



Rigorous Curriculum Design

Unit Planning Organizer



Subject:	Mathematics		Grade:	4
Unit Number:	7	Unit Name:	Problem Solving with Whole Numbers	
Unit Length	Days: 19 days	Mins / Day: 60		
Unit Synopsis	<p>Students will be asked to multiply or divide to solve word problems involving multiplicative comparison, distinguishing multiplicative comparison from additive comparison. Secondly, students will be asked to 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. They will be asked to represent these problems using equations with a letter standing for the unknown quantity and to assess the reasonableness of answers using mental computation and estimation strategies (including rounding). Next, students will be asked to fluently add and subtract multi-digit whole numbers using the standard algorithm. Students will also be asked to 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. They will need to illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. Finally, students will be asked to 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. They will need to illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.</p>			

	Math CCSS	Standards for Mathematical Practice
Priority Standards	<p>4.OA.2 - Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.</p> <p>4.OA.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>4.NBT.4 - Fluently add and subtract multi-digit whole numbers using the standard algorithm.</p> <p>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.</p> <p>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.</p>	<p><input type="checkbox"/> Make sense of problems and persevere in solving them</p> <p><input checked="" type="checkbox"/> Reason abstractly and quantitatively</p> <p><input type="checkbox"/> Construct viable arguments and critique the reasoning of others</p> <p><input type="checkbox"/> Model with mathematics</p> <p><input type="checkbox"/> Use appropriate tools strategically</p> <p><input type="checkbox"/> Attend to precision</p> <p><input type="checkbox"/> Look for and make use of structure</p> <p><input checked="" type="checkbox"/> Look for and express regularity in repeated reasoning</p>

	Math CCSS	ELA CCSS	NG ELD Standards
Supporting Standards		<p>RI.4.1 Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.</p> <p>RI.4.4 Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a grade 4 topic or subject area.</p> <p>RI.4.7 Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears.</p> <p>W.4.2.a-e Write informative/explanatory texts to examine a topic and convey ideas and information clearly.</p> <p>W.4.10 Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.</p> <p>SL.4.1.a-d Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics and texts, building on others' ideas and expressing their own clearly.</p> <p>SL.4.2 Paraphrase portions of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.</p> <p>SL.4.3 Identify the reasons and evidence a speaker provides to support particular points.</p> <p>SL.4.6 Differentiate between contexts that call for formal English (e.g., presenting ideas) and situations where informal discourse is appropriate (e.g., small-group discussion); use formal English when appropriate to task and situation. (See grade 4 Language standards 1 here for specific expectations.)</p> <p>L.4.3.a,c Use knowledge of language and its conventions when writing, speaking, reading, or listening.</p> <p>L.4.4.a-c Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 4 reading and content, choosing flexibly from a range of strategies.</p> <p>L.4.5.c Demonstrate understanding of words by relating them to their opposites (antonyms) and to words with similar but not identical meanings (synonyms).</p> <p>L.4.6 Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal precise actions, emotions, or states of being (e.g., quizzed, whined, stammered) and that are basic to a particular topic (e.g., wildlife, conservation, and endangered when discussing animal preservation).</p>	<p>ELD.4.I.B.6 (RI.4.1, RI.4.4, L.4.3) Reading closely literary and informational texts and viewing multimedia to determine how meaning is conveyed explicitly and implicitly through language.</p> <p>ELD.4.I.B.7 (L.4.3, L.4.5.c) Listening actively to spoken English in a range of social and academic context.</p> <p>ELD.4.I.A.2 (L.4.6) Interacting with others in writing language in various communicative forms (print, communicative technology, and multimedia).</p> <p>ELD.4.I.C.10 (W.4.2.d, W.4.10) Writing literary and informational text to present, describe, and explain ideas and information, using appropriate technology.</p> <p>ELD.4.II.A.1 (W.4.2.d) Understanding Text structure.</p> <p>ELD.4.II.A.2 (W.4.2.d) Understanding cohesion</p>
Interdisciplinary Standards			

Unwrapped Priority Standards

Standard 1:	4.OA.2 - Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.		
Skills	Concepts	Bloom's	DOK
Solve	word problems with multiplication or division involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.	5	3
Distinguish	multiplicative comparison from additive comparison.	4	2

Standard 2:	4.OA.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.		
Skills	Concepts	Bloom's	DOK
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	4	3
Represent	these problems using equations with a letter standing for the unknown quantity	3	2
Assess	the reasonableness of answers using mental computation and estimation strategies including rounding.	5	3

Standard 3:	4.NBT.4 - Fluently add and subtract multi-digit whole numbers using the standard algorithm.		
Skills	Concepts	Bloom's	DOK
Add	multi-digit whole numbers using the standard algorithm fluently	2	1
Subtract	multi-digit whole numbers using the standard algorithm fluently	2	1

Standard 4:	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.		
Skills	Concepts	Bloom's	DOK
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.	3	2
Illustrate	the calculation by using equations, rectangular arrays, and/or area models.	3	2
Explain	the calculation by using equations, rectangular arrays, and/or area models.	4	3

Standard 5:	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.		
Skills	Concepts	Bloom's	DOK
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.	3	2
Illustrate	the calculation by using equations, rectangular arrays, and/or area models.	3	2
Explain	the calculation by using equations, rectangular arrays, and/or area models.	4	3

Learning Progressions

Standard 1:		OA 2 Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison. ¹			
Previous Grade 3OA3		Current Grade		Next Grade 5NF6	
Skills	Concepts	Skills	Concepts	Skills	Concepts
Use	multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem. ¹	Multiply or divide	to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison. ¹	Solve	real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.

Standard 2:		OA 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.			
Previous Grade n/a		Current Grade		Next Grade 5NBT.7	
Skills	Concepts	Skills	Concepts	Skills	Concepts
N/A	N/A	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.	Add, subtract, multiply, and divide	decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

Standard 3:		NBT 4 Fluently add and subtract multi-digit whole numbers using the standard algorithm.			
Previous Grade 3NBT.2		Current Grade		Next Grade n/a	
Skills	Concepts	Skills	Concepts	Skills	Concepts
Fluently	add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.	Fluently add and subtract	multi-digit whole numbers using the standard algorithm.	N/A	N/A

Standard 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.			
Previous Grade 3NBT.3		Current Grade		Next Grade 5NBT5	
Skills	Concepts	Skills	Concepts	Skills	Concepts
Multiply	one-digit whole numbers by multiples of 10 in the range 10-90 (e.g., 9×80 , 5×60) using strategies based on place value and properties of operations.	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.	Fluently multiply	multi-digit whole numbers using the standard algorithm.

Standard 5:		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.			
Previous Grade 3OA.4		Current Grade		Next Grade 5NBT.6	
Skills	Concepts	Skills	Concepts	Skills	Concepts
Determine	the unknown whole number in a multiplication or division equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations $8 \times ? = 48$, $5 = _ \div 3$, $6 \times 6 = ?$	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.	Find	whole-number quotients of whole numbers with up to four-digit dividends and two-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.
Big Idea(s)			Corresponding Essential Question(s)		
<p>4.OA.2 – Multiplication and division word problems can be solved using equations..</p> <p>4.OA.3 – Multi-step word problems are solved using equations which could include a variable standing for an unknown quantity.</p> <p>4.OA.3 – The reasonableness of multi-step word problems can be assessed using mental computation and estimation.</p> <p>4.NBT.4 – When using the standard algorithm for adding and subtracting, we are able to build fluency.</p> <p>4.NBT.5 – We can use strategies based on place value and the properties of operations to solve four by one digit and two by two digit multiplication problems. (Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.)</p> <p>4.NBT.6 - We can use 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.)</p>			<p>4.OA.2 – How can I multiply or divide word problems using an equation?</p> <p>4.OA.3 – How do you solve a multi-step word problem with an unknown variable?</p> <p>4.OA.3 – How do you assess the reasonableness of an answer in a multi-step word problem?</p> <p>4.NBT.4 – How does using the standard algorithm help students when adding and subtracting whole numbers?</p> <p>4.NBT.5 – What are some methods for solving multiplication and division problems?</p> <p>4.NBT.6 – What are some strategies used in solving whole number division problems?</p>		
Unit Vocabulary Words					
Academic Cross-Curricular Vocabulary (Tier 2)			Content/Domain Specific Vocabulary (Tier 3)		
Reasonableness Assessed Fluency Strategies Properties Relationship Illustrate Explain			Multi-Step Word Problems Solve Equations Variable Unknown Quantity Mental Computation Estimation Standard Algorithm Adding Subtracting Place Value Operations One-Digit/Two-Digit Multiplication Division Equations Rectangular Arrays Area Models Calculation		

Resources for Vocabulary Development (Strategies, Routines and Activities)

21st Century Skills

- | | |
|---|---|
| <input type="checkbox"/> Creativity and Innovation
<input checked="" type="checkbox"/> Critical Thinking and Problem Solving
<input checked="" type="checkbox"/> Communication and Collaboration
<input type="checkbox"/> Flexibility and Adaptability | <input checked="" type="checkbox"/> Initiative and Self-Direction
<input type="checkbox"/> Social and Cross-Cultural Skills
<input checked="" type="checkbox"/> Productivity and Accountability
<input type="checkbox"/> Leadership and Responsibility |
|---|---|

Costa & Kallick, 2008

Unit Assessments

Pre-Assessment	Pre-Assessment
Please go to www.alvordschools.org/cfa for the most current ID numbers.	Please go to www.alvordschools.org/cfa for the most current ID numbers.

Scoring Guides and Answer Keys

Embedded within EADMS	Embedded within EADMS
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Engaging Scenario Overview (Situation, challenge, role, audience, product or performance)		
Authentic Performance Tasks		Suggested Length of Time
<p>Description: Your parents own a small business that sells posters, paintings, and picture frames. You are responsible for keeping track of all the sales that your parents complete. Using the information that you gained from task one and task two, create a five question (word problems) quiz for a classmate. At least one of these word problems needs to be a multi-step problem and another problem needs to include a variable to represent an unknown. These questions should involve the prices, sales, and products used in previous tasks. Make sure you have an answer key for your quiz.</p>		<p>Days: 19 Mins/Day: 60</p>
Engaging Learning Experiences Synopsis of Authentic Performance Tasks		
Authentic Performance Tasks		Suggested Length of Time
<p>Task 1: Creating Problems</p> <p>4.OA.2 - Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison. 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.</p> <p>Big Ideas: 4.OA.2 - Multiplication and division word problems can be solved using equations with unknown values. 4.NBT.4 - When using the standard algorithm for adding and subtracting, we are able to build fluency. 4.NBT.5 - We can use strategies based on place value and the properties of operations to solve four by one digit and two by two digit multiplication problems. (Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.) 4.NBT.6 - We can use 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.)</p> <p>Essential Questions: 4.OA.2 - How can I multiply or divide word problems using an equation for an unknown value? 4.NBT.4 - How does using the standard algorithm help students when adding and subtracting whole numbers? 4.NBT.5 - What are some methods for solving multiplication and division problems? 4.NBT.6 - What are some strategies used in solving whole number division problems?</p>		<p>Days: 8-9 Mins/Day: 60</p> <p>The business was able to sell posters, paintings, and picture frames totaling between \$1,000 & \$9,999. You need to come up with several word problem scenarios that demonstrate addition, subtraction, multiplication, and division of sales.</p> <p>The numbers that you use may not have more than one (1) zero or repeat any digits. The numbers must be 4 digits long when adding and subtracting scenarios are used.</p> <p>When multiplying or dividing you may not use more than a single (1) divisor or multiplier.</p>
<p>Task 2: The Unknown</p> <p>4.OA.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>Big Ideas: 4.OA.3 - Multi-step word problems are solved using equations which could include a variable standing for an unknown quantity. 4.OA.3 - The reasonableness of multi-step word problems can be assessed using mental computation and estimation.</p> <p>Essential Questions: 4.OA.3 - How do you solve a multi-step word problem with an unknown variable? 4.OA.3 - How do you assess the reasonableness of an answer in a multi-step word problem?</p>		<p>Days: 8-9 Mins/Day: 60</p> <p>See the prices below: Large Frames: \$45.00 Small Frames: \$23.00 Black & White Posters: \$17.00 Color Posters: \$22.00 Paintings Unframed: \$54.00 Paintings Framed: \$99.00</p> <p>Use the price chart to create multistep word problems with at least two (2) operations in each. Use a variable to represent an unknown quantity.</p>

Authentic Performance Task 1

Name:	Task 1: Creating Problems		Suggested Length	Days: 8-9 Mins/Day: 60
Standards Addressed	Priority Standards			
	CCSS Math	Standards for Mathematical Practice		
	<p><u>Task 1: Creating Problems</u></p> <p>4.OA.2 - Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.</p> <p>4.NBT.4 - Fluently add and subtract multi-digit whole numbers using the standard algorithm.</p> <p>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.</p> <p>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.</p> <p>Big Idea:</p> <p>4.OA.2 – Multiplication and division word problems can be solved using equations with unknown values.</p> <p>4.NBT.4 – When using the standard algorithm for adding and subtracting, we are able to build fluency.</p> <p>4.NBT.5 – We can use strategies based on place value and the properties of operations to solve four by one digit and two by two digit multiplication problems. (Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.)</p> <p>4.NBT.6 - We can use 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.)</p> <p>Essential Question</p> <p>4.OA.2 – How can I multiply or divide word problems using an equation for an unknown value?</p> <p>4.NBT.4 – How does using the standard algorithm help students when adding and subtracting whole numbers?</p> <p>4.NBT.5 – What are some methods for solving multiplication and division problems?</p> <p>4.NBT.6 – What are some strategies used in solving whole number division problems?</p>	<p><input type="checkbox"/> Make sense of problems and persevere in solving them</p> <p><input checked="" type="checkbox"/> Reason abstractly and quantitatively</p> <p><input type="checkbox"/> Construct viable arguments and critique the reasoning of others</p> <p><input type="checkbox"/> Model with mathematics</p> <p><input type="checkbox"/> Use appropriate tools strategically</p> <p><input type="checkbox"/> Attend to precision</p> <p><input type="checkbox"/> Look for and make use of structure</p> <p><input checked="" type="checkbox"/> Look for and express regularity in repeated reasoning</p>		

Supporting Standards		
CCSS Math	CCSS ELA	NG ELD
	<p>RI.4.4 Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a grade 4 topic or subject area.</p> <p>RI.4.7 Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears.</p> <p>W.4.2.a-e Write informative/explanatory texts to examine a topic and convey ideas and information clearly.</p> <p>SL.4.1.a-d Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics and texts, building on others' ideas and expressing their own clearly.</p> <p>SL.4.2 Paraphrase portions of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.</p> <p>Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal precise actions, emotions, or states of being (e.g., quizzed, whined, stammered) and that are basic to a particular topic (e.g., wildlife, conservation, and endangered when discussing animal preservation).</p>	<p>ELD.4.I.B.6 (RI.4.1, RI.4.4, L.4.3) Reading closely literary and informational texts and viewing multimedia to determine how meaning is conveyed explicitly and implicitly through language.</p> <p>ELD.4.I.B.7 (L.4.3, L.4.5.c) Listening actively to spoken English in a range of social and academic context.</p> <p>ELD.4.I.A.2 (L.4.6) Interacting with others in writing language in various communicative forms (print, communicative technology, and multimedia).</p> <p>ELD.4.I.C.10 (W.4.2.d, W.4.10) Writing literary and informational text to present, describe, and explain ideas and information, using appropriate technology.</p> <p>ELD.4.II.A.1 (W.4.2.d) Understanding Text structure.</p> <p>ELD.4.II.A.2 (W.4.2.d) Understanding cohesion</p>

The business was able to sell posters, paintings, and picture frames totaling between \$1,000 & \$9,999. You need to come up with several word problem scenarios that demonstrate addition, subtraction, multiplication, and division of sales.

The numbers that you use may not have more than one (1) zero or repeat any digits. The numbers must be 4 digits long when adding and subtracting scenarios are used.

When multiplying or dividing you may not use more than a single (1) divisor or multiplier.

Suggestions:

The 3 common types of multiplication and division problems are summarized in the following table:

	Unknown Product	Group Size Unknown (Partitive Division)	Number of Groups Unknown (Measurement Division)
	$3 \times 6 = ?$	$3 \times ? = 18$ and $18 \div 3 = ?$	$? \times 6 = 18$ and $18 \div 6 = ?$
Equal Groups	There are 3 bags with 6 plums in each bag. How many plums are there in all? Measurement Example. You need 3 lengths of string, each 6 inches long. How much string will you need altogether?	If 18 plums are shared equally into 3 bags, then how many plums will be in each bag? Measurement example. You have 18 inches of string, which you will cut into 3 equal pieces. How long will each piece of string be?	If 18 plums are to be packed 6 to a bag, then how many bags are needed? Measurement example. You have 18 inches of string, which you will cut into pieces that are 6 inches long. How many pieces of string will you have?
Arrays, Area	There are 3 rows of apples with 6 apples in each row. How many apples are there? Area Example. What is the area of a 3 cm by 6 cm rectangle?	If 18 apples are arranged into 3 equal rows, how many apples will be in each row? Area example. A rectangle has area 18 square centimeters. If one side is 3 cm long, how long is a side next to it?	If 18 apples are arranged into equal rows of 6 apples, how many rows will there be? Area example. A rectangle has area 18 square centimeters. If one side is 6 cm long, how long is a side next to it?
Compare	A blue hat costs \$6. A red hat costs 3 times as much as the blue hat. How much does the red hat cost? Measurement Example. A rubber band is 6 cm long. How long will the rubber band be when it is stretched to be 3 times as long?	A red hat costs \$18 and that is three times as much as a blue hat costs. How much does a blue hat cost? Measurement Example. A rubber band is stretched to be 18 cm long and that is three times as long as it was at first. How long was the rubber band at first?	A red hat costs \$18 and a blue hat costs \$6. How many times as much does the red hat cost as the blue hat? Measurement Example. A rubber band was 6 cm long at first. Now it is stretched to be 18 cm long. How many times as long is the rubber band now as it was at first?
General	$a \times b = ?$	$a \times ? = p$ and $p \div a = ?$	$? \times b = p$ and $p \div b = ?$

Resources:

Engage New York
Common Core Georgia Performance Standards (CCGPS)

Bloom's	DOK
2	1

Scoring Rubric
4 – Thorough 3 – Adequate 2 – Partial 1 – Minimal

www.learnzillions.com www.commoncoresheets.com 4 th Grade Math Framework: http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefour.pdf			
Instructional Strategies			
All Students	SWD	ELs	Enrichment
<ul style="list-style-type: none"> • Cooperative Grouping with assigned roles • Study Buddy • Think-Pair-Share • Clear expectations and examples • Addressing learning modalities/Accommodating learning style preferences. 	<ul style="list-style-type: none"> • Graphic organizers • Differentiated instruction • Repetition • Manipulatives • Modified curriculum • Additional time www.alvordusdrd.com 	<ul style="list-style-type: none"> • Graphic organizers • Differentiated instruction • Repetition • Manipulatives 	<ul style="list-style-type: none"> • Cooperative Grouping with assigned roles. • More challenging work above and beyond grade level. • Tiered assignments.

Authentic Performance Task 2

Name:	Task 2: The Unknown Quantity		Suggested Length	Days: 8-9 Mins/Day: 60	
Standards Addressed	Priority Standards				
	CCSS Math		Standards for Mathematical Practice		
	<p><u>Task 2: The Unknown Quantity</u> 4.OA.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>Big Idea: 4.OA.3 – Multi-step word problems are solved using equations which could include a variable standing for an unknown quantity. 4.OA.3 – The reasonableness of multi-step word problems can be assessed using mental computation and estimation.</p> <p>Essential Questions: 4.OA.3 – How do you solve a multi-step word problem with an unknown variable? 4.OA.3 – How do you assess the reasonableness of an answer in a multi-step word problem?</p>		<input type="checkbox"/> Make sense of problems and persevere in solving them <input checked="" type="checkbox"/> Reason abstractly and quantitatively <input type="checkbox"/> Construct viable arguments and critique the reasoning of others <input type="checkbox"/> Model with mathematics <input type="checkbox"/> Use appropriate tools strategically <input type="checkbox"/> Attend to precision <input type="checkbox"/> Look for and make use of structure <input checked="" type="checkbox"/> Look for and express regularity in repeated reasoning		
	Supporting Standards				
CCSS Math	CCSS ELA	NG ELD			
	<p>RI.4.4 Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a grade 4 topic or subject area.</p> <p>RI.4.7 Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears.</p> <p>W.4.2.a-e Write informative/explanatory texts to examine a topic and convey ideas and information clearly.</p> <p>SL.4.1.a-d Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics and texts, building on others' ideas and expressing their own clearly.</p> <p>SL.4.2 Paraphrase portions of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.</p> <p>L.4.6 Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal precise actions, emotions, or states of being (e.g., quizzed, whined, stammered) and that are basic to a particular topic (e.g., wildlife, conservation, and endangered when discussing animal preservation).</p>	<p>ELD.4.I.B.6 (RI.4.1, RI.4.4, L.4.3) Reading closely literary and informational texts and viewing multimedia to determine how meaning is conveyed explicitly and implicitly through language.</p> <p>ELD.4.I.B.7 (L.4.3, L.4.5.c) Listening actively to spoken English in a range of social and academic context.</p> <p>ELD.4.I.A.2 (L.4.6) Interacting with others in writing language in various communicative forms (print, communicative technology, and multi-media).</p> <p>ELD.4.I.C.10 (W.4.2.d, W.4.10) Writing literary and informational text to present, describe, and explain ideas and information, using appropriate technology.</p> <p>ELD.4.II.A.1 (W.4.2.d) Understanding Text structure.</p> <p>ELD.4.II.A.2 (W.4.2.d) Understanding cohesion</p>			
Teaching and Learning Progression	<p>See the prices below:</p> <p>Large Frames: \$45.00 Small Frames: \$23.00 Black & White Posters: \$17.00 Color Posters: \$22.00 Paintings Unframed: \$54.00 Paintings Framed: \$99.00</p> <p>Use the price chart to create multistep word problems with at least two (2) operations in each. Use a variable to represent an unknown quantity.</p> <p>Suggestions: Multi-step Word Problem Examples:</p>			Bloom's	DOK
			2	1	
			<p>Scoring Rubric</p> <p>4 – Thorough 3 – Adequate 2 – Partial 1 – Minimal</p>		

<p>Examples:</p> <p>Multi-step Word Problems and Strategies Called for in Standard 4.OA.3 ▲.</p> <p>1. "There are 146 students going on a field trip. If each bus held 30 students, how many buses are needed?" Solution: Since $150 \div 30 = 5$, it seems like there should be around 5 buses. When we try to divide 146 by 30, we get 4 groups with 26 leftover. This means that $146 = 4 \times 30 + 26$. There are 4 filled with 30 students, with a fifth bus holding only 26 students. (In this case, one more than the quotient is the answer.)</p> <p>2. "Suppose that 250 pencils were distributed equally among 33 students for a geometry project. What is the largest number of pencils each student can receive?" Solution: Since $240 \div 30 = 8$, it seems like each student should receive close to 8 pencils. When we divide 250 by 33, we get 7 with a remainder of 19. This means that $250 = 33 \times 7 + 19$. This tells us that each student can have 7 pencils with 19 leftover for the teacher to hold on to.</p> <p>3. "Your class is collecting bottled water for a service project. The goal is to collect 300 bottles of water. On the first day, Max brings in 3 packs with 6 bottles in each pack. Sarah wheels in 6 packs with 6 bottles in each container. About how many bottles of water still need to be collected?" Solution: "First, I multiplied 3 packs by 6 bottles per pack which equals 18 bottles. Then I multiplied 6 packs by 6 bottles per pack which is 36 bottles. I know 18 plus 36 is around 50. Since we're trying to get to 300, we'll need about 250 more bottles."</p>		
<p>Resources: Engage New York Common Core Georgia Performance Standards (CCGPS) www.learnzillions.com www.commoncoresheets.com 4th Grade Math Framework: http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefour.pdf</p>		

Instructional Strategies			
All Students	SWD	ELs	Enrichment
<ul style="list-style-type: none"> Cooperative Grouping with assigned roles Study Buddy Think-Pair-Share Clear expectations and examples Addressing learning modalities/Accommodating learning style preferences. 	<ul style="list-style-type: none"> Graphic organizers Differentiated instruction Repetition Manipulatives Modified curriculum Additional time www.alvordusdrd.org 	<ul style="list-style-type: none"> Graphic organizers Differentiated instruction Repetition Manipulatives 	<ul style="list-style-type: none"> Cooperative Grouping with assigned roles. More challenging work above and beyond grade level. Tiered assignments.

Engaging Scenario

Detailed Description (situation, challenge, role, audience, product or performance)

Your parents own a small business that sells posters, paintings, and picture frames. You are responsible for keeping track of all the sales that your parents complete. Using the information that you gained from task one and task two, create a five question (word problems) quiz for a classmate. At least one of these word problems needs to be a multi-step problem and another problem needs to include a variable to represent an unknown. These questions should involve the prices, sales, and products used in previous tasks. Make sure you have an answer key for your quiz.

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- Color Posters: \$22.00
- Paintings Unframed: \$54.00
- Paintings Framed: \$99.00

Once you have created your five question quiz and your answer key independently, you will switch your quiz with a partner. You will take their quiz while they take your quiz. You will then switch back and correct your partners quiz using your answer key. Use the rubric below to score your partner's quiz.

4	3	2	1	0
Student has 5 word problems, including one multi-step problem and one problem with a variable.	Student has 5 word problems, but did not include either a multi-step problem OR one problem with a variable.	Student has 5 word problems, but did not include both a multi-step problem AND a problem with a variable.	Student has less than five problems.	No Response

Instructional Strategies

All Students	SWD	ELs	Enrichment
<ul style="list-style-type: none"> • Cooperative Grouping with assigned roles • Study Buddy • Think-Pair-Share • Clear expectations and examples • Addressing learning modalities/Accommodating learning style preferences. 	<ul style="list-style-type: none"> • Graphic organizers • Differentiated instruction • Repetition • Manipulatives • Modified curriculum • Additional time • www.alvordusdrccd.org 	<ul style="list-style-type: none"> • Graphic organizers • Differentiated instruction • Repetition • Manipulatives 	<ul style="list-style-type: none"> • Cooperative Grouping with assigned roles. • More challenging work above and beyond grade level. • Tiered assignments.