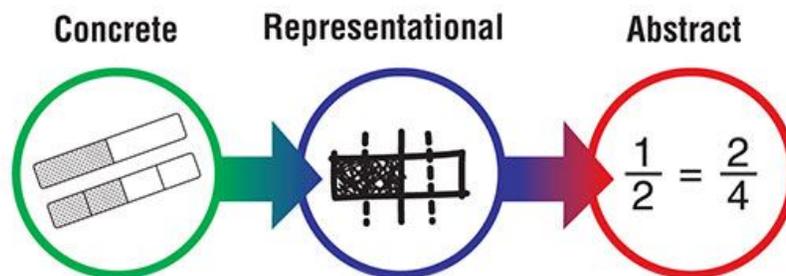




By the end of 5th grade, students will be able to...

- **Develop competency in dividing and fluency in multiplying whole numbers through the application of understanding of place value and multiplication and division.**
 - Students develop understanding of why division procedures work based on the meaning of base-ten numerals and properties of operations. They are fluent with multi-digit multiplication of whole numbers. Students are able to explain patterns associated with multiplication through application of their knowledge of place value such as explaining the pattern in the number of zeros in a product. Students apply their understanding of division to begin working with decimals. They understand and can explain the placement of the decimal point when multiplying or dividing. Students apply their understanding of addition and multiplication of whole numbers (NBT) to foundational understanding of volume (MD).
- **Develop understanding in performing operations with decimals to hundredths and estimating by rounding.**
 - Students apply their understandings of models for decimals, decimal notation, and properties of operations to add and subtract decimals to hundredths. They develop fluency in these computations and make reasonable estimates (through rounding) of their results. Students use the relationship between decimals and fractions, as well as the relationship between finite decimals and whole numbers (e.g., a finite decimal multiplied by an appropriate power of 10 is a whole number), to understand and explain why the procedures for multiplying and dividing finite decimals make sense. They compute products and quotients of decimals to hundredths.
- **Develop understanding of multiplication of fractions and division of fractions in limited cases (unit fractions divided by whole numbers and whole numbers divided by unit fractions).**
 - Students apply their understanding of fractions and fraction models to efficiently and accurately add and subtract fractions with unlike denominators. Students use their understanding of fractions; make connections to their understanding of multiplication and division, to explain the “why” of multiplying and dividing fractions. (Note: Division of fractions is limited to dividing unit fractions by whole numbers and whole numbers by unit fractions.)
- **Fluency: Fluently multiply multi-digit whole numbers using a standard algorithm.**



The GESD Pacing Guides were created by a panel of Teachers and Achievement Advisors with the additional input and guidance from Principals and Assistant Principals. The GESD Pacing Guides are revised yearly through feedback and committee work. Thank you for all input and support.

Arizona Mathematics Standards (adopted December 2016)

What the Arizona Mathematics Standards Are

The Arizona Mathematics Standards define the knowledge, understanding, and skills that need to be taught and learned so all students are ready to succeed in credit-bearing, college-entry courses and/or in the workplace. The Arizona Mathematics Standards are the foundation to guide the construction and evaluation of mathematics programs in Arizona K-12 schools and the broader Arizona community.

- Focused in coherent progressions across grades K-12
- Aligned with college and workforce expectations
- Inclusive of rigorous content and applications of knowledge through higher-order thinking
- Research- and evidence-based

Understanding in Mathematics

When a student understands a mathematical concept, they move fluidly between the concrete and abstract. There is evidence they are able to make sense of and justify mathematical connections. Evidence of understanding includes connections among:

- Verbal or written reasoning
- Pictorial representations
- Real-world application
- Procedures/Computation

Grade 5 AzM2 Math Blueprint 2016 Standards		
Reporting Category	Min.	Max.
Operations & Algebraic Thinking and Numbers & Operations in Base Ten	38%	42%
<i>Numbers in Base Ten</i>	31%	35%
<i>Algebraic Thinking</i>	4%	8%
Number & Operations - Fractions	31%	35%
Measurement & Data and Geometry	24%	28%
<i>Measurement and Data</i>	18%	20%
<i>Geometry</i>	7%	11%

Within a test, approximately 70% of the assessment will be on major content within that grade or course.

Percentage of Points by Depth of Knowledge Level	
DOK 1	10% - 20%
DOK 2	60% - 70%
DOK 3	12% - 30%

Comprehensive Mathematics Block (90 minutes)

Students are developing fluency in representation, connections, reasoning & proof, problem solving, and communication of mathematics. Math Attitude is developed and reinforced in every lesson, ensuring that students make sense of mathematics and persevere.				
FLUENCY (15 minutes) <i>Purpose: Students increase flexibility, efficiency, and accuracy in computation and procedures. Conceptual understanding and strategies are the foundations on which fluency is built.</i>		Teacher Actions	Student Actions	Resources Utilized
		<ul style="list-style-type: none"> Model mental math strategies Think aloud math strategies Question using a variety of DOK levels Explicitly teach appropriate mathematical strategies and formulas Provide feedback on progress 	<ul style="list-style-type: none"> Utilize mental math strategies Write out strategies to show procedural knowledge Answer a variety of DOK 1-4 questions Share mathematical strategies and thinking Use feedback to set goals for improvement 	<ul style="list-style-type: none"> Number Talks Go Math! (K-5) Socratic Seminar Turnaround Problem (answer given, students come up with question)
WHOLE GROUP INSTRUCTION (25 minutes)	Conceptual Understanding <i>Purpose: Students develop mathematical understanding (Instructional Continuum).</i>	<ul style="list-style-type: none"> Explicitly teach academic vocabulary Explicitly model the thinking and strategy used Guide students through practicing the use of the strategy and offer specific feedback Guide students through independent practice with appropriate tools Ask a variety of DOK 1-4 questions throughout instruction 	<ul style="list-style-type: none"> Use strategies to learn the academic vocabulary and use it in discussions Utilize the appropriate strategy to solve the problem Use feedback to redirect actions as needed Practice the strategies and skills using the appropriate tools Answer a variety of DOK 1-4 questions Utilize strategies to check for reasonableness of solution (i.e. UPS-Check) 	<ul style="list-style-type: none"> Go Math! (K-5) Holt Math (6-8) Mathematical Practice standards (as appropriate for lesson)
	Problem Solving <i>Purpose: Students utilize mathematical knowledge to solve real-life problems and investigate mathematics.</i>	<ul style="list-style-type: none"> Pose problem/situation Scaffold independent practice with think-alouds Label strategies used 	<ul style="list-style-type: none"> Read and understand the problem/situation Utilize knowledge of appropriate strategies and skills to determine next steps Label strategies used Utilize strategies to check for reasonableness of solution (i.e. UPS-Check) 	<ul style="list-style-type: none"> Go Math! (K-5) Holt Math (6-8) Van de Walle
SMALL GROUP INSTRUCTION (40 minutes) <i>Purpose: Students practice mathematical skills, concepts and/or strategies with strategic support or with enrichment.</i>		<ul style="list-style-type: none"> Identify skill gaps of students using ongoing assessments Prompt and reinforce mathematical behaviors Model math strategies and the flexibility to choose between strategies Create groups by Skill, Concept, or Strategy 	<ul style="list-style-type: none"> Practice foundational math skills Monitor comprehension and select strategies to increase understanding Extend grade level understanding and link to upcoming standards 	<ul style="list-style-type: none"> Go Math! supplements Holt Math supplements Van de Walle Do the Math Do the Math Now
COGNITIVE CLOSURE (10 minutes) <i>Purpose: Students cognitively process learning in order to focus on what was learned, whether it made sense, and if it had meaning.</i>		<ul style="list-style-type: none"> Summarize and synthesize the learning process and skills obtained Connect the concepts, skills, or strategies to a real world application Connect the concepts, skills, or strategies to other learning through transfer Give an End-of-Lesson Assessment (i.e. Exit Ticket, Journal-Writing, etc.) 	<ul style="list-style-type: none"> Summarize and synthesize the learning process and skills obtained Reflect on the learning process and connect the learning to a real world application Complete an End-of-Lesson Assessment 	<ul style="list-style-type: none"> Exit tickets Math Journals Common Formative Assessments

Year-Long Standards Overview

Mathematical Practices – To be embedded into every lesson		Key: ➔ Grade-Level Guaranteed Standards Essential Standards Supporting Standards Previously Presented Materials
1. Make sense of problems and persevere in solving them. 2. Reason abstractly and quantitatively. 3. Construct viable arguments and critique the reasoning of others. 4. Model with mathematics.	5. Use appropriate tools strategically. 6. Attend to precision. 7. Look for and make use of structure. 8. Look for and express regularity in repeated reasoning.	

Yearlong Fluency Standards – To be taught and revisited continually throughout the year

➔ **5.NBT.B.5 Fluently multiply multi-digit whole numbers using the standard algorithm.**

Quarter 1	Quarter 2	Quarter 3	Quarter 4
<p>Place Value 5.NBT.A.1 5.NBT.A.2</p> <p>Addition & Subtraction of Decimals 5.NBT.A.3 5.NBT.A.4 ➔ 5.NBT.B.7 (add and subtract)</p> <p>Multiplication and Division of Whole Numbers ➔ 5.NBT.B.5 (expanded form, area model) 5.NBT.B.6 (partial quotient)</p> <p>Spiral Concepts: <i>Place value number sense, identify the three forms of numbers, round numbers, multiples, factors</i></p>	<p>Multiplication of Decimals ➔ 5.NBT.B.7 (multiply)</p> <p>Prime and Composite 5.OA.B.4</p> <p>Addition & Subtraction of Fractions ➔ 5.NF.A.1 5.NF.A.2</p> <p>Multiplication and Division of Fractions ➔ 5.NF.B.4 5.NF.B.6 (equations, arrays, and/or area models) 5.NF.B.5 (rescaling) 5.NF.B.3 (interpret as division) ➔ 5.NF.B.7</p> <p>Spiral Concepts: <i>Simplify fractions, convert mixed fractions to improper fractions and vice versa, Convert mixed to improper fractions and vice versa, what are benchmark fractions, fact families, area and perimeter, prime and composite numbers, LCM, GCF, LCD</i></p>	<p>Coordinate Geometry 5.G.A.1 5.G.A.2</p> <p>Multiplication and Division of Whole Numbers and Decimals ➔ 5.NBT.B.5 (standard algorithm) 5.NBT.B.6 (equations, arrays, and/or area models) ➔ 5.NBT.B.7 (divide)</p> <p>Volume Relationships 5.MD.C.3 5.MD.C.4 5.MD.C.5</p> <p>Spiral Concepts: <i>Multiply decimals with correct decimal placement, Associative Property of Multiplication (related to volume formula), practice algebra by finding missing measures in volume formula</i></p>	<p>Algebraic Expressions 5.OA.A.1 5.OA.A.2 5.OA.B.3</p> <p>Measurement 5.MD.A.1 5.MD.B.2</p> <p>2-Dimensional Figures 5.G.B.3 5.G.B.4</p> <p>Spiral Concepts: <i>Writing number sentences, graphing ordered pairs on a coordinate plane, characteristics of a line plot, powers of ten related to metric measurement conversation, benchmark fractions, all operations involving fractions (used in line plots), numerical prefixes</i></p> <p>Use any remaining time in the year to reteach standards to which students did not reach mastery and to pre-teach 6th grade concepts through project-based learning activities.</p>

Quarter 1			
Arizona State Standards	GESD Suggested Learning Targets (○) AzM2 Sample Task Demands (★)	Curricular Resource Mathematical Practices	Vocabulary
Place Value			
By the end of this unit of study, students will understand the place value system. and perform operations with multi-digit whole numbers and with decimals to hundredths.			
<p>5.NBT.A.1 Apply concepts of place value, multiplication, and division to understand that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left.</p>	<ul style="list-style-type: none"> ○ Explain using <i>whole numbers</i> that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left ★ Identify the factor by which one number is greater or less than another ○ Explain using <i>decimals</i> that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left ★ Compare the value of a digit in different place values of two given numbers and identify the power of 10 by which one number is greater than another 	<p>Go Math! 1.1, 1.2, 3.1 Mathematical Practices: 2, 6, 7 Flipbook: Pg. 12</p> <p>Supplement with <i>Teaching Student-Centered Mathematics</i> Van de Walle Pgs. 177-180; 10.11, 10.12, 10.13, 10.14</p>	<p>1/10 of..., 10 times as much as..., Place value, Tenths, Hundredths, Thousandths</p>
<p>5.NBT.A.2 Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10.</p>	<ul style="list-style-type: none"> ○ Translate between powers of 10 written as 10 raised to a whole number exponent, in expanded form, and standard/numerical form. ○ Explain the patterns in the number of zeros of the product when multiplying a number by powers of 10 and represent powers of 10 using whole number exponents ★ Calculate a power of 10 ★ Identify patterns when multiplying or dividing by a power of 10 ○ Explain the relationship of the placement of the decimal point when a decimal is multiplied or divided by a power of 10 ★ Multiply or divide a decimal by a power of ten ★ Find a missing exponent when multiplying or dividing a decimal by a power of ten 	<p>Go Math! 1.4, 1.5, 1.6, 4.1, 4.2, 4.3, 4.7, 4.8, 5.1, 5.4, 5.6 Mathematical Practices: 2, 6, 7 Flipbook: Pg. 15</p>	<p>Base, Powers of 10, Squared, Cubed</p>
Addition & Subtraction of Decimals			
By the end of this unit of study, students will be able to perform operations with multi-digit whole numbers and with decimals to hundredths.			
<p>5.NBT.A.3 Read, write, and compare decimals to thousandths.</p>	<ul style="list-style-type: none"> ○ Read and write decimals to thousandths using numeric form, number names, and expanded form 	<p>Go Math! 3.2, 3.3 Mathematical Practices: 2, 4, 5, 6, 7 Flipbook: Pg. 17</p>	<p>Digits, Numerals, Standard form/ Numeric form, Word form/ Number names, Expanded form, Place value,</p>

<p>a. Read and write decimals to thousandths using base-ten numerals, number names*, and expanded form. <i>For example, $347.392 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times (1/10) + 9 \times (1/100) + 2 \times (1/1000)$.</i></p> <p>b. Compare two decimals to thousandths based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.</p>	<ul style="list-style-type: none"> ★ Write a number with a given name in numerical form ★ Identify the name of a given number ★ Write a number given in traditional expanded form in numeric form or vice versa ★ Identify numbers in non-traditional numeric form (e.g., $47.389 = 9 \times (1/1000) + 7 \times 1 + 3 \times (1/10) + 4 \times 10 + 8 \times (1/100)$) o Use >, =, and < symbols to record the results of comparisons between decimals ★ Compare two decimals o Compare two decimals to the thousandths, based on the place value of each digit ★ Order more than two decimals in numeric form 	<p><i>Supplement with</i> <i>Teaching Student-Centered Mathematics</i> <i>Van de Walle</i> <i>Pgs. 285-293</i> <i>14.10, 14.11, 14.13</i></p>	<p>Tenths, Hundredths, Thousandths, <, >, =, ≠ Number sentence, Expression, Equation</p>
<p>5.NBT.A.4 Use place value understanding to round decimals to any place.</p>	<ul style="list-style-type: none"> o Use knowledge of base ten and place value to round decimals to any place ★ Identify the value of a decimal number rounded to a place value ★ Identify the decimal values that round to a specific value ★ Distinguish between different rounding procedures used in order to create a number that fits certain parameters (use tables and multi-step problems) 	<p>Go Math! 3.4 Mathematical Practices: 2, 6, 7 Flipbook: Pg. 19</p> <p><i>Supplement with</i> <i>Investigations “Name That Portion”</i> <i>Investigation 3</i></p>	<p>Place value, Round</p>
<p>➔5.NBT.B.7 Add, subtract, multiply, and divide decimals to hundredths, connecting objects or drawings to strategies based on place value, properties of operations, and/or the relationship between operations. Relate the strategy to a written form.</p>	<ul style="list-style-type: none"> o Add and subtract decimals to hundredths using concrete models or drawings and strategies based on place value, with the use of Commutative Property o Explain the reasoning used to solve decimal operation calculations ★ Perform a calculation involving decimals 	<p>Go Math! 3.5, 3.6, 3.7, 3.8, 3.9, 3.11 Mathematical Practices: 2, 3, 4, 5, 7 Flipbook: Pg. 25</p>	<p>Benchmark, Sum, Difference, Commutative Property, Calculate, Evaluate</p>
<p>Multiplication and Division of Whole Numbers</p> <p>By the end of this unit of study, students will be able to fluently multiply whole numbers using expanded form and area model, divide using partial quotient, divide multi-digit numbers using equations, arrays, and area model.</p>			
<p>➔5.NBT.B.5 Fluently multiply multi-digit whole numbers using the standard algorithm. expanded form.</p>	<ul style="list-style-type: none"> o Fluently multiply through 12’s o Fluently multiply multi-digit numbers up to four digits using expanded form o Fluently multiply multi-digit whole numbers using the area model ★ Calculate the product of two numbers ★ Identify a missing factor or digit in a multiplication problem (variables) 	<p>Go Math! Mathematical Practices: 2, 6, 7, 8 Flipbook: Pg. 20</p> <p><i>Supplement with</i> <i>Teaching Student-Centered Mathematics</i> <i>Van de Walle Pg. 213; 11.7</i></p>	<p>Factor, Product, Partial Product, Multiply, Expanded form, Decompose, Distributive Property, Variable, Area model, Factors, Area, Product</p>

<p>5.NBT.B.6 Apply and extend understanding of division to find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors.</p> <p><i>Note: students do not use the standard algorithm for division until 6th Grade.</i></p>	<ul style="list-style-type: none"> o Use partial quotient strategy, or strategies based on place value, the properties of operations, and/or the relationship between multiplication and division to solve division problems o Use number sense to divide among fact families through 12's o Fluently divide multi-digit whole numbers using the area model or partial products model ★ Calculate the quotient of 2 numbers ★ Select expressions that are equivalent to a given quotient ★ Illustrate and explain quotients of 2 numbers using equations, rectangular arrays, or area models 	<p>Go Math! 1.3, 1.8, 1.9 Mathematical Practices: 2, 3, 4, 5, 7 Flipbook: Pg. 23</p> <p><i>Supplement with</i> <u>Teaching Student-Centered Mathematics</u> <i>Van de Walle Pg. 211; 11.4</i></p>	<p>Dividend, Divisor, Quotient, Fact family, Partial product, Partial quotient, Area model, Remainder, Decompose, Place value</p>
--	--	---	---

Quarter 2

Arizona State Standards	GESD Suggested Learning Targets (○) AzM2 Sample Task Demands (★)	Curricular Resource Mathematical Practices	Vocabulary
-------------------------	---	---	------------

Multiplication of Decimals

By the end of this unit of study, students will be able to multiply decimals.

<p>➔5.NBT.B.7 Add, subtract, multiply, and divide decimals to hundredths, connecting objects or drawings to strategies based on place value, properties of operations, and/or the relationship between operations. Relate the strategy to a written form.</p> <p><i>Note: students do not use the standard algorithm for adding, subtracting, or multiplying decimals until 6th Grade.</i></p>	<ul style="list-style-type: none"> o Add, subtract, and multiply decimals to hundredths o Use concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction ★ Perform a calculation involving decimals o Relate the strategy to a written method and explain the reasoning used to solve decimal operation calculations ★ Solve a problem involving decimals and four operations given a scenario 	<p>Go Math! 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8 Mathematical Practices: 2, 3, 4, 5, 7 Flipbook: Pg. 25</p> <p><i>Supplement with</i> <u>Teaching Student-Centered Mathematics</u> <i>Van de Walle Pg. 296 ; 14.3</i></p>	<p>Place value, Decimal, Tenths, Hundredths, Thousandths, Multiplication, Factor, Product</p>
--	--	--	---

Prime and Composite Numbers

By the end of this unit of study, students will be able to classify numbers and apply to problem solving.

<p>5.OA.B.4 Understand primes have only two factors and decompose numbers into prime factors.</p>	<ul style="list-style-type: none"> o Define prime and composite numbers o Know strategies to determine whether a whole number is prime or composite ★ Identify a number (or numbers) given a set of conditions (related to prime/composite, and factors) that meets those criteria ★ Classify numbers as prime or composite ★ Apply the concepts of prime numbers, composite numbers, and factors in problem-solving contexts 	<p>Go Math! (4th grade book) 5.5 Mathematical Practices: 2, 7 Flipbook: See 4th grade Flip Book Pg. 12</p> <p><i>Supplement with</i> <u>Strategies for Success: Math</u> <u>Problem-Solving Unit 4: Problem-Solving</u> <u>Using Geometry Lesson 13 Pg. 74</u></p>	<p>Prime Number, Composite Number, Factors</p>
--	--	--	--

Addition & Subtraction of Fractions			
By the end of this unit of study, students will be able to use equivalent fractions as a strategy to add and subtract fractions.			
<p>➔5.NF.A.1</p> <p>Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators (e.g., $2/3 + 5/4 = 8/12 + 15/12 = 23/12$).</p>	<ul style="list-style-type: none"> o Generate equivalent fractions to find the like denominator o Solve addition and subtraction problems involving fractions (including mixed numbers) with like and unlike denominators using an equivalent fraction strategy ★ Calculate the sum or difference of two or more fractions with unlike denominators 	<p>Go Math! 6.4, 6.5, 6.6, 6.7, 6.8, 6.10</p> <p>Mathematical Practices: 2, 4, 7</p> <p>Flipbook:Pg. 29</p> <p><i>Supplement with</i> <u>Teaching Student-Centered Mathematics</u> <i>Van de Walle Pgs. 255-257; 13.1, 13.2, 13.3</i></p>	<p>Least common multiple, Common denominator, Numerator, Denominator, Equivalent fractions, Unlike denominator, Mixed number, Improper fraction, Simplest form, Sum, Difference</p>
<p>5.NF.A.2</p> <p>Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators by using a variety of representations, equations, and visual models to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers (e.g. recognize an incorrect result $2/5 + 1/2 = 3/7$, by observing that $3/7 < 1/2$).</p>	<ul style="list-style-type: none"> o Evaluate the reasonableness of an answer, using fractional number sense, by comparing it to a benchmark fraction ★ Use benchmark fractions to explain why an assertion is or is not reasonable ★ Calculate the sum or difference of two or more fractions with like and/or unlike denominators in a given word problem ★ Determine a missing numerator or denominator in the addend, subtrahend, or minuend of an addition or subtraction problem with fractions in a given word problem 	<p>Go Math! 6.1, 6.2, 6.3, 6.9</p> <p>Mathematical Practices: 1, 2, 3, 4, 5, 6, 7, 8</p> <p>Flipbook:Pg. 31</p> <p><i>Supplement with</i> <u>Teaching Student-Centered Mathematics</u> <i>Van de Walle Pg. 258; 13.4</i></p>	<p>Benchmark fractions, Addend, Subtrahend, Minuend</p>
Multiplication and Division of Fractions			
By the end of this unit of study, students will be able to apply and extend previous understandings of multiplication and division for Fractions.			
<p>➔5.NF.B.4</p> <p>Apply and extend previous understandings of multiplication to multiply a fraction by a whole number and a fraction by a fraction.</p> <p>a. Interpret the product $(a/b) \times q$ as a parts of a partition of q into b equal parts. For example, use a visual fraction model to show $(2/3) \times 4 = 8/3$, and create a story context for this equation.</p> <p>b. Interpret the product of a fraction multiplied by a fraction $(a/b) \times (c/d)$. Use a visual fraction model and create a story context for this equation. For example, use a visual fraction model to show $(2/3) \times (4/5) = 8/15$, and create a story context for this equation. In general, $(a/b) \times (c/d) = ac/bd$.</p> <p>c. Find the area of a rectangle with fractional side lengths by tiling it with unit squares</p>	<ul style="list-style-type: none"> o Multiply fractions by whole numbers and fractions o Represent fraction products as rectangular arrays ★ Multiply a fraction by a whole number or a fraction o Interpret the product of a fraction times a whole number as total number of parts of the whole o Determine the sequence of operations that results in the total number of parts of the whole o Interpret the product of a fraction times a fraction as the total number of parts of the whole ★ Relate a scenario that describes “a parts of a partition of q into b equal parts” to an expression of the form $(a/b) \times q$ and/or $a \times q \div b$ o Model the area of rectangles with fractional side lengths with unit squares to show the area of rectangles 	<p>Go Math! 7.1, 7.2, 7.3, 7.4, 7.6, 7.7</p> <p>Mathematical Practices: 1, 2, 3, 4, 5, 6, 7, 8</p> <p>Flipbook: Pg. 37</p> <p><i>Supplement with</i> <u>Teaching Student-Centered Mathematics</u> <i>Van de Walle Pg. 263; 13.6</i></p>	<p>Numerator, Denominator, Mixed number, Improper fraction, Simplest form, Product, Array, Area, Tiling</p>

<p>of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.</p>	<ul style="list-style-type: none"> ★ Tile a rectangular area to find the area, either given the dimensions of the tile, or the dimensions of the shape o Find area of a rectangle with fractional side lengths using different strategies ★ Identify rectangular shape(s) with a given area, where the shapes have given side lengths or are tiled with tiles of given dimensions ★ Multiply length and width to find the area of a rectangular shape with fractional side lengths 		
<p>5.NF.B.6 Solve problems in real-world contexts involving multiplication of fractions, including mixed numbers, by using a variety of representations including equations and models.</p>	<ul style="list-style-type: none"> o Solve real-world problems involving multiplication of fractions and mixed numbers ★ Solve simple word problems involving multiplication of fractions (i.e. multiplying two given values) ★ Solve complex word problems involving multiplication of fractions (e.g., multiplying three numbers, involving other operations, finding an unknown numerator, denominator, etc.) 	<p>Go Math! 7.9 Mathematical Practices: 1, 2, 3, 4, 5, 6, 7, 8 Flipbook: Pg. 42</p> <p><i>Supplement with Teaching Student-Centered Mathematics Van de Walle Pg. 237; 2.8</i></p>	<p>Equation, Fraction, Mixed number</p>
<p>5.NF.B.5 Interpret multiplication as scaling (resizing), by:</p> <ol style="list-style-type: none"> a. Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication. b. Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number; explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence $a/b = (n \times a)/(n \times b)$ to the effect of multiplying a/b by 1. 	<ul style="list-style-type: none"> o Explain why scaling (resizing) involves multiplication ★ Identify a possible factor of a given expression, given one factor and a comparison value of the product of that factor o Explain why multiplying whole numbers and fractions results in products greater than or less than 1, depending upon the factors o Compare the product of two factors without multiplying (ex: $2 \times 1/4 = < 1$) ★ Identify a statement comparing the value of a given multiplication expression to one of its factors ★ Identify an expression that represents a given statement comparing a product to one of its factors o Explain why multiplying a number by a fraction > 1 will result in a bigger number than the original number ★ Identify an expression that is equivalent to multiplying a given number by 1 o Explain why multiplying a fraction by 1 (written as various fractions; $2/2, 3/3$) will result in an equivalent fraction 	<p>Go Math! 7.5, 7.8, 7.10 Mathematical Practices: 2, 4, 6, 7 Flipbook: Pg. 40</p>	<p>Factor, Product, Greater than, Less than, Equal to, One whole, Scaling, Resizing</p>

	<ul style="list-style-type: none"> o Explain why multiplying a number by a fraction < 1 will result in a smaller number than the original number ★ Identify expressions that have a value less than or greater than a given number, where the expressions are that number multiplied by another number 		
<p>5.NF.B.3</p> <p>Interpret a fraction as the number that results from dividing the whole number numerator by the whole number denominator ($a/b = a \div b$). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers.</p> <p><i>For example, interpret $3/4$ as the result of dividing 3 by 4, noting that $3/4$ multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people, each person has a share of size $3/4$. If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?</i></p>	<ul style="list-style-type: none"> o Interpret a fraction as division of the numerator by the denominator ★ Express a given division problem as a fraction ★ Identify a given fraction as a division problem o Interpret the remainder as a fractional part of the problem ★ Find the solution to a division word problem and express the quotient as a fraction o Solve word problems involving division of whole numbers with quotients as fractions or mixed numbers. ★ Determine two consecutive whole numbers between which the answer lies to a given division problem, with or without context ★ Identify an area model or number line model that shows the solution to a division problem 	<p>Go Math! 2.7, 8.3</p> <p>Mathematical Practices: 1, 2, 3, 4, 5, 7</p> <p>Flipbook: Pg. 34</p> <p><i>Supplement with</i> <u><i>Teaching Student-Centered Mathematics</i></u> <i>Van de Walle (6th-8th Grade book) Pg. 152; 8.25</i></p>	<p>Denominator, Dividend, Divisor, Fraction, Mixed number, Quotient, Whole number</p>
<p>➔5.NF.B.7</p> <p>Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.</p> <p>a. Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. Use the relationship between multiplication and division to justify conclusions.</p> <p>b. Interpret division of a whole number by a unit fraction, and compute such quotients.</p> <p><i>For example, create a story context for $4 \div (1/5)$, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to justify conclusions (e.g., $4 \div (1/5) = 20$ because $20 \times (1/5) = 4$).</i></p>	<ul style="list-style-type: none"> o Use what I know about division to divide unit fractions by whole numbers or whole numbers by unit fractions o Divide a unit fraction by a whole number (not 0) correctly. o Divide a whole number by a unit fraction ★ Divide a fraction by a whole number ★ Divide a whole number by a fraction o Solve real-world problems involving division of unit fractions by whole numbers other than 0 and division of whole numbers by unit fractions using strategies such as visual fraction models and equations ★ Solve a simple word problem that includes division, a whole number, and a fraction ★ Solve a simple word problem that involves division, and justify the solution using an equation or number line 	<p>Go Math! 8.1, 8.2, 8.4, 8.5</p> <p>Mathematical Practices: 1, 2, 3, 4, 5, 6, 7, 8</p> <p>Flipbook: Pg. 44</p> <p><i>Supplement with</i> <u><i>Teaching Student-Centered Mathematics</i></u> <i>Van de Walle Pgs. 270-312; 13.7-13.9, 14.4, 14.5, 15.2</i></p>	<p>Dividend, Divisor, Fraction, Quotient, Unit fraction, Whole number, Reciprocal</p>

<p>c. Solve problems in real-world context involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, using a variety of representations.</p>	<ul style="list-style-type: none"> ★ Select a division expression that represents the scenario of a given division problem ★ Select an equivalent multiplication problem for a given division equation 		
Quarter 3			
Arizona State Standards	GESD Suggested Learning Targets (○) AzM2 Sample Task Demands (★)	Curricular Resource Mathematical Practices	Vocabulary
Coordinate Geometry By the end of this unit of study, students will be able to graph points on the coordinate plane to solve real-world and mathematical problems.			
<p>5.G.A.1 Understand and describe a coordinate system as perpendicular number lines, called axes, that intersect at the origin (0, 0). Identify a given point in the first quadrant of the coordinate plane using an ordered pair of numbers, called coordinates. Understand that the first number (x) indicates the distance traveled on the horizontal axis, and the second number (y) indicates the distance traveled on the vertical axis.</p>	<ul style="list-style-type: none"> ○ Define the coordinate system and identify coordinates of a point on a coordinate system ★ Find the coordinates of a point based on its distance from the origin in the direction of the axes. ○ Identify the x- and y-axes and locate the origin on the coordinate system ○ Describe the connection between the ordered pair and the x- and y-axes from the origin ★ Plot a point based on its distance from the origin in the direction of the axes. 	<p>Go Math! 9.2 Mathematical Practices: 4, 6, 7 Flipbook: Pg. 57</p> <p><i>Supplement with <u>Teaching Student-Centered Mathematics</u> Van de Walle Pgs. 399-400; 17.17-17.19</i></p>	<p>Coordinate system, Coordinate plane, Axis/Axes, y-axis, x-axis, Origin, Perpendicular line, Parallel lines, Coordinate(s), Point, Ordered pair(s), Parentheses, x-coordinate, y-coordinate, Plot</p>
<p>5.G.A.2 Represent real-world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.</p>	<ul style="list-style-type: none"> ○ Graph points in the first quadrant ★ Plot points based on given coordinates ★ Plot points based on the relationship between their locations on the coordinate plane ○ Interpret coordinate values of points in real-world context and mathematical problems ★ Identify how many units and which direction one point is from another ○ Represent real-world and mathematical problems by graphing points in first quadrant ★ Find the coordinates of a point based on a graphed point in a coordinate plane ★ Interpret meaning of coordinate values within a context (axes indicate specific values) 	<p>Go Math! 9.3, 9.4 Mathematical Practices: 1, 2, 4, 5, 6, 7 Flipbook: Pg. 60</p> <p><i>Supplement with <u>Teaching Student-Centered Mathematics</u> Van de Walle Pg. 400; 17.20</i></p>	<p>Graphing, Coordinate system, Coordinate plane, Axis/Axes, y-axis, x-axi, Origin, Perpendicular line, Parallel lines, Coordinate(s), Point, Ordered pair(s), Parentheses, x-coordinate, y-coordinate, Plot, Orientation, Compass rose</p>
Multiplication and Division of Whole Numbers and Decimals By the end of this unit of study, students will be able to perform operations with multi-digit whole numbers and with decimals to hundredths.			
<p>→5.NBT.B.5 Fluently multiply multi-digit whole numbers using the standard algorithm.</p>	<ul style="list-style-type: none"> ○ Fluently multiply multi-digit whole numbers using the standard algorithm ★ Calculate the product of two numbers ★ Identify a missing factor or digit in a multiplication problem 	<p>Go Math! 1.6,1.7, 1.8 Mathematical Practices: 2, 6, 7, 8 Flipbook: Pg. 20</p>	<p>Algorithm, Estimate, Product, Factor</p>

<p>5.NBT.B.6 Apply and extend understanding of division to find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors. <i>Note: students do not use the standard algorithm for division until 6th Grade.</i></p>	<ul style="list-style-type: none"> o Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors ★ Calculate the quotient of 2 numbers ★ Select expressions that are equivalent to a given quotient o Illustrate and explain division calculations by using equations, rectangular arrays, and/or area models ★ Illustrate and explain quotients of 2 numbers using equations, rectangular arrays, or area models 	<p>Go Math! 2.1, 2.2, 2.3, 2.4, 2.5, 2.6 Mathematical Practices: 2, 3, 4, 5, 7 Flipbook: Pg. 23</p>	<p>Dividend, Divisor, Equation, Quotient, Remainder, Estimate</p>
<p>➔5.NBT.B.7 Add, subtract, multiply, and divide decimals to hundredths, connecting objects or drawings to strategies based on place value, properties of operations, and/or the relationship between operations. Relate the strategy to a written form. <i>Note: students do not use the standard algorithm for adding, subtracting, multiplying, or dividing decimals until 6th Grade.</i></p>	<ul style="list-style-type: none"> o 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 ★ Perform a calculation involving decimals ★ Solve a problem involving decimals and four operations given a scenario o Relate the strategy to a written method and explain the reasoning used to solve decimal operation calculations 	<p>Go Math! 5.2, 5.3, 5.4, 5.5, 5.6, 5.7, 5.8 Mathematical Practices: 2, 3, 4, 5, 7 Flipbook: Pg. 25</p> <p><i>Supplement with</i> <u>Teaching Student-Centered Mathematics</u> Van de Walle Pg. 301; 14.6</p>	<p>Decimal, Decimal point, Dividend, Divisor, Estimate</p>
Volume Relationships			
By the end of this unit of study, students will understand concepts of volume.			
<p>5.MD.C3 Recognize volume as an attribute of solid figures and understand concepts of volume measurement.</p> <ul style="list-style-type: none"> a. A cube with side length 1 unit, called a “unit cube,” is said to have “one cubic unit” of volume, and can be used to measure volume. b. A solid figure which can be packed without gaps or overlaps using n unit cubes is said to have a volume of n cubic units. 	<ul style="list-style-type: none"> o Explain how volume is the measurement of the space inside a solid 3-D figure and that a unit cube has 1 cubic unit of volume that is used to measure volume of 3-D shapes ★ Recognize volumes as an attribute of solid figures ★ Identify a unit cube as 1 cubic unit of volume o Explain how any solid figure packed without gaps or overlaps and filled with n unit cubes indicates the total cubic units or volume ★ Recognize the use of n unit cubes packed in a solid figure to find the volume of that figure in n cubic units 	<p>Go Math! 11.5, 11.6, 11.7 Mathematical Practices: 2, 4, 5, 6, 7 Flipbook: Pg. 50</p> <p><i>Supplement with</i> <u>Teaching Student-Centered Mathematics</u> Van de Walle Pg. 344-361; 16.3, 16.6-16.8</p>	<p>Attribute, Solid figure, Volume, Base shape, Prism, Pyramid, Unit cube, Cubic unit, Cubed</p>
<p>5.MD.C.4 Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.</p>	<ul style="list-style-type: none"> o Measure volume by counting unit cubes, cubic cm, cubic in, cubic ft, and improvised units ★ Identify the volume of a rectangular prism by counting unit cubes, and compare volumes of multiple prisms 	<p>Go Math! 11.8 Mathematical Practices: 2, 4, 5, 6, 7 Flipbook: Pg. 53</p>	<p>Cubic unit, Unit cube, Cubic (ft, inches, cm, mm, etc.), Rectangular prism, Solid figure, Volume</p>

<p>5.MD.C.5 Relate volume to the operations of multiplication and addition and solve mathematical problems and problems in real-world contexts involving volume. a. Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes (e.g., to represent the Associative Property of Multiplication). b. Understand and use the formulas $V = l \times w \times h$ and $V = B \times h$, where in this case B is the area of the base ($B = l \times w$), for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths to solve mathematical problems and problems in real-world contexts. c. Understand volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms, applying this technique to solve mathematical problems and problems in real-world contexts.</p>	<ul style="list-style-type: none"> o Identify a right rectangular prism o Apply the following formulas to right rectangular prisms having whole number edge lengths in the context of real-world mathematical problems: <ul style="list-style-type: none"> ● Volume = length x width x height ● Volume = area of base x height ★ Calculate the volume of a right rectangular prism when given the formula ★ Determine the volume of a right rectangular prism without the formula given Determine the dimensions of a right rectangular prism given the volume o Explain how volume is additive and solve real-world problems by decomposing a solid figure into two non-overlapping right rectangular prisms and adding their volumes ★ Show how to determine the volume of a solid composed of 2 non-overlapping rectangular prisms (e.g. by writing an expression with an unknown) ★ Calculate the volume of a solid figure that is composed of non-overlapping rectangular prisms ★ Identify an additional volume needed to complete a larger volume o Develop volume formula for a rectangular prism by comparing volume (when filled with cubes) to volume (when multiplying the height by the area of the base, or when multiplying the edge lengths, $L \times W \times H$) ★ Compare volumes of a rectangular prisms using the formula for volume 	<p>Go Math! 11.9,11.10, 11.11, 11.12 Mathematical Practices: 1, 2, 3, 4, 5, 6, 7, 8 Flipbook: Pg. 54</p>	<p>Area, Associative Property of Multiplication, Base, Composite, Cubic unit, Formula, Right rectangular prism, Unit cube, Volume, Whole number</p>
---	---	--	---

Quarter 4

Arizona State Standards	GESD Suggested Learning Targets (○) AzM2 Sample Task Demands (★)	Curricular Resource Mathematical Practices	Vocabulary
-------------------------	---	---	------------

Algebraic Expression

By the end of this unit of study, students will be able to write and interpret numerical expressions and analyze patterns and relationships.

<p>5.OA.A.1 Use parentheses and brackets in numerical expressions, and evaluate expressions with these symbols (Order of Operations).</p>	<ul style="list-style-type: none"> o Evaluate expressions using the order of operations (including using parentheses and brackets) o Understand the order in using () and [] symbols when solving or rewriting expressions ★ Evaluate a numerical expression with parentheses and brackets 	<p>Go Math! 1.11, 1.12 Mathematical Practices: 1, 5, 8 Flipbook: Pg. 4 <i>Supplement with</i></p>	<p>Order of Operations, Parentheses, (), Brackets, [], Expression, Evaluate</p>
--	---	--	---

	<ul style="list-style-type: none"> ★ Rewrite a given numerical expression with parentheses, brackets and/or braces (by inserting these grouping symbols) such that the expression evaluates to a given answer ★ Identify a calculation error when evaluating a numerical expression 	<p><i>Teaching Student-Centered Mathematics</i> Van de Walle Pg. 330; 15.15</p>	
<p>5.OA.A.2 Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them (e.g., express the calculation “add 8 and 7, then multiply by 2” as $2 \times (8 + 7)$). Recognize that $3 \times (18,932 + 921)$ is three times as large as $18,932 + 921$, without having to calculate the indicated sum or product.</p>	<ul style="list-style-type: none"> o Interpret numerical expressions without evaluating them ★ Interpret the meaning of a written numerical statement without evaluating it o Write numerical expressions for given numbers with operation words and operation words to describe a given numerical expression ★ Construct a numerical expression given a written statement of numerical values 	<p>Go Math! 1.10 Mathematical Practices: 1, 2, 7, 8 Flipbook: Pg. 6</p> <p><i>Supplement with Teaching Student-Centered Mathematics</i> Van de Walle Pgs. 320-326; 15.9, 15.10, 15.12</p>	<p>Order of Operations, Parentheses, Brackets, Expression, Evaluate</p>
<p>5.OA.B.3 Generate two numerical patterns using two given rules (e.g., generate terms in the resulting sequences). Identify and explain the apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane (e.g., given the rule “add 3” and the starting number 0, and given the rule “add 6” and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence). Explain informally why this is so.</p>	<ul style="list-style-type: none"> o Generate two numerical patterns using two given rules and graph generated ordered pairs on a coordinate plane ★ Find terms of two numerical patterns given rules, including forming ordered pairs determined by a pattern o Form ordered pairs consisting of corresponding terms for the two patterns ★ Identify specific relationships between terms of two numerical patterns (term when the sequences are equal, where one is twice the other, etc.) o Analyze and explain the relationships between corresponding terms in the two numerical patterns ★ Identify relationships between two numerical patterns ★ Graph ordered pairs corresponding to terms in two numerical patterns in a coordinate plane 	<p>Go Math! 9.5, 9.6, 9.7 Mathematical Practices: 2, 7 Flipbook: Pg. 8</p> <p><i>Supplement with Teaching Student-Centered Mathematics</i> Van de Walle Pgs. 332-336; 15.7, 15.8, 15.21</p>	<p>Graphing, Coordinate system, Coordinate plane, Axis/Axes, y-axis, x-axis, Origin, Perpendicular line, Parallel lines, Coordinate(s), Point, Ordered pair(s), Parentheses, x-coordinate, y-coordinate, Plot, Orientation, Compass rose</p>
Measurement			
By the end of this unit of study, students will be able to convert like measurement units within a given measurement system and represent and interpret data.			
<p>5.MD.A.1 Convert among different-sized standard measurement units within a given measurement system and use these conversions in solving multi-step, real world problems. <i>For example, convert 5 cm to 0.05 m.</i></p>	<ul style="list-style-type: none"> o Identify units of measurement within the same system o Convert units of measurement within the same system using multiplication and division ★ Calculate a measurement conversion within a problem with no context 	<p>Go Math! 10.1, 10.2, 10.4, 10.5, 10.6, 10.7 Mathematical Practices: 1, 2, 5, 6 Flipbook: Pg. 48</p> <p><i>Supplement with</i></p>	<p>Metric System, Customary System, Length (Meter, Millimeter, Centimeter, Kilometer, Decimeter, Decameter) (Inches, Foot, Yards, Miles), Capacity</p>

	<ul style="list-style-type: none"> o Solve multi-step, real-world problems that involve converting units ★ Solve a real world problem involving measurement conversions 	<p><i>Teaching Student-Centered Mathematics Van de Walle Pgs. 349-350; 16.5, 16.6</i></p>	<p>(Milliliter, Liter) (Gallon, Cup, Pint, Quart), Weight (Kilogram, Milligram) (Ounce, Pound, Ton, Gram)</p>
<p>5.MD.B.2 Make a line plot to display a data set of measurements in fractions of a unit (e.g., $\frac{1}{8}$, $\frac{1}{2}$, $\frac{3}{4}$). Use operations on fractions for this grade to solve problems involving information presented in line plots. <i>For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.</i></p>	<ul style="list-style-type: none"> o Identify benchmark fractions o Make a line plot to display a data set of measurements in fractions of a unit ★ Construct a line plot based on given data comprised of fractions o Solve problems involving information presented in line plots which use fractions of a unit by adding, subtracting, multiplying, and dividing fractions ★ Interpret data in a line plot to solve addition, subtraction, multiplication, and division of unit fractions, even when information is not fully provided 	<p>Go Math! 9.1 Mathematical Practices: 1, 2, 4, 5, 6, 7 Flipbook: Pg. 50</p> <p><i>Supplement with Teaching Student-Centered Mathematics Van de Walle Pgs. 414-418; 18.5, 18.7-18.9</i></p>	<p>Data, Line plot, Benchmark fractions, x-axis, y-axis</p>

2-Dimensional Figures

By the end of this unit of study, students will be able to classify two-dimensional figures into categories based on their properties.

<p>5.G.B.3 Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. <i>For example, all rectangles have four right angles and all squares are rectangles, therefore all squares have four right angles.</i></p>	<ul style="list-style-type: none"> o Explain how some 2-D shapes can be classified into more than one category based on their attributes ★ Select attributes that categories share o Explain that if a 2-D shape is classified into a sub-category, that it also belongs to all categories above ★ Select shapes based on the attributes of a specific category ★ Select shapes that can be treated the same way as shapes in an upper category 	<p>Go Math! 11.1, 11.2 Mathematical Practices: 2, 6, 7 Flipbook: Pg. 62</p> <p><i>Supplement with Teaching Student-Centered Mathematics Van de Walle Pgs. 378, 393; 17.3, 17.12</i></p>	<p>Acute triangle, Attribute, Congruent, Hexagon, Equilateral triangle, Isosceles triangle, Obtuse triangle, Pentagon, Polygon, Quadrilateral, Rhombus, Right triangle, Scalene triangle, Trapezoid, Two-Dimensional figure</p>
<p>5.G.B.4 Classify two dimensional figures in a hierarchy based on properties.</p>	<ul style="list-style-type: none"> o Describe the hierarchy of 2-D shapes based on their attributes and analyze properties of 2-D figures in order to place into a hierarchy ★ Show a hierarchy of shapes categorized by attributes ★ Select the categories a shape belongs to o Classify 2-D figures into specific categories and/or specific sub-categories based on their attributes. ★ Select shapes belonging to a particular subcategory ★ Support/refute statements about categorizing shapes 	<p>Go Math! 11.2, 11.3 Mathematical Practices: 2, 5, 6, 7 Flipbook: Pg. 64</p> <p><i>Supplement with Teaching Student-Centered Mathematics Van de Walle Pgs. 394-395; 17.13, 17.14</i></p>	<p>Parallel lines, Parallelogram, Perpendicular lines, Rhombus Trapezoid, Two-Dimensional figure</p>

Quarter Taught				Essential Standards
1	2	3	4	Number and Operations in Base Ten (NBT):
X				5.NBT.A.3 – Read, write, and compare decimals to thousandths. a. Read and write decimals to thousandths using base-ten numerals, number names, and expanded form. b. Compare two decimals to thousandths based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons.
X		X		5.NBT.B.5 – Fluently multiply multi-digit whole numbers using a standard algorithm.
X		X		5.NBT.B.6 – Apply and extend understanding of division to find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors.
X	X	X		5.NBT.B.7 – Add, subtract, multiply, and divide decimals to hundredths, connecting objects or drawings to strategies based on place value, properties of operations, and/or the relationship between operations. Relate the strategy to a written form.
				Number and Operations – Fractions (NF):
	X			5.NF.A.1 – Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators (e.g., $2/3 + 5/4 = 8/12 + 15/12 = 23/12$).
	X			5.NF.B.4 – Apply and extend previous understandings of multiplication to multiply a fraction by a whole number and a fraction by a fraction. a. Interpret the product $(a/b) \times q$ as a parts of a partition of q into b equal parts. For example, use a visual fraction model to show $(2/3) \times 4 = 8/3$, and create a story context for this equation. b. Interpret the product of a fraction multiplied by a fraction $(a/b) \times (c/d)$. Use a visual fraction model and create a story context for this equation. For example, use a visual fraction model to show $(2/3) \times (4/5) = 8/15$, and create a story context for this equation. In general, $(a/b) \times (c/d) = ac/bd$. c. Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.
	X			5.NF.B.6 – Solve problems in real-world contexts involving multiplication of fractions, including mixed numbers, by using a variety of representations including equations and models.
	X			5.NF.B.7 – Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions. a. Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. Use the relationship between multiplication and division to justify conclusions. b. Interpret division of a whole number by a unit fraction, and compute such quotients. For example, create a story context for $4 \div (1/5)$, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to justify conclusions (e.g., $4 \div (1/5) = 20$ because $20 \times (1/5) = 4$). c. Solve problems in real-world context involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, using a variety of representations.
				Measurement and Data (MD):
		X		5.MD.C.5 – Relate volume to the operations of multiplication and addition and solve mathematical problems and problems in real-world contexts involving volume. a. Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes (e.g., to represent the associative property of multiplication). b. Understand and use the formulas $V = l \times w \times h$ and $V = B \times h$, where in this case B is the area of the base ($B = l \times w$), for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths to solve mathematical problems and problems in real-world contexts. c. Understand volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms, applying this technique to solve mathematical problems and problems in real-world contexts.
				Geometry (G):
		X		5.G.A.2 – Represent real-world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.

Quarter Taught				Supporting Standards
1	2	3	4	Operations and Algebraic Thinking (OA):
			X	5.OA.A.1 – Use parentheses and brackets in numerical expressions, and evaluate expressions with these symbols (Order of Operations).
			X	5.OA.A.2 – Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them (e.g., express the calculation "add 8 and 7, then multiply by 2" as $2 \times (8 + 7)$). Recognize that $3 \times (18,932 + 921)$ is three times as large as $18,932 + 921$, without having to calculate the indicated sum or product).
			X	5.OA.B.3 – Generate two numerical patterns using two given rules (e.g., generate terms in the resulting sequences). Identify and explain the apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane (e.g., given the rule "add 3" and the starting number 0, and given the rule "add 6" and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence).
	X			5.OA.B.4 – Understand primes have only two factors and decompose numbers into prime factors.
Number and Operations in Base Ten (NBT):				
X				5.NBT.A.1 – Apply concepts of place value, multiplication, and division to understand that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and $1/10$ of what it represents in the place to its left.
X				5.NBT.A.2 – Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10.
X				5.NBT.A.4 – Use place value understanding to round decimals to any place.
Number and Operations – Fractions (NF):				
	X			5.NF.A.2 – Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators by using a variety of representations, equations, and visual models to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers (e.g. recognize an incorrect result $2/5 + 1/2 = 3/7$, by observing that $3/7 < 1/2$).
	X			5.NF.B.3 – Interpret a fraction as the number that results from dividing the whole number numerator by the whole number denominator ($a/b = a \div b$). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers. For example, interpret $3/4$ as the result of dividing 3 by 4, noting that $3/4$ multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people, each person has a share of size $3/4$. If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?
	X			5.NF.B.5 – Interpret multiplication as scaling (resizing), by: a. Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication. b. Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number; explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence $a/b = (n \times a)/(n \times b)$ to the effect of multiplying a/b by 1.
Measurement and Data (MD):				
			X	5.MD.A.1 – Convert among different-sized standard measurement units within a given measurement system, and use these conversions in solving multi-step, real-world problems.
			X	5.MD.B.2 – Make a line plot to display a data set of measurements in fractions of a unit ($1/8, 1/2, 3/4$). Use operations on fractions for this grade to solve problems involving information presented in line plots. For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.
		X		5.MD.C.3 – Recognize volume as an attribute of solid figures and understand concepts of volume measurement. a. A cube with side length 1 unit, called a "unit cube," is said to have "one cubic unit" of volume, and can be used to measure volume. b. A solid figure which can be packed without gaps or overlaps using n unit cubes is said to have a volume of n cubic units.
		X		5.MD.C.4 – Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.
Geometry (G):				
		X		5.G.A.1 – Understand and describe a coordinate system as perpendicular number lines, called axes, that intersect at the origin (0, 0). Identify a given point in the first quadrant of the coordinate plane using an ordered pair of numbers, called coordinates. Understand that the first number (x) indicates the distance traveled on the horizontal axis, and the second number (y) indicates the distance traveled on the vertical axis.

		X	5.G.B.3 – Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category.
		X	5.G.B.4 – Classify two-dimensional figures in a hierarchy based on properties.