

Unit 4 - It All Adds Up To This

Overview

Unit 4 focuses on place value to 1,000,000 and multi-digit addition strategies. In this unit, a strand of numeric exploration and investigation that was launched in Grade 1 and developed throughout Grades 2 and 3 comes to a logical conclusion as students are introduced to the standard, or traditional, algorithms for multi-digit addition and subtraction. They also continue to explore other strategies for addition and subtraction determining which strategy is most efficient to solve a given problem. Later in the unit, students apply their knowledge of place value and multi-digit computation to solve problems involving length, time, volume, mass and weight.

21st Century Capacities: Synthesizing, Presentation

Stage 1 - Desired Results

<p>ESTABLISHED GOALS/ STANDARDS</p> <p>MP 1 Make sense of problems and persevere in solving them MP 7 Look for and Make Use of Structure MP 4 Model with Mathematics</p> <p>CCSS.MATH.CONTENT.4.OA.A.3 Solve multistep 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.</p> <p>CCSS.MATH.CONTENT.4.NBT.A.1 Recognize that in a multi-digit whole number, a digit in one</p>	<p style="text-align: center;">Transfer:</p> <p><i>Students will be able to independently use their learning in new situations to...</i></p> <ol style="list-style-type: none"> 1. Manipulate equations/expressions or objects create order, establish relationships, and be able to share important findings. (Presentation) 2. Represent and interpret patterns in numbers, data and objects. (Synthesizing) <p style="text-align: center;">Meaning:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none; vertical-align: top; padding: 5px;"> <p>UNDERSTANDINGS: <i>Students will understand that:</i></p> <ol style="list-style-type: none"> 1. We can examine relationships to discern a pattern, generalizations, or structure. 2. By placing a problem in a category, we have a familiar approach to solve it. 3. Mathematicians identify relevant tools, strategies, relationships, and/or information in order to draw conclusions. 4. Problems can be solved by looking for and describing patterns, relations, and/or </td> <td style="width: 50%; border: none; vertical-align: top; padding: 5px;"> <p>ESSENTIAL QUESTIONS: <i>Students will explore & address these recurring questions:</i></p> <ol style="list-style-type: none"> A. How can I use models and strategies to help me solve this problem? How do I know if it's right? B. Is this the most efficient way to solve this problem? How do I know? C. What is the pattern here? (place value) D. How do I show my thinking? (using representations e.g. words, numbers, models) </td> </tr> </table>	<p>UNDERSTANDINGS: <i>Students will understand that:</i></p> <ol style="list-style-type: none"> 1. We can examine relationships to discern a pattern, generalizations, or structure. 2. By placing a problem in a category, we have a familiar approach to solve it. 3. Mathematicians identify relevant tools, strategies, relationships, and/or information in order to draw conclusions. 4. Problems can be solved by looking for and describing patterns, relations, and/or 	<p>ESSENTIAL QUESTIONS: <i>Students will explore & address these recurring questions:</i></p> <ol style="list-style-type: none"> A. How can I use models and strategies to help me solve this problem? How do I know if it's right? B. Is this the most efficient way to solve this problem? How do I know? C. What is the pattern here? (place value) D. How do I show my thinking? (using representations e.g. words, numbers, models)
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Grade 4 Math Curriculum

<p>place represents ten times what it represents in the place to its right.</p> <p>CCSS.MATH.CONTENT.4.NBT.A.2 Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons.</p> <p>CCSS.MATH.CONTENT.4.NBT.A.3 Use place value understanding to round multi-digit whole numbers to any place.</p> <p>CCSS.MATH.CONTENT.4.NBT.B.4 Fluently add and subtract multi-digit whole numbers using the standard algorithm.</p> <p>CCSS.MATH.CONTENT.4.MD.A.1 Know relative sizes of measurement units within one system of units including 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. Record measurement equivalents in a two-column table.</p> <p>CCSS.MATH.CONTENT.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 simple fractions or decimals, 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.</p>	<p>functions to access strategies.</p> <p>5. Flexible methods of computation involve grouping numbers in strategic ways.</p>	<p>E. How does what we measure affect how we measure?</p> <p>F. How can measurement help me describe what I see?</p>
Acquisition:		
	<p><i>Students will know...</i></p> <ol style="list-style-type: none"> 1. Various strategies for adding and subtracting multi-digit numbers (Give & Take, Constant Difference) 2. The base ten number system 3. Algorithms for multi-digit addition and subtraction 4. Benchmarks and relative sizes for length, time, volume, mass and weight 5. Vocabulary: algorithm, expanded form, (milli, centi, kilo)meter, ounce, pound, pint, quart, gallon, rounding, sum/total, difference, cup, customary system, (milli, kilo) gram, (milli)liter, mass, metric system, volume, elapsed time, maximum, minimum, range, line plot, mean, median, mode 	<p><i>Students will be skilled at...</i></p> <ol style="list-style-type: none"> 1. Using open number lines, ratio tables, base ten pieces, and algorithm to solve equations 2. Recognizing place value patterns within 1,000,000 3. Using ratio tables to convert units with same measuring system