Unit 7
Exploring Measurement with Multiplication

Grade 4
Math

Description:

Unit 7 focuses on multiplication and measurement as students solve multi-step word problems involving metric and customary measures. Students focus their learning on understanding the relationship between units within one system of measurement. Emphasis is placed on solving word problems involving distances, intervals of time, liquid volumes, masses of objects, and money. Students will apply the area and perimeter formulas for rectangles in real world and mathematical problems.

Louisiana Student Standards for Mathematics (LSSM)

Measurement and Data: Supporting Cluster	
Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.	
4.MD.A.1	Know relative sizes of measurement units within one system of units including ft, in, km, m, cm; kg, g; lb., oz.; l, ml; hr., min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. (Conversions are limited to one-step conversions.) Record measurement equivalents in a two-column table. *For example, know that 1 ft. is 12 times as long as 1 in. Express length of a 4 ft. snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36), ...*
4.MD.A.2	Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving whole numbers and/or simple fractions (addition and subtraction of fractions with like denominators and multiplying a fraction times a fraction or a whole number), and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.
Number and Operations in Base Ten	
Use place value understanding and properties of operations to perform multi-digit arithmetic.	
4.NBT.B.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.B.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 x 7 as a statement that 35 is 5 times as many as 7, and 7 times as many as
4.OA.2	Multiply or divide to solve word problems involving 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)
4.OA.3	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. 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?

Enduring Understandings:

- Measurement describes the attribute of objects and events.
- One unit of measurement can be compared to another within a single system of measurement.
- Measurement can be used to solve problems.
- There can be different strategies to solve a problem, but some are more effective and efficient than others are.
- A problem solver understands what has been done, knows why the

Essential Questions:

- Why do we measure?
- Why do we need standardized units of measurement?
- When do we need to convert measurements?
- How can measurement be used to solve problems?
- How do I decide what strategy will work best in a given problem situation?
- How do I know where to begin when solving a problem?

process was appropriate, and can support it with reasons and evidence.	• What is the difference between perimeter and area?