



Correlation of the Understanding Numeration 2008© Programs With the California Mathematics Content Standards for Kindergarten

The Understanding Numeration 2008© program consists of the following five concepts written for kindergarten through third grade:

Counting Operations Place Value Comparing and Ordering Problem Solving

The program is 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.

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 Navigation Sheet may be on our website (www.neufeldmath.com).

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

Each of the five content standards has been correlated to the Understanding Numeration program. The beginning of each standard is listed below:

Number Sense	(pages 2 - 5)
Algebra and Functions	(pages 5 - 5)
Measurement and Geometry	(pages 5 - 6)
Statistics, Data Analysis, and Probability	(pages 6 - 6)
Mathematical Reasoning	(pages 6 - 8)

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

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



California Mathematics Content Standards Correlated to Understanding Numeration 2008© Kindergarten

Kindergarten... Overall

By the end of kindergarten, students understand small numbers, quantities, and simple shapes in their everyday environment. They count, compare, describe and sort objects, and develop a sense of properties and patterns.

Kindergarten... Number Sense

1.0 Students understand the relationship between numbers and quantities (i.e., that a set of objects has the same number of objects in different situations regardless of its position or arrangement):

1.1 Compare two or more sets of objects (up to ten objects in each group) and identify which set is equal to, more than, or less than the other.

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

1.2 Count, recognize, represent, name, and order a number of objects (up to 30).

Understanding Numeration: Counting

Notes

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)

- 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)

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

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



Skill 4: Counting Backwards

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

Skill 5: Estimating the # of Objects and Reasonableness

- Level A 1) Estimate the Handful
- 2) Dot Flash Cards
- Do Skill Test - 5 questions (randomly generated)
- Level B 1) Estimation and Counting
- 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)
- Level C 1) Counting Solids #2
- Do Skill Test - 5 questions (randomly generated)

Understanding Numeration: Comparing & Ordering**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)

Notes

1.3 Know that the larger numbers describe sets with more objects in them than the smaller numbers have.

Understanding Numeration: Counting**Skill 5: Estimating the # of Objects and Reasonableness**

- Level A 1) Estimate the Handful
- 2) Dot Flash Cards
- Do Skill Test - 5 questions (randomly generated)
- Level B 1) Estimation and Counting
- Do Skill Test - 5 questions (randomly generated)

Notes

Understanding Numeration: Comparing & Ordering**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)

Notes

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



2.0 Students understand and describe simple additions and subtractions:

2.1 Use concrete objects to determine the answers to addition and subtraction problems (for two numbers that are each less than 10).

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)

3.0 Students use estimation strategies in computation and problem solving that involve numbers that use the ones and tens places:

3.1 Recognize when an estimate is reasonable.

Understanding Numeration: Counting

Notes

Skill 5: Estimating the # of Objects and Reasonableness

- Level A 1) Estimate the Handful



- 2) Dot Flash Cards
- Do Skill Test - 5 questions (randomly generated)
- Level B 1) Estimation and Counting
- Do Skill Test - 5 questions (randomly generated)

Kindergarten... Algebra and Functions

1.0 Students sort and classify objects:

1.1 Identify, sort, and classify objects by attribute and identify objects that do not belong to a particular group (e.g., all these balls are green, those are red).

Understanding Numeration: Counting

Notes

Skill 6: Recognize and Count Solids

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

- Level C 1) Counting Solids #2
- 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)

- Level C 1) Counting 2-D Figures #2
- Do Skill Test - 5 questions (randomly generated)

Kindergarten... Measurement and Geometry

1.0 Students understand the concept of time and units to measure it; they understand that objects have properties, such as length, weight, and capacity, and that comparisons may be made by referring to those properties:

1.1 Compare the length, weight, and capacity of objects by making direct comparisons with reference objects (e.g., note which object is shorter, longer, taller, lighter, heavier, or holds more).

Not yet correlated

1.2 Demonstrate an understanding of concepts of time (e.g., morning, afternoon, evening, today, yesterday, tomorrow, week, year) and tools that measure time (e.g., clock, calendar).

Not yet correlated

1.3 Name the days of the week.

Not yet correlated



1.4 Identify the time (to the nearest hour) of everyday events (e.g., lunch time is 12 o'clock; bedtime is 8 o'clock at night).	Notes
Understanding Numeration: Comparing & Ordering Skill 9: Understand Measurement of Time Level B 1) The Clock - An Introduction 2) Times to the Hour 3) Analog and Digital	
2.0 Students identify common objects in their environment and describe the geometric features:	
2.1 Identify and describe common geometric objects (e.g., circle, triangle, square, rectangle, cube, sphere, cone).	Notes
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)	
2.2 Compare familiar plane and solid objects by common attributes (e.g., position, shape, size, roundness, number of corners).	
Not yet correlated	
Kindergarten... Statistics, Data Analysis, and Probability	
1.0 Students collect information about objects and events in their environment:	
1.1 Pose information questions; collect data; and record the results using objects, pictures, and picture graphs.	Notes
Understanding Numeration: Problem Solving Skill 5: Make a Graph Level A,B,C,D 1) Classroom Shoes	
1.2 Identify, describe, and extend simple patterns (such as circles or triangles) by referring to their shapes, sizes, or colors.	
Not yet correlated	



Kindergarten... Mathematical Reasoning

1.0 Students make decisions about how to set up a problem:

Making decisions about how to set up a problem is embedded in Understanding Numeration 2008©. The programs emphasize understanding, learning from the concrete to the abstract, and thinking and doing rather than memorizing by rote. A mistake is an opportunity to learn.

The following are some examples:

Understanding Numeration: Counting

Notes

Skill 6: Recognize and Count Solids

Level B 1) Counting Solids #1

Understanding Numeration: Comparing & Ordering

Notes

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

Level A 4) Greater Than, Less Than, Equal To

Understanding Numeration: Problem Solving

Notes

Skill 1: Draw a Picture

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

Skill 5: Make a Graph

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

1.2 Use tools and strategies, such as manipulatives or sketches, to model problems.

Using tools and strategies, such as manipulatives or sketches, to model problems is embedded in Understanding Numeration 2008©. The programs emphasize understanding, learning from the concrete to the abstract, and thinking and doing rather than memorizing by rote. A mistake is an opportunity to learn.

The following are some examples:

Understanding Numeration: Counting

Notes

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

Level A 1) Keep Track by Marking

Understanding Numeration: Operations

Notes

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

Level A 3) Add the Number of Sides of Shapes #1

Understanding Numeration: Problem Solving

Notes

Skill 1: Draw a Picture

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

Skill 5: Make a Graph

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



2.0 Students solve problems in reasonable ways and justify their reasoning:

2.1 Explain the reasoning used with concrete objects and/ or pictorial representations.

Explaining the reasoning used with concrete objects and/or pictorial representations is embedded in Understanding Numeration 2008©. The programs emphasize understanding, learning from the concrete to the abstract, and thinking and doing rather than memorizing by rote. A mistake is an opportunity to learn.

The following are some examples:

Understanding Numeration: Counting

Notes

Skill 5: Estimating the # of Objects and Reasonableness

Level A 1) Estimate the Handful

Understanding Numeration: Comparing & Ordering

Notes

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

Level A 4) Ordering... Horizontal #1

Understanding Numeration: Problem Solving

Notes

Skill 1: Draw a Picture

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

Skill 5: Make a Graph

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

2.2 Make precise calculations and check the validity of the results in the context of the problem.

Making precise calculations and checking the validity of the results in the context of the problem is embedded in Understanding Numeration 2008©. The programs emphasize understanding, learning from the concrete to the abstract, and thinking and doing rather than memorizing by rote. A mistake is an opportunity to learn.

The following are some examples:

Understanding Numeration: Problem Solving

Notes

Skill 1: Draw a Picture

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

Skill 5: Make a Graph

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

