	Understanding Equations
Understanding Algebra	Understanding Graphing
Understanding Numeration	
Understanding Measurement and Geometry	

Note: b. The Understanding Numeration software for K to 3 is set up so that the teacher selects items in the following order:

Concept .. from 5 concepts .. Counting, Comparing & Ordering, Place Value, Operations and Problem Solving.

Skill .. chosen from the list of specific learning expectations

Level .. indicates the levels of development for Kindergarten to 3rd grade.

Level	Upper Range of Number
A	10
B	20
C	100
D	1000

Lesson .. 250 lessons are sequenced to build understanding of concepts.

A detailed Lesson Synopsis on the website www.neufeldmath.com to assist the teacher by stating the lesson contents but also by giving lesson suggestions.

Worksheet .. off computer worksheets are selected from the CD by a code.

Note: c. The remaining 9 Understanding Math programs for 4th to 10th grade are set up so that they can be used in a variety of teaching and learning environments ranging from a teacher centered approach with 1 computer to a student centered lab approach. The lessons can also be used in remediation, tutorial, intervention, resource, fast-tracking.

Each topic has:

- ..an interactive concept introduction, usually with a variety of graphic approaches.
- ..a number of particular examples
- ..practice questions with random questions but particular feedback
- ..a topic test with random questions and tracking
- ..off computer worksheets selected from the website .. www.neufeldmath.com

Grade Seven

Mathematics Content Standards.

NUMBER SENSE

1.0 Students know the properties of, and compute with, rational numbers expressed in a variety of forms:

Content Standard	Understanding Math PLUS computer assisted lessons
<p>1.1 Read, write, and compare rational numbers in scientific notation (positive and negative powers of 10) with approximate numbers using scientific notation.</p>	<p>MAT+ <u>Understanding Exponents</u> Topic 3: The Exponent Rules Powers with Rational Bases Examples 1,2,3 In General Examples Questions : Examples 1 through 11</p> <p>Topic 4: Scientific Notation Why Use Scientific Notation? Scientific Notation for Large Numbers Introduction Chart The Rule The Rule The Steps Scientific Notation for Small Numbers Introduction Chart The Steps Examples 1. Number Question 2. Park Question 3. Sun Question 4. Kitchen Question</p>
<p>1.2 Add, subtract, multiply, and divide rational numbers (integers, fractions, and terminating decimals) and take positive rational numbers to whole-number powers.</p>	<p>MAT+ <u>Understanding Fractions</u> Topic 8: Adding Fractions Adding Fractions on a Number Line Examples 1, 2, 3 The Lowest Common Denominator Examples 1,2 Word Problems Alexander’s Friends Eating Candy Goal Scoring Taking a Walk Fraction Card Game Magic Square Practice Questions; Topic Test</p> <p>Topic 9: Subtracting Fractions Subtracting Fractions on a Number Line Examples 1, 2 The Lowest Common Denominator Examples 1,2 Word Problems Pedro and Alex Race Washing the Cars Planting a Garden Practice Questions; Topic Test</p> <p>Topic 10: Multiplying Fractions</p>

Word Problems
 Boris' Money
 Maria's Trip
 A Summary
 The Meaning of "OF"
 Order in Multiplying
 Examples 1,2
 Multiplying Fractions with Large Numbers
 Examples 1,2
 Practice Questions; Topic Test

Topic 14: Dividing Fractions

Understanding Division
 Examples with Diagrams
 Soda Pop
 Ice Cream
 Shapes 1 & 2
 Patterns from Examples
 Another Explanation
 Examples 1 & 2
 Examples without Diagrams
 Numerical Examples 1,2
 Central High School
 Practice Questions; Topic Test

Topic 14: Addition and Subtraction of Decimals

Adding Decimals
 Tenths ... The Pencil
 Examples 1 through 5
 Hundredths ... The Town
 Examples 1,2,3,4
 Method 1 ... Partial Sums
 Example 1 & 2 – with grids
 Examples 3 through 6 – without grids
 Method 2 ... Columns
 Example 1 & 2 – with grids
 Examples 3 through 6 – without grids
 Method 3 ... Right to Left
 Example 1 & 2 – with grids
 Examples 3 through 6 – without grids
 Subtracting Decimals
 Tenths...The Pencil
 Examples 1,2,3,4,5
 Method 1 ... Right to Left
 Example 1 & 2 – with grids
 Examples 3 through 6 – without grids
 Method 2 ... Trade First
 Example 1 & 2 – with grids
 Examples 3 through 6 – without grids
 Method 3...Add Up
 Example 1 through 4 - with grids
 Examples 5 through 8 – without grids
 Method 4 ...Add up to zero
 Examples 1,2
 Decimals Around Us
 Length in Metric Units
 The Tools
 Examples 1,2,3,4,5
 Pencils
 Examples 1,2,3,4,5

	<p>Money Examples 1,2,3,4,5 Track Meet Examples 1,2,3,4,5 School Supplies Practice Questions; Topic Test</p>
<p>1.3 Convert fractions to decimals and percents and use these representations in estimations, computations, and applications.</p>	<p>MAT+ Understanding Fractions Topic 6: Percents...Fractions...Decimals Expressing a percent as a Fraction Introduction with/without Graphics Expressing a Fraction in Simplest Form Greatest Common Factor Examples 1,2 Simplifying Fractions Method 1,2 Examples Examples 1,2,3,4 The Watering Can Expressing a Percent as a Decimal Introduction Examples 1,2,3 Number Line #1 Decimal Strips Concepts 1,2,3 Expressing a Decimal as a Percent Examples 1,2,3 Summary and Pattern % Nitrogen in the Air Batting Averages Expressing a Fraction as a Percent An Example Method 1 Examples 1,2 Method 2 Examples 1,2 Lightning Examples Number Line #2 Chart</p>
<p>1.4 Differentiate between rational and irrational numbers.</p>	
<p>1.5 Know that every rational number is either a terminating or repeating decimal and be able to convert terminating decimals into reduced fractions.</p>	
<p>1.6 Calculate the percentage of increases and decreases of a quantity.</p>	<p>MAT+ Understanding Percent Topic 3: Fraction/Decimal to Percent Percent Change Percent Increase Percent Decrease Percent Increase or Decrease</p>
<p>1.7 Solve problems that involve discounts, markups, commissions, and profit and compute simple and compound interest.</p>	<p>MAT+ Understanding Percent Topic 7: Percent in Business Discount Football Sale What Can I Afford? Which is Cheaper? Competitor's Discount Commission Car Salesman</p>

	Real Estate Car Dealership Simple Interest What is it? Complete the Table Bank Interest Credit Card Bill Compound Interest What is it? Complete the Table Formula Spreadsheet Interest Calculator Bank Interest
--	--

2.0 Students use exponents, powers, and roots and use exponents in working with fractions:

Content Standard	Understanding Math PLUS computer assisted lessons
<p>2.1 Understand negative whole-number exponents. Multiply and divide expressions involving exponents with a common base.</p>	<p>MAT+ <u>Understanding Exponents</u> Multiplication of Powers with the Same Base Expanding the Exponents The Pattern In General Division of Powers with the Same Base Expanding the Exponents The Pattern In General A Power with a NEGATIVE Exponent Method 1: Explanation with b Method 2: Explanation with k Method 3: Bacteria Doubling</p>
<p>2.2 Add and subtract fractions by using factoring to find common denominators.</p>	<p>MAT+ <u>Understanding Fractions</u> Topic 8: Adding Fractions The Lowest Common Denominator Examples 1,2 Word Problems Alexander’s Friends Eating Candy Goal Scoring Taking a Walk Topic 9: Subtracting Fractions The Lowest Common Denominator Examples 1,2 Word Problems Pedro and Alex Race Washing the Cars Planting a Garden</p>
<p>2.3 Multiply, divide, and simplify rational numbers by using exponent rules.</p>	<p>MAT+ <u>Understanding Fractions</u> Topic 3: Equivalent Fractions Simplifying Fractions to Simplest Form Method 1, Method 2 Topic 10: Multiplying Fractions Pattern Blocks Hexagons 1,2,3 Fractions Strips Concepts 1,2</p>

	<p>Word Problems Boris' Money Maria's Trip</p> <p>A Summary The Meaning of "OF" Order in Multiplying Examples 1,2 Multiplying Fractions with Large Numbers Examples 1,2 Practice Questions; Topic Test</p> <p>Topic 14: Dividing Fractions Understanding Division Examples with Diagrams Soda Pop Ice Cream Shapes 1 & 2 Patterns from Examples Another Explanation Examples 1 & 2 Examples without Diagrams Numerical Examples 1,2 Central High School Practice Questions; Topic Test</p>
<p>2.4 Use the inverse relationship between raising to a power and extracting the root of a perfect square integer; for an integer that is not square, determine without a calculator the two integers between which its square root lies and explain why.</p>	<p>MAT+ <u>Understanding Exponents</u> Topic 5: Square Root Squaring Numbers Square Roots Radical Signs Square Roots of Negative Numbers Examples Questions 1. Radicals First 2. The Four Equations 3. Lawn Question 4. Make a Square Practice Questions; Topic Test</p>
<p>2.5 Understand the meaning of the absolute value of a number; interpret the absolute value as the distance of the number from zero on a number line; and determine the absolute value of real numbers.</p>	<p>MAT+ <u>Understanding Whole Numbers and Integers</u> Topic 4: The Meaning of Integers Absolute Value Examples 1,2</p> <p>MAT+ <u>Understanding Equations</u> Topic 8: Solving Absolute Value Equations Absolute Value... What is it? Concept Examples 1,2 Summary</p>

ALGEBRA AND FUNCTIONS

1.0 Students express quantitative relationships by using algebraic terminology, expressions, equations, inequalities, and graphs:

Content Standard	Understanding Math PLUS computer assisted lessons
<p>1.1 Use variables and appropriate operations to write an expression, an equation, an inequality, or a system of equations or inequalities that represents a verbal description (e.g., three less than a number, half as</p>	<p>MAT+ <u>Understanding Algebra</u> Topic 2: Tiles and Algebra Pictures to Words to Algebraic Expressions Examples 1,2 Topic 5: Word Problems</p>

large as area A).	<p>Words and Symbols</p> <p>The Translation Machine</p> <p>Examples 1,2,3,4</p> <p>The Trick Machine</p> <p>Instructions</p> <p>The Machine</p> <p>Explanation with Picture; with Symbols</p> <p>Area of Walls</p> <p>Chemistry</p> <p>Pools Puzzler – The First Problem</p> <p>Perimeter Problem with Diagram</p>
1.2 Use the correct order of operations to evaluate algebraic expressions such as $3(2x + 5)^2$.	<p>MAT+ <u>Understanding Algebra</u></p> <p>Topic 4: Patterns, Formulas, Substitution</p> <p>Substitution is...Math Scrabble</p> <p>Scrabble 1,2,3</p> <p>Challenge</p> <p>Substitution Examples</p> <p>Examples 1,2,3,4</p>
1.3 Simplify numerical expressions by applying properties of rational numbers (e.g., identity, inverse, distributive, associative, commutative) and justify the process used.	<p>MAT+ <u>Understanding Fractions</u></p> <p>Topic 10: Multiplying Fractions</p> <p>Word Problems</p> <p>Boris' Money</p> <p>Maria's Trip</p> <p>Topic 14: Dividing Fractions</p> <p>Examples without Diagrams</p> <p>Numerical Examples 1,2</p> <p>Central High School</p>
1.4 Use algebraic terminology (e.g., variable, equation, term, coefficient, inequality, expression, constant) correctly.	<p>MAT+ <u>Understanding Algebra</u></p> <p>Topic 4: Patterns, Formulas, Substitution</p> <p>Expressions, Terms, Variables</p> <p>Definitions</p> <p>Summary</p>
1.5 Represent quantitative relationships graphically and interpret the meaning of a specific part of a graph in the situation represented by the graph.	<p>MAT+ <u>Understanding Graphing</u></p> <p>Topic 2: Statistics</p> <p>In This Topic</p> <p>An Introduction</p> <p>Tally Chart</p> <p>Pictograph #1, #2</p> <p>Bar Graph #1, #2</p> <p>Line Graph #1, #2</p> <p>Data...What is it?</p> <p>Examples of Data</p> <p>Example 1 – Fast Food Earnings</p> <p>Example 2 – Infant's Walk</p> <p>Example 3- Canada and U.S. Forecast</p> <p>Example 4 – King of the Strike Out</p> <p>Example 5 – U.S. Stake in India</p> <p>Example 6 – Allergy Troubles</p> <p>A Summary: Examples</p>

2.0 Students interpret and evaluate expressions involving integer powers and simple roots:

Content Standard	Understanding Math PLUS computer assisted lessons
2.1 Interpret positive whole-number powers as repeated multiplication and negative whole-number powers as repeated division or multiplication by the multiplicative inverse. Simplify and evaluate	<p>MAT+ <u>Understanding Exponents</u></p> <p>Topic 3: The Exponent Rules</p> <p>Multiplication of Powers with the Same Base</p> <p>Expanding the Exponents</p> <p>The Pattern</p>

expressions that include exponents.	<p>In General</p> <p>Division of Powers with the Same Base</p> <p>Expanding the Exponents</p> <p>The Pattern</p> <p>In General</p> <p>A Power with a NEGATIVE Exponent</p> <p>Method 1: Explanation with b</p> <p>Method 2: Explanation with k</p> <p>Method 3: Bacteria Doubling</p> <p>Summary of Exponent Rules</p>
2.2 Multiply and divide monomials; extend the process of taking powers and extracting roots to monomials when the latter results in a monomial with an integer exponent.	<p>MAT+ <u>Understanding Algebra</u></p> <p>Topic 7: Multiplying Expressions</p> <p>Our Problem</p> <p>Recall Tile Concepts</p> <p>Multiplying Monomials</p> <p>Like Terms</p> <p>With Tiles</p> <p>Without Tiles</p> <p>Topic 9: Dividing Expressions</p> <p>Dividing a Monomial by a Monomial</p> <p>Examples 1,2,3,4</p>

3.0 Students graph and interpret linear and some nonlinear functions:

Content Standard	Understanding Math PLUS computer assisted lessons
3.1 Graph functions of the form $y = nx^2$ and $y = nx^3$ and use in solving problems.	
3.2 Plot the values from the volumes of three-dimensional shapes for various values of the edge lengths (e.g., cubes with varying edge lengths or a triangle prism with a fixed height and an equilateral triangle base of varying lengths).	<p>MAT+ <u>Understanding Measurement and Geometry</u></p> <p>Topic 8 : Projective Geometry</p> <p>An Introduction</p> <p>Toothpicks on Isometric Dot Paper</p> <p>Toothpicks to Cube</p> <p>The Views</p> <p>Using Isometric Grid Paper</p> <p>Orthographic Projections: Introduction</p> <p>Given Volume – Build it</p> <p>Examples 1 through 6</p>
3.3 Graph linear functions, noting that the vertical change (change in y - value) per unit of horizontal change (change in x - value) is always the same and know that the ratio ("rise over run") is called the slope of a graph.	<p>MAT+ <u>Understanding Graphing</u></p> <p>Topic 6: Linear Relations</p> <p>In This Topic</p> <p>What is a Linear Relation?</p> <p>Graphs of Linear Relations</p> <p>Concept</p> <p>Examples 1 through 6</p> <p>The Taxi Example – Setup Equation – Graph Equation</p> <p>The Elastic Example – Setup Equation – Graph Equation</p> <p>Lightning Example – Setup Equation – Graph Equation</p> <p>Line of Best Fit</p> <p>Examples 1, 2</p> <p>Practice Questions; Topic Test</p> <p>Topic 7: Slope of a Line</p> <p>In This Topic</p> <p>Introduction to Slope</p> <p>Slope when Driving</p> <p>A Ski Slope</p> <p>Slope of Roof</p>

	Slope: Order, Steepness Factor, Definition Introductory Examples Examples 1,2,3,4 Formula
3.4 Plot the values of quantities whose ratios are always the same (e.g., cost to the number of an item, feet to inches, circumference to diameter of a circle). Fit a line to the plot and understand that the slope of the line equals the quantities.	

4.0 Students solve simple linear equations and inequalities over the rational numbers:

Content Standard	Understanding Math PLUS computer assisted lessons
4.1 Solve two-step linear equations and inequalities in one variable over the rational numbers, interpret the solution or solutions in the context from which they arose, and verify the reasonableness of the results.	MAT+ <u>Understanding Equations</u> Topic 3: Solving Two-step Equations Our Problem Concepts – Examples with Tiles Examples 1 through 4 Concepts – Examples without Tiles Practice Questions; Topic Test Topic 7: Solving Inequalities Inequalities What are They? Inequality vs. Equation Summary of Relationships Inequality on the Number Line Examples 1-4 Solving Inequalities Examples 1-6 MAT+ <u>Understanding Graphing</u> Topic 8: Equation of a Straight Line Graph $y = mx+b$ Examples 1,2,3,4 Patterns to Summary Examples 5,6,7 Slope y-intercept Equation Concept Examples 1,2,3,4
4.2 Solve multistep problems involving rate, average speed, distance, and time or a direct variation.	MAT+ <u>Understanding Equations</u> Topic 5: Word Problems Money Problem with Chart Age Problem with Chart Buying CDs Meat Mixture Coffee Mixture Rate of Work Summary: Problem Solving Using Equations Practice Questions; Topic Test

MEASUREMENT AND GEOMETRY

1.0 Students choose appropriate units of measure and use ratios to convert within and between measurement systems to solve problems:

Content Standard	Understanding Math PLUS computer assisted lessons
1.1 Compare weights, capacities, geometric measures, times, and temperatures within and between	

measurement systems (e.g., miles per hour and feet per second, cubic inches to cubic centimeters).	
1.2 Construct and read drawings and models made to scale.	
1.3 Use measures expressed as rates (e.g., speed, density) and measures expressed as products (e.g., person-days) to solve problems; check the units of the solutions; and use dimensional analysis to check the reasonableness of the answer.	

2.0 Students compute the perimeter, area, and volume of common geometric objects and use the results to find measures of less common objects. They know how perimeter, area, and volume are affected by changes of scale:

Content Standard	Understanding Math PLUS computer assisted lessons
<p>2.1 Use formulas routinely for finding the perimeter and area of basic two-dimensional figures and the surface area and volume of basic three-dimensional figures, including rectangles, parallelograms, trapezoids, squares, triangles, circles, prisms, and cylinders.</p> <p>2.2 Estimate and compute the area of more complex or irregular two- and three-dimensional figures by breaking the figures down into more basic geometric objects.</p> <p>2.3 Compute the length of the perimeter, the surface area of the faces, and the volume of a three-dimensional object built from rectangular solids. Understand that when the lengths of all dimensions are multiplied by a scale factor, the surface area is multiplied by the square of the scale factor and the volume is multiplied by the cube of the scale factor.</p>	<p>MAT+ <u>Understanding Measurement and Geometry</u></p> <p>Topic 2: Perimeter and Area of Polygons</p> <ul style="list-style-type: none"> Walk Around a Polygon <ul style="list-style-type: none"> Joan Walks Perimeter of Various Shapes Perimeter of the Ranch Length of the Metal Strip Find the Perimeter Amount of Surface <ul style="list-style-type: none"> The Driveway – An Introduction to Area Area – Estimation Area of a Rectangle Area of a Parallelogram Area of a triangle Relationship – Area and Perimeter Squares Rectangles Given Area and Perimeter – Create Shapes <ul style="list-style-type: none"> Examples 1, 2, 3, 4 Problems Section <ul style="list-style-type: none"> Length of Fence Area of a Wall The Tablecloth <p>Topic 3: The Circle</p> <ul style="list-style-type: none"> In This Topic Circles All Around Us! Radius, Circumference, Diameter PI...A Special Number <ul style="list-style-type: none"> Introduction How do we Measure Circumference? Measuring Circles Summary Circumference of a Circle <ul style="list-style-type: none"> Circumference Example 1 – Egg Example 2 – The Well Example 3 – The Rolling Coin Example 4 – The Semi-Circle

	<p>Area of a Circle Recall Area Area Exploration #1, #2 Example 1 – Wheel Example 2 – Pizza Example 3 – The Semi-circle Example 4 – The Dog’s Run Example 5 – The Hockey Rink Practice Questions; Topic Test</p> <p>Topic 4: Solids: Volume and Surface Area Surface Area of a Solid The Concept Surface Area of a Pyramid Surface Area of a Cylinder Surface Area of a Sphere Volume of a Solid The Concept Volume of a Prism: Examples 1, 2 Volume of a Cylinder Volume of a Pyramid Volume of a Cone Volume of a Sphere Summary Practice Questions; Topic Test</p>
<p>2.4 Relate the changes in measurement with a change of scale to the units used (e.g., square inches, cubic feet) and to conversions between units (1 square foot = 144 square inches or $[1 \text{ ft}^2] = [144 \text{ in}^2]$, 1 cubic inch is approximately 16.38 cubic centimeters or $[1 \text{ in}^3] = [16.38 \text{ cm}^3]$).</p>	

3.0 Students know the Pythagorean theorem and deepen their understanding of plane and solid geometric shapes by constructing figures that meet given conditions and by identifying attributes of figures:

Content Standard	Understanding Math PLUS computer assisted lessons
<p>3.1 Identify and construct basic elements of geometric figures (e.g., altitudes, mid-points, diagonals, angle bisectors, and perpendicular bisectors; central angles, radii, diameters, and chords of circles) by using a compass and straightedge.</p>	<p>MAT+ <u>Understanding Measurement and Geometry</u> Topic 7: Constructions Before You Begin In This Topic Perpendicular Bisector Circumcircle Centroid Angle Bisector</p>
<p>3.2 Understand and use coordinate graphs to plot simple figures, determine lengths and areas related to them, and determine their image under translations and reflections.</p>	<p>MAT+ <u>Understanding Graphing</u> Topic 4: Transformations Translations – An Introduction Slides #1, #2, #3, #4 Reflections – An Introduction Flips #1, #2, #3 Rotations – An Introduction Turns #1, #2, #3, #4, #5 The Transformation Machine Examples 1, 2, 3, 4, 5 Translations Object to Image We Say, We Write Translation Mapping Rule</p>

	<p>Examples</p> <p>Reflections</p> <p>Object to Image</p> <p>We Say, We Write</p> <p>Reflection Mapping Rule</p> <p>Examples</p>
<p>3.3 Know and understand the Pythagorean theorem and its converse and use it to find the length of the missing side of a right triangle and the lengths of other line segments and, in some situations, empirically verify the Pythagorean theorem by direct measurement.</p>	<p>MAT+ <u>Understanding Exponents</u></p> <p>Topic 6: Pythagorean Theorem</p> <p>In This Topic</p> <p>The Right Triangle</p> <p>Math or Magic?</p> <p>Introduction</p> <p>Omar’s Rope Trick #1, #2</p> <p>Our Rope Trick</p> <p>Squares on a Grid</p> <p>Examples 1-4</p> <p>Squares on the Sides of a Right Triangle</p> <p>Triangles 1,2,3</p>
<p>3.4 Demonstrate an understanding of conditions that indicate two geometrical figures are congruent and what congruence means about the relationships between the sides and angles of the two figures.</p>	
<p>3.5 Construct two-dimensional patterns for three-dimensional models, such as cylinders, prisms, and cones.</p>	<p>MAT+ <u>Understanding Measurement and Geometry</u></p> <p>Topic 8 : Projective Geometry</p> <p>An Introduction</p> <p>Toothpicks on Isometric Dot Paper</p> <p>Toothpicks to Cube</p> <p>The Views</p> <p>Using Isometric Grid Paper</p> <p>Orthographic Projections: Introduction</p> <p>The Cube Tool</p> <p>Introduction</p> <p>Tutorial</p> <p>Play with Tool</p> <p>Given Solid – Build it</p> <p>Examples 1 through 6</p>
<p>3.6 Identify elements of three-dimensional geometric objects (e.g., diagonals of rectangular solids) and describe how two or more objects are related in space (e.g., skew lines, the possible ways three planes might intersect).</p>	

STATISTICS, DATA ANALYSIS, AND PROBABILITY

1.0 Students collect, organize, and represent data sets that have one or more variables and identify relationships among variables within a data set by hand and through the use of an electronic spreadsheet software program:

Content Standard	Understanding Math PLUS computer assisted lessons
<p>1.1 Know various forms of display for data sets, including a stem-and-leaf plot or box-and-whisker plot; use the forms to display a single set of data or to compare two sets of data.</p>	<p>MAT+ <u>Understanding Graphing</u></p> <p>Topic 2: Statistics</p> <p>Presenting Data</p> <p>Stem-and-Leaf Diagram</p> <p>Examples 1 & 2</p> <p>Box and Whisker Plots</p>

	<p>Concepts Examples 1, 2</p>
<p>1.2 Represent two numerical variables on a scatterplot and informally describe how the data points are distributed and any apparent relationship that exists between the two variables (e.g., between time spent on homework and grade level).</p>	<p>MAT+ <u>Understanding Graphing</u> Topic 2: Statistics Scatter Plot Examples 1 & 2</p>
<p>1.3 Understand the meaning of, and be able to compute, the minimum, the lower quartile, the median, the upper quartile, and the maximum of a data set.</p>	<p>MAT+ <u>Understanding Graphing</u> Topic 2: Statistics Measures of Central Tendency Introduction The Mean Average The Median Average The Mode Summary Another Example Adding Data Points</p>

MATHEMATICAL REASONING

1.0 Students make decisions about how to approach problems:

Content Standard	Understanding Math PLUS computer assisted lessons
<p>1.1 Analyze problems by identifying relationships, distinguishing relevant from irrelevant information, identifying missing information, sequencing and prioritizing information, and observing patterns.</p> <p>1.2 Formulate and justify mathematical conjectures based on a general description of the mathematical question or problem posed.</p> <p>1.3 Determine when and how to break a problem into simpler parts.</p>	<p>Understanding Math PLUS...all sections, all programs</p>

2.0 Students use strategies, skills, and concepts in finding solutions:

Content Standard	Understanding Math PLUS computer assisted lessons
<p>2.1 Use estimation to verify the reasonableness of calculated results.</p>	<p>Understanding Math PLUS...all sections, all programs</p>
<p>2.2 Apply strategies and results from simpler problems to more complex problems.</p>	<p>Understanding Math PLUS...all sections, all programs</p>
<p>2.3 Estimate unknown quantities graphically and solve for them by using logical reasoning and arithmetic and algebraic techniques.</p>	<p>Understanding Math PLUS...all sections, all programs</p>
<p>2.4 Make and test conjectures by using both inductive and deductive reasoning.</p>	<p>Understanding Math PLUS...all sections, all programs</p>
<p>2.5 Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning.</p>	<p>MAT+ <u>Understanding Equations</u> Topic 5: Word Problems Words and Symbols</p>

	<p>The Translation Machine Examples 1,2,3,4 The Trick Machine Instructions The Machine Explanation with Picture; with Symbols Area of Walls Chemistry Pools Puzzler – The First Problem Perimeter Problem with Diagram Money Problem with Chart Age Problem with Chart Buying CDs Meat Mixture Coffee Mixture Rate of Work Summary: Problem Solving Using Equations Practice Questions; Topic Test</p>
<p>2.6 Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work.</p>	<p>Understanding Math PLUS...all sections, all programs</p>
<p>2.7 Indicate the relative advantages of exact and approximate solutions to problems and give answers to a specified degree of accuracy.</p>	<p>Understanding Math PLUS...all sections, all programs</p>

3.0 Students determine a solution is complete and move beyond a particular problem by generalizing to other situations:

Content Standard	Understanding Math PLUS computer assisted lessons
<p>3.1 Evaluate the reasonableness of the solution in the context of the original situation.</p>	<p>Understanding Math PLUS...all sections, all programs</p>
<p>3.2 Note the method of deriving the solution and demonstrate a conceptual understanding of the derivation by solving similar problems.</p>	<p>Understanding Math PLUS...all sections, all programs</p>
<p>3.3 Develop generalizations of the results obtained and the strategies used and apply them to new problem situations.</p>	<p>Understanding Math PLUS...all sections, all programs</p>