

## Fourth Grade Quarter 1

**Month:** August, September, October

**Domain(s):**

- Operations and Algebraic Thinking
- Numbers and Operations in Base Ten
- Measurement and Data

**Cluster(s):**

- Use the four operations with whole numbers to solve problems.
- Gain familiarity with factors and multiples.
- Generate and analyze patterns.
- Generalize place value understanding for multi-digit whole numbers.
- Use place value understanding and properties of operations to perform multi-digit arithmetic.
- Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.

**Standard(s):**

**4.NBT.1:** Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. *For example, recognize that  $700 \div 70 = 10$  by applying concepts of place value and division.*

**4.NBT.2:** Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using  $>$ ,  $=$ , and  $<$  symbols to record the results of comparisons.

**4.NBT.3:** Use place value understanding to round multi-digit whole numbers to any place.

**4.NBT.4:** Fluently add and subtract multi-digit whole numbers using the standard algorithm.

**4.NBT.6:** Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division, illustrate and

explain the calculation by using equation, rectangular arrays, and/or area models.

**4.OA.1:** Interpret a multiplication equation as a comparison, e.g. interpret  $35 = 5 \times 7$  as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.

**4.OA.2:** Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing, multiplicative comparison from additive comparison.

**4.OA.3:** Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.

**4.OA.4:** Find all factor pairs for a whole number in the range 1-100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1-100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1-100 is prime or composite.

**4.OA.5:** Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. *For example, 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. Explain informally why the numbers will continue to alternate in this way.*

**4.MD.2:** Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects and money, including problems involving simple fractions or decimals and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.

**Targeted Skills:**

- Count, read and write numbers through 1,000,000
- Compare and order whole numbers

- Identify the four steps in a problem solving process
- Round whole number and money amounts through millions
- Make a table to organize data and solve a problem
- Count coins and bills to find money amounts and make change
- Analyze data and make decisions
- Use addition properties to solve problems
- Form conclusions about whether to estimate or find an exact answer
- Add and subtract whole numbers of to 1,000,000
- Review subtracting whole numbers and money
- Subtracting numbers across zero
- Write a number sentence to solve a problem
- Solving word problems using pictures
- Estimate difference of up to 6-digit numbers
- Understand factors to 11
- Identify properties of operation
- Analyze data and make decisions
- Know multiplication strategies
- Interpret a multiplication equation as a comparison (e.g.  $18 = 3$  times as many as 6.)
- Define prime and composite numbers
- Generate a number or shape pattern that follows a given rule
- Identify a number or shape pattern
- Recognize that a whole number is a multiple of each of its factors
- Determine if a given whole number (1-100) is a multiple of a given one-digit number
- Recognize the relationship with multiplication and division

**Key Vocabulary:**

standard form	expanded form	word form	period	tenth	hundredth	decimal point	array
factors	breaking point	compensation	counting on	Commutative Property of Addition			

product	Associative Property of Addition	Identity Property of Addition	inverse operations		
multiple	Zero Property of Addition	Distributive Property	dividend	divisor	quotient
fact family					

Brookwood School District 167

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Alignment to New Math Common Core State Standards

## Fourth Grade Quarter 2

<b>Month:</b> October, November, December
<b>Domains:</b> <ul style="list-style-type: none"><li>• Number and Operations in Base Ten</li><li>• Operations and Algebraic Thinking</li><li>• Measurement and Data</li></ul>
<b>Cluster(s):</b> <ul style="list-style-type: none"><li>• Use the four operations with whole numbers to solve problems.</li><li>• Generate and analyze patterns.</li><li>• Generalize place value understanding for multi-digit whole numbers.</li><li>• Use place value understanding and properties of operations to perform multi-digit arithmetic.</li><li>• Represent and interpret data.</li></ul>
<b>Standards:</b> <p><b>4.NBT.3:</b> Use place value understanding to round multi-digit whole numbers to any place.</p> <p><b>4.NBT.5:</b> Multiply a whole number of up to four digits by a one-digit whole number and multiply two two-digit number, using strategies based on place value and the properties of operations, illustrate and explain the calculation by using equations, rectangular arrays and or area models.</p> <p><b>4.OA.1:</b> Interpret a multiplication equation as a comparison, e.g. interpret <math>35 = 5 \times 7</math> as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.</p> <p><b>4.OA.2:</b> Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing, multiplicative comparison from additive comparison.</p> <p><b>4.Oa.3:</b> Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the</p>

unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.

**4.OA.4:** Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite.

**4.OA.5:** Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. *For example, 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. Explain informally why the numbers will continue to alternate in this way.*

**4.MD.4:** 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. *For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.*

Targeted Skills:

- Round multi-digit whole numbers to any place using place value.
- Multiply two two-digit numbers
- Use strategies based on place value and the properties of operations to multiply whole numbers.
- Represent verbal statements of multiplicative comparisons as multiplication equations.
- Multiply or divide to solve word problems.
- Determine and use a variety of representations to model a problem involving multiplicative comparison.
- Access the reasonableness of an answer in solving a multistep word problem using mental math and estimation strategies (including rounding).
- Divide whole numbers including division with remainders.
- Identify a number or shape pattern.
- Understand and use coordinate graphing.
- Create a line plot to display a data set of measurement given in fractions of a unit.
- Find and use elapsed time.
- Understand and find range median and mode of a set of data.

**Key Vocabulary:**

compatible numbers  
divide  
pattern  
median

reasonableness  
whole numbers  
graphing  
mode

variable  
analyze  
coordinate

algebraic expression  
line plot  
elapsed time

multiply  
data  
range

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## Fourth Grade Quarter 3

**Month:** December, January, February, March

**Domains:**

- Number and Operations in Base Ten
- Operations and Algebraic Thinking
- Measurement and Data
- Geometry
- Number and Operations-Fractions

**Cluster(s):**

- Generalize place value understanding for multi-digit whole numbers.
- Use place value understanding and properties of operations to perform multi-digit arithmetic.
- Use the four operations with whole numbers to solve problems.
- Gain familiarity with factors and multiples.
- Geometric measurement: understand concepts of angle and measure angles.
- Extend understanding of fraction equivalence and ordering.
- Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.
- Understand decimal notation for fractions and compare decimal fractions.

**Standard(s):**

**4.NBT.5:** Multiply a whole number of up to four digits by a one-digit whole number and multiply two two-digit number, using strategies based on place value and the properties of operations, illustrate and explain the calculation by using equations, rectangular arrays and or area models.

**4.NBT.6:** Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division, illustrate and explain the calculation by using equation, rectangular arrays, and/or area models.

**4.OA.3:** Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.

**4.OA.4:** Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite.

**4.G.1:** Draw points, lines segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.

**4.G.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. Recognize right triangles as a category and identify right angles.

**4.MD.2:** Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.

**4.MD.5:** 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.

**4.MD.7:** Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the

whole is the sum of the angle measure of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g. by using an equation with a symbol for the unknown angle measure.

**4.NF.1:** 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 recognize and generate equivalent fractions.

**4.NF.2:** Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as  $\frac{1}{2}$ . Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols  $>$ ,  $=$ , or  $<$  and justify the conclusions, e.g., by using a visual fraction model.

**4.NF.3:** Understand a fraction  $a/b$  with  $a > 1$  as a sum of 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, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model. Examples:  $\frac{3}{8} = \frac{1}{8} + \frac{1}{8} + \frac{1}{8}$ ;  $\frac{3}{8} = \frac{1}{8} + \frac{2}{8}$ ;  $2\frac{1}{8} = 1 + 1 + \frac{1}{8} = \frac{8}{8} + \frac{8}{8} + \frac{1}{8}$ .

c. Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.

**4.NF.4:** Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.

a. Understand a fraction  $a/b$  as a multiple of  $1/b$ . For example, use a visual fraction model to represent  $\frac{5}{4}$  as the product  $5 \times (\frac{1}{4})$ , recording the conclusion by the equation  $\frac{5}{4} = 5 \times (\frac{1}{4})$ .

b. Understand a multiple of  $a/b$  as a multiple of  $1/b$ , and use this understanding to multiply a fraction by a whole number. For example, use a visual fraction model to express  $3 \times (\frac{2}{5})$  as  $6 \times (\frac{1}{5})$ , recognizing this product as  $\frac{6}{5}$ . (In general,  $n \times (\frac{a}{b}) = (n \times a)/b$ .)

c. Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. For example, if each person at a party will eat  $\frac{3}{8}$  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?

**4.NF.5:** 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 and 100. For example, express  $\frac{3}{10}$  as  $\frac{30}{100}$ , and add  $\frac{3}{10} + \frac{4}{100} = \frac{34}{100}$ .

**4.NF.6:** Use decimal notation for fractions with denominators 10 or 100. For example, rewrite 0.62 as  $\frac{62}{100}$ ; describe a length as 0.62 meters; locate 0.62 on a number line diagram.

**4.NF.7:** Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols  $>$ ,  $=$ , or  $<$ , and justify the conclusions, e.g., by using a visual model.

**Targeted Skills:**

- Multiply a whole number of up to four digits by a one-digit whole number.
- Use strategies based on place value and the properties of operations to multiply whole numbers.
- Illustrate and explain calculations by using written equations, rectangular arrays, and area models.
- Find whole number quotients and remainders with up to four-digit dividends and one-digit divisors.
- Assess the reasonableness of an answer in solving a multistep word problem using mental math and estimation strategies.
- Divide with two-digit numbers with remainders.
- Define prime and composite numbers.
- Know strategies to determine whether a whole number is prime or composite.
- Determine if a given whole number (1-100) is a multiple of a given one-digit number.
- Identify all factor pairs for any given number 1-100.
- Recognize that a whole number is a multiple of each of its factors.
- Understand the function of equivalent fractions.
- Understand comparing and ordering fractions.
- Identify fractions on number lines.
- Use visual equivalent models to show why fractions are equivalent (ex.  $\frac{3}{4} = \frac{6}{8}$ ).

- Understand improper fractions and mixed numbers.
- Recognize that two fractions with unlike denominators can be equivalent.
- Add and subtract mixed numbers by replacing each mixed number with an equivalent fraction.
- Recognize fractions as being greater than, less than, or equal to other fractions.
- Add, subtract, multiply and divide fractions and decimals.
- Solve word problems involving measurement that include simple fractions or decimals.
- Multiplying a fraction by a whole number.
- Develop an understanding of decimal place value.
- Explain how decimals and fractions relate.
- Understand comparing and ordering decimals.
- Identify decimals on a number line.
- Understand equivalent decimals.
- Convert metric and customary units.
- Measure temperature in degrees Fahrenheit and Celsius.
- Recognize that an angle is a fraction of a 360-degree circle.
- Identify, describe, draw and classify triangles and quadrilateral.
- Solve addition and subtraction equations to find unknown angle measurements on a diagram.
- Identify congruent and similar 2-dimensional figures.
- Estimate or determine the perimeter of a polygon.
- Estimate or determine the area of a shape using a formula.

**Key Vocabulary:**

measure	capacity	volume	prime number	composite number	point line
mass	ray angle	plane parallel lines	intersecting lines	triangle	
obtuse	degree	perpendicular lines	line segment	protractor	
right angle	acute angle	obtuse angle	straight angle	remainder	
angle measure		polygon side	vertex triangle	fraction	
quadrilateral	pentagon	hexagon	octagon	equilateral triangle	
rhombus	isosceles triangle	scalene triangle	right triangle	acute triangle	
trapezoid	parallelogram	rectangle square	improper fraction		

symmetric fraction	denominator	numerator	benchmark	mixed numbers
equivalent fractions	simplest forms	whole number	mixed number	tenth hundredth
decimal point				

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## Fourth Grade Quarter 4

<b>Month:</b> April, May, June
<b>Domain:</b> <ul style="list-style-type: none"><li>• Operations and Algebraic Thinking</li><li>• Numbers and Operations in Base Ten</li><li>• Measurement and Data</li></ul>
<b>Cluster(s):</b> <ul style="list-style-type: none"><li>• Use the four operations with whole numbers to solve problems.</li><li>• Gain familiarity with factors and multiples.</li><li>• Generate and analyze patterns.</li><li>• Generalize place value understanding for multi-digit whole numbers.</li><li>• Use place value understanding and properties of operations to perform multi-digit arithmetic.</li><li>• Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.</li></ul>
<b>Standard(s):</b> <p><b>4.NBT.1:</b> Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. <i>For example, recognize that <math>700 \div 70 = 10</math> by applying concepts of place value and division.</i></p> <p><b>4.NBT.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 <math>&gt;</math>, <math>=</math>, and <math>&lt;</math> symbols to record the results of comparisons.</p> <p><b>4.NBT.3:</b> Use place value understanding to round multi-digit whole numbers to any place.</p> <p><b>4.NBT.4:</b> Fluently add and subtract multi-digit whole numbers using the standard algorithm.</p> <p><b>4.NBT.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.</p> <p><b>4.NBT.6:</b> Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based</p>

on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

**4.MD.1:** Know relative sizes of measurement units within one system of units including 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. Record measurement equivalents in a two- column table. 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), ...

**4.MD.2:** Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.

**4.MD.3:** Apply the area and perimeter formulas for rectangles in real world and mathematical problems. For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor.

**4.OA.1:** Interpret a multiplication equation as a comparison, e.g., interpret  $35 = 5 \times 7$  as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.

**4.OA.2:** Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.

**4.OA.3:** Use place value understanding to round multi-digit whole numbers to any place.

**4.OA.4:** Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite.

**4.OA.5:** Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. *For example, 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. Explain informally why the numbers will continue to alternate in this way.*

**Targeted Skills:**

- Use multiplication patterns to multiply by 2-digit numbers.
- Use models to multiply 2-digit numbers by 2 digit numbers.
- Multiply multi-digit number by multiples of 10.
- Make inferences to solve multistep problems.
- Multiply 2-digit numbers by 2-digit numbers.
- Multiply greater numbers by 2-digit numbers
- Make a graph to solve problems.
- Analyze and make decisions.
- Review using mental math strategies to divide multiples of 10,100, and 1000.
- Use models to divide.
- Review dividing 3- digit number by 1- digit numbers.
- Make and inference to interpret remainders and solve problems.
- Divide 4 -digit numbers by 1-digit numbers.
- Divide 5- digit numbers by 1- digit numbers.
- Compare unit costs to find the better buy.
- Solve problems by using the guess and check strategy.
- Use models to find a mean set of numbers.
- Find the mean set of numbers.
- Use models to relate fractions and decimals.
- Read and write tenths and hundredths as decimals and fractions.
- Compare and contrast information to choose a representation.
- Understand decimals greater than.
- Compare and order decimals.
- Draw diagrams to solve problems.
- Analyze data and make decisions.

**Key Vocabulary:**

area	perimeter	length	inches	foot	yard	mile
capacity	cup	pint	quart	gallon	weight	ounce
pound	ton	customary units	tablespoon	teaspoon	metric units	centimeter
millimeter	decimeter	meter	kilometer	liter	mass	gram
kilogram	line plots	equation	solution			

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