

INSTRUCTIONAL FOCUS DOCUMENT

Third Grade/Mathematics



UNIT: 01 **TITLE: Place Value to 999,999**

SUGGESTED DURATION: 5 days

Exemplar Lesson 01: Place Value



State Resources:

MTC K-3: Geometric Figures and Place Value

<http://www.tea.state.tx.us/math/index.html>

Mathematics TEKS Toolkit: TEKS Clarifying Activity/Lesson

<http://www.utdanacenter.org/mathtoolkit/index.php>

TEXTEAMS: Rethinking Elementary Mathematics Part I

Place Value Puzzles to 9,999; Expanding Numbers; Make It Zero

RATIONALE:

The student expectation addressed in this unit builds upon students' knowledge of numbers and extends that knowledge to the set of whole numbers through 999,999. Place value is the foundation for numerical reasoning. As a result, it is introduced at the beginning of this grade level. Place value will continue to be revisited up to the thousands place in the following unit.

Prior to this unit, the basics of number sense and the base-ten place value system were developed in Grade 2 through 999. These concepts are expanded in the Grade 3 curriculum to the thousands period. Place value concepts will be emphasized and used throughout the year and at subsequent grade levels.

According to the NCTM Curriculum Focal Points and Connections (2006) for Grade 3, "Building on their work in grade 2, students extend their understanding of place value to numbers up to [999,999] in various contexts. Students also apply this understanding to the task of representing numbers in different equivalent forms (e.g., expanded notation)" (p. 15). Also, the Principles and Standards for School Mathematics by NCTM (2000), states that "students should understand numbers, ways of representing numbers, relationships among numbers, and number systems. If students understand the structure of numbers and the relationships among numbers, they can work with numbers flexibly (Fuson, 1992)" (p. 149).

National Council of Teachers of Mathematics. (2006). *Curriculum focal points for prekindergarten through Grade 8 mathematics*. Reston, VA: National Council of Teachers of Mathematics, Inc.

National Council of Teachers of Mathematics. (2000). *Principles and standards for school mathematics*. Reston, VA: National Council of Teachers of Mathematics, Inc.



MISCONCEPTIONS/UNDERDEVELOPED CONCEPTS:

- Students may not understand how standard form and expanded form are related.
- Students may write only the digit itself when asked for the value of the digit. For example, when given the number 2,143 and asked to write the value of the underlined digit, students may just write the digit "2" and not 2,000.
- Students may use the word "and" when reading and writing whole numbers.
- Students may have difficulty reading 6-digit numbers. Have these students read the numbers one period at a time.
- When a number has one or more zero digits, students may incorrectly translate between standard, expanded and word form. For example: 2,400 may be written as two thousand, four- or as 2000 + 4.

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PERFORMANCE INDICATORS	CONCEPTS	KEY UNDERSTANDINGS FOR LEARNERS
Use a multiple representations chart to describe, read, and write (in symbols and words) the place value of whole numbers up to 999,999. (3.1A) ELPS: 1E, 2E, 2I, 3D, 3H, 4E, 5B, 5G	Quantitative Reasoning – Place Value Number – Whole Numbers	Place value can be used to describe, read and write (in symbols and words) the value of whole numbers through 999,999.

KEY ACADEMIC VOCABULARY SUPPORTING CONCEPTUAL DEVELOPMENT
<ul style="list-style-type: none"> • Place value –the value of the position of the digit, such as units, tens, hundreds, etc. • Digit –any numeral from 0-9 • Period –three-digit grouping of a number on the place value chart that represents its value

TEKS# SE#	TEKS	SPECIFICITY
3.1	<i>Number, operation, and quantitative reasoning. The student uses place value to communicate about increasingly large whole numbers in verbal and written form, including money.</i>	
3.1A	Use place value to read, write (in symbols and words), and describe the value of whole numbers through 999,999.	Use, Read, Write, Describe PLACE VALUE WITH WHOLE NUMBERS Including, but not limited to: <ul style="list-style-type: none"> • whole numbers (0 – 999,999) with symbols and words • number system using ten digits (symbols used to represent numbers) 0-9 • place value system is based on multiples of ten <ul style="list-style-type: none"> • ex: zero tens, one ten, ten tens, hundred tens • ex: 284,067 = 2 one hundred thousands, 8 ten thousands, 4 thousands, 0 hundreds, 6 tens, 7 ones • number in standard form that has been separated into groups of three digits using commas with each of these groups called a period <ul style="list-style-type: none"> • ex: 376,842 thousands period: 376 units period: 842 • standard form to written notation and written to standard form <ul style="list-style-type: none"> • ex: 376,842 is read and written in words as three hundred seventy-six thousand, eight hundred forty-two • standard form to expanded notation <ul style="list-style-type: none"> • ex: 376,842 = 300,000 + 70,000 + 6,000 + 800 + 40 + 2 • every digit has a place and a specific value

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		<ul style="list-style-type: none">• ex: 376,842 - the digit 6 is in the thousands place, representing 6 thousands and the value of 6,000• difference between a digit and a number<ul style="list-style-type: none">• ex: 345 is a number with digit 4 in the tens place <p>Note:</p> <ul style="list-style-type: none">• 2nd grade uses place value to read, write and describe the value of whole numbers to 999.• 3rd grade introduces how to convert between a number and expanded notation.• 3rd grade introduces the thousands period.
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