

# Unit 1: Understanding the Place Value System

<b>Unit #:</b>	APSDO-00068575	<b>Duration:</b>	14.0 Day(s)	<b>Date(s)</b>	09-06-2016 to 09-06-2016
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**Team:**  
 Jodi Kryzanski (Author), Marissa DesRoches, Austin Busbey, Andrew Cole, David Conway, Kathleen Dully, Stefanie Dunn, Cheryl Haverkamp, Mary Labowsky, Brendan Lynch, Ellen McCabe, Terri Ruzsbatzky, Megan Spencer, Megan Richmond, Jennifer Grady

**Grade(s)**  
 5  
**Subject(s)**  
 Mathematics

## Unit Focus

In this unit, students will focus on the place value system. Students will investigate the value of each digit in a multi-digit number and explore patterns found with the multiplication and division of numbers by the powers of 10. Students will also write and evaluate repeated factors of 10 in exponent form. Primary instructional materials for this unit include On Core and Everyday Mathematics.

## Stage 1: Desired Results - Key Understandings

Standard(s)	Transfer
<p><b>Common Core</b>  <i>Mathematics: 5</i></p> <ul style="list-style-type: none"> <li>Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., <math>347.392 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times (1/10) + 9 \times (1/100) + 2 \times (1/1000)</math>.  <i>CCSS.MATH.CONTENT.5.NBT.A.3A</i></li> <li>Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left.  <i>CCSS.MATH.CONTENT.5.NBT.A.1</i></li> <li>Compare two decimals to thousandths</li> </ul>	<p><b>T1</b> (T10) Describe, classify, and compare objects/numbers and sets of objects/numbers.  <b>T2</b> (T11) Use descriptions to clarify and/or solve problems.  <b>T3</b> (T12) Compose and decompose numbers to establish relationships and perform operations.  <b>T4</b> (T14) Perform operations within the real and complex number system.  <b>T5</b> (T50) Based on an understanding of any problem, initiate a plan, execute it and evaluate the reasonableness of the solution.  <b>T6</b> (T53) Articulate how mathematical concepts relate to one another in the context of a problem or in the theoretical sense.  <b>T7</b> (T51) Examine alternate methods to accurately and efficiently solve problems.  <b>T8</b> (T52) Use appropriate tools strategically to deepen understanding of mathematical concepts.</p>
	<b>Meaning</b>
	<b>Understanding(s)</b>

<p>based on meanings of the digits in each place, using <math>&gt;</math>, <math>=</math>, and <math>&lt;</math> symbols to record the results of comparisons.  <i>CCSS.MATH.CONTENT.5.NBT.A.3B</i></p> <ul style="list-style-type: none"> <li>• Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10. <i>CCSS.MATH.CONTENT.5.NBT.A.2</i></li> <li>• Use place value understanding to round decimals to any place.  <i>CCSS.MATH.CONTENT.5.NBT.A.4</i></li> </ul>	<p><b>U1</b> (U100) Objects and sets of objects can be given numerical descriptions.  <b>U2</b> (U101) When objects/numbers are combined, mathematical rules guarantee the resulting quantity.  <b>U3</b> (U103) The same value can be represented in multiple ways.  <b>U4</b> (U205) Expressions, equations, inequalities, and functions use symbols to represent quantities, operations, and their relationships.  <b>U5</b> (U102) The value of a number is quantified by the placement of its digits.  <b>U6</b> (U560) Patterns and structures are characterized by consistent relationships.  <b>U7</b> (U511) Placing a problem in a category gives you a familiar approach to solving it.</p>	<p><b>Q1</b> (Q101) How do I classify/compare objects or sets of objects?  <b>Q2</b> (Q102) What rule do I know OR what pattern can I recognize to help me make a prediction/solve this problem?  <b>Q3</b> (Q103) What is the value of this number/relationship and how can I represent it in different ways?  <b>Q4</b> (Q201) How can I represent this information in symbols/equations/models?  <b>Q5</b> (Q104) How do I use my number sense to perform operations?  <b>Q6</b> (Q513) How could this strategy be used to solve similar problems?</p>
<b>Acquisition of Knowledge and Skill</b>		
<b>Knowledge</b>		<b>Skill(s)</b>
		<p><b>S1</b> Recognize the 10 to 1 relationship among place value positions</p> <p><b>S2</b> Read and write whole numbers through hundred millions</p> <p><b>S3</b> Find patterns in products when multiplying powers of ten</p> <p><b>S4</b> Use place value understanding to round decimals to any place</p> <p><b>S5</b></p>

		<p>Read and write decimals to thousandths using base-ten numerals, number names, and expanded form</p> <p><b>S6</b></p> <p>Compare two decimals to thousandths based on the meanings of its digits in each place using <math>&lt;</math>, <math>&gt;</math> and <math>=</math> symbols</p> <p><b>S7</b></p> <p>Use place value understanding to round decimals to any place value</p> <p><b>S8</b></p> <p>Write and evaluate repeated factors in exponent form</p>
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