

Number and Operations in Base Ten: Grade 4

Stage 1 Desired Results

ESTABLISHED GOALS:

Competencies:

- ***Students will demonstrate the ability to apply number sense by comparing rational numbers in various forms.***
- ***Students will demonstrate the ability to solve arithmetic and algebraic problems by utilizing effective strategies and applying properties of operations to multi-digit whole integers and to fractions.***
- ***Students will demonstrate the ability to model operations by utilizing objects, drawings, and equations.***

Content Standards:

- 4.NBT.1 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.
- 4.NBT.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.
- 4.NBT.3 Use place value understanding to round multi-digit whole numbers to any place.
- 4.NBT.4 Fluently add and subtract multi-digit whole numbers using the standard algorithm.
- 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.
- MP1 Make sense of problems and persevere in solving them.
- MP6 Attend to precision.
- MP7 Look for and make use of structure.
- MP8 Look for and express regularity in repeated reasoning.

Transfer

Students will be able to independently use their learning to solve arithmetic and algebraic problems, with fluency.

Meaning

ENDURING UNDERSTANDINGS

Students will understand that...

- place value leads to number sense and efficient computing with numbers.

ESSENTIAL QUESTIONS

- ***Is there a relationship between position and value?***
- ***What's the right way to solve a problem?***

Acquisition

Students will know...

- when it's appropriate to round to a given place value.
- that the value of the digit to the right of the place to be rounded determines whether to round up or down.
- that the sum of multiple numbers is equal to the sum of the value of the numbers in each place value.
- that the product of an equation is equal to the multiple of units represented in each place value.
- that a dividend is calculated by dividing the units represented in each place value.
- that the value of each digit in a multi-digit number is ten times the digit to the right.
- the standard algorithm for addition and subtraction.

vocabulary:

expanded form, standard form, word form, round, standard algorithm, rectangular array, area model, area, product, quotient, remainder

Students will be skilled at...

- reading and writing a multi-digit number in word form, standard form, and expanded form.
- comparing two multi-digit number using place value and recording the comparison using symbols $<$, $>$, or $=$.
- rounding a whole number within 1,000,000 to a specified place.
- adding and subtracting multi-digit whole numbers (within 1,000,000) with ease by using the standard algorithm.
- multiplying a multi-digit number by a one-digit whole number.
- demonstrating multiplication of two 2-digit numbers using rectangular arrays, place value, and the area model.
- solving multiplication of two two-digit numbers using properties of operations and equations.
- demonstrating division of a multi-digit number by a one-digit number using place value, rectangular arrays, and area model.
- solving division of a multi-digit number by a one-digit number using properties of operations and equations.

		- explaining their chosen strategies using models, words, and numbers. - demonstrating the reasoning used in a multi-digit multiplication problem.
Content Area Literacy Standards		21st Century Skills
not applicable		<i>reason effectively</i> <i>solve problems</i> <i>use and manage information</i>

Stage 2 - Evidence	
<i>Evaluative Criteria</i>	<i>Assessment Evidence</i>
	PERFORMANCE TASK(S):
	OTHER EVIDENCE:

Stage 3 – Learning Plan	
Summary of Key Learning Events and Instruction	
Language Arts Integration	Mathematics Integration
1.OA.1 Use	not applicable
Technology Integration	District Materials
1.OA.1 Use	

