

CORRELATION
of
the Understanding Numeration PLUS & Understanding Math PLUS programs
with
Math in Context
Grade 8
September 2006

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

TRIANGLES AND PATCHWORK

Patchwork

ACTIVITIES	Understanding Math PLUS Lessons
Building a Triangle	
Sofa Quilt Summary	MAT+ <u>Understanding Graphing</u> Topic 4. Transformations Tessellations Introduction Examples Examples 1, 2, 3, 4, 5

Tessellations

ACTIVITIES	Understanding Math PLUS Lessons
Quilt Sizes	MAT+ <u>Understanding Graphing</u> Topic 4. Transformations Tessellations Introduction Examples Examples 1, 2, 3, 4, 5
More Triangles Summary	MAT+ <u>Understanding Measurement and Geometry</u> Topic 2. Perimeter and Area of Polygons Amount of Surface The Driveway... An Introduction to Area Area – Estimation Area of a Triangle Concept Examples 1, 2 Topic 6. Angles and Polygons Parallel Lines Example with Parallel Lines Examples 1, 2 Topic 8. Projective Geometry Given Solid – Build it Examples 1, 2, 3, 4, 5, 6

Using Multipliers

ACTIVITIES	Understanding Math PLUS Lessons
The Bridge Problem Using Similar Triangles Summary	MAT+ <u>Understanding Measurement and Geometry</u> Topic 6. Angles and Polygons Parallel Lines Example with Parallel Lines Examples 1, 2 Angles in Triangles Exploration An Explanation

When Triangles are Similar

ACTIVITIES	Understanding Math PLUS Lessons
Point to Point	
Television	
Shadows	
Takeoff	
Angles and Parallel Lines	MAT+ <u>Understanding Measurement and Geometry</u> Topic 6. Angles and Polygons Parallel Lines Example with Parallel Lines Examples 1, 2 Angles in Triangles Exploration An Explanation
You Don't Have to Get Your Feet Wet Ironing Summary	MAT+ <u>Understanding Measurement and Geometry</u> Topic 6. Angles and Polygons Exterior Angles – Example Angles in Polygons Methods 1, 2 Exterior Angles in a Polygon Practice Questions Topic Test

Mixed Problems

ACTIVITIES	Understanding Math PLUS Lessons
The Porch	
Early Motion Pictures	
Ice Cream for Everybody!	
Summary	

GOING THE DISTANCE

Equal Distances

ACTIVITIES	Understanding Math PLUS Lessons
Which is Closer?	
Summary	

Finding Your Way

ACTIVITIES	Understanding Math PLUS Lessons
Finding Lunch	
Balloon Rides Finding a Place to Land Summary	MAT+ <u>Understanding Measurement and Geometry</u> Topic 6. Angles and Polygons In This Topic Parallel Lines Example with Parallel Lines Examples 1, 2 Angles in Triangles Exploration An Explanation

Distances: Pythagoras

ACTIVITIES	Understanding Math PLUS Lessons
Valley of the Sun Triangles and Squares Puzzle Proof Back to Arizona Summary	MAT+ <u>Understanding Exponents</u> Topic 6. Pythagorean Theorem In This Topic The Right Triangle Math or Magic? Introduction Omar's Rope Trick #1, #2 Our Rope Trick

	Squares on a Grid Examples 1, 2, 3, 4 Squares on the Sides of a Right Triangle Triangles 1, 2, 3 The Pythagorean Theorem The Pattern In General Theorem Example Questions
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Gliding the Distance

ACTIVITIES	Understanding Math PLUS Lessons
Vultures and Gliders Summary	MAT+ <u>Understanding Percent</u> Topic 4. Ratios and Proportions Writing Ratios Concept Examples 1, 2, 3, 4 MAT+ <u>Understanding Exponents</u> Topic 6. Pythagorean Theorem Example 1... Pole Example Example 2... Tower Example Example 3... Walking Example Example 4... Lake Example Example 5... Geometric Example Practice Questions Topic Test

Slopes and Distances

ACTIVITIES	Understanding Math PLUS Lessons
Uphill Summary	MAT+ <u>Understanding Graphing</u> Topic 7. Slope of a Line Introduction to Slope Slope when Driving A Ski Slope Slope of Roof Slope: Order, Steepness Factor, Definition Introductory Examples Examples 1, 2, 3, 4 Formula

Distances and Areas

ACTIVITIES	Understanding Math PLUS Lessons
A Foggy Day	
The Farmer's Area	MAT+ <u>Understanding Measurement and Geometry</u> Topic 2. Perimeter and Area of Polygons Area of a Triangle Concept Examples 1, 2
Turning and Turning Summary	MAT+ <u>Understanding Measurement and Geometry</u> Topic 2. Perimeter and Area of Polygons Given Area and Perimeter – Create Shape Example 1 Example 2 Example 3 Example 4 Problems Section Length of Fence Area of a Wall The Tablecloth

GRAPHING EQUATIONS

Where there's Smoke

ACTIVITIES	Understanding Math PLUS Lessons
Where's the Fire?	
To What Degree?	
Summary	

Coordinates on a Screen

ACTIVITIES	Understanding Math PLUS Lessons
Monitoring the Fire	
The Coordinate System	MAT+ <u>Understanding Graphing</u> Topic 3. Points on a Grid Ordered Pairs Axis Quadrants and Cartesian Plane

	Find a Point Order is Important Examples
Fire Regions Summary	MAT+ <u>Understanding Graphing</u> Topic 3. Points on a Grid Shapes Battleship Topic Test

Directions as Pairs of Numbers

ACTIVITIES	Understanding Math PLUS Lessons
Directing Firefighters	MAT+ <u>Understanding Graphing</u> Topic 7. Slope of a Line In This Topic Introduction to Slope Slope when Driving A Ski Slope Slope of Roof Slope: Order, Steepness Factor, Definition Introductory Examples Examples 1, 2, 3, 4
Up and Down the Slope Summary	MAT+ <u>Understanding Graphing</u> Topic 7. Slope of a Line Formula Parallel Lines Examples 1, 2, 3 Perpendicular Lines Examples 1, 2, 3 Positive and Negative Slopes Examples 1, 2, 3, 4 Pattern

An Equation of a Line

ACTIVITIES	Understanding Math PLUS Lessons
Stepping on a Line	MAT+ <u>Understanding Graphing</u> Topic 8. Equation of a Straight Line Graph $y = mx + b$

	<p>Examples 1, 2, 3, 4 Patterns to Summary Examples 5, 6, 7</p>
<p>What's the Angle? Summary</p>	<p>MAT+ <u>Understanding Graphing</u> Topic 8. Equation of a Straight Line Slope y - intercept Equation Concept Examples 1, 2, 3, 4</p>

Solving Equations

ACTIVITIES	Understanding Math PLUS Lessons
<p>Jumping to Conclusions</p>	<p>MAT+ <u>Understanding Equations</u> Topic 2. Solving One-Step Equations Concepts – Examples with Tiles Examples 1, 2, 3, 4 Concepts – Examples without Tiles Practice Questions</p> <p>MAT+ <u>Understanding Algebra</u> Topic 5. Adding Expressions Our Problem Adding Expressions with X and Y Tiles Examples 1, 2, 3 Adding Expressions with X-Squared Tiles Examples 1, 2, 3 Adding Expressions without Tiles Examples 1, 2 Practice Questions with Tiles Practice Questions without Tiles</p>
<p>Opposites Attract Summary</p>	<p>MAT+ <u>Understanding Equations</u> Topic 3. Solving Two-Step Equations Our Problem Concepts – Examples with Tiles Examples 1, 2, 3, 4 Concepts – Examples without Tiles Examples 1, 2, 3, 4, 5, 6 Practice Questions Topic Test</p>

Intersecting Lines

ACTIVITIES	Understanding Math PLUS Lessons
Meeting on Line What's the Point? Summary	MAT+ <u>Understanding Graphing</u> Topic 8. Equation of a Straight Line Parallel and Perpendicular Lines Concepts 1, 2 Examples 1, 2, 3, 4

PATTERNS AND FIGURES

Patterns

ACTIVITIES	Understanding Math PLUS Lessons
Number Strips V- and W-Formations Summary	MAT+ <u>Understanding Algebra</u> Topic 3. Patterns, Patterns, Patterns Number Patterns Examples 1, 2, 3, 4, 5, 6 Number and Geometric Patterns Examples 1, 2

Arithmetic Sequences

ACTIVITIES	Understanding Math PLUS Lessons
The Amphitheater Constant Increase/Decrease Summary	MAT+ <u>Understanding Algebra</u> Topic 3. Patterns, Patterns, Patterns Patterns to Formulas Examples 1, 2, 3

Combining Strips

ACTIVITIES	Understanding Math PLUS Lessons
Adding and Subtracting Strips Pyramids Prisms Summary	MAT+ <u>Understanding Algebra</u> Topic 3. Patterns, Patterns, Patterns Patterns to Formulas Examples 1, 2, 3

	Topic 4. Patterns, Formulas, Substitution Patterns to Formulas Example... Hockey Standings Example... Counting Money Example... Angles in a Polygon Substitution is... Math Scrabble Scrabble 1, 2, 3 Challenge Substitution Examples Examples 1, 2, 3, 4 Practice Questions
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Square Numbers

ACTIVITIES	Understanding Math PLUS Lessons
Looking at Squares	MAT+ <u>Understanding Exponents</u> Topic 5. Square Root Squaring Numbers Square Roots
Area Drawings	MAT+ <u>Understanding Measurement and Geometry</u> Topic 2. Perimeter and Area of Polygons Relationship – Area and Perimeter The Information The Graph
Shifted Strips	
Summary	

Tessellating with Triangles

ACTIVITIES	Understanding Math PLUS Lessons
Tessellations and Tiles	
Triangular Patterns Summary	MAT+ <u>Understanding Algebra</u> Topic 4. Patterns, Formulas, Substitution Patterns to Formulas Example... Hockey Standings Example... Counting Money Example... Angles in a Polygon

	Substitution is... Math Scrabble Scrabble 1, 2, 3 Challenge Substitution Examples Examples 1, 2, 3, 4 Practice Questions
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Triangular Numbers

ACTIVITIES	Understanding Math PLUS Lessons
Rectangular Numbers	MAT+ <u>Understanding Algebra</u> Topic 8. Factoring Expressions Our Problem Common Factoring With Tiles Examples 1, 2 – Methods 1, 2 Without Tiles GCF Examples 1, 2 Factoring Trinomials With Tiles - Examples 1, 2 The Pattern Without Tiles – Examples 1, 2, 3, 4
Pipes	
Cans	
Ping-Pong Competition	
Summary	

Choreography

ACTIVITIES	Understanding Math PLUS Lessons
Summary	

GREAT EXPECTATIONS

Uncertainties

ACTIVITIES	Understanding Math PLUS Lessons
Will Dan Jansen Win? How do Television Networks Rate their Programs? How Long do People Wait in Line? Summary	MAT+ <u>Understanding Probability</u> Topic 1. Introduction to Probability Impossible to Certain Activity 1, 2 Probability Lines Line 1, 2 Possible Outcomes...Examples What are they? 1. Coin 2. Picking One Ball 3. Picking Two Balls 4. Eye Test 5. Coin and Die 6. Travel 7. Rabbits 8. Forest

Is this Exceptional?

ACTIVITIES	Understanding Math PLUS Lessons
A Town at Risk	
Summary	

Drawing Conclusions from Samples

ACTIVITIES	Understanding Math PLUS Lessons
Who's Going to the Zoo? Who was in Session? What Kind of Music Do you Like? Summary	MAT+ <u>Understanding Probability</u> Topic 2. What's the Chance? Probability What is it? Introduction 1, 2 Probability Examples 1 through 9

Maybe there is a Connection

ACTIVITIES	Understanding Math PLUS Lessons
Opinion Poll	MAT+ <u>Understanding Probability</u> Topic 1. Introduction to Probability Tree Diagrams Coin & Die Meals Socks Rabbits Forest
Who Wears Glasses? Insect Repellent Ape Shapes Another Look at Glasses Summary	MAT+ <u>Understanding Probability</u> Topic 2. What's the Chance? The Probability Scale Examples Summary Follow Up Soccer Example Experimental Probability Introduction Examples 1,2 Practice Questions

Expectations

Carpooling Advertising Expected Life of a Mayfly Summary	MAT+ <u>Understanding Percent</u> Topic 6. Problems Involving Percent Steps in Solving Problems Finding the Whole Recall Proportion School Population: Method 1... Using Proportions School Population: Method 2 Grades Problem: Method 1... Using Proportions Grades Problem: Method 2 Bike Sale: Method 1... Using Proportions Bike Sale: Method 2 Finding the Percent Theatre Problem Car Problem Percent of a Number
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	Earnings Problem Nickel Ore
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Arrangements

ACTIVITIES	Understanding Math PLUS Lessons
The Story Keys Which Key Fits? Summary	MAT+ <u>Understanding Probability</u> Topic 2. What's the Chance? Experimental Probability Introduction Examples 1,2 Practice Questions

Combining Situations

ACTIVITIES	Understanding Math PLUS Lessons
Free Meal Delayed Luggage Summary	MAT+ <u>Understanding Probability</u> Topic 1. Introduction to Probability Tree Diagrams Coin & Die Meals Socks Rabbits Forest

REFLECTIONS ON NUMBER

Factors and Divisors

ACTIVITIES	Understanding Math PLUS Lessons
Pascal's Triangle Congratulations	MAT+ <u>Understanding Probability</u> Topic 6. Pascal's Triangle Pascal's Neighborhood Tasks 1, 2, 3, 4 Pascal's Triangle... A Beginning Pascal's Triangle... Row One Experimental Theoretical Pascal's Triangle... Row Two

	<p>Experimental Theoretical Pascal's Triangle... Row Three Experimental Theoretical Pascal's Triangle... Row Four Experimental Theoretical Patterns Patterns 1, 2, 3 Pattern Summary</p>
Help Keep the Ocean Clean	<p>MAT+ <u>Understanding Algebra</u> Topic 3. Patterns, Patterns, Patterns Factor Pairs in Arrays Factors of 8, 12, 16, 20, 5, 15, 18 Prime and Composite Prime Numbers Composite Numbers Common Factors/GCF Examples 1, 2</p>
Learning Is Fun, Inc.	<p>MAT+ <u>Understanding Measurement and Geometry</u> Topic 2. Perimeter and Area of Polygons Given Area and Perimeter – Create Shape Example 1 Example 2 Example 3 Example 4 Problems Section Length of Fence Area of a Wall The Tablecloth</p>
Changing Positions	
Summary	

Using Prime Factors

ACTIVITIES	Understanding Math PLUS Lessons
Trees	
Primes What is the Use of Prime Numbers? Summary	MAT+ <u>Understanding Algebra</u> Topic 3. Patterns, Patterns, Patterns Prime and Composite Prime Numbers Composite Numbers Common Factors/GCF Examples 1, 2 Patterns in the Multiplication Table Sieve of Eratosthenes

Investigating Algorithms

ACTIVITIES	Understanding Math PLUS Lessons
Multiplication Lattice Multiplication	MAT+ <u>Understanding Whole Numbers and Integers</u> Topic 3. Multiplying and Dividing Integers Distributive Method Distributive Method - Examples 1, 2, 3 Distributive Method - Questions 1, 2, 3 Lattice Method Lattice Method - Examples 1, 2, 3 Lattice Method - Questions 1, 2, 3 The Standard Method The Standard Method - Examples 1, 2, 3 The Standard Method - Questions 1, 2, 3 Multiply by a Two Digit Multiplier Partial Products (Area) Partial Products - Example 1 - With Blocks Partial Products - Example 2 - With Blocks Partial Products - Example 3 - With Blocks Partial Products - Example 4 - Without Blocks Partial Products - Example 5 - Without Blocks Partial Products - Example 6 - Without Blocks Partial Products - Questions 1, 2, 3 The Distributive Method Distributive Method - Examples 1, 2, 3
Division	MAT+ <u>Understanding Whole Numbers and Integers</u>

From Card to Card Summary	Topic 3. Multiplying and Dividing Integers Divide by a Single Digit Divisor Fair Sharing Fair Sharing - Example 1 - With Blocks Fair Sharing - Example 2 - Without Blocks Fair Sharing - Questions 1, 2, 3, 4, 5, 6
Funny Zero	

Square and Not so Square Numbers

ACTIVITIES	Understanding Math PLUS Lessons
Squares Summary	MAT+ <u>Understanding Exponents</u> Topic 5. Square Roots Squaring Numbers Square Roots Radical Signs

Final Reflections

ACTIVITIES	Understanding Math PLUS Lessons
Addition and Subtraction	MAT+ <u>Understanding Whole Numbers and Integers</u> Topic 4. The Meaning of Integers The Integer Line Opposite Integers Examples 1, 2 Absolute Values Examples 1, 2 Comparing Integers Examples 1, 2, 3, 4 Example Questions Examples 1, 2, 3, 4, 5, 6 Practice Questions Topic Test
Multiplication and Division	MAT+ <u>Understanding Graphing</u> Topic 7. Slope of a Line Positive and Negative Slopes Examples 1, 2, 3, 4 Pattern

	Special Slopes Examples 1, 2, 3, 4 Pattern Sketch Line Given Point and Slope Examples 1, 2, 3, 4 Slopes of Parallel Lines Examples 1, 2, 3 Slopes of Perpendicular Lines Examples 1, 2, 3 Pattern Practice Questions
Powers and Roots	MAT+ <u>Understanding Exponents</u> Topic 5. Square Roots Squaring Numbers Square Roots Radical Signs Example Questions 1. Radicals First 2. The Four Equations 3. Lawn Question 4. Make a Square Practice Questions
Summary	