Understanding Math Plus©

Understanding Numeration Plus©

Neufeld Learning Systems

Grade 3 / 4 - 5 Workshop

This is an outline for a three hour workshop. The format of this workshop is very hands-on and teacher orientated. Your session leader will introduce you to many lessons and properties of the Understanding Math Plus© and Understanding Numeration Plus© software. You will have the opportunity to watch and listen, participate in discussions and break into groups to complete both on and off computer activities covering 3 / 4 to 5 content. The objective of this workshop is to have you feel confident and comfortable to integrate this technology within your mathematics curriculum.

Throughout this session we will present material that is appropriate for third to fifth grade. When directed, please navigate the software for the suggested activity at the grade level that is most relevant to your students and/or teaching assignment. We respect your needs as a teacher and realize that you are the key to success in your classroom. This software is an excellent tool to help ALL students. It can be used for remediation, enrichment and intervention for a wide variety of learning environments both within and outside of your classroom.

Please use the following handouts to help guide you through our session and to help you keep notes for future use of the Understanding Math Plus© and Understanding Numeration Plus© software.

Workshop Leaders: Neufeld Learning Consultants

DATE: August 2006

Support Documents
Understanding Math PLUS© and Understanding Numeration PLUS©

1. Neufeld Learning Systems Inc. website: www.neufeldmath.com
2. Neufeld Learning Systems Office and Support
   - 1-866-429-MATH (1-866-429-6284)
   - support@neufeldmath.com email Simon re technical questions on installation/tracking/networking
   - info@neufeldmath.com email Graham re questions/concerns on website/correlations/worksheets
   - rneufeld@neufeldmath.com email Rudy re questions/suggestions on workshops/presentations/math content
3. Worksheets/lesson outlines for Understanding Math PLUS© in PDF format available at www.neufeldmath.com and select worksheets
4. Worksheets/lesson outlines for Understanding Math PLUS© in Microsoft Word (".doc") format available at www.neufeldmath.com/worksheets/worddocs/
5. For convenience, worksheets have been merged together so that they are available now in a single download. You will find the link on our regular worksheets page: www.neufeldmath.com/worksheets/ Note that the file is large so it will take some time to download.
6. Solution sheets for each worksheet are available at www.neufeldmath.com/worksheets/answers.html This is not a direct link from the NLS website as we do not want these solutions to be readily available for our students.
7. Worksheets for Understanding Numeration PLUS© can be printed from within the software. These worksheets are of the same format as the lesson completed.
8. A Word bank is available on www.neufeldmath.com/wordbank/ This includes a list of words needed to input for each lesson within Understanding Math PLUS©.
9. The Understanding Math Series: Integration Into Your Mathematics Curriculum DVD. This DVD provides support for teachers, including topics such as navigation, tracking and model lessons.
10. Lesson Synopsis for Understanding Numeration PLUS© available at www.neufeldmath.com (follow link to products and then to Numeration). This tool helps teachers navigate through the software and obtain short and quick information about the content of the lesson from a teacher's perspective.
11. Tracking and testing, which are built right into the Understanding Math PLUS© and Understanding Numeration PLUS© software. This tracking is for topic tests and cumulative tests.
12. List of topics and subtopics for Understanding Math PLUS© available on website.
13. Correlations for the software with various District/State/Provincial curricula are available at www.neufeldmath.com/correlations/
14. Ordering information is available at our website www.neufeldmath.com/order/
15. We have over 30 representatives across North America. The following Senior Consultants work out of our main office:
    Rudy Neufeld(senior author) rneufeld@neufeldmath.com
    David Watson dwatson@neufeldmath.com
    Heather Summers hsummers@neufeldmath.com
    Cynthia Rutledge c.rutledge@tvdsb.on.ca

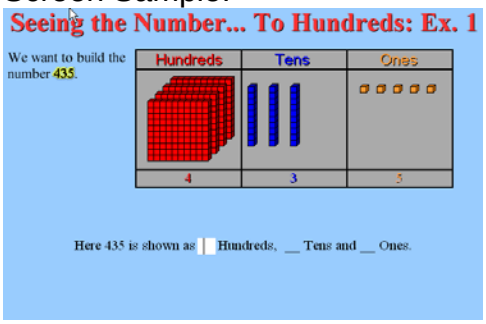
Our workshop will be completed in the following order.
Please make notes for future reference as we work through the series of lessons.
Note: Because of time, please work through the following sections only.

UNDERSTANDING MATH Plus©
Program: Understanding Whole Numbers and Integers

Topic: 1) The Meaning of Whole Numbers
- Seeing the Number to Thousands Ex. 1
- Representing Numbers in Different Ways Ex. 1, 3
- Place Value to 999,999
- Comparing Large Numbers Ex. 3
- Ordering Large Numbers Ex. 1

2) Add and Subtract Whole Numbers
- Add – Trade First Ex. 1
- Whole Numbers Around Us Ex. 5 and 8

Screen Sample:



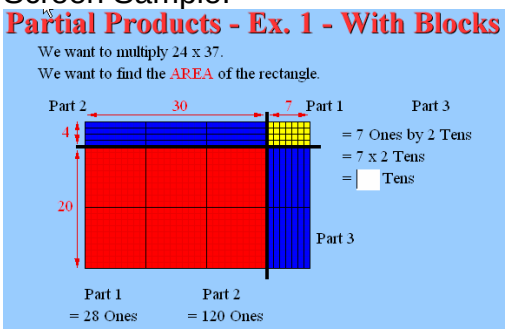
Your Notes:

UNDERSTANDING MATH Plus©
Program: Understanding Whole Numbers and Integers

Topic: 3) Multiply and Divide Whole Numbers
- Multiplication Facts – Groups of
- 10x10 Multiplication Table – User vs. Computer
- X by Single Digit Multiplier – Do Various Methods
- Divide by Single Digit – Fair Share
- Possible Extension .. Multiply by a 2 Digit Multiplier

Note the DVD of Model Lessons .. Broken Calculator
Note Worksheets .. next page .. on www.neufeldmath.com

Screen Sample:



Your Notes:

First two pages of the Understanding Whole Numbers and Integers©, Topic 1 Off Computer Worksheet:

Concept: The Meaning of Whole Numbers
(American and International Version)

Name:

COMPUTER COMPONENT

Instructions: Select the computer program
Understanding Whole Number and Integers (Neufeld)
Follow the instructions to the Main Menu.
Select *The Meaning of Whole Numbers* from the Main Menu.
Work through all sections of this topic **in order**:
- *Seeing the Number*
- *Expanded Notation*
- *Represent Numbers in Many Ways*
- *Place Value to 999, 999*
- *Millions*
- *Billions*
- *Comparing Large Numbers*
- *Ordering Large Numbers*
- *Rounding Large Numbers*

As you work through the computer exercises, make your own notes in your notebook.

When you reach the end of the section *Practice Questions* on the computer, move on to the **OFF COMPUTER EXERCISES** below.

OFF COMPUTER EXERCISES

1) ➔ SEEING THE NUMBER

(a) Draw the number 34 using as many Tens blocks as possible.

Tens	Ones

(b) Draw the number 286 using as many Hundreds blocks as possible and then as many Tens blocks as possible.

Hundreds	Tens	Ones

(c) 245 could be represented as _____ Hundreds, _____ Tens, and _____ Ones.

(d) 6,894 could be represented as _____ Thousands, _____ Hundreds, _____ Tens, and _____ Ones.

2) ➔ EXPANDED NOTATION
Represent the following numbers in Expanded Notation and then add the numbers. The first one is done for you.

(a) 453

$$\begin{array}{r} 3 \\ 50 \\ +\ 400 \\ \hline 453 \end{array}$$

(b) 2,581

(c) 8,637

Sample page of Understanding Whole Numbers and Integers©, Topic 2 and 3 Off Computer Worksheets:

b) Add 633 and 429. Write out the partial sums and complete the addition in the diagram below.

Hundreds→
Tens→
Ones→
+ _____

c) Add 174 and 362. Write out the partial sums and complete the addition in the diagram below.

Hundreds→
Tens→
Ones→
+ _____

= *Add – Trade First*

a) Add 154 and 172. In the chart below, add the numbers and adjust the sums by trading. Cross out and draw blocks to show the regrouped numbers.

Hundreds	Tens	Ones
+		

b) Add 667 and 279. In the chart below, add the numbers and adjust the sums by trading.

Thousands	Hundreds	Tens	Ones
+			

= *Multiply by a Two Digit Multiplier*

(a) Multiply the following numbers using "Partial Products". Add the digits to get the number of Ones. Then add the Ones. The first one is done for you.

(1)

$$\begin{array}{r} 35 \\ \times\ 28 \\ \hline \end{array} \quad = \quad \begin{array}{r} 40 \\ 240 \\ 100 \\ +\ 600 \\ \hline 980 \end{array}$$

(2)

$$\begin{array}{r} 27 \\ \times\ 29 \\ \hline \end{array}$$

(3)

$$\begin{array}{r} 24 \\ \times\ 34 \\ \hline \end{array}$$

(b) Multiply the following numbers using the "Distributive Method". The first one is done for you.

(1) $35 \times 18 = (30 + 5) \times (10 + 8)$

$$= \begin{array}{r} 300 \\ 240 \\ 50 \\ +\ 45 \\ \hline 635 \end{array}$$

UNDERSTANDING MATH Plus©
Program: Understanding Fractions

<u>In this workshop, we suggest that you only work through the first section of each of the following</u>.

Topic: 1) The Meaning of Fractions

- Think, Say, Write
- Parts of a Fraction
- Fraction Strips

3) Equivalent Fractions

- Introduction
- Pattern Blocks
- Number Line
- Multiplication Table
- Memory Game

5) Introduction to Decimals

(work through first example of each subsection of following)

- Introduction To Decimals
- Decimals to Tenths, Hundredths, Thousandths
- Understanding Place Value
- Ordering Decimals

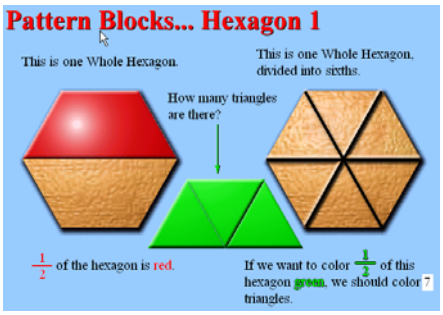
14) Add and Subtract Decimals

- Work through some of the Methods

(work through in sequence.. check first examples of each)

Your Notes:

Screen Samples:



UNDERSTANDING MATH Plus©
Program: Understanding Measurement and Geometry

Topic: 5) Angles and Their Measure

- In This Topic
- Lines and Rays
- Angles – An Introduction

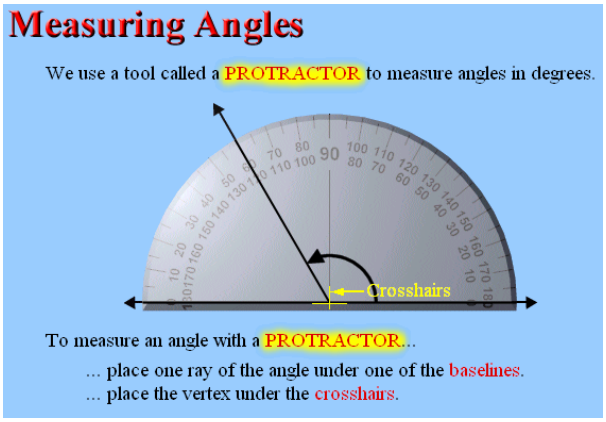
STOP HERE FOR OFF COMPUTER TASK
AFTER OFF COMPUTER EXERCISES ARE DONE, COMPLETE:

- The Degree
- Classifying Angles
- Measuring Angles
- Practice Questions

Off Computer Extension:

Freyer Model Word Definition Activity
Wax Paper Protractors

Screen Sample:



Your Notes:

Understanding Measurement and Geometry
Topic 5 Angles and Their Measure

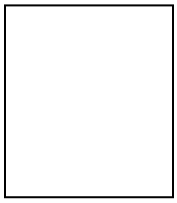
As you go through today's lesson in Understanding Math you will come across some mathematical terms. Write a definition and example beside each word.

Word	Definition *and* an Example
Line	
Ray	
Angle	
Acute Angle	
Straight Angle	
Obtuse Angle	
Right Angle	
Vertex	
Degree	
Protractor	

How do you name an angle?

If it helps, copy the example from the software on your page. Label the four components in the same way.

Freyer Definition



Definition

Characteristics

Examples

Non-Examples

Introduction to Full Circle Protractors

(Adapted from Elementary and Middle School Mathematics:Teaching Developmentally
by John Van De Walle and David Fife, Thames Valley District School Board)

Protractors are a measuring tool that can cause many students difficulty. Two possible reasons for this are the misunderstanding of what an angle is and how to properly use a protractor. In order to introduce students to the proper use and underlying principles of angles and protractors there are a number of possible activities you can do with your students. We are going to focus on the waxed paper protractors as an informal introduction to degrees.

1. Making a Protractor

One of the main underlying reasons why students struggle when using a protractor is that the degree is such a small unit of measure. This makes it difficult to comprehend. It would be impossible to cut out a single degree. A second problem is that there are no visible angles showing just little marks around the outside edge of the protractor. A third problem is that the numbering on most protractors runs both clockwise and counterclockwise. The question always arises, "Which numbers do I use?" A fourth problem is that when angles are greater than 180 degrees students are confused when using a semi circle protractor. This is why circle protractors are much more effective.
In order to help students understand the proper use of a circle protractor they should make a protractor with a large unit angle first. This is very similar to using non-standard units with other measurements such as length. (Ex. Using paper clips, books, cubes, hands, etc.. to measure length)

Activity

a) Give each student a square of waxed paper.
b) Have the students fold the paper in half and crease the fold tightly. (hot dog fold)
c) Fold in half again so that the folded edges match. (hamburger fold)
d) Now that you have a square, fold your waxed paper so that the two edges that surround the centre vertex are folded on top of each other. Your square now becomes an isosceles triangle. (taco fold)
e) Repeat this fold once more by bisecting the triangle. (taco fold)
f) Cut or tear off the resulting wedge shape to make all top edges equal. A slight curve will help to produce a circle.
g) If done correctly, there will be 16 angles, or wedges, within a full circle.

After creating a waxed paper protractor, students can measure angles using the informal unit of measure we will call a wedge. The waxed paper protractor helps introduce students to the concept that when measuring an angle, we are measuring the degree of rotation between two rays.

The only difference between this protractor and a standard one is the size of the unit angle. The standard unit angle is the degree, which is simply a very small angle, or wedge. Introducing the informal unit of a wedge on the waxed paper protractor will help student understand the formal unit called the degree.

After students have some experience with the waxed paper protractor, measuring angles and discussing measurements, have the students return to the Understanding Measurement and Geometry©, Topic 5(Angles and Their Measure to the lesson "The Degree."

Waxed Paper Protractor

My protractor has _____ wedges.

For today, when measuring my units will be _____ .

Walk around the room and measure how many wedges different shapes and objects have. Indicate on the chart below what the object is, draw a picture and indicate the number of wedges. Be creative, can you find objects with less than four wedges? More than four wedges? More than eight wedges?

Object	Picture	Number of Wedges

UNDERSTANDING MATH Plus©
Program: Understanding Measurement and Geometry

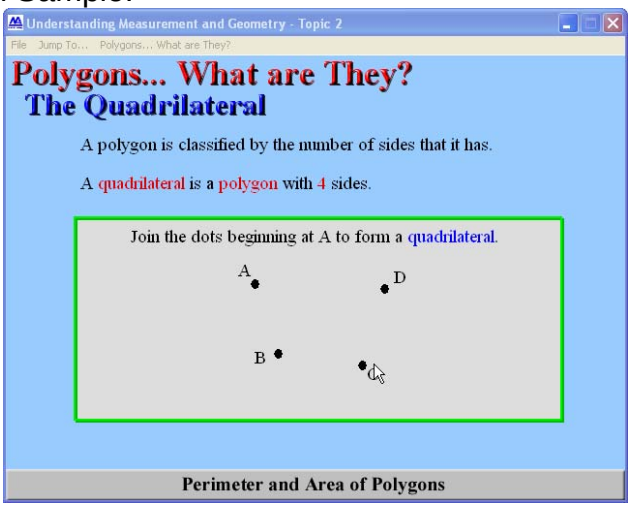
Topic: 2) Perimeter and Area of Polygons

- In This Topic.
- Polygons…What Are They?

Off Computer Extension: Polygon Capture

Note the Wordbank at ... www.neufeldmath.com/wordbank/

Screen Sample:



Your Notes:

Understanding Math

Topic 2 - Polygons

Polygon

Vertex

Triangle

Equilateral

Quadrilateral

Rhombus

Square

Rectangle

Regular

Pentagon

Hexagon

Octagon

Polygon Capture

(adapted from http://illuminations.nctm.org/LessonDetail.aspx?id=L270)

Preparation: Before starting the game, create a black line master of different shapes, with different properties (triangles, hexagons, quadrilaterals, etc.) Photocopy one sheet per partnership and have the students cut out the shapes. Also photocopy one copy of the game cards per partnership (see chart below). Have the students mark the back of the cards with an "A" for angle characteristics and an "S" for side characteristics.

Basic Play:

Have each player take turns. The starting player flips over an "A" card and an "S" card and then they need to find all of the possible shapes that meet that criteria. After they have selected all the shapes they think meet the criteria it is the next person's turn. If player 2 sees other shapes that meet player 1's criteria they may take those shapes from the pile before starting their turn. Player 2 then flips over two cards and takes their turn. Continue this play until all of the shapes are gone. The winner is determined by the person with the most shapes.

All angles are right angles.	At least one angle is obtuse.	No angle is a right angle.	At least one angle is less than 90o.
At least one angle is a right angle.	At least two angles are acute.	All angles have the same measure.	STEAL CARD: Select a pair of properties. Steal all those polygons from your opponent.
No pairs of sides are parallel.	All sides are of equal length.	Only one pair of sides is parallel.	At least one pair of sides is perpendicular.
All pairs of opposite sides are parallel.	It is a quadrilateral.	All pairs of opposite sides have equal length.	WILD CARD: Pick your own side property.

UNDERSTANDING MATH Plus©
Program: Understanding Algebra

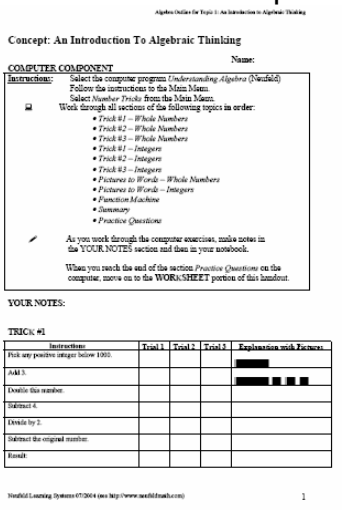
Topic: 1) An Introduction to Algebraic Thinking
- Trick #1
- Function Machine

Off Computer Extension: Hit Your Target

Note the excellent worksheet at www.neufeldmath.com

Your Notes:

Worksheet/Off Computer:



Concept: An Introduction To Algebraic Thinking

Name:

COMPUTER COMPONENT

Instructions:
- Select the computer program *Understanding Algebra* (Neufeld)
- Follow the instructions to the Main Menu
- Select *Number Tricks* from the Main Menu.
- Work through all sections of the following topics in order:
  - *Trick #1 – Whole Numbers*
  - *Trick #2 – Whole Numbers*
  - *Trick #3 – Whole Numbers*
  - *Trick #1 – Integers*
  - *Trick #2 – Integers*
  - *Trick #3 – Integers*
  - *Pictures to Words – Whole Numbers*
  - *Pictures to Words – Integers*
  - *Function Machine*
  - *Summary*
  - *Practice Questions*

As you work through the computer exercises, make notes in the YOUR NOTES section and then in your notebook.

When you reach the end of the section *Practice Questions* on the computer, move on to the WORKSHEET portion of this handout.

YOUR NOTES:

TRICK #1

Instructions	Trial 1	Trial 2	Trial 3	Explanation with Pictures
Pick any positive integer below 1000.				
Add 3.				
Double this number.				
Subtract 4.				
Divide by 2.				
Subtract the original number.				
Result:				

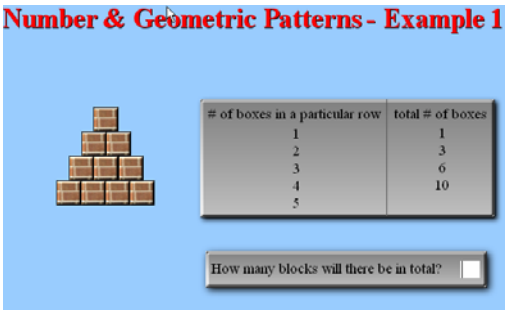
UNDERSTANDING MATH Plus©
Program: Understanding Algebra

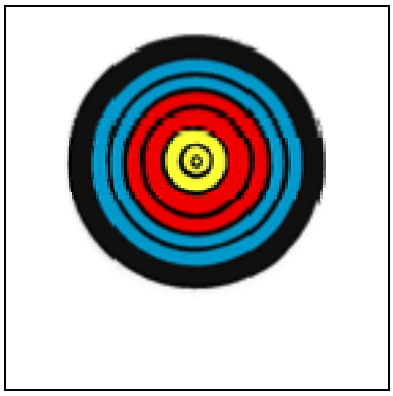
Do 1 of each of the following

Topic: 3) Patterns, Patterns, Patterns
- Geometric Patterns
- Number Patterns (try a few here)
- Number and Geometric Patterns (try a few here)

Your Notes:

Screen Sample:





Hit Your Target!

Your task is to become a Mathamagician! You are going to create an Algebra Trick that will wow your classmates and amaze your friends. Your goal is to create a trick that has *at least* 5 steps and uses all four operations and will always result in the number 25!

Steps for Success:

1. Think about the operations that work together to increase numbers or decrease numbers.

2. Think about the operations that are opposite to each other.

3. Will you start from the beginning or work backwards?

4. What range will you let your classmates pick a number from to start the trick?

5. Model how your number trick will always work by using pictures and words to explain your thinking.

6. Present your number trick in a visually pleasing and mathematically appropriate presentation.

7. Have fun and be creative!

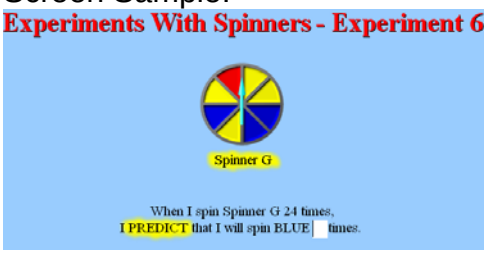
UNDERSTANDING MATH Plus©
Program: Understanding Probability

In the workshop, do the beginning of each section

Topic: 1) Introduction to Probability

- The Language of Chance
- Impossible to Certain
- Probability Lines
- Experiments with Spinners
- Spinner Game

Screen Sample:



Your Notes:

UNDERSTANDING MATH Plus©
Program: Understanding Graphing

Topic: 4) Transformations

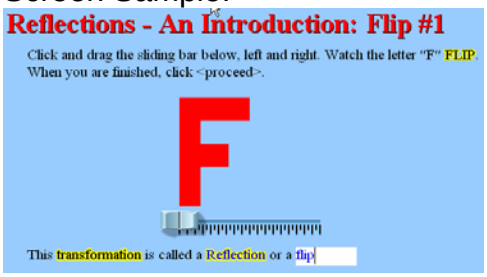
- Introduction to Common Transformations
- Translations – Introduction
- Reflections – Introduction
- Rotations – Introduction

Topic: 2) Statistics

- An Introduction .. Tally, Pictograph, Bar Graph, Line Graph

In this workshop, we suggest that you do 1 of each of the above sections.

Screen Sample:



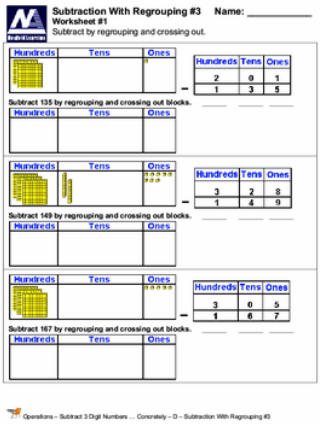
Your Notes:

The following are some of the lessons that may be necessary for some of your students that lack the foundations for the grade appropriate expectations. These lessons could help to develop the necessary skills.

UNDERSTANDING NUMERATION Plus©
Concept: Operations (remediation/intervention)
Skill: 23) Subtract Three Digit Numbers Concretely
Level: D
Lesson: 4) Subtract with Regrouping #3

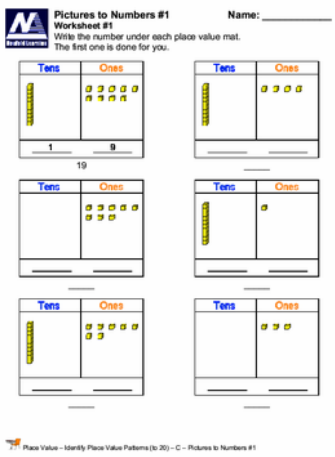
Note use of color and annimation in this section.

Worksheet/Off Computer:



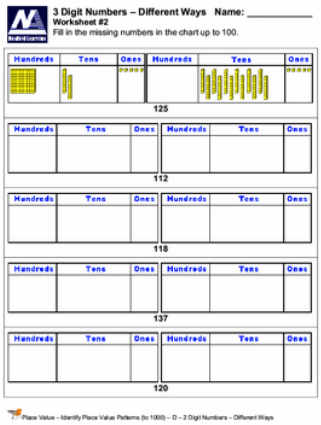
UNDERSTANDING NUMERATION Plus©
Concept: Place Value (remediation/intervention)
Skill: 3) Identify Place Value Patterns to 20
Level: C
Lesson: 1) Pictures to Numbers #1
2) Tens and Ones to Pictures #1
3) Numbers to Pictures #1

Worksheet/Off Computer:



UNDERSTANDING NUMERATION Plus©
Concept: Place Value (remediation/intervention)
Skill: 4) Identify Place Value Patterns to 100
Level: C
Lesson: 4) 2 Digit Numbers – Different Ways

Worksheet/Off Computer:

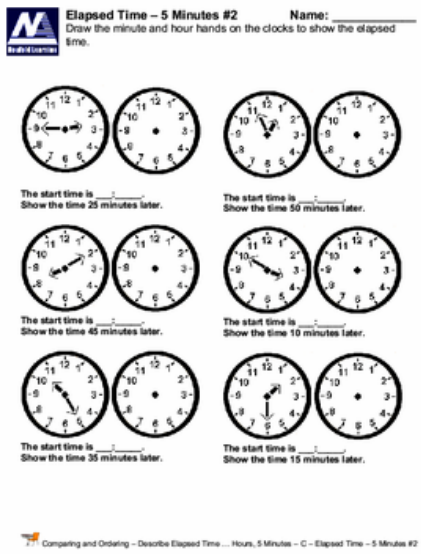


UNDERSTANDING NUMERATION Plus©
Concept: Comparing and Ordering
Skill: 10) Describe Elapsed Time…Hours, 5 Minutes
Level: D
Lesson: 1) Elapsed Time – 5 Minutes #1

Skill: 11) Describe Elapsed Time…Minutes
Level: D
Lesson: 1) Elapsed Time – Minutes #1

Skill: 12) Describe Back in Time…Hours, 5 Minutes
Level: D
Lesson: 2) Back in Time – 5 Minutes #2

Worksheet/Off Computer:


Elapsed Time – 5 Minutes #2 Name: _____
Draw the minute and hour hands on the clocks to show the elapsed time.
The start time is ___:___.
Show the time 25 minutes later.
The start time is ___:___.
Show the time 50 minutes later.
The start time is ___:___.
Show the time 45 minutes later.
The start time is ___:___.
Show the time 10 minutes later.
The start time is ___:___.
Show the time 35 minutes later.
The start time is ___:___.
Show the time 15 minutes later.
Comparing and Ordering – Describe Elapsed Time … Hours, 5 Minutes – C – Elapsed Time – 5 Minutes #2

Your Notes:

UNDERSTANDING NUMERATION Plus©
Concept: Problem Solving

Skill: Draw a Picture
Lesson: 1) Eating Apples

Skill: Problems
Lesson: 2) Brick Paths

Worksheet/Off Computer:


Eating Apples Name : _____
Eating Apples: In the morning, Julie is given 4 apples.
At noon, she eats 2 apples.
In the afternoon she gets 3 more apples.
Before bedtime, Julie eats 1 apple.
How many apples does Julie have left at the end of the day?
Draw a Picture
Conclusion:
Problem Solving – Eating Apples

Your Notes:

Brick Path

Name : _____

Brick Path: Brian makes a design in a brick path.
He places the bricks as shown (1 in row one, 2 in row two, etc.):

How many bricks does Brian need to make an 8 row design?

Draw a Picture

Design Box

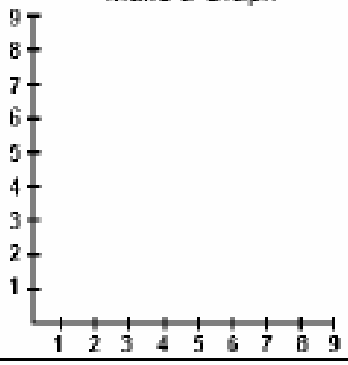
Guess and Check

Make a Number Sentence

Make a Table

Row	Bricks

Make a Graph



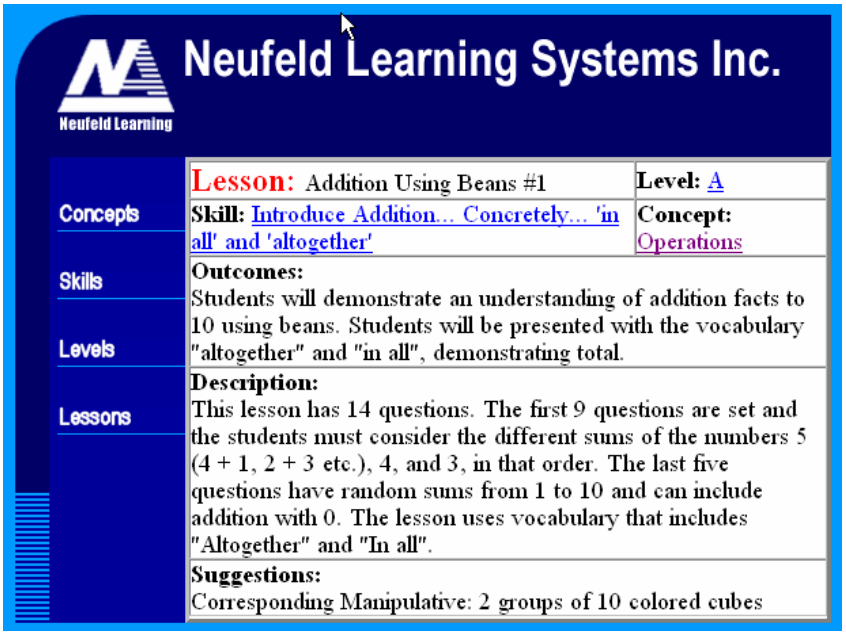
Find a Pattern

Conclusion:

Lesson Synopsis

A lesson synopsis is available at the following link on the Neufeld Learning Systems website: http://www.neufeldmath.com/numeration/index.html The lesson synopsis was written for the Understanding Numeration Plus© software.

Following are a few samples from the lesson synopsis. Each synopsis include outcomes, written from a teacher's perspective, descriptions, written from the programmer's perspective and some include additional suggestions. These two synopses show the difference between Addition Using Beans #1 and Addition Using Beans #2 (the use of the word "and" is included in the second lesson).

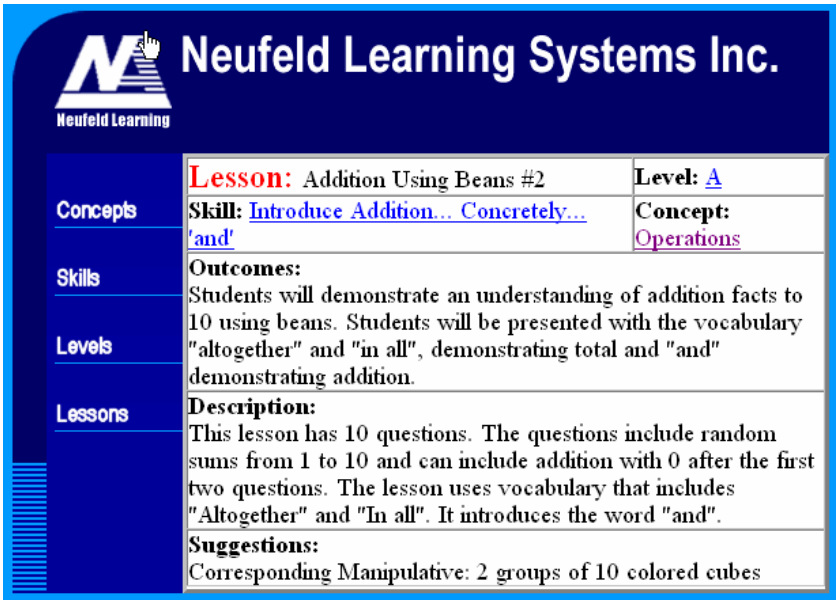


Neufeld Learning Systems Inc.

Neufeld Learning

Concepts
Skills
Levels
Lessons

Lesson: Addition Using Beans #1	Level: A
Skill: Introduce Addition... Concretely... 'in all' and 'altogether'	Concept: Operations
Outcomes: Students will demonstrate an understanding of addition facts to 10 using beans. Students will be presented with the vocabulary "altogether" and "in all", demonstrating total.	
Description: This lesson has 14 questions. The first 9 questions are set and the students must consider the different sums of the numbers 5 (4 + 1, 2 + 3 etc.), 4, and 3, in that order. The last five questions have random sums from 1 to 10 and can include addition with 0. The lesson uses vocabulary that includes "Altogether" and "In all".	
Suggestions: Corresponding Manipulative: 2 groups of 10 colored cubes	



Neufeld Learning Systems Inc.

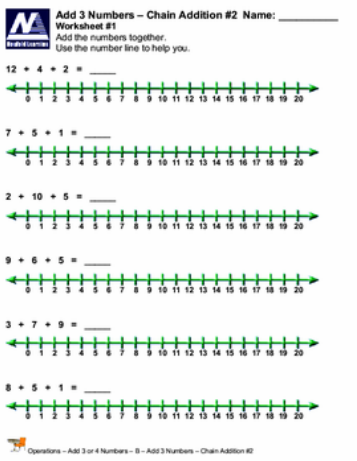
Neufeld Learning

Concepts
Skills
Levels
Lessons

Lesson: Addition Using Beans #2	Level: A
Skill: Introduce Addition... Concretely... 'and'	Concept: Operations
Outcomes: Students will demonstrate an understanding of addition facts to 10 using beans. Students will be presented with the vocabulary "altogether" and "in all", demonstrating total and "and" demonstrating addition.	
Description: This lesson has 10 questions. The questions include random sums from 1 to 10 and can include addition with 0 after the first two questions. The lesson uses vocabulary that includes "Altogether" and "In all". It introduces the word "and".	
Suggestions: Corresponding Manipulative: 2 groups of 10 colored cubes	

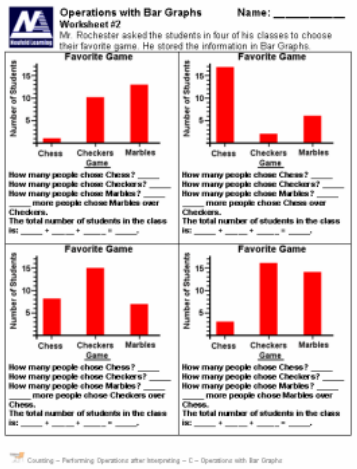
UNDERSTANDING NUMERATION Plus©
Concept: Operations (remediation/intervention)
Skill: 12) Add 3 or 4 Numbers
Level: B and C
Lesson: 1) Add 3 Numbers Vertically #2 (B)
2) Add 3 Numbers Horizontally #2 (B)
3) Add 3 Numbers Chain Addition #2 (B)
4) Magic Squares (C)

Worksheet/Off Computer:



UNDERSTANDING NUMERATION Plus©
Concept: Operations (remediation/intervention)
Skill: 39) Given Graph Perform Operation
Level: C
Lesson: 1) Operations with Tally Charts
2) Operations with Pictograph
3) Operations with Bar Graph

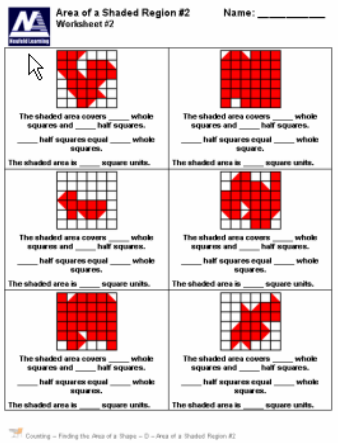
Worksheet/Off Computer:



UNDERSTANDING NUMERATION Plus©
Concept: Operations (remediation/intervention)
Skill: 41) Find the Area of a Shape
Level: D
Lesson: 1) Area of a Shaded Region #1
2) Area of a Shaded Region #2

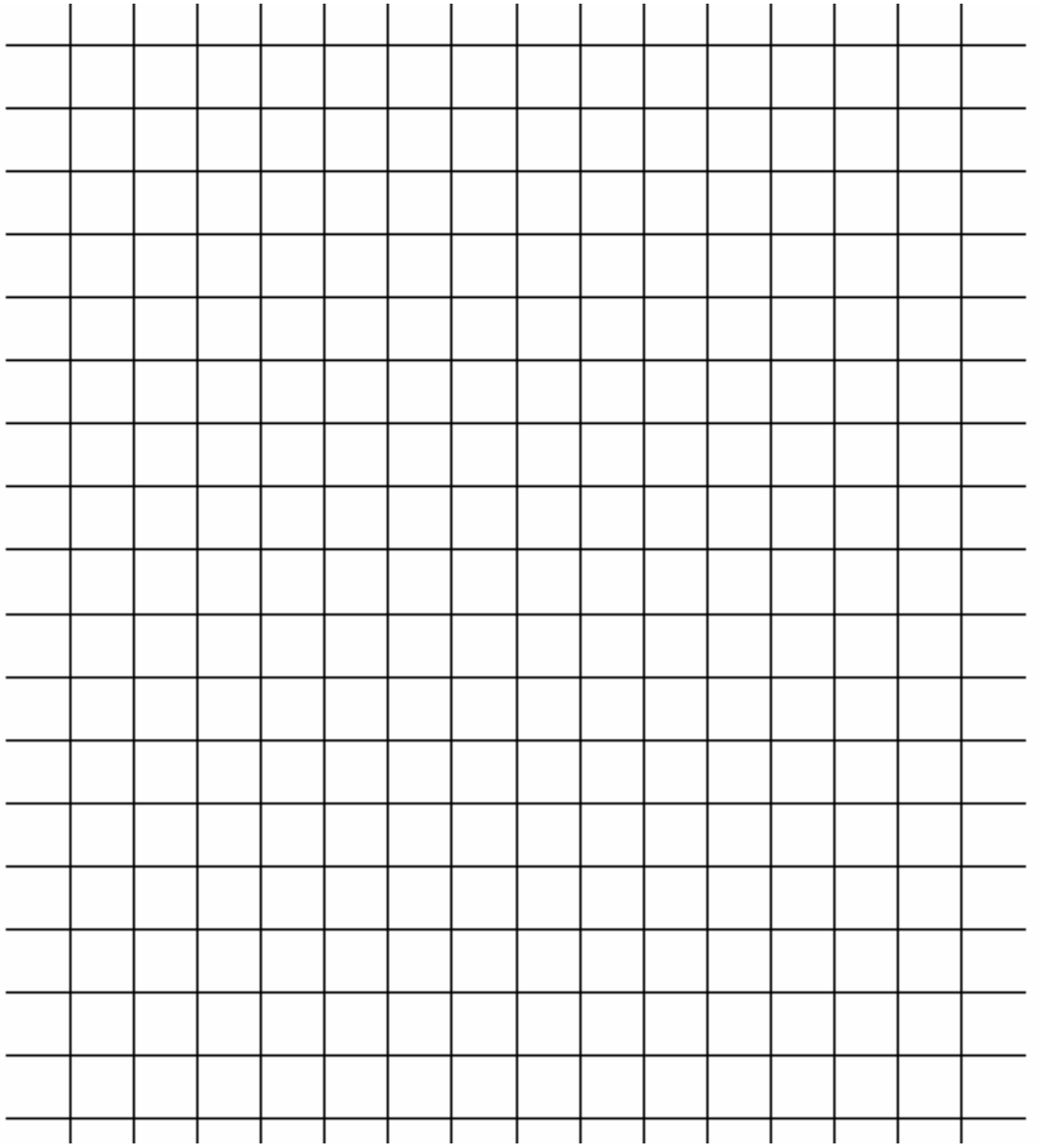
Off Computer Extension: Wacky Areas

Worksheet/Off Computer:



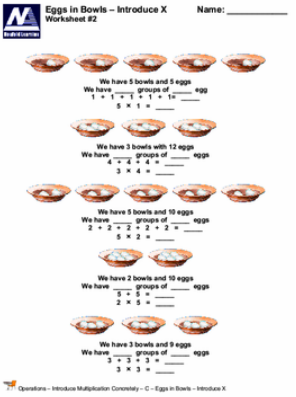
Wacky Areas!

Your job is to create as many different shapes as you can with an area of _____ square units. Remember, be creative and think “outside the box!” Please label each area and color them in. On a separate sheet of paper, record and prove that the areas are equal. You may use pictures, words or numbers to justify your answers.



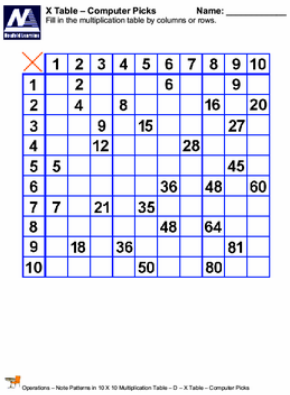
UNDERSTANDING NUMERATION Plus©
Concept: Operations (remediation/intervention)
Skill: 25) Introduce Multiplication Concretely
Level: C
Lesson: 3) Eggs in Bowls – Introduce "X"

Worksheet/Off Computer:


Eggs in Bowls – Introduce X
Worksheet #2
Name: _____

UNDERSTANDING NUMERATION Plus©
Concept: Operations (remediation/intervention)
Skill: 33) Note Patterns in Multiplication Table
Level: D
Lesson: "X" Table – Computer Picks

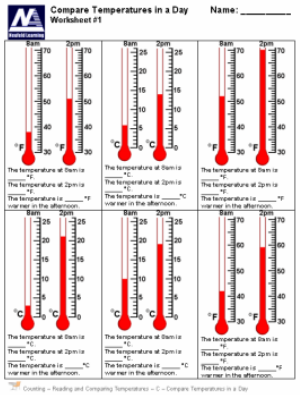
Worksheet/Off Computer:


X Table – Computer Picks
Name: _____
Fill in the multiplication table by columns or rows.

×	1	2	3	4	5	6	7	8	9	10
1		2				6			9	
2		4		8				16		20
3			9		15				27	
4			12				28			
5	5								45	
6						36		48		60
7	7		21		35					
8						48		64		
9		18		36					81	
10					50			80		

UNDERSTANDING NUMERATION Plus©
Concept: Comparing and Ordering (remediation/intervention)
Skill: 15) Reading and Comparing Temperature
Level: C
Lesson: 2) Compare Temperatures in a Day

Worksheet/Off Computer:


Compare Temperatures in a Day
Worksheet #1
Name: _____

Tracking Utility for
Understanding Math PLUS© and Understanding Numeration PLUS©

Steps to successfully track student progress:

1. Have students enter a topic test in any of the Understanding Math Series programs. They will be asked to login to the tracking system by entering in their username (it is recommended to use first and last name only) and a password (it is recommended for you to record their passwords as they are not trackable).

2. After all of your students have logged into the tracking system you are ready to create a class list. Go to the Understanding Math© folder on your desktop, open the U Math Utilities folder, then select Progress Tracking and Management Utility

3. You need to register as a user for the first time. When asked if you have logged in before, select NO, if this is your first time. Enter in a name and a password. Hit enter after each entry.

4. Now you are in the tracking utility. You need to create a class. Select Manage from the top tool bar. Then select Create a Class. At this time you should see a list of students' names. Select the ADD buttons beside each student name you would like to add to your class. Then set a class name by typing in the name and hitting enter. Next, click the SAVE button and your class data will be saved under your name.

5. Now to view your class list and test scores, select CLASSES from the top menu. On this screen press SELECT CLASS and you should see the name of the class you just created. Double-click this class and your student names will appear.

6. To preview data, anything that highlights in red when the cursor is moved over it can be selected. This will allow you to see student information right down to the expectations they can and cannot meet.

Your Notes:

For further information, please refer to the booklet that is provided with the software when purchased or the DVD "The Understanding Math Series: Integration Into Your Mathematics Curriculum"

Links News from Across the Valley

January 2006

New Software Engages Math Students Across the Valley

In an effort to expose students to an innovative new way of learning math, Thames Valley has purchased new computer software that helps primary, junior, and intermediate students grasp mathematical concepts in a unique way.

Understanding Math has been purchased for every elementary school in the system, in addition to three secondary schools that have a high population of at-risk learners.

"What we really like about *Understanding Math* is that the focus is not on drill and practice – the focus is on understanding mathematics on a conceptual level to the point where students can learn and apply the skills," said Cheryl McQueen, Learning Coordinator, Mathematics, Grade 7-12. "The feedback we have received has been phenomenal."

But McQueen noted that the new technological tool is not meant to take the place of traditional teaching methods.

"This software is one tool that we add in with our other activities," she said. "It's another piece to enhance the classroom experience."

The software is flexible enough so that teachers can use it in three different modes. It can be used with the whole class working together in conjunction with downloadable worksheets; it can be used as an activity centre with other areas; and it can be used as a teacher-directed tool with the images projected on a screen while the students are guided through a lesson.

"We have suggested to teachers that they use a combination of traditional approaches and the new software," McQueen said.

Students have embraced the new software partly because it is a different way of learning math in terms of the visuals and interactive nature of the exercises.

"We hope that it's another way of hooking our students into wanting to learn by creating some excitement about solving mathematical problems. It was purchased to appeal to a wider range of learners so all students can be successful," said McQueen. "We are very pleased with the software and support we have received, and it seems to be working very nicely all around."

Thames Valley School District in Ontario purchased unlimited site licenses for 180 elementary schools, special schools and some high school.

SPRING ISD

Reaching For The Stars

October 12, 2005

Neufeld Learning Systems Inc.
7 Conifer Crescent
London, Ontario
N6K 2V3
Canada

ATTENTION: Mr. Mike Pankratz & Mr. Rudy Neufeld

RE: **Understanding Mathematics Software**

Dear Mike and Rudy:
I'm writing to thank you, yet again, for your *Understanding Mathematics Software*. As I'm sure you will recall, I first began using your software six years ago when, as a math/science specialist for Spring Branch ISD in Houston, Texas, the schools I serviced were faced with multiple concerns. We were, in fact, overwhelmed. Texas had just implemented their new math standards; our district had become very "diverse" in a short period of time, and we found ourselves needing tools, strategies, and resources that would help us reach a student population of struggling math students who were classified as "at-risk", economically disadvantaged, second-language learners, and deficient in reading and math. Many of these students had never been successful in school; some had never attended school in their country of origin.

We purchased your software and implemented it into a "computer-assisted" middle school math program. (I even used your Algebra, Equations, and Graphing units with struggling Algebra 1 students.) I was amazed at how well the students responded to the presentations and how well they performed on our TAKS math test, Texas' standards'-based testing instrument.

Your presentations were concept-based; students able to learn along the continuum from the concrete modeling stage, to the conceptual development stage, and finally into the abstract realm. This natural process made math easy to grasp. Even my most fundamentally challenged students thrived. The graphics and activities were interactive, fun, and sequenced so students could build on prior knowledge. Students remained engaged and on-task because your product challenged them in an interesting, "kid-friendly" manner. Feedback was immediate and managed in such a way that each student could embrace his/her errors as just another "learning opportunity".

I must also mention that your interactive graphics, in color, were a great asset to my ESL students who were first-year English language learners. *Understanding Mathematics* software gave these students the opportunity to learn at their own pace, to study the graphics as they acquired the English

vocabulary necessary to achieve in mathematics, and to repeat or review certain topics or sections without feeling inferior to other students.

At the end of that first year, using your software, my formerly “lowest performing” campus had a TAKS passing rate equal to the “highest performing campus” in the district. I truly attribute their success to your materials, the software and the on-line activity pages that students were able to download.

I continued to use your materials until leaving Spring Branch ISD last August to accept a position as Secondary Math Director for Spring ISD. Here again, when faced with similar issues that resulted from needing to serve an economically disadvantaged student population, that is ethnically diverse and historically labeled as “at-risk”, I, once again, encouraged my teachers to review your software for purchase and immediate implementation. Presently, 60% of my middle school campuses are using your resources and they are “ON-FIRE”! I have teachers and students who sing your praises daily and are so very grateful to your company. (One school, in particular, demonstrated a 26% increase in middle school math TAKS scores when compared to the previous year.)

I would also be remiss if I did not mention to you that I frequently use your software program as a tool when staff developing teachers. As the program unfolds on the “smart-board” or overhead projector, teachers are able to grasp the process of concept-based teaching. As I proceed from frame to frame, your program serves to model the natural progression of inquiry-based learning. Teachers gain incite and pedagogy from this software.

I have had access, have previewed, and have worked with many, many math teaching/learning software packages. Your software is, by far, superior to all that I have ever used. I would recommend this product to all teachers, across the continent who want the best for their math students, who want to reach even the most math-phobic child on campus, and who believe that all children can learn mathematics.

I thank you.

Sincerely,

Dr. Lorraine R. Maneen,
Director – Secondary Mathematics
Spring ISD

Understanding Math Plus©
Understanding Numeration Plus©

Neufeld Learning Systems

3 / 4 – 5 Workshop
Summary Sheet

Name:
School:
Assignment:

List three things that you learned today during the session.

1.

2.

3.

Outline one lesson that you are excited to go back and use with your class (could be small groups, one-on-one, teacher led lesson, lab etc.) Please be specific and possibly include an off computer link you would do with your students.

Do you have any further questions or concerns you would like to have addressed?

☐ Check this box if you would like us to contact you.