Unit 4: Multiply and Divide Decimals

Unit #:	APSDO-00016995	**Duration:**	20.0 Day(s)	**Date(s)**	11-28-2016

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Grade(s)
5
Subject(s)
Mathematics

Unit Focus

In this unit, students will continue to recognize that in a multi digit number, a digit in one place represents 10 times what it represents in the place to the right and conversely 1/10 of what it represents to its left. Building on the skills learned in Unit 3, students will read and write decimals to thousandths using multiple methods. Place value is essential to round decimals to any place. Additionally students will explain patterns of multiplying or dividing by powers of 10. Correct placement of the decimal point is a key understanding. All students will illustrate multiplication and division calculations by using equations and drawing models. As in previous units, students are expected to explain all strategies in written form, explaining the reasoning used. Primary instructional materials for this unit include On Core and Everyday Mathematics.

Stage 1: Desired Results - Key Understandings

Standard(s)	Transfer
Common Core *Mathematics: 5* • 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. *CCSS.MATH.CONTENT.5.NBT.A.2* • Add, subtract, multiply, and divide	**T1** (T12) Compose and decompose numbers to establish relationships and perform operations. **T2** (T13) Move from one representation to another without changing the quantity. **T3** (T14) Perform operations within the real and complex number system. **T4** (T50) Based on an understanding of any problem, initiate a plan, execute it and evaluate the reasonableness of the solution. **T5** (T53) Articulate how mathematical concepts relate to one another in the context of a problem or in the theoretical sense. **T6** (T51) Examine alternate methods to accurately and efficiently solve problems. **T7** (T52) Use appropriate tools strategically to deepen understanding of mathematical concepts.

decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.
CCSS.MATH.CONTENT.5.NBT.B.7

Meaning	
Understanding(s)	**Essential Question(s)**
U1 (U100) Objects and sets of objects can be given numerical descriptions. **U2** (U101) When objects/numbers are combined, mathematical rules guarantee the resulting quantity. **U3** (U102) The value of a number is quantified by the placement of its digits. **U4** (U503) Effective problem solvers try multiple strategies when struggling. **U5** (U562) Mastery of basic facts and rules maximizes conceptual and procedural fluency. **U6** (U520) Effective arguments are based on logical mathematical thinking.	**Q1** (Q103) What is the value of this number/relationship and how can I represent it in different ways? **Q2** (Q104) How do I use my number sense to perform operations? **Q3** (Q500) What is a reasonable estimate? **Q4** (Q504) What do I do when I get stuck? **Q5** (Q563) How does being fluent with basic facts and rules help me solve a complex problem? **Q6** (Q520) Does the argument/thought process/logic make sense?

Acquisition of Knowledge and Skill	
Knowledge	**Skill(s)**
	S1 Recognize that in a multi-digit number, a digit in one place represents 10 times what it represents in the place to its right and 1/10 of what it represents to its left **S2** Read and write decimals to thousandths using base-ten numerals, number names, and expanded form **S3** Use place value understanding to round decimals to any place value **S4** Explain patterns of multiplying by powers of

		ten **S5** Explain patterns of the placement of the decimal point when multiplying or dividing by powers of ten **S6** Illustrate and explain calculations (multiplication and division of decimals) by using equations and drawing models **S7** Multiply and divide decimals (range hundredths place) by using concrete models, drawings or strategies based on place value, the properties of operations, and/or the relationship between addition and subtraction **S8** Relate strategies used to multiply and divide to a written method and explain the reasoning used