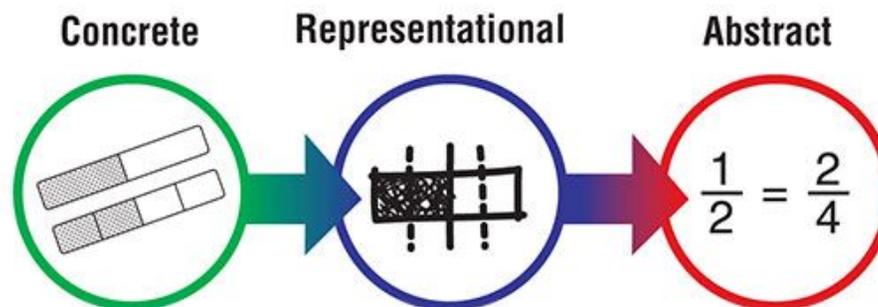




### By the end of fourth grade, students will be able to...

- **Extend understanding of place value to multi-digit numbers and fluently add and subtract multi-digit numbers.**
  - Students generalize their understanding of place value through 1,000,000, and the relative size of numbers in each place. They use their understanding of properties of operations to perform multi-digit arithmetic with multi-digit whole numbers less than or equal to 1,000,000. They round multi-digit numbers and fluently add and subtract multi-digit whole numbers within 1,000,000.
- **Develop competency with multi-digit multiplication, and develop understanding of dividing to find quotients involving multi-digit dividends.**
  - Students apply their understanding of models for multiplication, place value, and properties of operations, in particular the Distributive Property, to compute products of multi-digit whole numbers. They develop fluency with efficient strategies for multiplying multi-digit whole numbers through 1,000,000; understand and explain why the strategies work; and use them to solve problems (Table 2). Students apply their understanding of models for division, place value, properties of operations, and the relationship of division to multiplication to find quotients involving multi-digit dividends.
- **Develop understanding of fraction equivalence, addition, and subtraction of fractions with like denominators, and multiplication of fractions by whole numbers.**
  - Students develop understanding of fraction equivalence and operations with fractions. They recognize that two different fractions can be equal (e.g.,  $15/9 = 5/3$ ), and they develop methods for generating and recognizing equivalent fractions. Students extend previous understandings about how fractions are built from unit fractions, composing fractions from unit fractions, decomposing fractions into unit fractions, and using the meaning of fractions and the meaning of multiplication to multiply a fraction by a whole number.



## 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 4 AzM2 Math Blueprint 2016 Standards		
Reporting Category	Min.	Max.
Operations & Algebraic Thinking and Numbers & Operations in Base Ten	46%	54%
<i>Operations &amp; Algebraic Thinking</i>	22%	26%
<i>Numbers in Base Ten</i>	24%	28%
Numbers and Operations - Fractions	29%	33%
Measurement & Data and Geometry	15%	19%
<i>Measurement and Data</i>	9%	13%
<i>Geometry</i>	4%	7%

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%

**Table 2: Common Multiplication and Division Problem Types/Situations.**<sup>1</sup>

	<b>Unknown Product</b>	<b>Group Size Unknown</b> (“How many in each group?” Division)	<b>Number of Groups Unknown</b> (“How many groups?” Division)
	<b><math>3 \times 6 = ?</math></b>	<b><math>3 \times ? = 18</math> and <math>18 \div 3 = ?</math></b>	<b><math>? \times 6 = 18</math> and <math>18 \div 6 = ?</math></b>
<b>Equal Groups</b>	There are 3 bags with 6 plums in each bag. How many plums are there in all? <b>Measurement example.</b> 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? <b>Measurement example.</b> 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? <b>Measurement example.</b> 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?
<b>Arrays,<sup>2</sup> Area<sup>3</sup></b>	There are 3 rows of apples with 6 apples in each row. How many apples are there? <b>Area example.</b> 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? <b>Area example.</b> 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? <b>Area example.</b> A rectangle has area 18 square centimeters. If one side is 6 cm long, how long is a side next to it?
<b>Compare</b>	A straw hat costs \$6. A baseball hat costs 3 times as much as the straw hat. How much does the baseball hat cost? <b>Measurement example.</b> 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 baseball hat costs \$18 and that is 3 times as much as a straw hat costs. How much does a blue straw cost? <b>Measurement example.</b> A rubber band is stretched to be 18 cm long and that is 3 times as long as it was at first. How long was the rubber band at first?	A baseball hat costs \$18 and a straw hat costs \$6. How many times as much does the baseball hat cost as the straw hat? <b>Measurement example.</b> 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?
<b>General</b>	<b><math>a \times b = ?</math></b>	<b><math>a \times ? = p</math>, and <math>p \div a = ?</math></b>	<b><math>? \times b = p</math>, and <math>p \div b = ?</math></b>

<sup>1</sup>The first examples in each cell are examples of discrete things. These are easier for students and should be given before the measurement examples.<sup>2</sup>The language in the array examples shows the easiest form of array problems. A harder form is to use the terms rows and columns: The apples in the grocery window are in 3 rows and 6 columns. How many apples are in there? Both forms are valuable.<sup>3</sup>Area involves arrays of squares that have been pushed together so that there are no gaps or overlaps, so array problems include these especially important measurement situations.

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

## Year and Quarter Overview

<b>Mathematical Practices – To be embedded into every lesson</b>			
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.	<b>Key:</b> <span style="color: red;">➔ Grade-Level Guaranteed Standards</span> <span style="color: green;">Essential Standards</span> Supporting Standards <span style="color: blue;">Previously Presented Materials</span>	
<b>Yearlong Fluency Standards – To be taught and revisited continually throughout the year</b>			
<span style="color: green;">➔ 4.NBT.B.4</span> Students fluently add and subtract multi-digit whole numbers using the standard algorithm.			
Quarter 1	Quarter 2	Quarter 3	Quarter 4
<p style="text-align: center;"><b><u>Develop Fluency &amp; Understanding with Numbers</u></b> (embed 4.OA.C.6) 4.NBT.A.1 4.NBT.A.2 4.NBT.A.3 <span style="color: green;">➔ 4.NBT.B.4</span></p> <p style="text-align: center;"><b><u>Application of Measurements</u></b> 4.MD.A.1 <span style="color: green;">4.MD.A.2</span></p> <p style="text-align: center;"><b><u>Develop Fluency with Multi-Digit Multiplication</u></b> (continue to embed 4.MD.A.2) 4.OA.A.1 4.OA.A.2 4.NBT.A.1 <span style="color: green;">4.OA.A.3</span> <span style="color: green;">➔ 4.NBT.B.5</span></p> <p style="text-align: center;"><b><u>Apply Geometric Properties</u></b> 4.MD.A.3</p>	<p style="text-align: center;"><b><u>Develop an Understanding of Division</u></b> (continue to embed 4.MD.A.2 and 4.OA.C.6) <span style="color: green;">➔ 4.NBT.B.6</span> <span style="color: green;">4.OA.A.3 (spiral)</span> <span style="color: green;">4.OA.B.4</span> 4.OA.C.5</p> <p style="text-align: center;"><b><u>Develop an Understanding of Fractions</u></b> 4.MD.A.1 (continue to embed 4.MD.A.2) <span style="color: red;">➔ 4.NF.B.3 a, b, c, d</span> (embed 4.MD.B.4) 4.NF.A.1 <span style="color: green;">➔ 4.NF.A.2</span> 4.NF.B.4</p> <p style="text-align: center;">Continue with year-long fluency standard <span style="color: green;">➔ 4.NBT.B.4</span></p>	<p style="text-align: center;"><b><u>Develop an Understanding of Fractions</u></b> (continue to embed 4.OA.C.6) <span style="color: green;">4.NF.C.5</span> <span style="color: green;">4.NF.C.6</span> <span style="color: red;">➔ 4.NF.C.7</span></p> <p style="text-align: center;"><b><u>Understanding Geometric Figures &amp; Properties</u></b> <span style="color: green;">4.G.A.1</span> 4.MD.C.5 4.MD.C.6 4.MD.C.7 4.G.A.2 4.G.A.3</p> <p style="text-align: center;">Continue with year-long fluency standard <span style="color: red;">➔ 4.NBT.B.4</span></p>	<p style="text-align: center;"><b><u>Understanding Geometric Figures &amp; Properties</u></b> 4.OA.C.5 4.G.A.2 <span style="color: red;">➔ 4.NF.B.3 a,b,c,d</span> (embed 4.MD.B.4) 4.MD.C.5 4.MD.C.6 4.MD.C.7</p> <p style="text-align: center;"><b><u>Revisit</u></b> 4.OA.A.1 4.OA.A.2 <span style="color: green;">4.OA.B.4 (spiral)</span></p> <p style="text-align: center;">Continue with year-long fluency standard <span style="color: red;">➔ 4.NBT.B.4</span></p> <p style="text-align: center;">Use any remaining time in the year to reteach standards to which students did not reach mastery and to pre-teach 5<sup>th</sup> 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
<b>Develop Fluency &amp; Understanding with Numbers</b>			
By the end of this unit of study, students will be able to round to any place value, compare two numbers, read and write multi-digit whole numbers in numeral, name and expanded form, recognize a digit in one place is 10x what is represented in the place to its right, add and subtract multi-digit whole numbers using the standard algorithm.			
4.NBT.A.1 Apply concepts of place value, multiplication, and division to understand that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right.	<ul style="list-style-type: none"> <li>★ Identify the power of 10 by which one number is greater than another, when presented with a multiplication problem</li> <li>★ Compare the value of a digit in different place values of two given numbers and identify the power of 10 by which one is greater</li> </ul>	Go Math! 1.1, 1.5 Mathematical Practices: 2, 6, 7 Flipbook: Pg. 19	Digit, Place Value, Regroup
4.NBT.A.2 Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using $>$ , $=$ , and $<$ symbols to record the results of comparisons.	<ul style="list-style-type: none"> <li>★ Write a number with a given name in numeric form</li> <li>★ Identify the name of a given number</li> <li>★ Write a number given in expanded form in numeric form or vice versa</li> <li>★ Compare two whole numbers in numeric form</li> <li>★ Order more than two whole numbers in numeric form</li> </ul>	Go Math! 1.2, 1.3 Mathematical Practices: 2, 4, 6, 7 Flipbook: Pg. 21	Expanded form, Standard form, Word form, Unit form, Sum, Compare, Period, Equal, Greater than, Less than, Number line, Order
4.NBT.A.3 Use place value understanding to round multi-digit whole numbers to any place.	<ul style="list-style-type: none"> <li>★ Identify the value of a given number rounded to the nearest place value</li> <li>★ Identify the numbers that round to a given value</li> <li>★ Identify what place value a number was rounded to</li> <li>★ Interpret and distinguish between different rounding procedures used in rounding to a number in order to create a number that fits certain parameters</li> </ul>	Go Math! 1.4 Mathematical Practices: 2, 6 Flipbook: Pg. 22	Estimate, Round a whole number
➔4.NBT.B.4 Fluently add and subtract multi-digit whole numbers using the standard algorithm.	<ul style="list-style-type: none"> <li>★ Calculate the sum or difference of two or more numbers (numbers less than or equal to 1,000,000 using the standard algorithm)</li> <li>★ Identify a missing digit in an addition or subtraction problem</li> </ul>	Go Math! 1.6, 1.7, 1.8 Mathematical Practices: 2, 5, 7, 8 Flipbook: Pg. 24  Supplement with: <i>Teaching Student-Centered Mathematics Van de Walle, Pgs. 116-122, 182-193, 307-329</i> <i>Strategies for Success: Math Problem-Solving</i>	Addend, Addition, Difference, Algorithm

		<i>Unit 1: Problem solving place value, addition, and subtraction Write an Equation Pgs. 22-25</i>	
4.OA.C.6 (embed within all standards) When solving problems, assess the reasonableness of answers using mental computation and estimation strategies including rounding.	<ul style="list-style-type: none"> <li>○ Use estimation and rounding to predict viable answer to problem</li> <li>○ Assess reasonableness of answer compared to prediction</li> <li>★ Determine the best estimation strategy given the context of a situation</li> <li>★ Determine whether an answer is appropriate in a given context</li> <li>★ Recognize when an estimation strategy is or is not appropriate</li> <li>★ Use estimation strategies to solve a problem.</li> </ul>	Embed “reasonableness” and “estimation” into instruction for all standards  Mathematical Practices: 2	Reasonableness, <a href="#">Estimating, Rounding</a>
<b>Application of Measurement</b>			
By the end of this unit, students will be able to calculate measurement conversion and solve word problems involving measurement.			
4.MD.A.1 Know relative sizes of measurement units within one system of units which could include km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit and in a smaller unit in terms of a larger unit.	<ul style="list-style-type: none"> <li>○ Convert larger units of measurement within the same system to smaller units and record conversions in a 2-column table</li> <li>★ Identify the relative size of a measurement unit (km, m; kg, g; lb, oz; L, mL; hr, min, sec)</li> <li>★ Calculate measurement conversions</li> <li>★ Order measurements given in different units within the same measurement system</li> </ul>	Go Math! 12.1, 12.2, 12.3, 12.4, 12.6, 12.7, 12.8, 12.11 Mathematical Practices: 2, 5, 6 Flipbook: Pg. 22, Pg. 49  <i>For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36).</i>	Kilometer, Mile, Benchmark, <a href="#">Foot, Inch, Weight</a> , Yard, Ounce, Pound, Ton, Cup, Fluid ounce, Gallon, Half, gallon, Liquid volume, Capacity, Pint, Quart, Decimeter, Millimeter, Centimeter, <a href="#">Meter, Liter</a> , Milliliter, <a href="#">Gram, Kilogram, Second, Day, Hour</a> , Minute, Month, <a href="#">Week</a> , Year
4.MD.A.2 <b>Use the four operations to solve word problems and problems in real-world context involving distances, intervals of time (hr, min, sec), liquid volumes, masses of objects, and money, including decimals and problems involving fractions with like denominators, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using a variety of</b>	<ul style="list-style-type: none"> <li>○ Express measurements given in a larger unit in terms of a smaller unit</li> <li>○ Solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money</li> <li>○ Solve word problems that require expressing measurements given in a larger unit in terms of a smaller unit</li> <li>★ Solve a word problem involving specified measurements</li> </ul>	Go Math! 12.7, 12.9, 12.10 Mathematical Practices: 1, 2, 4, 5, 6 Flipbook: Pg. 22, Pg. 51	<a href="#">Elapsed time, a.m., p.m.</a> ,

<p><b>representations, including number lines that feature a measurement scale.</b></p>	<p>★ Represent/model a problem involving specified measurements</p>		
<p><b>Develop Fluency with Multi-Digit Multiplication</b></p>			
<p>By the end of this unit of study, students will understand the concept of multiplication and solve multi-step word problems using all four operations.</p>			
<p><b>4.OA.A.1</b> Represent verbal statements of multiplicative comparisons as multiplication equations. Interpret a multiplication equation as a comparison (e.g., 35 is the number of objects in 5 groups, each containing 7 objects, and is also the number of objects in 7 groups, each containing 5 objects).</p>	<p>★ Create an equation that models the multiplication and verbal statement’s context ★ Select a multiplicative comparison that describes the equation or vice versa</p>	<p>Go Math! 2.1 Mathematical Practices: 2, 4 Flipbook: Pg. 22</p>	<p>Equation, Comparison</p>
<p><b>4.OA.A.2</b> Multiply or divide within 1000 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).  <i>See Table 2.</i>  <i>Note: students do not use the standard algorithm for multiplication until 5<sup>th</sup> Grade. Students do not use the standard algorithm for division until 6<sup>th</sup> Grade.</i></p>	<p>○ Describe multiplicative comparison ○ Describe additive comparison ○ Determine and use a variety of representations to model a problem involving multiplicative comparison ○ Distinguish between multiplicative comparison and additive comparison (repeated addition) ○ Multiply or divide to solve word problems ★ Given a situation involving multiplicative comparison, create a multiplication or division equation (with an unknown value) to represent the situation ★ Given a situation involving multiplicative comparison, solve a multiplication or division word problem</p>	<p>Go Math! 2.2 Mathematical Practices: 2, 4, 5, 7 Flipbook: Pg. 22, Pg. 7</p>	<p>Model</p>
<p><b>4.OA.3</b> <b>Solve multistep word problems using the four* operations, including problems in which remainders must be interpreted. Understand how the remainder is a fraction of the divisor. Represent these problems using equations with a letter standing for the unknown quantity.</b>  *Can use division (fact families) to solve multiplicative comparison problems.</p>	<p>★ Explain the reasonableness of a solution in words ★ Reason through a word problem to find an unknown value</p>	<p>Go Math! 2.9, 2.12, 3.7 Mathematical Practices: 1, 2, 4, 5, 6, 7 Flipbook: Pg. 22, Pg. 9 Supplement with: <i>Strategies for Success: Math Problem-Solving Unit 1: Problem solving place value, addition, and subtraction *Lesson 1 Pg. 14, *Lesson 2 Pg. 18</i> <i>Strategies for Success: Math Problem-Solving Unit 2: Problem solving using multiplication and division *Lessons 5.6 &amp; 8, Pgs. 32-46</i></p>	<p>Equation, Order of Operation, Variable</p>

Note: This standard spirals into Q2 with division			
<p>➔<b>4.NBT.B.5</b>  <b>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.</b></p> <p><i>Note: students do not use the standard algorithm for multiplication until 5<sup>h</sup> Grade.</i></p>	<ul style="list-style-type: none"> <li>○ Use strategies based on place value and the properties of operations to multiply whole numbers</li> <li>○ Illustrate and explain calculations by using written equations, rectangular arrays, and/or area models</li> <li>★ Calculate the product of 2 numbers (a whole number up to four digits by a one-digit whole number &amp; two two-digit numbers)</li> <li>★ Select expressions that are equivalent to a given product</li> </ul>	<p>Go Math! 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 2.10, 2.11, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6</p> <p>Mathematical Practices: 2, 3, 4, 5, 7</p> <p>Flipbook: Pg. 22, Pg. 27</p>	<p>Factor, Multiply, Number line, Place value, Product, Round, Estimate, Distributive Property, Partial product, Expanded, form, Associative Property, Regroup, Compatible number, Area model, Commutative Property</p>
<b>Apply Geometric Properties</b>			
By the end of this unit of study, students will fluently understand how to use and calculate perimeter and area.			
<p>4.MD.A.3  Apply the area and perimeter formulas for rectangles in mathematical problems and problems in real-world contexts including problems with unknown side lengths.</p> <p>See Table 2.</p>	<ul style="list-style-type: none"> <li>○ Know that the formula for the perimeter of a rectangle is <math>2L + 2W</math> for <math>L + L + W + W</math></li> <li>○ Know that the formula for the area of a rectangle is <math>L \times W</math></li> <li>★ Construct a rectangle with a given perimeter and/or area</li> <li>★ Calculate perimeter and/or area of a rectangle</li> <li>★ Calculate an unknown side length given an area or perimeter</li> <li>★ Model with an expression or equation the area or perimeter of a rectangle with an unknown side length</li> <li>★ Construct a rectangle based on given parameters (i.e. ranges of possible areas and/or perimeters)</li> </ul>	<p>Go Math! 13.1, 13.2, 13.3, 13.4, 13.5</p> <p>Mathematical Practices: 2, 4, 5, 6, 7</p> <p>Flipbook: Pg. 22, Pg. 53</p>	<p>Formula, Perimeter, Area, Length, Width, Square, unit, Base, Height, Centimeter, Foot, Inch, Meter, Yard, Kilometer, Mile</p>
<b>Quarter 2</b>			
<b>Arizona State Standards</b>	<b>GESD Suggested Learning Targets (○) AzM2 Sample Task Demands (★)</b>	<b>Curricular Resource Mathematical Practices</b>	<b>Vocabulary</b>
<p>➔<b>4.NBT.B.4 (Year long)</b>  <b>Fluently add and subtract multi-digit whole numbers using the standard algorithm.</b></p>	<ul style="list-style-type: none"> <li>★ Calculate the sum or difference of two or more numbers (numbers less than or equal to 1,000,000 using the standard algorithm)</li> <li>★ Identify a missing digit in an addition or subtraction problem</li> </ul>	<p>Mathematical Practices: 2, 5, 7, 8</p> <p>Flipbook:Pg. 24</p> <p>Readdress topics as necessary to ensure students are fluent.</p>	<p>Addend, Addition, Difference, Algorithm</p>

### Developing an Understanding of Division

By the end of this unit of study, the students will be able to demonstrate understanding of the relationship between multiplication and division and solve multi-step word problems utilizing factors, multiples, and patterns.

<p><b>➡4.NBT.B.6</b>  <b>Demonstrate understanding of division by finding whole-number quotients and remainders with up to four-digit dividends and one-digit divisors.</b></p> <p><i>Note: students do not use the standard algorithm for multiplication until 5<sup>th</sup> Grade. Students do not use the standard algorithm for division until 6<sup>th</sup> Grade.</i></p>	<ul style="list-style-type: none"> <li>○ Use the strategies based on place value, the properties of operations, and/or the relationship between multiplication and division</li> <li>○ Illustrate and explain the calculation by using written equations, rectangular arrays, and/or area models</li> <li>★ Calculate the quotient of 2 numbers (up to four-digit dividends and one-digit divisors)</li> <li>★ Select expressions that are equivalent to a given quotient</li> </ul>	<p>Go Math! 4 .1, 4.2, 4.4, 4.5, 4.6, 4.7, 4.8, 4.9, 4.10, 4.11</p> <p>Mathematical Practices: 2, 3, 4, 5, 7</p> <p>Flipbook: Pg. 29</p>	<p>Multiple, Counting number, Factor, Multiplication, Product, Remainder, Divide, Dividend, Division, Divisor, Quotient, Compatible numbers, Distributive Property, Partial quotient</p>
<p><b>4.OA.A.3</b> (embed 4.MD.A.2 and 4.OA.C.6)  <b>Solve multistep word problems using the four* operations, including problems in which remainders must be interpreted. Understand how the remainder is a fraction of the divisor. Represent these problems using equations with a letter standing for the unknown quantity.</b></p> <p>*Can use division (fact families) to solve multiplicative comparison problems.</p>	<ul style="list-style-type: none"> <li>○ Divide whole numbers including division with remainders</li> <li>★ Reason through a word problem to find an unknown value given only some information</li> <li>★ Interpret remainders within the context of a division situation by giving a numeric answer or interpretation</li> <li>★ Explain the reasonableness of a solution in words</li> <li>★ Reason through a word problem to find an unknown value given only some information</li> </ul>	<p>Go Math! 4.3, 4.12</p> <p>Mathematical Practices: 1, 2, 4, 5, 6, 7</p> <p>Flipbook: Pg. 9</p> <p>Supplement with:  <u><i>Introduction to Representations</i></u>  <i>Pg. 89 &amp; on CD: Chocolate Pieces, Field Trip, The Zoo, Kittens for Sale</i>  <u><i>Introduction to Problem Solving</i></u>  <i>Use the whole book &amp; CD as needed. "Choose a Strategy" Pg. 36--47 &amp; on CD: Fruit Salad</i></p>	<p>Remainder, Variable</p>
<p><b>4.OA.B.4</b>  <b>Find all factor pairs for a whole number in the range 1 to 100 and understand that a whole number is a multiple of each of its factors.</b></p>	<ul style="list-style-type: none"> <li>○ Know strategies to determine factor pairs</li> <li>★ Identify factors or multiples of a given number (1-100)</li> <li>★ Identify a number (or numbers) given a set of conditions (related to factors) that meets those criteria</li> <li>★ Students will be required to classify numbers as prime and composite</li> <li>★ Apply the concepts of prime numbers, composite numbers, and factors in problem-solving contexts</li> </ul>	<p>Go Math! 5.1, 5.2, 5.3, 5.4</p> <p>Mathematical Practices: 2, 7</p> <p>Flipbook: Pg. 12</p> <p>Supplement with:  <u><i>Strategies for Success: Math Problem-Solving Unit 4: Problem-solving using Geometry. Lesson 13, Pg. 74</i></u></p>	<p>Factor, Array, Product, Divisible, Common factor, Common multiple, Multiple</p>
<p><b>4.OA.C.5</b>  Generate a number pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule</p>	<ul style="list-style-type: none"> <li>★ Generate a number or shape pattern that follows a given rule</li> <li>★ Identify apparent features (such as the pattern of odd and even numbers, all</li> </ul>	<p>Go Math! 5.6</p> <p>Mathematical Practices: 2, 4, 5, 7</p> <p>Flipbook: Pg. 15</p>	<p>Pattern, Term</p>

<p>itself and explain the pattern informally (e.g., given the rule “add 3” and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers).</p>	<p>numbers are even, all numbers are odd, etc.) of the pattern</p>	<p>Supplement with:  <i>Strategies for Success: Math Problem-Solving Unit 1: Problem solving place value, addition, and subtraction, *Lesson 4, Pg. 26</i>  <i>Strategies for Success: Math Problem-Solving Unit 2: Problem solving using multiplication and division *Lessons 7, Pg. 42</i>  <i>Teaching Student-Centered Mathematics</i> Van de Walle Pgs. 331-338</p>	
<p><b>4.MD.A.2</b> (continue to embed within all standards)  <b>Use the four operations to solve word problems and problems in real-world context involving distances, intervals of time (hr, min, sec), liquid volumes, masses of objects, and money, including decimals and problems involving fractions with like denominators, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using a variety of representations, including number lines that feature a measurement scale.</b></p>	<ul style="list-style-type: none"> <li>○ Express measurements given in a larger unit in terms of a smaller unit</li> <li>○ Solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money</li> <li>○ Solve word problems that require expressing measurements given in a larger unit in terms of a smaller unit</li> <li>★ Solve a word problem involving specified measurements</li> <li>★ Represent/model a problem involving specified measurements</li> </ul>	<p>Mathematical Practices: 1, 2, 4, 5, 6  Flipbook: Pg. 51</p> <p>Continue to embed 4.MD.2 concepts into NBT and OA lessons.</p>	<p>Elapsed time, a.m., p.m.</p>
<p>4.OA.C.6 (continue to embed within all standards)  When solving problems, assess the reasonableness of answers using mental computation and estimation strategies including rounding.</p>	<ul style="list-style-type: none"> <li>○ Use estimation and rounding to predict viable answer to problem</li> <li>○ Assess reasonableness of answer compared to prediction</li> <li>★ Determine the best estimation strategy given the context of a situation</li> <li>★ Determine whether an answer is appropriate in a given context</li> <li>★ Recognize when an estimation strategy is or is not appropriate</li> <li>★ Use estimation strategies to solve a problem</li> </ul>	<p>Mathematical Practices: 2</p> <p>Continue to embed “reasonableness” and “estimation” into current instructional lessons</p>	<p>Reasonableness, Estimating, Rounding</p>
<p><b>Develop an Understanding of Fractions</b></p> <p>By the end of this unit of study, students will be able to build fractions from unit fractions, (Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100), develop strategies to compare fractions, generate equivalent fractions, use units of measurement in real-life applications of fractions leading to adding and subtracting fractions with whole numbers.</p>			
<p>4.MD.A.1 (continue to embed <b>4.MD.A.2</b>)  Know relative sizes of measurement units within one system of units which could include km, m, cm; kg, g; lb, oz.; l, ml; hr,</p>	<ul style="list-style-type: none"> <li>○ Convert larger units of measurement within the same system to smaller units and record conversions in a 2-column table</li> </ul>	<p>Revisit concepts from Q2 as necessary (from Go Math! chapter 12)  Mathematical Practices: 2, 5, 6  Flipbook:Pg. 49</p>	<p>Kilometer, Mile, Benchmark, <b>Foot, Inch, Weight, Yard, Ounce, Pound, Ton, Cup, Fluid</b></p>

<p>min, sec. within a single system of measurement, express measurements in a larger unit in terms of a smaller unit and in a smaller unit in terms of a larger unit.</p>	<ul style="list-style-type: none"> <li>★ Identify the relative size of a measurement unit (km, m; kg, g; lb, oz; L, mL; hr, min, sec)</li> <li>★ Calculate measurement conversions</li> <li>★ Order measurements given in different units within the same measurement system</li> </ul>	<p>Supplement with: <i>Teaching Student-Centered Mathematics, Van de Walle, pgs. 339-350</i></p> <p><i>For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36).</i></p>	<p>ounce, Gallon, Half gallon, Liquid volume, Capacity, Pint, Quart, Decimeter, Millimeter, Centimeter, <a href="#">Meter</a>, <a href="#">Liter</a>, <a href="#">Milliliter</a>, <a href="#">Gram</a>, <a href="#">Kilogram</a>, <a href="#">Second</a>, <a href="#">Day</a>, <a href="#">Hour</a>, Minute, Month, <a href="#">Week</a>, Year</p>
<p><b>4.MD.A.2</b> (continue to embed within all standards) <b>Use the four operations to solve word problems and problems in real-world context involving distances, intervals of time (hr, min, sec), liquid volumes, masses of objects, and money, including decimals and problems involving fractions with like denominators, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using a variety of representations, including number lines that feature a measurement scale.</b></p>	<ul style="list-style-type: none"> <li>○ Express measurements given in a larger unit in terms of a smaller unit</li> <li>○ Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale</li> <li>○ Add, subtract, multiply, and divide fractions and decimals</li> <li>○ Solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money</li> <li>○ Solve word problems involving measurement that include simple fractions or decimals</li> <li>○ Solve word problems that require expressing measurements given in a larger unit in terms of a smaller unit</li> <li>★ Solve a word problem involving specified measurements</li> <li>★ Represent/model a problem involving specified measurements</li> </ul>	<p>Go Math! 9.5 Mathematical Practices: 1, 2, 4, 5, 6 Flipbook: Pg. 51</p> <p>Supplement with: <i>Investigations “Money, Miles, and Large Numbers”</i> <i>Strategies for Success – Problem Solving Unit 3, Lessons 12, Pg. 66</i> <i>Teaching Student-Centered Mathematics, Van de Walle, Pgs. 339-350</i> <i>Introduction to Problem-Solving A Shiny Border Measurement Logic</i> <i>Introduction to Reasoning and Proofs (Figure 6-1) Pg. 87</i> <i>Intro to Connections (Figure 1-7) Pgs. 19, 116-121</i></p>	<p><a href="#">Interval</a></p>
<p><b>➡4.NF.B.3</b> <b>Understand a fraction <math>a/b</math> with <math>a &gt; 1</math> as a sum of unit fractions (<math>1/b</math>).</b> <b>a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.</b> <b>b. Decompose a fraction into a sum of fractions with the same denominator in more than one way (e.g., <math>3/8=1/8+1/8+1/8</math>; <math>3/8=2/8+1/8</math>; <math>2\ 1/8=1+1/8</math> or <math>2\ 1/8=8/8+8/8+1/8</math>).</b> <b>c. Add and subtract mixed numbers with like denominators (e.g., by using properties of operations and the</b></p>	<ul style="list-style-type: none"> <li>○ Understand accumulating unit fractions (<math>1/b</math>) results in a fraction (<math>a/b</math>), where <math>a</math> is greater than 1</li> <li>○ Recognize multiple representations of one whole using fractions with the same denominator</li> <li>○ Replace mixed numbers with equivalent fractions, using visual fraction models</li> <li>○ Replace improper fractions with a mixed number, using visual fraction models</li> <li>○ Use fraction models, reason that addition and subtraction of fractions is joining parts that are referring to the same whole</li> </ul>	<p>Go Math! 7.1, 7.2 (choose 3 supplemental lessons with fraction kits), 7.3, 7.4, 7.5, 7.6, 7.7, 7.8, 7.9, 7.10 Mathematical Practices: 1, 2, 4, 5, 6, 7, 8 Flipbook: Pg. 37, 48</p>	<p><a href="#">Fraction</a>, <a href="#">Numerator</a>, <a href="#">Denominator</a>, <a href="#">Unit fraction</a>, Mixed number, Simplest form, <a href="#">Associative Property of Addition</a>, <a href="#">Commutative Property of Addition</a></p>

<p>relationship between addition and subtraction and/or by replacing each mixed number with an equivalent fraction).</p> <p>d. Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators.</p>	<ul style="list-style-type: none"> <li>○ Record decompositions of fractions as an equation and explain the equation using visual fraction models</li> <li>○ Add and subtract mixed numbers with like denominators by using properties of operations and the relationship between addition and subtraction</li> <li>○ Add and subtract mixed numbers by replacing each mixed number with an equivalent fraction</li> <li>★ Add or subtract fractions with like denominators</li> <li>★ Decompose a fraction into a sum of fractions in multiple ways</li> <li>★ Add or subtract mixed numbers</li> <li>★ Solve word problems involving fractions or mixed numbers and represent sums and differences of fractions or mixed numbers</li> </ul>		
<p>4.MD.B.4 Make a line plot to display a data set of measurements in fractions of a unit (<math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>, <math>\frac{1}{8}</math>). Solve problems involving addition and subtraction of fractions by using information presented in line plots.</p>	<ul style="list-style-type: none"> <li>○ Add and subtract fractions</li> <li>★ Construct a line plot based on given data</li> <li>★ Interpret data in a line plot to solve problems involving addition and subtraction</li> <li>★ Complete a line plot based on the information about the sum or difference of the data</li> </ul>	<p>Mathematical Practices: 2, 4, 5, 6, 7 Flipbook: Pg. 54</p> <p>Embed within lessons for <b>4.NF.B.3</b></p>	<p>Line plot, Data point</p>
<p>4.NF.A.1 Explain why a fraction <math>a/b</math> is equivalent to a fraction <math>(n \times a)/(n \times b)</math> by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to understand and generate equivalent fractions.</p>	<ul style="list-style-type: none"> <li>○ Explain why <math>a/b</math> is equal to <math>(n \times a)/(n \times b)</math> by using fraction models with attention to how the number and size of the parts differ even though the two fractions themselves are the same size</li> <li>★ Identify/recognize fractions that are equivalent to a given fraction</li> <li>★ Identify/recognize fraction models that represent equivalent fractions</li> <li>★ Generate fractions that are equivalent to a given fraction or equivalent to fractions represented by a given fraction model</li> <li>★ Construct models representing fractions that are equivalent to given fractions or equivalent to fractions represented by given fraction models</li> </ul>	<p>Go Math! 6.1, 6.2, 6.3, 6.4, 6.5, 6.6 Mathematical Practices: 2, 4, 7, 8 Flipbook: Pg. 32</p>	<p>Equivalent fractions, Denominator, Numerator, Fraction, Simplest form, Common factor, Common denominator, Benchmark, Compare</p>

	<ul style="list-style-type: none"> <li>★ Give evidence or an explanation to support why fractions are equivalent or why fractions represented by models are equivalent</li> </ul>		
<p>➔ <b>4.NF.A.2</b>  <b>Compare two fractions with different numerators and different denominators (e.g., by creating common denominators or numerators and by comparing to a benchmark fraction).</b>  <b>a. Understand that comparisons are valid only when the two fractions refer to the same size whole.</b>  <b>b. Record the results of comparisons with symbols &gt;, =, or &lt;, and justify the conclusions.</b></p>	<ul style="list-style-type: none"> <li>★ Compare fractions relating them to benchmark fractions using visual models (e.g. number lines) and/or numeric reasoning</li> <li>★ Interpret information about fractions to compare fractions using visual models or numeric reasoning</li> <li>★ Compare fractions using symbols &lt;, &gt;, and = with no situational context or visual model</li> <li>★ Develop logical arguments, draw conclusions, and relate use of models to numeric strategies to compare fractional quantities</li> </ul>	<p>Go Math! 6.7, 6.8            Mathematical Practices: 2, 4, 5, 7            Flipbook: Pg. 34</p> <p>Supplement with:  <i>Teaching Student-Centered Mathematics Van de Walle, Pgs. 246-249</i>  <i>Teaching Arithmetic Series Marilyn Burns, Lessons for Introducing Fractions, Pgs. 105-142</i></p>	<p>Common numerator,            Common denominator,  <a href="#">Compare, Order</a></p>
<p>4.NF.B.4            Build fractions from unit fractions.            a. Understand a fraction <math>\frac{a}{b}</math> as a multiple of a unit fraction <math>\frac{1}{b}</math>. In general, <math>\frac{a}{b} = a \times \frac{1}{b}</math>.            b. Understand a multiple of <math>\frac{a}{b}</math> as a multiple of a unit fraction <math>\frac{1}{b}</math>, and use this understanding to multiply a whole number by a fraction. In general, <math>n \times \frac{a}{b} = \frac{n \times a}{b}</math>.            c. Solve word problems involving multiplication of a whole number by a fraction.</p>	<ul style="list-style-type: none"> <li>○ Explain that a multiple of <math>\frac{a}{b}</math> is a multiple of <math>\frac{1}{b}</math> (unit fraction) using a visual fraction model</li> <li>○ Multiply a fraction by a whole number by using the idea that <math>\frac{a}{b}</math> is a multiple of <math>\frac{1}{b}</math></li> <li>○ Explain how and where fractions fall between which whole numbers</li> <li>★ Model a non-unit fraction as the product of a whole number and a unit fraction</li> <li>★ Multiply a fraction by a whole number</li> <li>★ Identify a missing number in an equation that multiplies a fraction by a whole number</li> <li>★ Solve a word problem that involves multiplying a fraction by a whole number within a real-world context</li> <li>★ Create and/or solve an equation that models a word problem involving multiplying a fraction by a whole number within a real-world context</li> </ul>	<p>Go Math! 8.1, 8.2, 8.3, 8.4, 8.5            Mathematical Practices: 1, 2, 4, 5, 6, 7, 8            Flipbook: Pg. 40</p> <p><i>For example, if each person at a party will eat <math>\frac{3}{8}</math> of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?</i></p>	<p><a href="#">Fraction, Multiple, Numerator, Denominator, Product, Unit fraction, Identity Property of Multiplication</a></p>
<b>Quarter 3</b>			
<b>Arizona State Standards</b>	<b>GESD Suggested Learning Targets (○) AzM2 Sample Task Demands (★)</b>	<b>Curricular Resource Mathematical Practices</b>	<b>Vocabulary</b>
<p>➔ <b>4.NBT.B.4 (Year long)</b>  <b>Fluently add and subtract multi-digit whole numbers using the standard algorithm.</b></p>	<ul style="list-style-type: none"> <li>★ Calculate the sum or difference of two or more numbers (numbers less than or equal to 1,000,000 using the standard algorithm)</li> </ul>	<p>Mathematical Practices: 2, 5, 7, 8            Flipbook: Pg. 24</p>	<p><a href="#">Addend, Addition, Difference</a></p>

	★ Identify a missing digit in an addition or subtraction problem	Revisit and embed addition and subtraction algorithm into 3 <sup>rd</sup> quarter NF, MD, and G standards	
<b>Develop and Understanding of Fractions</b>			
By the end of this unit of study, students will be able to add two fractions with different denominators (10 or 100), demonstrate understanding of decimal notation and location on a number line, be able to compare such decimals, and solve problems using these skills.			
<p><b>4.NF.C.5</b> Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 (tenths) and 100 (hundredths).</p> <p><i>For example, express <math>3/10</math> as <math>30/100</math>, and <math>3/10 + 4/100 = 34/100</math>.</i></p> <p>Note: Students who can generate equivalent fractions can develop strategies for adding fractions with unlike denominators in general. But addition and subtraction with unlike denominators, in general, is not a requirement at this grade.</p>	<ul style="list-style-type: none"> <li>○ Rename and recognize a fraction with a denominator of 10 as a fraction with a denominator of 100</li> <li>★ Express a fraction with denominator 10 as a fraction with denominator 100, and vice-versa</li> <li>★ Add two fractions with different denominators of 10 and 100</li> <li>★ Determine a fraction equivalent to another fraction represented by a model</li> <li>★ Identify a missing addend</li> </ul>	<p>Go Math! 9.3, 9.6 Mathematical Practices: 2, 4, 5, 7 Flipbook: Pg. 42</p> <p>Supplement with: <i>Teaching Student-Centered Mathematics Van de Walle, Pg. 285 14.3</i></p>	Equivalent decimals, Equivalent fractions, Tenths, Hundredths
<p><b>4.NF.C.6</b> Use decimal notation for fractions with denominators 10 (tenths) or 100 (hundredths), and locate these decimals on a number line.</p>	<ul style="list-style-type: none"> <li>○ Read and write decimals through hundredths</li> <li>○ Recognize multiple representations of fractions with denominators 10 or 100</li> <li>○ Represent fractions with denominators 10 or 100 with multiple representations and decimal notation</li> <li>★ Express a fraction or mixed number in decimal notation in 10ths or 100ths</li> <li>★ Locate or plot a decimal on a number line/model</li> <li>★ RELATE two fractional representations (denominators of 10 and 100) to one decimal representation</li> </ul>	<p>Go Math! 9.1, 9.2, 9.4 Mathematical Practices: 2, 4, 5, 7 Flipbook: Pg. 46</p>	Decimal, Decimal point, Tenth, Compare, Fraction, Place value, Whole, Hundredth
<p><b>→4.NF.C.7</b> Compare two decimals to hundredths by reasoning about their size. Understand that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols <math>&gt;</math>, <math>=</math>, or <math>&lt;</math>.</p>	<ul style="list-style-type: none"> <li>★ Compare two decimals using a model (i.e., numerical, number line, visual model) - can vary models (10ths and 100ths) as long as they both relate to the same whole</li> <li>★ Compare decimals by converting decimals to fractions with common denominators and/or by reasoning about place value</li> </ul>	<p>Go Math! 9.7 Mathematical Practices: 2, 4, 5, 7 Flipbook: Pg. 47</p> <p>Supplement with: <i>Teaching Student-Centered Mathematics Van de Walle Pgs. 287-292, 14.6, 14.7, 14.10</i></p>	Compare

	<ul style="list-style-type: none"> <li>★ Write or identify true comparisons between decimal numbers using symbols <math>&lt;</math>, <math>&gt;</math>, and <math>=</math>. Enter decimals or symbols to complete comparisons</li> <li>★ Explain conclusions about relationships and comparisons between decimals using visual models and other methods</li> </ul>	<i>Strategies for Success – Problem Solving Unit 3, Lesson 11, Pg. 62</i>	
4.OA.C.6 When solving problems, assess the reasonableness of answers using mental computation and estimation strategies including rounding.	<ul style="list-style-type: none"> <li>○ Use estimation and rounding to predict viable answer to problem</li> <li>○ Assess reasonableness of answer compared to prediction</li> <li>★ Determine the best estimation strategy given the context of a situation</li> <li>★ Determine whether an answer is appropriate in a given context</li> <li>★ Recognize when an estimation strategy is or is not appropriate</li> <li>★ Use estimation strategies to solve a problem</li> </ul>	Mathematical Practices: 2 Continue to embed “reasonableness” and “estimation” into current instructional lessons	Reasonableness, <a href="#">Estimating</a> , <a href="#">Rounding</a>
<b>Understanding Geometric Figures and Properties</b>			
By the end of this unit of study, students will be able to identify, construct, and classify geometric shapes, demonstrate understanding of symmetry, and understand, measure, construct, and use angles.			
4.G.A.1 <b>Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.</b>	<ul style="list-style-type: none"> <li>○ Analyze two-dimensional figures to identify points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines</li> <li>○ Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines</li> <li>★ Identify geometric objects and properties, either as individual objects or as part of a more complex figure</li> <li>★ Construct a geometric figure based on given constraints/properties</li> </ul>	Go Math! 10.1, 10.3 Mathematical Practices: 5, 6 Flipbook: Pg. 64  Supplement with: <i>Teaching Student-Centered Mathematics Van de Walle Pgs. 384, 390, 17.8, 17.10</i>	Acute angle, <a href="#">Angle</a> , <a href="#">Line</a> , <a href="#">Line segment</a> , Obtuse angle, <a href="#">Point</a> , <a href="#">Ray</a> , <a href="#">Right angle</a> , <a href="#">Straight angle</a> , <a href="#">Intersecting lines</a> , <a href="#">Parallel lines</a> , <a href="#">Perpendicular lines</a>
4.G.A.2 Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size (e.g., understand right triangles as a category, and identify right triangles).	<ul style="list-style-type: none"> <li>○ Identify parallel or perpendicular lines in two dimensional figures</li> <li>○ Recognize acute, obtuse, and right angles</li> <li>○ Classify two-dimensional figures based on parallel or perpendicular lines and size of angles</li> <li>○ Classify triangles as right triangles or not right</li> <li>★ Identify types of triangles</li> <li>★ Construct a shape based on the shape name</li> </ul>	Go Math! 10.2, 10.4 Mathematical Practices: 1, 2, 5, 7 Flipbook: Pg. 67  Supplement with: <i>Teaching Student-Centered Mathematics Van de Walle Pgs. 378-381, 17.3, 17.4</i>	Acute triangle, Obtuse triangle, <a href="#">Right triangle</a> , <a href="#">Polygon</a> , <a href="#">Triangle</a> , <a href="#">Venn diagram</a> , <a href="#">Parallelogram</a> , <a href="#">Rectangle</a> , <a href="#">Rhombus</a> , <a href="#">Square</a> , <a href="#">Trapezoid</a> , <a href="#">Quadrilateral</a>

	<ul style="list-style-type: none"> <li>★ Set of shapes in two groups, explain why the shapes were classified this way</li> </ul>		
<p><b>4.G.A.3</b> Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.</p>	<ul style="list-style-type: none"> <li>★ Identify symmetric figures</li> <li>★ Identify whether a line drawn on a figure represents a line of symmetry of the figure</li> <li>★ Determine the number of lines of symmetry a given figure has</li> <li>★ Construct lines of symmetry for a given shape</li> <li>★ Construct a complete figure based on half of the figure and its line of symmetry</li> <li>★ Construct a figure based on two attributes (e.g., the number of lines of symmetry and type of shape, or the lines of symmetry, already drawn, and type of shape)</li> </ul>	<p>Go Math! 10.5, 10.6 Mathematical Practices: 4, 5, 6, 7 Flipbook: Pg. 70</p> <p>Supplement with: <i>Teaching Student-Centered Mathematics Van de Walle Pgs. 376, 39, 17.2, 17.15, 17.16</i></p>	<p>Line of symmetry, Line symmetry, Diagonal, <a href="#">Horizontal</a>, <a href="#">Vertical</a>, <a href="#">Hexagon</a>, Regular polygon</p>
<p><b>4.MD.C.5</b> Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement:</p> <p>a. An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through <math>1/360</math> of a circle is called a “one-degree angle,” and can be used to measure angles.</p> <p>b. An angle that turns through <math>n</math> one-degree angles is said to have an angle measure of <math>n</math> degrees.</p>	<ul style="list-style-type: none"> <li>○ Recognize a circle as a geometric figure that has 360 degrees</li> <li>○ Recognize and identify an angle as a geometric shape formed from 2 rays with a common endpoint</li> <li>○ Recognize that an angle is a fraction of a 360 degree circle</li> <li>○ Explain the angle measurement in terms of degrees</li> <li>○ Compare angles to circles with angles point at the center of the circle to determine the measure of the angle</li> <li>○ Calculate angle measurement using the 360 degrees of a circle</li> <li>★ Identify an angle</li> <li>★ Sort angles from other geometric objects</li> <li>★ Identify the unit used to measure angles</li> <li>★ Identify categories of angle measures</li> </ul>	<p>Go Math! 11.1, 11.2 Mathematical Practices: 6, 7 Flipbook: Pg. 57</p> <p>Supplement with: <i>Engage NY Module 4</i></p>	<p>Clockwise, Counterclockwise, <a href="#">Angle</a>, <a href="#">Circle</a>, <a href="#">Ray</a>, <a href="#">Vertex/Vertices</a>, Degree (<math>^{\circ}</math>), Acute angle, Obtuse angle, Straight angle, <a href="#">Right angle</a></p>
<p><b>4.MD.C.6</b> Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.</p>	<ul style="list-style-type: none"> <li>○ Recognize that angles are measured in degrees (<math>^{\circ}</math>)</li> <li>○ Read a protractor</li> <li>○ Determine which scale on the protractor to use, based on the direction the angle is open</li> <li>○ Measure angles in whole-number degrees using a protractor</li> <li>★ Measure a given angle</li> <li>★ Construct an angle based on a given measure</li> </ul>	<p>Go Math! 11.3 Mathematical Practices: 2, 5, 6 Flipbook: Pg. 60</p> <p>Supplement with: <i>Engage NY Module 4</i></p>	<p>Protractor</p>

<p>4.MD.C.7 Understand angle measures as additive. (When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts.) Solve addition and subtraction problems to find unknown angles on a diagram within mathematical problems as well as problems in real-world contexts.</p>	<ul style="list-style-type: none"> <li>★ Calculate an angle measure from a given sum or difference and/or a decomposed larger angle</li> <li>★ Identify angles that can be used to construct other angles</li> <li>★ Show how to find an angle measure from a given sum or difference using an equation</li> </ul>	<p>Go Math! 11.4, 11.5 Mathematical Practices: 1, 2, 4, 6 Flipbook: Pg. 61</p>	<p>Angle, Degree (°)</p>
<b>Quarter 4</b>			
Arizona State Standards	GESD Suggested Learning Targets (○) AzM2 Sample Task Demands (★)	Curricular Resource Mathematical Practices	Vocabulary
<p>➔4.NBT.B.4 (Year long) Fluently add and subtract multi-digit whole numbers using the standard algorithm.</p>	<ul style="list-style-type: none"> <li>★ Calculate the sum or difference of two or more numbers (numbers less than or equal to 1,000,000 using the standard algorithm)</li> <li>★ Identify a missing digit in an addition or subtraction problem</li> </ul>	<p>Mathematical Practices: 2, 5, 7, 8 Flipbook: Pg. 24</p> <p>Revisit and embed addition and subtraction algorithm into 4<sup>th</sup> quarter MD, and G standards</p>	<p>Addend, Addition, Difference</p>
<b>Understanding Geometric Figures &amp; Properties</b>			
By the end of this unit of study, students will extend their understanding of adding and subtracting fractions and how it applies to shapes and angles.			
<p>4.OA.C.5 (embed within G and MD standards) Generate a number pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself and explain the pattern informally (e.g., given the rule “add 3” and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers).</p>	<ul style="list-style-type: none"> <li>○ Analyze a pattern to determine features not apparent in the rule</li> <li>★ Generate a number or shape pattern that follows a given rule</li> <li>★ Identify apparent features (such as the pattern of odd and even numbers, all numbers are even, all numbers are odd, etc.) of the pattern</li> </ul>	<p>Go Math! 10.7 Mathematical Practices: 2, 4, 5, 7 Flipbook: Pg. 15</p> <p>Supplement with: <i>Teaching Student-Centered Mathematics Van de Walle Pgs. 335-336, 15.19, 15.20</i></p>	<p>Pattern, Term</p>
<p>4.G.A.2 Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size (e.g., understand right triangles as a category, and identify right triangles).</p>	<ul style="list-style-type: none"> <li>○ Identify parallel or perpendicular lines in two dimensional figures</li> <li>○ Recognize acute, obtuse, and right angles</li> <li>○ Classify two-dimensional figures based on parallel or perpendicular lines and size of angles</li> <li>○ Classify triangles as right triangles or not right</li> <li>★ Construct a shape based on the shape name</li> <li>★ Identify types of triangles on given attributes</li> </ul>	<p>Go Math! 10.2, 10.4 Mathematical Practices: 1, 2, 4, 7 Flipbook: Pg. 67</p> <p>Supplement with: <i>Teaching Student-Centered Mathematics Van de Walle Pgs. 378-381, 17.3, 17.4</i></p>	<p>Acute triangle, Obtuse triangle, Right triangle, Polygon, Triangle, Venn diagram, Parallelogram, Rectangle, Rhombus, Square, Trapezoid, Quadrilateral</p>

	<ul style="list-style-type: none"> <li>★ Set of shapes in two groups, explain why the shapes were classified this way</li> </ul>		
<p>➡ <b>4.NF.B.3</b></p> <p><b>Understand a fraction <math>a/b</math> with <math>a &gt; 1</math> as a sum of unit fractions (<math>1/b</math>).</b></p> <p><b>Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.</b></p> <p><b>a. Decompose a fraction into a sum of fractions with the same denominator in more than one way (e.g., <math>3/8=1/8+1/8+1/8</math>; <math>3/8=2/8+1/8</math>; <math>2 1/8=1+1+1/8</math> or <math>2 1/8=8/8+8/8+1/8</math>).</b></p> <p><b>b. Add and subtract mixed numbers with like denominators (e.g., by using properties of operations and the relationship between addition and subtraction and/or by replacing each mixed number with an equivalent fraction).</b></p> <p><b>c. Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators.</b></p>	<ul style="list-style-type: none"> <li>○ Understand accumulating unit fractions (<math>1/b</math>) results in a fraction (<math>a/b</math>), where <math>a</math> is greater than 1</li> <li>○ Recognize multiple representations of one whole using fractions with the same denominator</li> <li>○ Replace mixed numbers with equivalent fractions, using visual fraction models</li> <li>○ Replace improper fractions with a mixed number, using visual fraction models</li> <li>○ Use fraction models, reason that addition of fractions is joining parts that are referring to the same whole</li> <li>○ Use fraction models, reason that subtraction of fractions is separating parts that are referring to the same whole</li> <li>○ Record decompositions of fractions as an equation and explain the equation using visual fraction models</li> <li>○ Add and subtract mixed numbers with like denominators by using properties of operations and the relationship between addition and subtraction</li> <li>○ Add and subtract mixed numbers by replacing each mixed number with an equivalent fraction</li> <li>★ Add or subtract fractions with like denominators</li> <li>★ Decompose a fraction into a sum of fractions in multiple ways</li> <li>★ Add or subtract mixed numbers</li> <li>★ Solve word problems involving fractions or mixed numbers and represent sums and differences of fractions or mixed numbers</li> </ul>	<p>Go Math! 7.3, 7.4, 7.5, 7.6, 7.7, 7.8, 7.9, 7.10</p> <p>Mathematical Practices: 1, 2, 4, 5, 6, 7, 8</p> <p>Flipbook: Pg. 37</p>	<p>Fraction, Numerator, Denominator, Unit fraction, Mixed number, Simplest form, Associative Property of Addition, Commutative Property of Addition</p>
<p><b>4.MD.B.4</b></p> <p>Make a line plot to display a data set of measurements in fractions of a unit (<math>1/2</math>, <math>1/4</math>, <math>1/8</math>). Solve problems involving addition and subtraction of fractions by using information presented in line plots.</p>	<ul style="list-style-type: none"> <li>○ Add and subtract fractions</li> <li>★ Construct a line plot based on given data</li> <li>★ Interpret data in a line plot to solve problems involving addition and subtraction</li> </ul>	<p>Go Math! 12.5</p> <p>Mathematical Practices: 2, 4, 5, 6, 7</p> <p>Flipbook: Pg. 54</p> <p>Supplement with:</p>	<p>Line plot, Data point</p>

	<ul style="list-style-type: none"> <li>★ Complete a line plot based on the information about the sum or difference of the data</li> </ul>	<p><i>Teaching Student-Centered Mathematics Van de Walle Pgs. 409, 414-418, 18.2, 18.5, 18.7, 18.8, 18.9</i></p>	
<p>4.MD.C.5 Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement:</p> <p>a. An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through <math>1/360</math> of a circle is called a “one-degree angle,” and can be used to measure angles.</p> <p>b. An angle that turns through <math>n</math> one-degree angles is said to have an angle measure of <math>n</math> degrees.</p>	<ul style="list-style-type: none"> <li>○ Recognize a circle as a geometric figure that has 360 degrees</li> <li>○ Recognize and identify an angle as a geometric shape formed from 2 rays with a common endpoint</li> <li>○ Recognize that an angle is a fraction of a 360 degree circle</li> <li>○ Explain the angle measurement in terms of degrees</li> <li>○ Compare angles to circles with angles point at the center of the circle to determine the measure of the angle</li> <li>○ Calculate angle measurement using the 360 degrees of a circle</li> <li>★ Identify an angle</li> <li>★ Sort angles from other geometric objects</li> <li>★ Identify the unit used to measure angles</li> <li>★ Identify categories of angle measures</li> </ul>	<p>Go Math! 11.1, 11.2 Mathematical Practices: 6, 7 Flipbook: Pg. 57</p> <p>Supplement with: <i>Engage NY Module 4</i></p>	<p>Clockwise, Counterclockwise, <a href="#">Angle</a>, <a href="#">Circle</a>, <a href="#">Ray</a>, <a href="#">Vertex/Vertices</a>, Degree (<math>^{\circ}</math>), Acute angle, Obtuse angle, Straight angle, <a href="#">Right angle</a></p>
<p>4.MD.C.6 Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.</p>	<ul style="list-style-type: none"> <li>○ Recognize that angles are measured in degrees (<math>^{\circ}</math>)</li> <li>○ Read a protractor</li> <li>○ Determine which scale on the protractor to use, based on the direction the angle is open</li> <li>○ Measure angles in whole-number degrees using a protractor</li> <li>★ Measure a given angle</li> <li>★ Construct an angle based on a given measure</li> </ul>	<p>Go Math! 11.3 Mathematical Practices: 2, 5, 6 Flipbook: Pg. 60</p> <p>Supplement with: <i>Engage NY Module 4</i></p>	<p>Protractor</p>
<p>4.MD.C.7 Understand angle measures as additive. (When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts.) Solve addition and subtraction problems to find unknown angles on a diagram within mathematical problems as well as problems in real-world contexts.</p>	<ul style="list-style-type: none"> <li>★ Calculate an angle measure from a given sum or difference and/or a decomposed larger angle</li> <li>★ Identify angles that can be used to construct other angles</li> <li>★ Show how to find an angle measure from a given sum or difference using an equation</li> </ul>	<p>Go Math! 11.4, 11.5 Mathematical Practices: 1, 2, 4, 6 Flipbook: Pg. 61</p>	<p><a href="#">Angle</a>, Degree (<math>^{\circ}</math>)</p>

Revisit multiplying and dividing utilizing factors and multiples.			
<p><b>4.OA.A.1</b> Represent verbal statements of multiplicative comparisons as multiplication equations. Interpret a multiplication equation as a comparison (e.g., 35 is the number of objects in 5 groups, each containing 7 objects, and is also the number of objects in 7 groups, each containing 5 objects).</p>	<ul style="list-style-type: none"> <li>★ Create an equation that models the multiplication and verbal statement's context</li> <li>★ Select a multiplicative comparison that describes the equation or vice versa</li> </ul>	<p>Go Math! 2.1 Mathematical Practices: 2, 4 Flipbook: Pg. 5</p>	<p>Equation, Comparison</p>
<p><b>4.OA.A.2</b> Multiply or divide within 1000 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). <i>See Table 2.</i></p> <p><i>Note: students do not use the standard algorithm for multiplication until 5<sup>th</sup> Grade. Students do not use the standard algorithm for division until 6<sup>th</sup> Grade.</i></p>	<ul style="list-style-type: none"> <li>○ Describe multiplicative comparison</li> <li>○ Describe additive comparison</li> <li>○ Determine and use a variety of representations to model a problem involving multiplicative comparison</li> <li>○ Distinguish between multiplicative comparison and additive comparison (repeated addition)</li> <li>○ Multiply or divide to solve word problems</li> <li>★ Given a situation involving multiplicative comparison, create a multiplication or division equation (with an unknown value) to represent the situation.</li> <li>★ Given a situation involving multiplicative comparison, solve a multiplication or division word problem.</li> </ul>	<p>Go Math! 2.2 Mathematical Practices: 2, 4, 5, 7 Flipbook: Pg. 7</p>	<p>Model</p>
<p><b>4.OA.B.4</b> <b>Find all factor pairs for a whole number in the range 1 to 100 and understand that a whole number is a multiple of each of its factors.</b></p>	<ul style="list-style-type: none"> <li>○ Know strategies to determine factor pairs</li> <li>★ Identify factors or multiples of a given number (1-100)</li> <li>★ Identify a number (or numbers) given a set of conditions (related to factors) that meets those criteria</li> <li>★ Students will be required to classify numbers as prime and composite.</li> <li>★ Apply the concepts of prime numbers, composite numbers, and factors in problem-solving contexts.</li> </ul>	<p>Go Math! 5.1, 5.2, 5.3, 5.4 Mathematical Practices: 2, 7 Flipbook: Pg. 12</p> <p>Supplement with: <i>Strategies for Success: Math Problem-Solving Unit 4: Problem-solving using Geometry. Lesson 13, Pg. 74</i></p>	<p>Factor, Array, Product, Divisible, Common factor, Common multiple, Multiple</p>

Quarter Taught				Essential Standards (→Grade Level Guaranteed Standards)
1	2	3	4	Operations and Algebraic Thinking (OA):
X	X			<b>4.OA.A.3</b> – Solve multistep word problems using the four operations, including problems in which remainders must be interpreted. Understand how the remainder is a fraction of the divisor. Represent these problems using equations with a letter standing for the unknown quantity.
	X		X	<b>4.OA.B.4</b> – Find all factor pairs for a whole number in the range 1 to 100 and understand that a whole number is a multiple of each of its factors.
				Number and Operations in Base Ten (NBT):
X	X	X	X	→ <b>4.NBT.B.4</b> – Fluently add and subtract multi-digit whole numbers using the standard algorithm.
X				→ <b>4.NBT.B.5</b> – 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.
	X			→ <b>4.NBT.B.6</b> – Demonstrate understanding of division by finding whole-number quotients and remainders with up to four-digit dividends and one-digit divisors.
				Number and Operations – Fractions (NF):
	X			→ <b>4.NF.A.2</b> – Compare two fractions with different numerators and different denominators (e.g., by creating common denominators or numerators and by comparing to a benchmark fraction). a. Understand that comparisons are valid only when the two fractions refer to the same size whole. b. Record the results of comparisons with symbols $>$ , $=$ , or $<$ , and justify the conclusions.
	X		X	→ <b>4.NF.B.3</b> – Understand a fraction $a/b$ with $a > 1$ as a sum of unit fractions ( $1/b$ ). a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. b. Decompose a fraction into a sum of fractions with the same denominator in more than one way (e.g., $3/8 = 1/8 + 1/8 + 1/8$ ; $3/8 = 2/8 + 1/8$ ; $2\ 1/8 = 1 + 1 + 1/8$ or $2\ 1/8 = 8/8 + 8/8 + 1/8$ ). c. Add and subtract mixed numbers with like denominators (e.g., by using properties of operations and the relationship between addition and subtraction and/or by replacing each mixed number with an equivalent fraction). d. Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators.
		X		<b>4.NF.C.5</b> – Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 (tenths) and 100 (hundredths).
		X		<b>4.NF.C.6</b> – Use decimal notation for fractions with denominators 10 (tenths) or 100 (hundredths), and locate these decimals on a number line.
		X		<b>4.NF.C.7</b> – Compare two decimals to hundredths by reasoning about their size. Understand that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols $>$ , $=$ , or $<$ .
				Measurement and Data (MD):
X	X			<b>4.MD.A.2</b> – Use the four operations to solve word problems and problems in real-world context involving distances, intervals of time (hr, min, sec), liquid volumes, masses of objects, and money, including decimals and problems involving fractions with like denominators, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using a variety of representations, including number lines that feature a measurement scale.
				Geometry (G):
		X		<b>4.G.A.1</b> – Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.

Quarter Taught				Supporting Standards
1	2	3	4	Operations and Algebraic Thinking (OA):
X			X	<b>4.OA.A.1</b> – Represent verbal statements of multiplicative comparisons as multiplication equations. Interpret a multiplication equation as a comparison (e.g., 35 is the number of objects in 5 groups, each containing 7 objects, and is also the number of objects in 7 groups, each containing 5 objects).
X			X	<b>4.OA.A.2</b> – Multiply or divide within 1000 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).

	X		X	<b>4.OA.C.5</b> – Generate a number pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself and explain the pattern informally (e.g., given the rule “add 3” and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers).
X	X	X		<b>4.OA.C.6</b> – When solving problems, assess the reasonableness of answers using mental computation and estimation strategies including rounding.
<b>Number and Operations in Base Ten (NBT):</b>				
X				<b>4.NBT.A.1</b> – Apply concepts of place value, multiplication, and division to understand that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right.
X				<b>4.NBT.A.2</b> – Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using $>$ , $=$ , and $<$ symbols to record the results of comparisons.
X				<b>4.NBT.A.3</b> – Use place value understanding to round multi-digit whole numbers to any place.
<b>Number and Operations – Fractions (NF):</b>				
	X			<b>4.NF.A.1</b> – Explain why a fraction $a/b$ is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to understand and generate equivalent fractions.
	X			<b>4.NF.B.4</b> – Build fractions from unit fractions. a. Understand a fraction $\frac{a}{b}$ as a multiple of a unit fraction $\frac{1}{b}$ . In general, $\frac{a}{b} = a \times \frac{1}{b}$ . b. Understand a multiple of $\frac{a}{b}$ as a multiple of a unit fraction $\frac{1}{b}$ , and use this understanding to multiply a whole number by a fraction. In general, $n \times \frac{a}{b} = \frac{n \times a}{b}$ . c. Solve word problems involving multiplication of a whole number by a fraction.
<b>Measurement and Data (MD):</b>				
X	X			<b>4.MD.A.1</b> – Know relative sizes of measurement units within one system of units which could include km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit and in a smaller unit in terms of a larger unit.
X				<b>4.MD.A.3</b> – Apply the area and perimeter formulas for rectangles in mathematical problems and problems in real-world contexts including problems with unknown side lengths.
	X		X	<b>4.MD.B.4</b> – Make a line plot to display a data set of measurements in fractions of a unit ( $\frac{1}{2}$ , $\frac{1}{4}$ , $\frac{1}{8}$ ). Solve problems involving addition and subtraction of fractions by using information presented in line plots.
		X	X	<b>4.MD.C.5</b> – Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement: a. An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through $\frac{1}{360}$ of a circle is called a “one-degree angle,” and can be used to measure angles. b. An angle that turns through $n$ one-degree angles is said to have an angle measure of $n$ degrees.
		X	X	<b>4.MD.C.6</b> – Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement: a. An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through $\frac{1}{360}$ of a circle is called a “one-degree angle,” and can be used to measure angles. b. An angle that turns through $n$ one-degree angles is said to have an angle measure of $n$ degrees.
		X	X	<b>4.MD.C.7</b> – Understand angle measures as additive. (When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts.) Solve addition and subtraction problems to find unknown angles on a diagram within mathematical problems as well as problems in real-world contexts.
<b>Geometry (G):</b>				
		X	X	<b>4.G.A.2</b> – Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size (e.g., understand right triangles as a category, and identify right triangles).
		X		<b>4.G.A.3</b> – Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.