

## Unit 3 - Multi-Digit Addition and Subtraction

### Overview

This unit reviews and extends upon patterns within place value and larger addition and subtraction situations. The first lessons introduce the concept of rounding to the nearest ten and/or hundred, which is then used as a strategy to estimate and partition three-digit numbers in order to add and subtract efficiently. Students expand their repertoire of addition and subtraction strategies learned in second grade. In this unit, students will gain experiences and strategies for making sense of problems and communicating effectively about the accuracy and efficiency of various solutions.

**21st Century Capacities:** Problem Identification

### Stage 1 - Desired Results

<p><b>ESTABLISHED GOALS/ STANDARDS</b></p> <p>MP 1 Make sense of problems and persevere while solving them.                  MP 3 Construct viable arguments and critique the reasoning of others.                  MP4 Model with Mathematics.</p> <p>3.OA.8 Solve two-step story problems using addition, subtraction, multiplication, and division</p> <p>3.OA.8 Write equations with a letter standing for the unknown quantity to represent two-step story problems</p> <p>3.OA.8 Write equations with a letter standing for the unknown quantity to represent two-step story problems</p>	<p><b>Transfer:</b></p>		
	<p><i>Students will be able to independently use their learning in new situations to...</i></p> <ol style="list-style-type: none"> <li>1. Make sense of a problem, initiate a plan, execute it, and evaluate the reasonableness of the solution.</li> <li>2. Use appropriate tools to make reaching solutions more efficient, accessible and accurate.</li> <li>3. Justify reasoning using clear and appropriate mathematical language.</li> </ol>		
	<p><b>Meaning:</b></p>		
	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; vertical-align: top; padding: 5px;"> <p><b>UNDERSTANDINGS:</b> <i>Students will understand that:</i></p> <ol style="list-style-type: none"> <li>1. Rounding and computational estimation go hand in hand</li> <li>2. Distinguishing a variety of strategies for adding multi-digit numbers helps problem solving accuracy and efficiency</li> <li>3. Tools and visual models help us to problem solve and explain our thinking</li> <li>4. Decisions about which method to use should be based on the numbers involved</li> </ol> </td> <td style="width: 50%; vertical-align: top; padding: 5px;"> <p><b>ESSENTIAL QUESTIONS:</b> <i>Students will explore &amp; address these recurring questions:</i></p> <ol style="list-style-type: none"> <li>A. How can I use models and strategies help me to solve this problem? How do I know if it's right?</li> <li>B. Is this the most efficient way to solve this problem? How do I know?</li> <li>C. What is the pattern here? (place value)</li> <li>D. How do I show my thinking? (using representations e.g. words, numbers, models)</li> </ol> </td> </tr> </table>	<p><b>UNDERSTANDINGS:</b> <i>Students will understand that:</i></p> <ol style="list-style-type: none"> <li>1. Rounding and computational estimation go hand in hand</li> <li>2. Distinguishing a variety of strategies for adding multi-digit numbers helps problem solving accuracy and efficiency</li> <li>3. Tools and visual models help us to problem solve and explain our thinking</li> <li>4. Decisions about which method to use should be based on the numbers involved</li> </ol>	<p><b>ESSENTIAL QUESTIONS:</b> <i>Students will explore &amp; address these recurring questions:</i></p> <ol style="list-style-type: none"> <li>A. How can I use models and strategies help me to solve this problem? How do I know if it's right?</li> <li>B. Is this the most efficient way to solve this problem? How do I know?</li> <li>C. What is the pattern here? (place value)</li> <li>D. How do I show my thinking? (using representations e.g. words, numbers, models)</li> </ol>
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## Grade 3 Math Curriculum

	<b>Acquisition:</b>	
<p>3.NBT.1 Round whole numbers to the nearest ten or the nearest hundred</p> <p>3.NBT.2 Use strategies and algorithms based on place value, properties of operations, or the relationship between addition and subtraction to add and subtract fluently with sums and minuends to 1000</p> <p>3.NBT Estimate sums and differences to approximate solutions to problems</p>	<p><i>Students will know...</i></p> <ol style="list-style-type: none"> <li>1. Subtraction meanings: difference, removal</li> <li>2. Strategies including splitting, give &amp; take, jumping by/to friendly number, constant difference</li> <li>3. Estimating skills help to approximate solutions and reasonableness of solutions</li> <li>4. 3 and 4-digit place value concepts</li> <li>5. Problems can be approached from a range of perspectives</li> <li>6. Numbers can be manipulated in a variety of ways</li> <li>7. Models are different than strategies</li> <li>8. <b>Vocabulary:</b> estimate, approximate, rounding, landmark number, nearest ten or hundred, sum, total, addend, strategy, difference, expanded form, thousand, algorithm, estimate, equation</li> </ol>	<p><i>Students will be skilled at...</i></p> <ol style="list-style-type: none"> <li>1. rounding numbers to the nearest ten or hundred</li> <li>2. adding multiples of ten to three-digit numbers</li> <li>3. explaining patterns among addition and subtraction problem types</li> <li>4. using place value splitting and strategies for multi-digit addition and subtraction</li> <li>5. solving addition and subtraction story problems</li> </ol>