Topic E

Multiplying Decimals

**5.NBT.2, 5.NBT.3, 5.NBT.7**

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| Focus Standards: | 5.NBT.2 | 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. |
| 5.NBT.3 | Read, write, and compare decimals to thousandths.   1. Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., 347.392 = 3 × 100 + 4 × 10 + 7 × 1 + 3 × (1/10) + 9 × (1/100) + 2 × (1/1000). 2. Compare two decimals to thousandths based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons. |
| 5.NBT.7 | Add, subtract, multiply, and divide 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. |
| Instructional Days: | 2 |  |
| Coherence -Links from: | G4–M3 | Multi-Digit Multiplication and Division |
| -Links to: | G5–M2 | Multi-Digit Whole Number and Decimal Fraction Operations |
| G6–M2 | Arithmetic Operations Including Dividing by a Fraction |

A focus on reasoning about the multiplication of a decimal fraction by a one-digit whole number in Topic E provides the link that connects Grade 4 multiplication work and Grade 5 fluency with multi-digit multiplication. Place value understanding of whole-number multiplication coupled with an area model of the distributive property is used to help students build direct parallels between whole-number products and the products of one-digit multipliers and decimals (**5.NBT.7**). Once the decimal has been placed, students use an estimation-based strategy to confirm the reasonableness of the product through place value reasoning. Word problems provide a context within which students can reason about products.

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| A Teaching Sequence Toward Mastery of Multiplying Decimals |
| Objective 1: Multiply a decimal fraction by single-digit whole numbers, relate to a written method through application of the area model and place value understanding, and explain the reasoning used. (Lesson 11) |
| Objective 2: Multiply a decimal fraction by single-digit whole numbers, including using estimation to confirm the placement of the decimal point. (Lesson 12) |