



**Correlation of the Understanding Numeration 2008©Programs
With the Texas Essential Knowledge and Skills 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 written for kindergarten through third grade:

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 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>.

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The TEKS have been correlated to Understanding Numeration 2008©. The location is listed below:

Number, operation, and quantitative reasoning

- | | |
|---|-------------|
| (1) The student uses numbers to name quantities. | Pages 3 - 4 |
| (2) The student describes order of events or objects. | Pages 4 - 4 |
| (3) The student recognizes that there are quantities less than a whole. | Pages 5 - 5 |
| (4) The student models addition (joining) and subtraction (separating). | Pages 5 - 6 |

Patterns, relationships, and algebraic thinking

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|--|-------------|
| (5) The student identifies, extends, and creates patterns. | Pages 7 - 7 |
| (6) The student uses patterns to make predictions. | Pages 7 - 7 |

Geometry and spatial reasoning

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|--|-------------|
| (7) The student describes the relative positions of objects. | Pages 8 - 8 |
| (8) The student uses attributes to determine how objects are alike and different. | Pages 8 - 8 |
| (9) The student recognizes attributes of two- and three-dimensional geometric figures. | Pages 9 - 9 |

Measurement

- | | |
|--|---------------|
| (10) The student directly compares the attributes of length, area, weight/mass, capacity, and/or relative temperature. The student uses comparative language to solve problems and answer questions. | Pages 10 - 10 |
| (11) The student uses time to describe, compare, and order events and situations. | Pages 11 - 11 |

Probability and statistics

- | | |
|--|---------------|
| (12) The student constructs and uses graphs of real objects or pictures to answer questions. | Pages 12 - 12 |
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Underlying processes and mathematical tools

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|--|---------------|
| (13) The student applies Kindergarten mathematics to solve problems connected to everyday experiences and activities in and outside of school. | Pages 13 - 14 |
| (14) The student communicates about Kindergarten mathematics using informal language. | Pages 15 - 16 |
| (15) The student uses logical reasoning. | Pages 17 - 17 |

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

**Correlation of the Understanding Numeration 2008©Programs
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Kindergarten**

**Texas Essential Knowledge and Skills for Mathematics
Correlated to Understanding Numeration 2008 ©
Kindergarten**

Kindergarten.... Number, operation, and quantitative reasoning

(1) The student uses numbers to name quantities. The student is expected to:

(A) use one-to-one correspondence and language such as more than, same number as, or two less than to describe relative sizes of sets of concrete objects;

Understanding Numeration: Counting

Notes

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

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

Understanding Numeration: Comparing & Ordering

Notes

Skill 14: Understand "MORE" and "LESS"

- Level A 1) More, More!!
- 2) Less, Less!!
- 3) More or Less... Dots

(B) use sets of concrete objects to represent quantities given in verbal or written form (through 20); and

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 to 20
- 3) Things in a Square #2

**Correlation of the Understanding Numeration 2008©Programs
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Kindergarten**

(C) use numbers to describe how many objects are in a set (through 20) using verbal and symbolic descriptions.	
<p>Understanding Numeration: Counting</p> <p>Skill 1: Reading and Printing Numerals</p> <p>Level A 1) Introduction - Counting 1 to 10 3) Things in a Square #1</p> <p>Level B 1) Counting 1 to 20 3) Things in a Square #2</p> <p>Skill 2: Associating Numbers in a Real World Context</p> <p>Level A 1)The Street Scene 2)The Zoo Do Skill Test - 5 questions (randomly generated)</p>	Notes
(2) The student describes order of events or objects. The student is expected to:	
(A) use language such as before or after to describe relative position in a sequence of events or objects; and	
Not yet correlated	
(B) name the ordinal positions in a sequence such as first, second, third, etc.	
<p>Understanding Numeration: Comparing & Ordering</p> <p>Skill 6: Use Ordinal Numbers</p> <p>Level A 1) Ordering Ladybugs Do Skill Test - 5 questions (randomly generated)</p> <p>Level B 1) The Steps Do Skill Test - 5 questions (randomly generated)</p>	Notes

**Correlation of the Understanding Numeration 2008©Programs
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Kindergarten**

(3) The student recognizes that there are quantities less than a whole. The student is expected to:

(A) share a whole by separating it into two equal parts; and

Understanding Numeration: Counting

Notes

Skill 9: Introduce Fractions... Equal Parts

Level B 1) Two Equal Parts

Skill 10: Introduce Fractions... Part of a Whole

Level B 1) One Half

(B) explain why a given part is half of the whole.

Understanding Numeration: Counting

Notes

Skill 9: Introduce Fractions... Equal Parts

Level B 1) Two Equal Parts

Skill 10: Introduce Fractions... Part of a Whole

Level B 1) One Half

Skill 11: Introduce Common Fractions... Parts of a Whole

Level B 1) One Half of a Shape

(4) The student models addition (joining) and subtraction (separating). The student is expected to

model and create addition and subtraction problems in real situations with concrete objects.

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

Correlation of the Understanding Numeration 2008©Programs
With the Texas Essential Knowledge and Skills For Mathematics
Kindergarten

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

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

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

- Level A 1) Addition Using Gumballs #3
2) Addition Using Beans #3

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

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

- Level A 1) Introduction to Subtraction #3
2) Introduction to Subtraction #4
Level C 1) Subtraction Sentences

Understanding Numeration: Comparing & Ordering

Skill 14: Understand "MORE" and "LESS"

- Level A 1) More, More!!
2) Less, Less!!
3) More or Less... Dots

Notes

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Kindergarten.... Patterns, relationships, and algebraic thinking

(5) The student identifies, extends, and creates patterns. The student is expected to

identify, extend, and create patterns of sounds, physical movement, and concrete objects.

Not yet correlated

(6) The student uses patterns to make predictions. The student is expected to:

(A) use patterns to predict what comes next, including cause-and-effect relationships; and

Not yet correlated

(B) count by ones to 100.

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 to 20

2) Joining up to 20 Dots

3) Things in a Square #2

Level C 1) Counting 0 to 100 on a Grid

Do Skill Test - 5 questions (randomly generated)

Notes

Correlation of the Understanding Numeration 2008©Programs
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Kindergarten

Kindergarten.... Geometry and spatial reasoning

(7) The student describes the relative positions of objects. The student is expected to:

(A) describe one object in relation to another using informal language such as over, under, above, and below; and

Not yet correlated

(B) place an object in a specified position.

Not yet correlated

(8) The student uses attributes to determine how objects are alike and different. The student is expected to:

(A) describe and identify an object by its attributes using informal language;

Not yet correlated

(B) compare two objects based on their attributes; and

Not yet correlated

(C) sort a variety of objects including two- and three-dimensional geometric figures according to their attributes and describe how the objects are sorted.

Not yet correlated

**Correlation of the Understanding Numeration 2008©Programs
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Kindergarten**

(9) The student recognizes attributes of two- and three-dimensional geometric figures. The student is expected to:

(A) describe and compare the attributes of real-life objects such as balls, boxes, cans, and cones or models of three-dimensional geometric figures;

Not yet correlated

(B) recognize shapes in real-life three-dimensional geometric figures or models of three-dimensional geometric figures; and

Understanding Numeration: Counting

Skill 6: Recognize and Count Solids

Level B 1) Counting Solids #1

Do Skill Test - 5 questions (randomly generated)

Notes

(C) describe, identify, and compare circles, triangles, rectangles, and squares (a special type of rectangle).

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)

Notes

Correlation of the Understanding Numeration 2008©Programs
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Kindergarten

Kindergarten.... Measurement

(10) The student directly compares the attributes of length, area, weight/mass, capacity, and/or relative temperature. The student uses comparative language to solve problems and answer questions. The student is expected to:

(A) compare and order two or three concrete objects according to length (longer/shorter than, or the same);

Not yet correlated

(B) compare the areas of two flat surfaces of two-dimensional figures (covers more, covers less, or covers the same);

Not yet correlated

(C) compare two containers according to capacity (holds more, holds less, or holds the same);

Not yet correlated

(D) compare two objects according to weight/mass (heavier than, lighter than or equal to); and

Not yet correlated

(E) compare situations or objects according to relative temperature (hotter/colder than, or the same as).

Not yet correlated

**Correlation of the Understanding Numeration 2008©Programs
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(11) The student uses time to describe, compare, and order events and situations. The student is expected to:

(A) compare events according to duration such as more time than or less time than;

Not yet correlated

(B) sequence events (up to three); and

Not yet correlated

(C) read a calendar using days, weeks, and months.

Not yet correlated

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Kindergarten.... Probability and statistics

(12) The student constructs and uses graphs of real objects or pictures to answer questions. The student is expected to:

(A) construct graphs using real objects or pictures in order to answer questions; and

Not yet correlated

(B) use information from a graph of real objects or pictures in order to answer questions.

Not yet correlated

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Kindergarten.... Underlying processes and mathematical tools

(13) The student applies Kindergarten mathematics to solve problems connected to everyday experiences and activities in and outside of school. The student is expected to:

(A) identify mathematics in everyday situations;

Identifying mathematics in everyday situations 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 2: Associating Numbers in a Real World Context

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

Understanding Numeration: Comparing & Ordering

Notes

Skill 6: Use Ordinal Numbers

- Level A 1) Ordering Ladybugs
- Do Skill Test - 5 questions (randomly generated)
- Level B 1) The Steps
- Do Skill Test - 5 questions (randomly generated)

(B) solve problems with guidance that incorporates the processes of understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness;

Solving problems with guidance that incorporates the processes of understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness 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

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(14) The student communicates about Kindergarten mathematics using informal language. The student is expected to:

(A) communicate mathematical ideas using objects, words, pictures, numbers, and technology; and

Communicating mathematical ideas using objects, words, pictures, numbers, and technology is embedded in Understanding Numeration 2008© strategies such as the Math Circles located on our website (<http://www.neufeldmath.com/strategies/index.html>)

The following are some examples:

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)

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)

Understanding Numeration: Comparing & Ordering

Notes

Skill 6: Use Ordinal Numbers

- Level A
- 1) Ordering Ladybugs
- Do Skill Test - 5 questions (randomly generated)

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(B) relate everyday language to mathematical language and symbols.

Relating everyday language to mathematical language and symbols 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. Our Word Bank located on our website supports this standard (<http://www.neufeldmath.com/wordbank/index.html>)

The following are some examples:

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

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

- Level A
- 1) Addition Using Gumballs #3
 - 2) Addition Using Beans #3

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

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

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(15) The student uses logical reasoning. The student is expected to

justify his or her thinking using objects, words, pictures, numbers, and technology.

Justifying his or her thinking using objects, words, pictures, numbers, and technology 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