

Correlation of the Understanding Numeration 2008© With the Ohio's Academic Content Standards for Mathematics Kindergarten

The programs are designed for use in a variety of teaching and learning environments ranging from a teacher-centered approach with one computer to a student-centered lab approach. The lessons may also be used in remediation, tutorials, intervention, resource, and fast-tracking.

Organization of the Understanding Numeration 2008© Program

The Understanding Numeration 2008© program consists of the following five concepts:

Counting Operations Place Value Comparing and Ordering Problem Solving

Each concept in the program covers several skills. Every skill has up to four different levels of difficulty with corresponding lessons for each level. The lessons are sequenced to build an understanding of concepts. Each concept also has the following:

- 1) an interactive concept introduction, usually with a variety of graphic approaches;
- 2) a number of particular examples;
- 3) a skill test with random questions and tracking;
- 4) worksheets with visual demonstrations on how to complete each worksheet;
- 5) teaching strategies including Math Circles Overview, Flight Plan Overview, Flight Plan Roles, and Flight Plan
- 6) Navigation Sheet are found on our website (www.neufeldmath.com).

Teachers may also search for specific topics using our search engine at <http://www.corr.neufeldmath.com>.

The Academic Content Standards have been correlated to the Understanding Numeration 2008©. The location of each standard is listed below:

Number, Number Sense and Operations Standard	
Number and Number Systems	(pages 3 - 5)
Meaning of Operations	(pages 5 - 7)
Computation and Estimation	(pages 7 - 7)
Measurement Standard	
Measurement Units	(pages 7 - 7)
Use Measurement Techniques and Tools	(pages 7 - 8)
Geometry and Spatial Sense Standard	
Characteristics and Properties	(pages 8 - 9)
Spatial Relationships	(pages 9 - 9)
Patterns, Functions and Algebra Standard	
Use Patterns, Relations and Functions	(pages 9 - 10)
Use Algebraic Representations	(pages 10 - 10)
Data Analysis and Probability Standard	
Data Collection	(pages 10 - 11)
Statistical Methods	(pages 11 - 11)

Standards that are ***not included*** in the current Understanding Numeration 2008© programs are noted as *not yet correlated*.

For lesson planning purposes, there is space in the chart for notes, material lists, links, resources etc.



**Ohio's Academic Content Standards for Mathematics
Correlated to Understanding Numeration 2008 ©
Kindergarten**

Kindergarten... Number, Number Sense and Operations Standard

Number and Number Systems

1. Compare and order whole numbers up to 10.

Understanding Numeration: Comparing & Ordering

Notes

Skill 1: Locate Numbers on a number line

- Level A
- 1) Find One Missing Number
 - 2) Find two Missing Numbers
- Do Skill Test - 5 questions (randomly generated)

Skill 3: Introduce... "Greater Than"; "Less Than"

- Level A
- 1) Greater Than
 - 2) Less Than
 - 3) Greater Than, Less Than #1
 - 4) Greater Than, Less Than, Equal To
- Do Skill Test - 10 questions (randomly generated)

Skill 4: Working with Whole Numbers $>$, $<$, $=$

- Level A
- 1) $>$ and $<$ on a number line #1
 - 3) Make It True #1
 - 4) Ordering... Horizontal #1
 - 5) Ordering... Vertical #1

2. Explain rules of counting, such as each object should be counted once and that order does not change the number.

Understanding Numeration: Counting

Notes

Skill 2: Associating Numbers in a Real World Context

- Level A
- 1) The Street Scene
 - 2) The Zoo
- Do Skill Test - 5 questions (randomly generated)

Skill 3: 1 to 1 Correspondence of #s to Objects

- Level A
- 1) Keep Track by Marking
- Do Skill Test - 5 questions (randomly generated)



3. Count to twenty; e.g., in play situations or while reading number books.

Understanding Numeration: Counting

Skill 1: Reading and Printing Numerals

- Level A 1) Introduction - Counting 1 to 10
- 2) Joining up to 10 Dots
- 3) Things in a Square #1
- Level B 1) Counting 1-20
- 2) Joining up to 20 Dots
- 3) Things in a Square #2
- Do Skill Test - 10 questions (randomly generated)

Notes

4. Determine "how many" in sets (groups) of 10 or fewer objects.

Understanding Numeration: Counting

Skill 1: Reading and Printing Numerals

- Level A 3) Things in a Square #1

Skill 2: Associating Numbers in a Real World Context

- Level A 1)The Street Scene
- 2)The Zoo
- Do Skill Test - 5 questions (randomly generated)

Notes

5. Relate, read and write numerals for single-digit numbers (0 to 9).

Understanding Numeration: Counting

Skill 1: Reading and Printing Numerals

- Level A 1) Introduction - Counting 1 to 10
- 2) Joining up to 10 Dots
- 3) Things in a Square #1

Skill 2: Associating Numbers in a Real World Context

- Level A 1)The Street Scene
- 2)The Zoo
- Do Skill Test - 5 questions (randomly generated)

Skill 3: 1 to 1 Correspondence of #s to Objects

- Level A 1) Keep Track by Marking
- Do Skill Test - 5 questions (randomly generated)

Notes

6. Construct multiple sets of objects each containing the same number of objects.

Understanding Numeration: Operations

Skill 25: Introduce Multiplication Concretely

- Level C 1) Grouping Eggs in Bowls
- 2) Grouping Chairs in Rows

Notes



7. Compare the number of objects in two or more sets when one set has one or two more, or one or two fewer objects.	
Not yet correlated at this level	
8. Represent and use whole numbers in flexible ways, including relating, composing and decomposing numbers; e.g., 5 marbles can be 2 red and 3 green or 1 red and 4 green.	
<p>Understanding Numeration: Operations</p> <p>Skill 5: Demonstrate Addition Facts... Making 5 Level A 1) Ways to Make 5</p> <p>Skill 6: Demonstrate Addition Facts... Making 6 Level A 1) Ways to Make 6</p> <p>Skill 7: Demonstrate Addition Facts... Making 7 Level A 1) Ways to Make 7</p>	Notes
9. Identify and state the value of a penny, nickel and dime.	
<p>Understanding Numeration: Counting</p> <p>Skill 7: Counting Using Money Level B 1) Pennies, Nickels, Dimes (USA/Canadian)</p>	Notes
Meaning of Operations	
10. Model and represent addition as combining sets and counting on, and subtraction as take-away and comparison. For example: a. Combine and separate small sets of objects in contextual situations; e.g., add or subtract one, two, or another small amount.	
<p>Understanding Numeration: Operations</p> <p>Skill 1: Introduce Addition... Concretely... "in all" and "altogether" Level A 1) Addition Using Gumballs #1 2) Addition Using Beans #1</p> <p>Skill 2: Introduce Addition... concretely... "and" Level A 1) Addition Using Gumballs #2 2) Addition Using Beans #2</p> <p>Skill 3: Introduce the Symbolism... # + # = # Level A 1) Addition Using Gumballs #3 2) Addition Using Beans #3</p>	Notes



Skill 4: Introduce the Words... "plus" and "equals"

- Level A 1) Addition Using Gumballs #4
- 2) Addition Using Beans #4

Skill 18: Introduce Subtraction Concretely... "Take Away"

- Level A 1) Introduction to Subtraction #1
- 2) Introduction to Subtraction #2
- Do Skill Test - 5 questions (randomly generated)

Skill 19: Introduce Subtraction Concretely... # - # = #

- Level A 1) Introduction to Subtraction #3
- 2) Introduction to Subtraction #4
- 3) Introduce Vertical Subtraction
- Do Skill Test - 10 questions (randomly generated)

10. Model and represent addition as combining sets and counting on, and subtraction as take-away and comparison. For example: b. Count on (forward) and count back (backward) on a number line between 0 and 10.

Understanding Numeration: Counting

Notes

Skill 1: Reading and Printing Numerals

- Level A 4) Building a number line
- 5) Building a Vertical number line

Skill 4: Counting Backwards

- Level A 1) Counting Backwards
- 2) Counting Up & Down #1
- Do Skill Test - 5 questions (randomly generated)

Skill 14: Count on from a Given Number

- Level A 1) Show, Cover Up, Count On
- 2) Cover Up, Count On
- Do Skill Test - 5 questions (randomly generated)

Understanding Numeration: Operations

Notes

Skill 11: Demonstrate Addition Facts... Patterns

- Level A 3) Adding Along the number line

11. Demonstrate joining multiple groups of objects, each containing the same number of objects; e.g., combining 3 bags of candy, each containing 2 pieces.

Understanding Numeration: Operations

Notes

Skill 25: Introduce Multiplication Concretely

- Level C 1) Grouping Eggs in Bowls
- 2) Grouping Chairs in Rows



12. Partition or share a small set of objects into groups of equal size; e.g., sharing 6 stickers equally among 3 children.

Understanding Numeration: Operations

Skill 34: Introduction to Division

- Level C 1) Equal Groups of Eggs
2) Sharing Oranges Equally

Notes

Computation and Estimation

13. Recognize the number or quantity of sets up to 5 without counting; e.g., recognize without counting the dot arrangement on a domino as 5.

Not yet correlated at this level

Kindergarten... Measurement Standard

Measurement Units

1. Identify units of time (day, week, month, year) and compare calendar elements; e.g., weeks are longer than days.

Not yet correlated

Use Measurement Techniques and Tools

2. Compare and order objects of different lengths, areas, weights and capacities; and use relative terms, such as longer, shorter, bigger, smaller, heavier, lighter, more and less.

Not yet correlated at this level

3. Measure length and volume (capacity) using uniform objects in the environment. For example, find: a. how many paper clips long is a pencil;

Not yet correlated at this level



3. Measure length and volume (capacity) using uniform objects in the environment. For example, find: b. how many small containers it takes to fill one big container using sand, rice, beans.

Not yet correlated at this level

4. Order events based on time. For example: a. activities that take a long or short time;

Not yet correlated

4. Order events based on time. For example: b. review what we do first, next, last;

Not yet correlated

4. Order events based on time. For example: c. recall what we did or plan to do yesterday, today, tomorrow.

Not yet correlated

Kindergarten... Geometry and Spatial Sense Standard

Characteristics and Properties

1. Identify and sort two-dimensional shapes and three-dimensional objects. For example: a. Identify and describe two-dimensional figures and three-dimensional objects from the environment using the child's own vocabulary

Not yet correlated

1. Identify and sort two-dimensional shapes and three-dimensional objects. For example: b. Sort shapes and objects into groups based on student-defined categories.

Understanding Numeration: Counting

Skill 15: Recognize and Count two-Dimensional Figures

Level B 1) Counting 2-D Figures #1

Do Skill Test - 5 questions (randomly generated)

Level C 1) Counting 2-D Figures #2

Do Skill Test - 5 questions (randomly generated)

Notes



	1. Identify and sort two-dimensional shapes and three-dimensional objects. For example: c. Select all shapes or objects of one type from a group. Not yet correlated
	1. Identify and sort two-dimensional shapes and three-dimensional objects. For example: d. Build two-dimensional figures using paper shapes or tangrams; build simple three-dimensional objects using blocks. Not yet correlated
Spatial Relationships	
	2. Name and demonstrate the relative position of objects as follows: a. place objects over, under, inside, outside, on, beside, between, above, below, on top of, upside-down, behind, in back of, in front of; Not yet correlated at this level
	2. Name and demonstrate the relative position of objects as follows: b. describe placement of objects with terms, such as on, inside, outside, above, below, over, under, beside, between, in front of, behind. Not yet correlated at this level
Kindergarten... Patterns, Functions and Algebra Standard	
Use Patterns, Relations and Functions	
	1. Sort, classify and order objects by size, number and other properties. For example: a. Identify how objects are alike and different. Not yet correlated
	1. Sort, classify and order objects by size, number and other properties. For example: b. Order three events or objects according to a given attribute, such as time or size. Not yet correlated



1. Sort, classify and order objects by size, number and other properties. For example: c. Recognize and explain how objects can be classified in more than one way.

Not yet correlated

1. Sort, classify and order objects by size, number and other properties. For example: d. Identify what attribute was used to sort groups of objects that have already been sorted.

Not yet correlated

2. Identify, create, extend and copy sequences of sounds (such as musical notes), shapes (such as buttons, leaves or blocks), motions (such as hops or skips), and numbers from 1 to 10.

Not yet correlated

3. Describe orally the pattern of a given sequence.

Not yet correlated

Use Algebraic Representations

4. Model a problem situation using physical materials.

Understanding Numeration: Problem Solving

Skill 1: Draw a Picture

Level A,B,C,D 1) Eating Apples

Notes

Kindergarten... Data Analysis and Probability Standard

Data Collection

1. Gather and sort data in response to questions posed by teacher and students; e.g., how many sisters and brothers, what color shoes.

Not yet correlated



2. Arrange objects in a floor or table graph according to attributes, such as use, size, color or shape.

Understanding Numeration: Problem Solving

Notes

Skill 5: Make a Graph

Level A,B,C,D 1) Classroom Shoes

Statistical Methods

3. Select the category or categories that have the most or fewest objects in a floor or table graph.

Understanding Numeration: Problem Solving

Notes

Skill 5: Make a Graph

Level A,B,C,D 1) Classroom Shoes

