

CORRELATION
of
the Understanding Numeration PLUS & Understanding Math PLUS programs
with
New York State Math Core Curriculum Standards
Kindergarten
October 2007

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

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

Problem Solving Strand

Students will build new mathematical knowledge through problem solving.

Students will solve problems that arise in mathematics and in other contexts.

Students will apply and adapt a variety of appropriate strategies to solve problems.

Students will monitor and reflect on the process of mathematical problem solving.

Strand	Neufeld Learning Systems Inc. <u>Understanding Numeration PLUS</u> Lessons
K.PS.1 Explore, examine, and make observations about a social problem or mathematical situation	
K.PS.2 Interpret information correctly, identify the problem, and generate possible solutions	PROBLEM SOLVING Skill – Draw a Picture A Trip to School
K.PS.3 Act out or model with manipulatives activities involving mathematical content from literature and/or story telling	
K.PS.4 Formulate problems and solutions from everyday situations (e.g., counting the number of children in the class, using the calendar to teach counting).	
K.PS.5 Use informal counting strategies to find solutions	
K.PS.6 Experience teacher-directed questioning process to understand problems	
K.PS.7 Compare and discuss ideas for solving a problem with teacher and/or students to justify their thinking	
K.PS.8 Use manipulatives (e.g., tiles, blocks) to model the action in problems	
K.PS.9 Use drawings/pictures to model the action in problems	PROBLEM SOLVING Skill – Draw a Picture A Trip to School
K.PS.10 Explain to others how a problem was solved, giving strategies	

Reasoning and Proof Strand

Students will recognize reasoning and proof as fundamental aspects of mathematics.

Students will make and investigate mathematical conjectures.

Students will develop and evaluate mathematical arguments and proofs.

Strand	Neufeld Learning Systems Inc. <u>Understanding Numeration PLUS</u> Lessons
K.RP.1 Understand that mathematical statements can be true or false	
K.RP.2 Investigate the use of knowledgeable guessing as a mathematical tool	<u>COUNTING</u> Skill – Estimating the Number of Objects and Reasonableness
K.RP.3 Explore guesses, using a variety of objects and manipulatives	Level A Estimate the Handful
K.RP.4 Listen to claims other students make	

Communication Strand

Students will organize and consolidate their mathematical thinking through communication.

Students will communicate their mathematical thinking coherently and clearly to peers, teachers, and others.

Students will analyze and evaluate the mathematical thinking and strategies of others.

Students will use the language of mathematics to express mathematical ideas precisely.

Strand	Neufeld Learning Systems Inc. <u>Understanding Numeration PLUS</u> Lessons
K.CM.1 Understand how to organize their thought processes with teacher guidance	<u>COUNTING</u> Skill – Associating Numbers in a Real World Context
K.CM.2 Share mathematical ideas through the manipulation of objects, drawings, pictures, and verbal explanations	Level A The Street Scene: Worksheets #1, #2 The Zoo
K.CM.3 Listen to solutions shared by other students	
K.CM.4 Formulate mathematically relevant questions with teacher guidance	
K.CM.5 Use appropriate mathematical terms, vocabulary, and language	

Connections Strand

Students will recognize and apply mathematics in contexts outside of mathematics.

Strand	Neufeld Learning Systems Inc. <u>Understanding Numeration PLUS</u> Lessons
K.CN.1 Recognize the presence of mathematics in their daily lives	
K.CN.2 Use counting strategies to solve problems in their daily lives	COUNTING Skill – Reading and Printing Numerals Level A Introduction : Counting 1 to 10: worksheet #1, #2 Things in a Square #1 Join up to 10 Dots Building a Number Line Building a Vertical Number Line
K.CN.3 Recognize and apply mathematics to objects and pictures	COUNTING Skill – Associating Numbers in a Real World Context Level A The Street Scene: Worksheets #1, #2 The Zoo

Representation Strand

Students will create and use representations to organize, record, and communicate mathematical ideas.
Students will use representations to model and interpret physical, social, and mathematical phenomena.

Strand	Neufeld Learning Systems Inc. <u>Understanding Numeration PLUS</u> Lessons
K.R.1 Use multiple representations, including verbal language, acting out or modeling a situation, and drawing pictures as representations	
K.R.2 Use standard and nonstandard representations	
K.R.3 Use objects to show and understand physical phenomena (e.g., guess the number of cookies in a package)	
K.R.4 Use objects to show and understand social phenomena (e.g., count and represent sharing cookies between friends)	
K.R.5 Use objects to show and understand mathematical phenomena (e.g., draw pictures to show a story problem, show number value using fingers on your hand)	COUNTING Skill – Reading and Printing Numerals Level A Introduction : Counting 1 to 10: worksheet #1, #2 Things in a Square #1 Join up to 10 Dots Building a Number Line Building a Vertical Number Line

Number Sense and Operations Strand

Students will understand numbers, multiple ways of representing numbers, relationships among numbers, and number systems.
Students will understand meanings of operations and procedures, and how they relate to one another.

Strand	Neufeld Learning Systems Inc. <u>Understanding Numeration PLUS</u> Lessons
K.N.1 Count the items in a collection and know the last counting word tells how many items are in the collection (1 to 10) K.N.2 Count out (produce) a collection of a specified size 1 to 10 K.N.3 Numerically label a data set of 1 to 5	COUNTING Skill – Reading and Printing Numerals Level A Introduction : Counting 1 to 10: worksheet #1, #2 Things in a Square #1 Join up to 10 Dots Building a Number Line Building a Vertical Number Line
K.N.4 Verbally count by 1's to 20	COUNTING Skill – Reading and Printing Numerals Level B Introduction: Counting 1-20
K.N.5 Verbally count backwards from 10	COUNTING Skill – Counting Backwards Level A/B Counting Backwards Counting Up and Down #1, #2
K.N.6 Represent collections with a finger pattern up to 10	COUNTING Skill – Reading and Printing Numerals Level A Introduction : Counting 1 to 10: worksheet #1, #2
K.N.7 Draw pictures or other informal symbols to represent a spoken number up to 10 K.N.8 Draw pictures or other informal symbols to represent how many in a collection up to 10	COUNTING Skill – Reading and Printing Numerals Level A Things in a Square #1 Join up to 10 Dots
K.N.9 Write numbers 1-10 to represent a collection	COUNTING Skill – Associating Numbers in a Real World Context Level A The Street Scene: Worksheets #1, #2 The Zoo

Strand	Neufeld Learning Systems Inc. <u>Understanding Numeration PLUS</u> Lessons
K.N.10 Visually determine how many more or less, and then using the verbal counting sequence, match and count 1-10	<p><u>COMPARING AND ORDERING</u> Skill – Introduce “ Greater Than” & “ Less Than” Level A Greater Than Less Than “Greater Than, Less Than” #1 “Greater Than, Less Than, Equal To”</p>
K.N.11 Use and understand verbal ordinal terms, first to tenth	<p><u>COMPARING AND ORDERING</u> Skill – Use Ordinal Numbers Level A Ordering Ladybugs</p>
K.N.12 Solve and create addition and subtraction verbal word problems (use counting-based strategies, such as counting on and to ten)	<p><u>COUNTING</u> Skill – Count on from a Given Number Level A Show/Cover Up/Count On Cover Up/Over On</p> <p><u>OPERATIONS</u> Skill – Introduce Addition...concretely... “in all” & “together” Level A Addition Using Gumballs #1: Worksheets #1, #2 Addition Using Beans #1: Worksheets #1, #2 Add Number of Sides of Shapes #1: Worksheets #1, #2</p> <p>Skill – Introduce Addition Concretely... “and” Level A Addition Using Gumballs #2: Worksheets #1, #2 Addition Using Beans #2: Worksheets #1, #2 Add Number of Sides of Shapes #2: Worksheets #1, #2</p> <p>Skill –Introduce the Symbolism...# + # = Level A Addition Using Gumballs #3: Worksheets #1, #2 Addition Using Beans #3: Worksheets #1, #2 Add Number of Sides of Shapes #3: Worksheets #1, #2</p> <p>Skill – Introduce the words... “plus” and “equals” Level A Addition Using Gumballs #4: Worksheets #1, #2 Addition Using Beans #4: Worksheets #1, #2 Add Number of Sides of Shapes #4: Worksheets #1, #2</p>

Strand	Neufeld Learning Systems Inc. <u>Understanding Numeration PLUS</u> Lessons
K.N.13 Determine sums and differences by various means	<p><u>OPERATIONS</u> Skill – Introduce Subtraction Concretely... “take away” Level A Introduction to Subtractions #1: Worksheets #1, #2 Introduction to Subtractions #2: Worksheets #1, #2 Introduction to Subtractions #3: Worksheets #1, #2 Introduction to Subtractions #4: Worksheets #1, #2</p> <p>Skill – Introduce Subtraction Symbolism Level A Introduce Vertical Subtraction : Worksheets #1, #2 Subtraction Sentences</p> <p>Skill – Fact Families...Add & Subtract Level A Doubles – Add and Subtract Relate Addition and Subtraction : Worksheets #1, #2 Fact Families</p>

Algebra Strand

Students will recognize, use, and represent algebraically patterns, relations, and functions.

Strand	Neufeld Learning Systems Inc. <u>Understanding Numeration PLUS</u> Lessons
K.A.1 Use a variety of manipulatives to create patterns using attributes of color, size, or shape	<p><u>OPERATIONS</u> Skill – Demonstrate Addition Facts...Patterns Level A Bar Machine : Worksheets #1</p>
K.A.2 Recognize, describe, extend, and create patterns that repeat (e.g., ABABAB or ABAABAAAB)	

Geometry Strand

Students will use visualization and spatial reasoning to analyze characteristics and properties of geometric shapes.

Students will identify and justify geometric relationships, formally and informally.

Students will apply transformations and symmetry to analyze problem solving situations.

Students will apply coordinate geometry to analyze problem solving situations.

Strand	Neufeld Learning Systems Inc. <u>Understanding Numeration PLUS</u> Lessons
K.G.1 Describe characteristics and relationships of geometric objects	COUNTING Skill – Recognize and Count Two-Dimensional Figures Level B Counting 2-D Figures #1
K.G.2 Sort groups of objects by size and size order (increasing and decreasing)	
K.G.3 Explore vertical and horizontal orientation of objects	
K.G.4 Manipulate two- and three-dimensional shapes to explore	COUNTING Skill – Recognize and Count Two-Dimensional Figures Level B Counting 2-D Figures #1 Skill – Recognize and Count Solids Level B Counting Solids #1
K.G.5 Understand and use ideas such as over, under, above, below, on, beside, next to, and between	

Measurement Strand

Students will determine what can be measured and how, using appropriate methods and formulas.

K.M.1 Name, discuss, and compare attributes of length (longer than, shorter than)	
K.M.2 Compare the length of two objects by representing each length with string or a paper strip	
K.M.3 Relate specific times such as morning, noon, afternoon, and evening to activities and absence or presence of daylight	

Statistics and Probability Strand

Students will collect, organize, display, and analyze data

Strand	Neufeld Learning Systems Inc. <u>Understanding Numeration PLUS</u> Lessons
K.S.1 Gather data in response to questions posed by the teacher and students	<u>OPERATIONS</u> Skill – Given Graphs...Perform Operations Level D Operations with Tally Charts: Worksheets #1, #2
K.S.2 Help to make simple pictographs for quantities up to 10, where one picture represents 1	<u>OPERATIONS</u> Skill – Given Graphs...Perform Operations Level D Operations with Pictographs: Worksheets #1, #2
K.S.3 Sort and organize objects by two attributes (e.g., color, size, or shape)	
K.S.4 Represent data using manipulatives	
K.S.5 Identify more, less, and same amounts from pictographs or concrete models	<u>OPERATIONS</u> Skill – Given Graphs...Perform Operations Level D Operations with Pictographs: Worksheets #1, #2