

ALPHA BORO PUBLIC SCHOOL

CONTENT AREA: Mathematics	GRADE: 5	UNIT: # 1	UNIT NAME: Understanding the Place Value System
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#	STUDENT LEARNING OBJECTIVES	CORRESPONDING CCSS
1	Evaluate numerical expressions with parentheses, brackets or braces.	5.OA.1
2	Write numerical expressions when given a word problem or a scenario in words and use words to interpret numerical expressions.	5.OA.2
3	Explain the “ten times” or 1/10 relationships for place values in multi-digit numbers moving right or left across the places.	5.NBT.1
4	Recognize and explain patterns of the number of zeros and the placement of the decimal point in a product or quotient when a number is multiplied or divided by powers of 10.	5.NBT.2
5	Compare decimals to thousandths based on the value of the digits in each place using the symbols $>$, $=$, $<$ when presented as base ten numerals, number names, or expanded form.	5.NBT.3
6	Round a decimal to any place.	5.NBT.4
7	Use the standard algorithm to multiply 3-digit whole numbers by 1-digit whole numbers.	5.NBT.5
8	Calculate whole number quotients with 4-digit dividends and 2-digit divisors and explain answers with equations, rectangular arrays, and area models.	5.NBT.6

Major Content Supporting Content: Additional Content (Identified by PARCC Model Content Frameworks).

Bold type indicates grade level fluency requirements. (Identified by PARCC Model Content Frameworks).

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CONTENT AREA: Mathematics	GRADE: 5	UNIT: # 1	UNIT NAME: Understanding the Place Value System
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Selected Opportunities for Connection to Mathematical Practices

- 1. Make sense of problems and persevere in solving them.**
SLO #2 Explain the correspondences between expressions represented in word problems or scenarios and numerical expressions.
- 2. Reason abstractly and quantitatively.**
SLO #1 Know and flexibly apply the properties of operations to evaluate numerical expressions with parentheses, brackets and braces.
SLO #2 Understand and make sense of quantities and their relationships to one another in numerical expressions and numerical expressions represented in word problems.
SLO #3 Understand and make sense of the relationships of place values and the quantities they represent.
SLO #4 Understand and make sense of the quantities of zeros and the placement of the decimal point in a product or quotient when a number is multiplied or divided by a power of 10.
SLO #5 Understand and make sense of the relationship of decimals to the thousandths and the quantities they represent.
SLO #6 Understand and make sense of the quantity when rounding decimals to any place.
SLO #8 Use quantitative reasoning that entails creating a coherent representation of division problems using 4-digit dividends and 2-digit divisors in equations.
- 3. Construct viable arguments and critique the reasoning of others.**
SLO #3 Justify and explain conclusions made about place value relationships in multi-digit numbers.
SLO #4 Make conjectures and build logical statements involving the patterns of the number of zeros and the placement of the decimal point when a number is multiplied or divided by a power of 10.
SLO #8 Explain and justify conclusions (in the form of equations, arrays, and models) made about dividing 4-digit dividends and 2-digit divisors.
- 4. Model with mathematics.**
SLO #2 Apply previously learned concepts about numerical expressions and word problems in order to solve problems that involve both.
- 5. Use appropriate tools strategically.**
- 6. Attend to precision.**
SLO #3 Communicate precisely the place value relationships in multi-digit numbers.
SLO #5 State the meaning of the $<$, $>$, or $=$ symbols when comparing decimals to the thousandths place.
SLO #8 Calculate whole number quotients accurately and efficiently.
- 7. Look for and make use of structure.**

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CONTENT AREA: Mathematics	GRADE: 5	UNIT: # 1	UNIT NAME: Understanding the Place Value System
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- SLO #1 Look for and discern a pattern or structure when evaluating numerical expressions with parentheses, brackets, and braces.
- SLO #3 Look for and discern a pattern involving place value ("ten times" or "1/10" relationship).
- SLO #4 Look for and discern a pattern involving the number of zeros and the placement of the decimal point when a number is divided or multiplied by a power of 10.
- SLO #7 Look for and discern a pattern when using the standard algorithm to multiply 3-digit whole numbers by 1-digit whole numbers.
- SLO #8 Look for and discern a pattern when dividing 4-digit dividends and 2-digit divisors.
- 8. Look for and express regularity in repeated reasoning.

Bold type identifies possible starting points for connections to the SLOs in this unit.

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CONTENT AREA: Mathematics	GRADE: 5	UNIT: # 1	UNIT NAME: Understanding the Place Value System
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Code #	Common Core State Standards
5.OA.1	Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols. Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. <i>For example, express the calculation "add 8 and 7, then multiply by 2" as $2 \times (8 + 7)$. Recognize that $3 \times (18932 + 921)$ is three times as large as $18932 + 921$, without having to calculate the indicated sum or product.</i>
5.NBT.1	Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left.
5.NBT.2	Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.
5.NBT.3	Read, write, and compare decimals to thousandths. a. Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., $347.392 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times (1/10) + 9 \times (1/100) + 2 \times (1/1000)$. b. Compare two decimals to thousandths based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons.
5.NBT.4	Use place value understanding to round decimals to any place.
5.NBT.5	Fluently multiply multi-digit whole numbers using the standard algorithm.
5.NBT.6	Find whole number quotients of whole numbers with up to four digit dividends and two digit divisors, using strategies based on place value, the properties of operations and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

5.NBT.3 **Additional Content** (Identified by PARCC Model Content Frameworks).
5.NBT.4 **Additional Content** (Identified by PARCC Model Content Frameworks).
5.NBT.5 **Additional Content** (Identified by PARCC Model Content Frameworks).
5.NBT.6 **Additional Content** (Identified by PARCC Model Content Frameworks).

ALPHA BORO PUBLIC SCHOOL

CONTENT AREA: Mathematics	GRADE: 5	UNIT: # 2	UNIT NAME: Geometric Measures and Understanding Volume
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#	STUDENT LEARNING OBJECTIVES	CORRESPONDING CCSS
1	Understand and measure volume by counting the total number of same size cubic units required to fill a figure without gaps or overlaps.	5.MD.3b, MD.4
2	Know a cube with a side length of 1 unit is called a "unit cube" and can be used to measure volume. Choose an appropriate cubic unit based on the attributes of the 3-dimensional figure you are measuring.	5.MD.3a, MD.4
3	Show that the volume of a right rectangular prism found by counting all the unit cubes is the same as the formulas $V = l \times w \times h$ or $V = B \times h$.	5.MD.5a
4	Explain how both volume formulas relate to counting the cubes in one layer and multiplying that value by the number of layers (height).	5.MD.5b
5	Find the volume of a composite solid figure composed of two non-overlapping right rectangular prisms.	5.MD.5c
6	Apply formulas to solve real world and mathematical problems involving volumes of right rectangular prisms and composites of same.	5.MD.5
7	Write numerical expressions when given a word problem or a scenario in words and use words to interpret numerical expressions.	5.OA.2

Major Content Supporting Content: Additional Content (Identified by PARCC Model Content Frameworks).

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CONTENT AREA: Mathematics	GRADE: 5	UNIT: # 2	UNIT NAME: Geometric Measures and Understanding Volume
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Selected Opportunities for Connection to Mathematical Practices

- 1. Make sense of problems and persevere in solving them.**
SLO #2 Choose the appropriate cubic unit based on the figures attributes and ensure that the measurement is valid.
SLO #7 Explain the correspondences between expressions represented in word problems or scenarios and numerical expressions.
- 2. Reason abstractly and quantitatively.**
SLO #1 Understand and make sense of volume quantities.
SLO #1 Use quantitative reasoning to create a coherent representation of volume.
SLO #4 Use quantitative reasoning to create a coherent representation of both volume formulas.
SLO #7 Understand and make sense of quantities and their relationships to one another in numerical expressions and numerical expressions represented in word problems.
- 3. Construct viable arguments and critique the reasoning of others.**
SLO #4 Understand assumptions and definitions regarding volume to explain attributes of volume.
SLO #4 Explain and justify conclusions made about volume.
- 4. Model with mathematics.**
SLO #3 Map the relationship between counting all the cubes and using the volume formula.
SLO #6 Apply previously learned concepts about multiplication and volume to solve real world volume problems.
SLO #7 Apply previously learned concepts about numerical expressions and word problems in order to solve problems that involve both.
- Use appropriate tools strategically.
- 6. Attend to precision.**
SLO #4 Communicate and explain precisely how both volume formulas relate to counting cubes in one layer and multiplying the value by the number of layers.
- 7. Look for and make use of structure.**
SLO #5 Look for and discern patterns when finding the volume of a composite solid figure composed to two right rectangular prisms.
- Look for and express regularity in repeated reasoning.

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CONTENT AREA: Mathematics	GRADE: 5	UNIT: # 2	UNIT NAME: Geometric Measures and Understanding Volume
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Bold type identifies possible starting points for connections to the SLOs in this unit.

Code #	Common Core State Standards
5.OA.2	Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. For example, express the calculation “add 8 and 7, then multiply by 2” as $2 \times (8 + 7)$. Recognize that $3 \times (18932 + 921)$ is three times as large as $18932 + 921$, without having to calculate the indicated sum or product.
5.MD.3	Recognize volume as an attribute of solid figures and understand concepts of volume measurement. <ol style="list-style-type: none"> A cube with side length 1 unit, called a “unit cube,” is said to have “one cubic unit” of volume, and can be used to measure volume. A solid figure which can be packed without gaps or overlaps using n unit cubes is said to have a volume of n cubic units.
5.MD.4	Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft and improvised units.
5.MD.5	Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume. <ol style="list-style-type: none"> Find the volume of a right rectangular prism with whole number side lengths by packing it with unit cubes, and show that the volume is the same as it would be found by multiplying the height by the area of the base. Represent threefold whole number products as volumes, e.g. to represent the associative property of multiplication. Apply the formula $V = l \times w \times h$ and $V = B \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole number edge lengths in the context of solving real world and mathematical problems. Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems.

Major Content Supporting Content (Identified by PARCC Model Content Frameworks).

Additional Content (Identified by PARCC Model Content Frameworks).

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ALPHA BORO PUBLIC SCHOOL

CONTENT AREA: Mathematics	GRADE: 5	UNIT: # 3	UNIT NAME: Operations with Multi-digit Whole Numbers, Decimals and Fractions
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#	STUDENT LEARNING OBJECTIVES	CORRESPONDING CCSS
1	Add and subtract fractions (including mixed numbers) with unlike denominators by replacing the given fractions with equivalent fractions having like denominators.	5.NF.1
2	Solve word problems involving adding or subtracting fractions including unlike denominators, and determine if the answer to the word problem is reasonable, using estimations with benchmark fractions.	5.NF.2
3	Interpret a fraction as a division of the numerator by the denominator; solve word problems where division of whole numbers leads to fractional or mixed number answers.	5.NF.3
4	Multiply fractions by whole numbers and draw visual models or create story contexts. Interpret the product $(a/b) \times q$ as a parts of a whole partitioned into b equal parts added q times. In general, if q is a fraction c/d , then $(a/b) \times (c/d) = a(1/b) \times c(1/d) = ac(1/bd) = ac/bd$.	5.NF.4a
5	Find the area of a rectangle with fractional side lengths by tiling unit squares and multiplying side lengths.	5.NF.4b
6	Explain how a product is related to the magnitude of the factors.	5.NF.5a,b
7	Fluently multiply multi-digit whole numbers using the standard algorithm.	5.NBT.5

Major Content Supporting Content: Additional Content (Identified by PARCC Model Content Frameworks).
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CONTENT AREA: Mathematics	GRADE: 5	UNIT: # 3	UNIT NAME: Operations with Multi-digit Whole Numbers, Decimals and Fractions
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Selected Opportunities for Connection to Mathematical Practices

- 1. Make sense of problems and persevere in solving them.**
SLO #4 Explain correspondences between equations involving multiplication of fractions by whole numbers.
SLO #5 Analyze the givens and relationships of an area model with fractional side lengths.
- 2. Reason abstractly and quantitatively.**
SLO #3 Understand and make sense of fraction quotients, including mixed numbers.
SLO #4 Use quantitative reasoning to create a coherent representation of multiplication of fractions by whole numbers, and understand their quantities and the quotients quantities.
SLO #6 Understand and make sense of the factor and product quantities involved in multiplication.
- 3. Construct viable arguments and critique the reasoning of others.**
SLO #6 Analyze the factors and products of multiplication problems by separating them into cases.
- 4. Model with mathematics.**
SLO #5 Apply previously learned concepts about area to solve area problems with fractional side length.
SLO #5 Map the relationships in area problems with fractional sides using diagrams and other tools.
- 5. Use appropriate tools strategically.**
SLO #2 Consider and use available tools, such as diagrams and drawings, when solving addition or subtraction word problems involving fractions with unlike denominators.
- 6. Attend to precision.**
SLO #3 Communicate and explain how a product is related to the magnitude of the factors.
- 7. Look for and make use of structure.**
SLO #4 Look for and discern a pattern in equations that involve multiplication of fractions by whole numbers.
SLO #7 Look for and discern a pattern when using the standard algorithm to multiply multi-digit whole numbers.
- 8. Look for and express regularity in repeated reasoning.**
SLO #2 With problems involving addition and subtraction of fractions; continually evaluate the reasonableness of the answers.

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CONTENT AREA: Mathematics	GRADE: 5	UNIT: # 3	UNIT NAME: Operations with Multi-digit Whole Numbers, Decimals and Fractions
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Common Core State Standards

Code #	Common Core State Standards
5.NB1.5	Fluently multiply multi-digit whole numbers using the standard algorithm.
5.NF.1	Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. For example, $2/3 + 5/4 = 8/12 + 15/12 = 23/12$. (In general, $a/b + c/d = (ad + bc)/bd$.)
5.NF.2	Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. For example, recognize an incorrect result $2/5 + 1/2 = 3/7$, by observing that $3/7 < 1/2$.
5.NF.3	Interpret a fraction as division of the numerator by the denominator ($a/b = a \div b$). Solve word problems involving the division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g. by using visual fraction models or equations to represent the problem. <i>For example, interpret $3/4$ as the result of dividing 3 by 4, noting that $3/4$ multiplied by 4 equals 3 and that when 3 wholes are shared equally among 4 people each person has a share of size $3/4$. If 9 people want to share a 50 pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?</i>
5.NF.4a	Interpret the product $(a/b) \times q$ as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations $a \times q \div b$. <i>For example, use a visual fraction model to show $(2/3) \times 4 = 8/3$ and create a story context for this equation. Do the same with $(2/3) \times (4/5) = 8/15$. (In general $(a/b) \times (c/d) = ac/bd$.)</i>
5.NF.4b	Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as it would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.
5.NF.5a	Interpret multiplication as scaling (resizing) by comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.
5.NF.5b	Interpret multiplication as scaling (resizing) by explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers as a familiar case); explaining why multiplying a given number less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence $a/b = (n \times a)/(n \times b)$ to the effect of multiplying a/b by 1.

Major Content Supporting Content (Identified by PARCC Model Content Frameworks). **Additional Content** (Identified by PARCC Model Content Frameworks).

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ALPHA BORO PUBLIC SCHOOL

CONTENT AREA: Mathematics	GRADE: 5	UNIT: # 4	UNIT NAME: Fraction Multiplication by a Whole Number and Scaling
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#	STUDENT LEARNING OBJECTIVES	CORRESPONDING CCSS
1	Describe the place value of numeral digits relative to both the place to the right and the place to the left (decimal to hundredths and whole numbers to billions).	5.NBT.1
2	Add, subtract, multiply, and divide decimals to hundredths using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; and, explain the reasoning used.	5.NBT.7
3	Convert standard measurement units within the same system (e.g., centimeters to meters) to solve multi-step problems).	5.MD.1
4	Solve real world problems involving multiplication of fractions (including mixed numbers), using visual fraction models or equations to represent the problem.	5.NF.6
5	Divide a unit fraction by a non-zero whole number and interpret by creating a story context or visual fraction model.	5.NF.7a
6	Divide a whole number by a unit fraction and interpret by creating a story context or visual fraction model.	5.NF.7b
7	Solve real world problems involving division of unit fractions by whole numbers or whole numbers by unit fractions.	5.NF.7c

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CONTENT AREA: Mathematics	GRADE: 5	UNIT: # 4	UNIT NAME: Fraction Multiplication by a Whole Number and Scaling
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Selected Opportunities for Connection to Mathematical Practices

- 1. Make sense of problems and persevere in solving them.**
 - SLO #2 Use concrete objects or pictures to help conceptualize adding, subtracting, multiplying, or dividing by decimals to the hundredths.
 - SLO #4 Explain correspondences between real world problems and equations involving multiplication of fractions.
 - SLO #5 Explain correspondences between story contexts and visual fraction models when dividing a unit fraction by a whole number.
 - SLO #6 Explain correspondences between story contexts and visual fraction models when a whole number by a unit fraction.
- 2. Reason abstractly and quantitatively.**
 - SLO #1 Understand and make sense of quantities as they relate to place value of numeral digits.
 - SLO #2 Understand and make sense of quantities and their relationships when adding, subtracting, multiplying, or dividing by decimals to the hundredths.
 - SLO #3 Understand and make sense of quantities when converting measurements within a system.
 - SLO #5 Understand and make sense of the quantities and relationships when dividing unit fractions by whole numbers.
 - SLO #5 Use quantitative reasoning to create a coherent representation and understand the quantities when dividing unit fractions by whole numbers.
 - SLO #6 Understand and make sense of the quantities and relationships when dividing whole numbers by unit fractions.
 - SLO #6 Use quantitative reasoning to create a coherent representation and understand the quantities when dividing whole numbers by unit fractions.
- 3. Construct viable arguments and critique the Model with mathematics.**
 - SLO #1 Understand and use stated assumptions, definitions, and previous results to describe place value of numeral digits.
 - SLO #2 Explain and justify the reasoning, based on models, drawings, or strategies, used to add, subtract, multiply, and divide by decimals.
- 4. Model with mathematics.**
 - SLO #4 Apply previously learned concepts about multiplication of fractions in order to solve real world problems.
 - SLO #4 Map the relationship, using tools, between real world problems involving multiplication of fractions, and the models and equations that represent them.
 - SLO #7 Apply previously learned concepts about division of unit fractions and whole numbers to solve real world problems.
- 5. Use appropriate tools strategically.**
 - SLO #1 Consider available tools, such as visual models and story contexts, when multiplying fractions by whole numbers.
 - SLO #2 Consider and use available tools, such as models and drawings, when solving addition, subtraction, multiplication, or division problems involving decimals.

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- SLO #4 Consider available tools, such as visual models and equations, when solving real world problems that involve multiplication of fractions.
- SLO #5 Consider and use available tools, such as visual models and story contexts, when solving division problems involving unit fractions by whole numbers.
- SLO #5 Consider and use available tools, such as visual models and story contexts, when solving division problems involving whole numbers by unit fractions.
- 6. Attend to precision.**
SLO #1 Communicate and describe precisely quantities of numbers and how they relate to place value.
- 7. Look for and make use of structure.**
SLO #1 Look for and discern a pattern when changing place value of numeral digits.
SLO #2 Look for and discern a pattern when adding, subtracting, multiplying, or dividing by decimals.
SLO #3 Look for and discern a pattern when converting standard measurement units within a system.
- 8. Look for and express regularity in repeated reasoning.

Bold type identifies possible starting points for connections to the SLOs in this unit.

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CONTENT AREA: Mathematics	GRADE: 5	UNIT: # 4	UNIT NAME: Fraction Multiplication by a Whole Number and Scaling
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Code #	Common Core State Standards
5.NBT.1	Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left.
5.NBT.7	Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.
5.NF.6	Solve real world problems involving multiplication of fractions and mixed numbers, e.g. by using visual fraction models or equations to represent the problem.
5.NF.7a	Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. For example, create a story context for $(1/3) \div 4$, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $(1/3) \div 4 = 1/12$ because $(1/12) \times 4 = 1/3$.
5.NF.7b	Interpret division of a whole number by a unit fraction, and compute such quotients. For example, create a story context for $4 \div (1/5)$, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $4 \div (1/5) = 20$ because $20 \times (1/5) = 4$.
5.NF.7c	Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem. For example, how much chocolate will each person get if 3 people share $3/4$ pound of chocolate equally? How many $1/3$ cup servings are in 2 cups of raisins?
5.MD.A	Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.

Major Content Supporting Content Additional Content (Identified by PARCC Model Content Frameworks).

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ALPHA BORO PUBLIC SCHOOL

CONTENT AREA: Mathematics

GRADE: 5

UNIT: # 5

UNIT NAME: Shape and Coordinate Geometry

#	STUDENT LEARNING OBJECTIVES	CORRESPONDING CCSS
1	Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition, subtraction, multiplication, and division.	5.NBT.7
2	Use a pair of perpendicular number lines (axes) to define a coordinate system, with the intersection of the lines (origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers (coordinates).	5.G.1
3	Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.	5.G.2
4	Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. <i>For example, given the rule "Add 3" and the starting number 0, and given the rule "Add 6" and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so.</i>	5.OA.3
5	Identify attributes of a two-dimensional shape based on attributes of the groups and categories in which the shape belongs.	5.G.3
6	Classify two-dimensional figures in a hierarchy based on properties.	5.G.4
7	Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). Use operations on fractions for this grade to solve problems involving information presented in line plots. <i>For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.</i>	5.MD.2
8	Fluently multiply multi-digit whole numbers using the standard algorithm.	5.NBT.5
Repeated Standards		
<p>SLO #1 is MASTERY for repeated standard 5.NBT.5: Add, subtract, multiply and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, the properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a</p>		

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CONTENT AREA: Mathematics	GRADE: 5	UNIT: # 5	UNIT NAME: Shape and Coordinate Geometry
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written method and explain the strategy used.

SLO #8 is MASTERY for benchmark standard **5.NBT.5** in this unit: **Fluently multiply multi-digit whole numbers.**

Major Content Supporting Content (Identified by PARCC Model Content Frameworks).

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Selected Opportunities for Connection to Mathematical Practices

- 1. Make sense of problems and persevere in solving them.**
 - SLO #1 Use concrete objects or pictures to add, subtract, multiply, and divide decimals to the hundredths place.
 - SLO #4 Analyze givens, constraints, and relationships when generating numeric patterns based on two given rules.
 - SLO #7 Draw diagrams of important features, graph points from a dataset in order to solve problems involving the information in the graphs and diagrams.
- 2. Reason abstractly and quantitatively.**
 - SLO #1 Know and flexibly apply the properties of operations to add, subtract, multiply, and divide decimals.
 - SLO #4 Understand and make sense of quantities when generating number patterns based on two given rules.
 - SLO #5 Know and flexibly use different properties of objects in order to identify and categorize attributes of two-dimensional shapes.
 - SLO #6 Know and flexibly use different properties of objects in order to classify two-dimensional shapes based on properties.
 - SLO #7 Know and flexibly use different properties of operations in order to solve problems involving fractions of a unit.
- 3. Construct viable arguments and critique the reasoning of others.**
 - SLO #4 Make conjectures, and build a logical progression of statements about number patterns given two predetermined rules.
 - SLO #5 Understand assumptions and definitions in order to identify and categorize two-dimensional shapes based on their attributes.
 - SLO #6 Understand assumptions and definitions in order to classify two-dimensional figures based on their properties.
 - SLO #7 Reason inductively about the graph data, and be able to make plausible arguments based on the line plots.
- 4. Model with mathematics.**
 - SLO #3 Apply previously learned concepts to solve real world problems involving graphing points on the coordinate plane.
 - SLO #4 Using tools map the relationship between number patterns based on the two given rules.
 - SLO #7 Apply previously learned concepts about fractions and line plots to solve problems that involve both.

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CONTENT AREA: Mathematics

GRADE: 5

UNIT: # 5

UNIT NAME: Shape and Coordinate Geometry

5. **Use appropriate tools strategically.**
SLO #1 Consider and use available tools, such as models and drawings, when adding, subtracting, multiplying, or dividing decimals.
6. **Attend to precision.**
SLO #2 Specify units of measurement and label axes to define a coordinate system.
SLO #3 Specify units of measurement and label axes when working within a coordinate plane.
SLO #4 Specify units of measurement and label axes when graphing ordered pairs on a coordinate plane.
SLO #7 Specify units of measurement and label axes when making line plots to display a dataset.
7. **Look for and make use of structure.**
SLO #1 Look for and discern patterns when adding, subtracting, multiplying, or dividing decimals.
SLO #4 Look for and discern patterns given two mathematical rules.
SLO #5 Look for and discern a structure based on attributes of two-dimensional shapes.
SLO #6 Look for and discern a structure based on properties of two-dimensional shapes.
SLO #8 Look for and discern patterns when using the standard algorithm to multiply multi-digit whole numbers.
SLO #8 Look for and express regularity in repeated reasoning.
8. **Look for and express regularity in repeated reasoning.**

Bold type identifies possible starting points for connections to the SLOs in this unit.

ALPHA BORO PUBLIC SCHOOL

CONTENT AREA: Mathematics

GRADE: 5

UNIT: # 5

UNIT NAME: Shape and Coordinate Geometry

Code #

Common Core State Standards

5.OA.3	Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. <i>For example, given the rule "Add 3" and the starting number 0, and given the rule "Add 6" and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence.</i> Explain informally why this is so.
5.NBT.7	Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used ... (repeated for fluency).
5.NBT.5	Fluently multiply multi-digit whole numbers using the standard algorithm.
5.G.1	Use a pair of <i>perpendicular</i> number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate).
5.G.2	<i>Represent</i> real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.
5.G.3	<i>Understand</i> that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles.
5.G.4	Classify two-dimensional figures in a hierarchy based on properties.
5.MD.2	Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). Use operations on fractions for this grade to solve problems involving information presented in line plots. <i>For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.</i>

Major Content Supporting Content

(Identified by PARCC Model Content Frameworks).

Additional Content

(Identified by PARCC Model Content Frameworks).

Bold type indicates grade level fluency requirements. (Identified by PARCC Model Content Frameworks).