

# Unit 2

## Multi-Digit Whole Number and Decimal Fraction Operations

### Grade 5 Math

#### Description:

Students will use place value understanding and properties of operations to perform multi-digit operations with whole numbers and decimals. They multiply multi-digit numbers, and understand how to multiply using the distributive property. Students use strategies, illustrations, and explanations including models to divide by two-digit divisors.

Students apply their knowledge of place value, decimals, multiplication and division to metric conversions and to solve multi-step problems through modeling and writing simple equations.

#### Louisiana Student Standards for Mathematics (LSSM)

<b>Number and Operation in Base Ten</b>	
<b>Understand the place value system.</b>	
<b>5.NBT.A.1</b>	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 $\frac{1}{10}$ of what it represents in the place to its left.
<b>5.NBT.A.2</b>	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 power of 10.
<b>Perform operations with multi-digit whole numbers and with decimals to hundredths.</b>	
<b>5.NBT.B.5</b>	Fluently multiply multi-digit whole numbers using the standard algorithm.
<b>5.NBT.B.6</b>	Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, subtracting multiples of the divisor, and/or the relationship between multiplication and division. Illustrate and/or explain the calculation by using equations, rectangular arrays, area models or other strategies based on place value.
<b>5.NBT.B.7</b>	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; justify the reasoning used with a written explanation.

### Measurement and Data

#### Convert like measurement units within a given measurement system.

##### 5.MD.A.1

Convert among different-sized standard measurement units within a given measurement system and use these conversions in solving multi-step, real world problems. (e.g., convert 5 cm to 0.05 m; 9 ft to 108 in).

### Operations and Algebraic Thinking

#### Write and interpret numerical expressions

##### 5.OA.A.1

Use parentheses or brackets in numerical expressions, and evaluate expressions with these symbols.

##### 5.OA.A.2

Write simple expressions that record calculations with whole numbers, fractions, and decimals, and interpret numerical expressions without evaluating them. *For example, express the calculation "add 8 and 7, then multiply by 2" as  $2 \times (8 + 7)$ . Recognize that  $3 \times (18,932 + 9.21)$  is three times as large as  $18,932 + 9.21$ , without having to calculate the indicated sum or product.*

#### Enduring Understandings:

- The properties of multiplication and division help us solve computation problems.
- There is an order of operations that must be followed in all mathematical expressions.
- Selection of measurement tools and units depends on the real-world situation.
- Decimals allow us to express quantities with greater precision.

#### Essential Questions:

- How can I write an expression that demonstrates a situation or context?
- Why express measurements in different ways?
- How does the position of a digit affect its value?
- Why is it important to follow an order of operations?
- How does multiplying or dividing a number by a power of ten affect the product or quotient?