



Grade 4 - Unit A - It All Adds Up to This

Unit Focus

Unit 4 focuses on place value to 1,000,000 and multi-digit addition and subtraction strategies. Students will investigate place value of numbers to a million including rounding numbers to any given place. 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.

Stage 1: Desired Results - Key Understandings

Standard(s)	Transfer	
Standards - Common Core <i>Mathematics: 4</i> - Use the four operations with whole numbers to solve problems. - 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. (CCSS.MATH.CONTENT.4.OA.A.3) - Generalize place value understanding for multi-digit whole numbers. - Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. For example, recognize that $700 \div 70 = 10$ by applying concepts of place value and division. (CCSS.MATH.CONTENT.4.NBT.A.1) - 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. (CCSS.MATH.CONTENT.4.NBT.A.2) - Use place value understanding to round multi-digit whole numbers to any place. (CCSS.MATH.CONTENT.4.NBT.A.3) - Use place value understanding and properties of operations to perform multi-digit arithmetic. - Fluently add and subtract multi-digit whole numbers using the standard algorithm. (CCSS.MATH.CONTENT.4.NBT.B.4) - Mathematical Practices - Make sense of problems and persevere in solving them. (CCSS.MATH.MP.1)	<i>Students will be able to independently use their learning to...</i> T1 Initiate a plan using a variety of methods/strategies appropriately, execute it, and evaluate the reasonableness and accuracy of the solution. T2 Demonstrate fluency with mathematical computations and definitions. T3 Apply an understanding of known patterns to new problems and make connections between concepts.	
	Meaning	
	Understanding(s)	Essential Question(s)
	<i>Students will understand that...</i> U1 Mathematicians work to make sense of the problem before trying to solve it. U2 Mathematicians monitor progress while problem solving, change course if necessary and evaluate the reasonableness of their solution. U3 Mathematicians calculate efficiently and accurately while using appropriate symbols and labels. U4 Mathematicians use their knowledge from patterns and structures to apply efficient strategies to solve a problem.	<i>Students will keep considering...</i> Q1 How do I determine that my answer makes sense? Q2 What do effective problem solvers do when they get stuck? Q3 How do I check my work for accuracy and completeness? Q4 How can we apply knowledge of a pattern to similar problems? Q5 What is a way of expressing the recurring pattern?
	Acquisition of Knowledge and Skill	
	Knowledge	Skill(s)
	<i>Students will know...</i> K1 various strategies can be used to add and subtract multi-digit numbers (Number Line, Number Splitting,	<i>Students will be skilled at...</i> S1 using open number lines, ratio tables, base ten pieces, and standard algorithm to solve addition and subtraction equations

Stage 1: Desired Results - Key Understandings

- Model with mathematics. (*CCSS.MATH.MP.4*)
- Look for and express regularity in repeated reasoning. (*CCSS.MATH.MP.8*)

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Analyzing: Examining information/data/evidence from multiple sources to identify possible underlying assumptions, patterns, and relationships in order to make inferences. (*POG.1.2*)

Give & Take, Constant Difference, Standard Algorithm)

K2 place value in the base ten number system helps us know the value of a number

K3 estimating helps us determine if a solution to an addition or subtraction problem is reasonable

K4 each digit represents ten times what it represents in the place to its right in a multi-digit number

K5 Vocabulary: algorithm, expanded form, rounding, sum/total, difference, maximum, minimum, range,

S2 read and write multi-digit whole numbers

S3 rounding numbers to the nearest hundred, thousand and ten-thousand

S4 solving multi-step story problems involving all four operations

S5 compare multi-digit whole numbers

S6 adding with a standard algorithm

S7 subtracting with a standard algorithm