

Unit 3 Multi-Digit Multiplication and Division

Grade 4 Math

Description:

Students multiply a single-digit number times a multi-digit number and a two-digit number by a two-digit number. Strategies such as the standard algorithm, arrays, area models, and mental strategies as well as properties of multiplication will be used to multiply. Students also model, write and explain division by one-digit divisors, and continue to become fluent with basic facts.

Problem solving situations are used whenever possible including problems involving measurement. Area of rectangles provides one context for developing such understanding.

Louisiana Student Standards for Mathematics (LSSM)

Number and Operations in Base Ten	
Use place value understanding to perform multi-digit arithmetic.	
4.NBT.5	Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.
4.NBT.6	Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.
Operations and Algebraic Thinking	
Use the four operations with whole numbers to solve problems.	
4.OA.1	Interpret a multiplication equation as a comparison and represent verbal statements of multiplicative comparisons as multiplication equations, e.g., interpret $35 = 5 \times 7$ as a statement that 35 is 5 times as many as 7, and 7 times as many as 5.
4.OA.2	Multiply or divide to solve word problems involving

	<p>multiplicative comparison, e.g., by using drawings and/or equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison (Example: 6 times as many vs. 6 more than).</p>
4.OA.3	<p>Solve multi-step word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. <i>Example: Twenty-five people are going to the movies. Four people fit in each car. How many cars are needed to get all 25 people to the theater at the same time?</i></p>
Operations and Algebraic Thinking	
Gain familiarity with factors and multiples.	
4.OA.4	<p>Using whole numbers in the range 1–100,</p> <ol style="list-style-type: none"> Find all factor pairs for a given whole number. Recognize that a given whole number is a multiple of each of its factors. Determine whether a given whole number is a multiple of a given one-digit number. Determine whether a given whole number is prime or composite.
Generate and analyze patterns.	
4.OA.5	<p>Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. <i>For example, given the rule "Add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.</i></p>
Measurement and Data	
Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.	
4.MD.3	<p>Apply the area and perimeter formulas for rectangles in real world and mathematical problems. For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor.</p>

Enduring Understandings:

Essential Questions:

- Place value understanding helps me solve multiplication and

- How does place value understanding help me solve multiplication and

division problems with multi-digit numbers.

- Understanding the properties of numbers helps me find factors, multiples, products and quotients.
- Flexible methods of computation involve grouping numbers in strategic ways.
- When solving word problems, I must understand what needs to be done, different strategies to solve the problem, and the reasonableness of the solution.

division problems?

- How are the four operations related to one another?
- What types of problems can be solved using multiplication and division?
- What must I need to know in order to solve word problems?
- How can understanding patterns help me solve problems?
- What is the difference between perimeter and area?