

Correlation of the Understanding Numeration 2008© With the Common Core State 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 standards have been correlated to the Understanding Numeration 2008©. The location of each standard is listed below:

K.CC Counting and Cardinality

Know number names and the count sequence. (pages 3 - 4)

Count to tell the number of objects. (pages 4 - 5)

Compare numbers. (pages 6 - 6)

K.OA Operations and Algebraic Thinking

Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from. (pages 7 - 10)

K.NBT Number and Operations in Base Ten

Work with numbers 11–19 to gain foundations for place value. (pages 11 - 11)

K.MD Measurement and Data

Describe and compare measurable attributes. (pages 11 - 12)

Classify objects and count the number of objects in each category. (pages 12 - 12)

K.G Geometry

Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres). (pages 12 - 12)

Analyze, compare, create, and compose shapes. (pages 13 - 13)

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.



**The Common Core State Standards for Mathematics
Correlated to Understanding Numeration 2008 ©
Kindergarten**

K.CC ... Counting and Cardinality

Know number names and the count sequence.

1. Count to 100 by ones and by tens.

Understanding Numeration: Counting

Skill 1: Reading and Printing Numerals

Level C 1) Counting 0 to 100 on a Grid

Notes

Understanding Numeration: Comparing & Ordering

Skill 2: Locate Whole Numbers on a Grid

Level C 1) Numbers on 0 to 100 Grid
2) Missing Numbers to 100
Do Skill Test - 10 questions (randomly generated)

Notes

2. Count forward beginning from a given number within the known sequence (instead of having to begin at 1).

Understanding Numeration: Counting

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)

Notes

Understanding Numeration: Comparing & Ordering

Skill 5: Understanding "Just After"; "Just Before"; "Between"

Level B 2) "Just After" Machine #1
Level C 2) "Just After" Machine #2

Notes

3. Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).

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
4) Building a number line
5) Building a Vertical number line
Do Skill Test - 10 questions (randomly generated)

Notes



- 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)

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)

Count to tell the number of objects.

4. Understand the relationship between numbers and quantities; connect counting to cardinality. - a. When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object.

Understanding Numeration: Counting

Notes

Skill 1: Reading and Printing Numerals

- Level A 1) Introduction - Counting 1 to 10
 3) Things in a Square #1
 Level B 1) Counting 1-20
 3) Things in a Square #2

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)

4. Understand the relationship between numbers and quantities; connect counting to cardinality. - b. Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted.

Understanding Numeration: Counting

Notes

Skill 1: Reading and Printing Numerals

- Level A 1) Introduction - Counting 1 to 10
 3) Things in a Square #1
 Level B 1) Counting 1-20
 3) Things in a Square #2



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)

4. Understand the relationship between numbers and quantities; connect counting to cardinality. - c. Understand that each successive number name refers to a quantity that is one larger.

Understanding Numeration: Counting

Notes

Skill 1: Reading and Printing Numerals

- Level A 1) Introduction - Counting 1 to 10
- Level B 1) Counting 1-20

5. Count to answer “how many?” questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1–20, count out that many objects.

Understanding Numeration: Counting

Notes

Skill 1: Reading and Printing Numerals

- Level A 1) Introduction - Counting 1 to 10
- 3) Things in a Square #1
- Level B 1) Counting 1-20
- 3) Things in a Square #2

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 6: Recognize and Count Solids

- Level B 1) Counting Solids #1
- Do Skill Test - 5 questions (randomly generated)



Compare numbers.

6. Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies.

Understanding Numeration: Comparing & Ordering

Notes

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)

7. Compare two numbers between 1 and 10 presented as written numerals.

Understanding Numeration: Comparing & Ordering

Notes

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



K.OA... Operations and Algebraic Thinking

Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.

1. Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.

Understanding Numeration: Operations

Notes

Skill 1: Introduce Addition... Concretely... "in all" and "altogether"

- Level A
- 1) Addition Using Gumballs #1
 - 2) Addition Using Beans #1
 - 3) Add the Number of Sides of Shapes #1
- Do Skill Test - 10 questions (randomly generated)

Skill 2: Introduce Addition... concretely... "and"

- Level A
- 1) Addition Using Gumballs #2
 - 2) Addition Using Beans #2
 - 3) Add the Number of Sides of Shapes #2
- Do Skill Test - 10 questions (randomly generated)

Skill 3: Introduce the Symbolism... $\# + \# = \#$

- Level A
- 1) Addition Using Gumballs #3
 - 2) Addition Using Beans #3
 - 3) Add the Number of Sides of Shapes #3
- Do Skill Test - 10 questions (randomly generated)

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

- Level A
- 1) Addition Using Gumballs #4
 - 2) Addition Using Beans #4
 - 3) Add the Number of Sides of Shapes #4
- Do Skill Test - 10 questions (randomly generated)

Skill 5: Demonstrate Addition Facts... Making 5

- Level A
- 1) Ways to Make 5
 - 2) Ways to Make 5 - Reverse Order
 - 3) Ways to Make 5 - Vertical
 - 4) Make 5: Horizontal and Vertical
- Do Skill Test - 10 questions (randomly generated)

Skill 6: Demonstrate Addition Facts... Making 6

- Level A
- 1) Ways to Make 6
 - 2) Ways to Make 6 - Reverse Order
 - 3) Make 6 - Horizontal and Vertical
- Do Skill Test - 10 questions (randomly generated)



Skill 7: Demonstrate Addition Facts... Making 7

- Level A 1) Ways to Make 7
2) Ways to Make 7 - Reverse Order
3) Make 7: Horizontal and Vertical
Do Skill Test - 10 questions (randomly generated)

Skill 11: Demonstrate Addition Facts... Patterns

- Level A 1) Bar Machine

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)
- Level C 1) Subtraction Sentences
Do Skill Test - 5 questions (randomly generated)

Skill 20: Fact Families... Add and Subtract

- Level A 1) Doubles - Add and Subtract
2) Relate Addition and Subtraction
3) Fact Families #1
Do Skill Test - 10 questions (randomly generated)

2. Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.

Understanding Numeration: Operations

Notes

Skill 1: Introduce Addition... Concretely... "in all" and "altogether"

- Level A 1) Addition Using Gumballs #1
2) Addition Using Beans #1
3) Add the Number of Sides of Shapes #1
Do Skill Test - 10 questions (randomly generated)

Skill 2: Introduce Addition... concretely... "and"

- Level A 1) Addition Using Gumballs #2
2) Addition Using Beans #2
3) Add the Number of Sides of Shapes #2
Do Skill Test - 10 questions (randomly generated)



Skill 3: Introduce the Symbolism... # + # = #

- Level A 1) Addition Using Gumballs #3
2) Addition Using Beans #3
3) Add the Number of Sides of Shapes #3
Do Skill Test - 10 questions (randomly generated)

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

- Level A 1) Addition Using Gumballs #4
2) Addition Using Beans #4
3) Add the Number of Sides of Shapes #4
Do Skill Test - 10 questions (randomly generated)

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)
- Level C 1) Subtraction Sentences
Do Skill Test - 5 questions (randomly generated)

3. Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (e.g., $5 = 2 + 3$ and $5 = 4 + 1$).

Understanding Numeration: Operations

Notes

Skill 5: Demonstrate Addition Facts... Making 5

- Level A 1) Ways to Make 5
2) Ways to Make 5 - Reverse Order
3) Ways to Make 5 - Vertical
4) Make 5: Horizontal and Vertical
Do Skill Test - 10 questions (randomly generated)

Skill 6: Demonstrate Addition Facts... Making 6

- Level A 1) Ways to Make 6
2) Ways to Make 6 - Reverse Order
3) Make 6 - Horizontal and Vertical
Do Skill Test - 10 questions (randomly generated)

Skill 7: Demonstrate Addition Facts... Making 7

- Level A 1) Ways to Make 7
2) Ways to Make 7 - Reverse Order



3) Make 7: Horizontal and Vertical
Do Skill Test - 10 questions (randomly generated)

Skill 8: Demonstrate Addition Facts... Making 8

Level A 1) Ways to Make 8
2) Ways to Make 8 - Reverse Order
Do Skill Test - 5 questions (randomly generated)

Skill 9: Demonstrate Addition Facts... Making 9

Level A 1) Ways to Make 9
2) Ways to Make 9 - Reverse Order
Do Skill Test - 5 questions (randomly generated)

Skill 10: Demonstrate Addition Facts... Making 10

Level A 1) Ways to Make 10
2) Ways to Make 10 - Reverse Order
Do Skill Test - 5 questions (randomly generated)

Skill 11: Demonstrate Addition Facts... Patterns

Level A 1) Bar Machine
2) Decomposition Tree #1

4. For any number from 1 to 9, find the number that makes 10 when added to the given number, e.g., by using objects or drawings, and record the answer with a drawing or equation.

Understanding Numeration: Operations

Notes

Skill 10: Demonstrate Addition Facts... Making 10

Level A 1) Ways to Make 10
2) Ways to Make 10 - Reverse Order
Do Skill Test - 5 questions (randomly generated)

5. Fluently add and subtract within 5

Understanding Numeration: Operations

Notes

Skill 5: Demonstrate Addition Facts... Making 5

Level A 1) Ways to Make 5
2) Ways to Make 5 - Reverse Order
3) Ways to Make 5 - Vertical
4) Make 5: Horizontal and Vertical
Do Skill Test - 10 questions (randomly generated)



K.NBT... Number and Operations in Base Ten

Work with numbers 11–19 to gain foundations for place value.

1. Compose and decompose numbers from 11 to 19 into ten ones and some further ones, e.g., by using objects or drawings, and record each composition or decomposition by a drawing or equation (e.g., $18 = 10 + 8$); understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.

Understanding Numeration: Operations

Skill 11: Demonstrate Addition Facts... Patterns

Level B 1) Decomposition Tree #2

Notes

Understanding Numeration: Place Value

Skill 2: Model Numbers Grouped in Packages

Level C 1) Ones and Groups of Ten
Do Skill Test - 5 questions (randomly generated)

Notes

Skill 3: Identify Place Value Patterns (to 20)

Level C 1) Pictures to Numbers #1
3) Numbers to Pictures #1
Do Skill Test - 10 questions (randomly generated)

K.MD... Measurement and Data

Describe and compare measurable attributes.

1. Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.

Not yet correlated

2. Directly compare two objects with a measurable attribute in common, to see which object has “more of”/“less of” the attribute, and describe the difference. For example, directly compare the heights of two children and describe one child as taller/shorter.

Not yet correlated



Classify objects and count the number of objects in each category.

3. Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.3

Not yet correlated

K.G... Geometry

Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres).

1. Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as above, below, beside, in front of, behind, and next to.

Not yet correlated

2. Correctly name shapes regardless of their orientations or overall size.

Understanding Numeration: Counting

Skill 6: Recognize and Count Solids

Level B 1) Counting Solids #1

Do Skill Test - 5 questions (randomly generated)

Skill 15: Recognize and Count two-Dimensional Figures

Level B 1) Counting 2-D Figures #1

Do Skill Test - 5 questions (randomly generated)

Notes

3. Identify shapes as two-dimensional (lying in a plane, "flat") or three dimensional ("solid").

Not yet correlated



Analyze, compare, create, and compose shapes.

4. Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/"corners") and other attributes (e.g., having sides of equal length).

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

5. Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.

Not yet correlated

6. Compose simple shapes to form larger shapes. For example, "Can you join these two triangles with full sides touching to make a rectangle?"

Not yet correlated

