

Jefferson County School's 2015 -16 5th Grade Math Curriculum Roadmap

What is the purpose of a Curriculum Guide?

To improve student achievement and math instruction by identifying specifically what our math standards mean and what student should know and be able to *do*. These documents also provide teachers with a recommended timeline for teaching and assessing grade level math standards.

What are the components of our K-5 Math Curriculum Roadmaps?

Standards for Mathematical Practice	The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students. These practices rest on important “processes and proficiencies” with longstanding importance in mathematics education.
College and Career Standards for Mathematics	Content Standards describe the knowledge and skills that students should attain, often called the "what" of "what students should know and be able to do."
Content Focus	The content focus specifies the learning expectations to be met by students at each grade level and in the major high school courses.
Investigations Unit	The Curriculum Resources reflect where lessons for particular standards are located in the textbook as well as other supplemental materials.
Essential Questions	Questions to help teachers focus on key mathematical concepts within the unit or lesson.
Depth of Knowledge	DOK levels are identified to help teachers align the cognitive demands of standards with the cognitive demands of assessments.
Student Learning Targets	The student learning target focuses the knowledge and skills that students should know and be able to do.
Additional Resources	The Additional Resources listed under Curriculum Resources are a starting point for instruction; not a mandate limiting instructional materials.
Key Vocabulary	Key vocabulary may include content as well as standards/test vocabulary. Vocabulary development is critical to academic success. It is important that students are exposed daily to new content vocabulary and standards-based vocabulary.
Assessment of Standards	Recommended timeline for pacing and assessment of grade level standards.

This document is designed to help Jefferson County educators teach K-5 Mathematics (Alabama College and Career Ready Standards). District staff and teachers are continually updating and improving these documents to improve the teaching and learning of mathematics in our K-5 classrooms.

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Standards for Mathematical Practice

Make sense of problems and perseveres in solving them (problem solving)		Reason abstractly and quantitatively (number sense)		Construct viable arguments and critique the reasoning of others. (math talk)		Model with Mathematics (representations and graphs)	
Teacher Behaviors	Student Behaviors	Teacher Behaviors	Student Behaviors	Teacher Behaviors	Student Behaviors	Teacher Behaviors	Student Behaviors
Promotes visible thinking using pictures and equations	Understand the meaning of the problem and look for entry points to its solution	Promotes visible thinking using pictures and equations	Make sense of quantities and relationships in problem situations	Promotes math talk and the critiquing of presented solutions	Make conjectures and use counterexamples to build a logical progression of statements to explore and support their ideas	Expects students to justify their choice in models	Apply prior knowledge to solve real world problems
Gives time for students to discuss with others	Analyze information (givens, constrains, relationships, goals)	Uses explicit and precise language when using representations and definitions and expects students to be the same in their discussion	Represent abstract situations symbolically and understand the meaning of quantities	Asks higher-order questions to facilitate discussion and presses for justification	Communicate and defend mathematical reasoning using objects, drawings, diagrams, actions	Gives students opportunity to evaluate the appropriateness of their model and that of others	Identify important quantities and map their relationships using such tools as diagrams, two-way tables, graphs, flowcharts and formulas
Encourages students to keep trying and builds supportive math community	Make conjectures and plan a solution pathway	Helps students make connections between representations, equations and student thinking	Create a coherent representation of the problem at hand	Gives time for students to construct their own ideas before small or large group discussions	Decide if the arguments of others make sense and ask probing questions to clarify or improve the arguments	Helps make connections with the relationships between representation, equation, answer, student thinking, and	Make assumptions and approximations to make a problem simpler
Use appropriate tools strategically (calculators, rulers, manipulatives)		Attend to Precision (vocabulary, labeling, answers)		Look for and make use of structure. (how numbers and shapes are organized)		Look for and express regularity in repeated reasoning (number pattern)	
Teacher Behaviors	Student Behaviors	Teacher Behaviors	Student Behaviors	Teacher Behaviors	Student Behaviors	Teacher Behaviors	Student Behaviors
Allows students to choose appropriate learning tools	Use technological tools to visualize the results of assumptions, explore consequences and compare predications with data	Communicates precisely using clear definitions	Communicate precisely using clear definitions	Gives students time to discuss connections	Look for patterns or structure, recognizing that quantities can be represented in different ways	Encourages students to connect task to prior concepts taught	Notice repeated calculations and look for general methods and shortcuts
Uses technology tools to deepen students' understanding of a concept	Identify relevant external math resources (digital content on a website) and use them to pose or solve problems	Emphasizes the importance of precise communication	State the meaning of symbols, carefully specifying units of measure, and providing accurate labels	Brings students back to the rule or properties being used	Recognize the significance in concepts and models and use the patterns or structure for solving related problems	Helps make connections between pattern, equation, student thinking, and content standard	Continually evaluate the reasonableness of intermediate results (comparing estimates) while attending to details and make generalizations based on findings
Helps make connections between tool, equation, student thinking, and content standard	Use technological tools to explore and deepen understanding of concepts	Emphasizes the importance of precision of measurement	Calculate accurately and efficiently, expressing numerical answers with a degree of precision	Helps students look for patterns and structures in the number system	View complicated quantities both as single objects or compositions of several objects and use operations to make sense of problems		
		Helps make connections between vocabulary, student thinking, unit labels, calculations, and content standard	Label accurately when measuring and graphing	Make connections between the structure used, equation, student thinking, and content standard			
				Helps make connections to real world			

Adapted from Common Core State Standards for Mathematics: Standards for Mathematical Practice, 2011

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References: Alabama College and Career Ready Math Standards, 2010 and Alabama Insight Tool

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Multiplication Expressions & Division				
Essential Questions:	Standard	Standard and Student Learning Targets(s)	Content Focus	Curriculum Resources
<p>How can I evaluate expressions that contain parentheses, brackets, and braces?</p> <p>What strategies can I use to write simple expressions to represent a real world problem?</p> <p>How do you use an algorithm to multiply whole numbers?</p> <p>What strategies can you use to divide whole</p>	5-OA.1 (DOK 1)	<p>Write and interpret numerical expressions.</p> <p>1. Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols. [5-OA1] Examples: Express the calculation —add 8 and 7, then multiply by 2— as $2 \times (8 + 7)$. Recognize that $3 \times (18,932 + 921)$ is three times as large as $18,932 + 921$, without having to calculate the indicated sum or product.</p> <p>Student Learning Targets:</p> <ul style="list-style-type: none"> I can write and interpret numerical expressions. I can use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols. 	<ul style="list-style-type: none"> Students efficiently apply strategies for rewriting and evaluating expressions that contain parentheses, brackets, and /or braces. Students understand that there are conventions in mathematics such as, order of operations that are arbitrary but have been agreed to for communication purposes. Students also understand that mathematical symbols in expression communicate the order of operations. 	<p>Unit 1: Number Puzzles and Multiple Towers & *CC Unit 2.4 A</p> <p>Additional Resources:</p> <p>http://www.mathworksheetsland.com/5/1u_separ.html</p> <p>http://www.k-5mathteachingresources.com/support-files/numercialexpressionswallclock.pdf</p> <p>http://www.mathworksheetsland.com/5/2si_mexp.html</p> <p>http://www.k-5mathteachingresources.com/support-files/5.oa2.pdf</p> <p>http://www.mathworksheetsland.com/5/10I_ongdiv.html</p> <p>http://www.k-5mathteachingresources.com/support-files/division-strategy-partial-quotients3.pdf</p>
	5-OA.2 (DOK 1,2)	<p>2. Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. [5-OA2]</p> <p>Student Learning Targets:</p> <ul style="list-style-type: none"> I can write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. 	<ul style="list-style-type: none"> Students write and interpret the corresponding numerical expressions (e.g., express the calculation “add 8 and 7, then multiply by 2” as $2 \times (8 + 7)$. Students explain the meaning of the expression without performing indicated calculations Students understand that the operations of addition, subtraction, multiplication, and division all arise in multiple context (See Tables 1 and 2 for contexts) 	

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numbers with up to 4-digit dividends and two-digit divisors?	5.NBT.5 (DOK 1)	<p>Perform operations with multi-digit whole numbers and with decimals to hundredths. Fluently multiply multi-digit whole numbers using the standard algorithm. [5-NBT5]</p> <p>Student Learning Targets:</p> <ul style="list-style-type: none"> I can multiply multi-digit whole numbers using standard algorithms. 	<ul style="list-style-type: none"> Students choose the most appropriate strategy for computing an answer when a given context calls for the multiplication of two whole numbers Students also efficiently produce accurate results using the standard algorithm when appropriate. Students understand that the steps used in an algorithm for multiplication can be justified by using properties of operations and understanding of place value. 	<p>https://www.engageny.org/resource/grade-5-mathematics-module-2</p> <p align="center">Key Vocabulary</p> <p align="center">order of operations, expression, parentheses, equation, variable, product, partial product, distributive, commutative, identity, and associative properties of multiplication, and multiples quotient, partial quotient, arrays, dividend, divisor, and remainders</p>
	5.NBT.6 (DOK 1,2)	<p>Perform operations with multi-digit whole numbers and with decimals to hundredths. 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-NBT6]</p> <p>Student Learning Targets:</p> <ul style="list-style-type: none"> I can find whole-number quotients of whole numbers. I can use strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. I can illustrate and explain calculations by using equations, rectangular arrays, and/or area models. 	<ul style="list-style-type: none"> Students find whole-number quotients and remainders using strategies that involve representations based on place value, properties of operations, and /or the relationship between multiplication and division. Students justify solutions and solution paths through equations, rectangles arrays and /or area models. Students understand that division problems can be solve using a variety of strategies, models, and representations/ Students know and use relationships between models of division problems and symbolic recording of those models can be used to justify solutions. 	
Assessment of standards: 5.OA.1, 5.OA.2, 5.NBT.5, 5.NBT.6				

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Adding and Subtracting Fractions				
Essential Questions:	Standard	Standard and Student Learning Targets(s)	Content Focus	Curriculum Resources
<p>How do I add and subtract fractions and mixed numbers with unlike denominators?</p> <p>How can I use my knowledge of fractions to solve real world problems?</p>	5-NF.1 (DOK 1)	<p>Use equivalent fractions as a strategy to add and subtract fractions. 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.</p> <p>Student Learning Targets:</p> <ul style="list-style-type: none"> I can use equivalent fractions as a strategy to add and subtract fractions. (5.NF) I can add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions with like denominators. (5.NF.1) 	<ul style="list-style-type: none"> Students understand two fractions are equivalent if they are the same size share of the same whole or are the same point on number line. Students understand that addition and subtraction of fractions are applied to fractions referring to the same whole. Students understand that the unit fraction (1/b) names the size of the unit with respect to the referenced whole, and that the numerator counts the parts referenced and the denominator tells the number of parts into whole was partitioned. Operations of addition and subtraction are performed on counts with like names/labels/denominators and that the sum or difference retains the same name/label/denominator. 	<p>Unit 4: What’s that Portion? & Inv. 4A -(*CC Unit)</p> <p>In addition to the clock faces used in Investigations, students should also use strategies such as number lines, area models, and fractions bars or strips.</p> <p>Additional Resources:</p> <p><u>Additional Resources\math-g5-m3-topic-a-lesson-1.pdf</u></p> <p><u>http://www.k-5mathteachingresources.com/support-files/5th-grade-fractions-of-the-week.pdf</u></p> <p><u>https://www.engageny.org/resource/grade-5-mathematics-module-3</u></p> <p><u>Pearson Success Net: Bits and Pieces and Prime Time</u></p> <p><u>http://www.k-5mathteachingresources.com/support-files/fractionsonlineplot.pdf</u></p> <p style="text-align: center;">Key Vocabulary</p> <p>Multiples, numerator, denominator, mixed numbers, factors, simplest form, improper</p>
	5-NF.2 (DOK 1,2,3)	<p>Use equivalent fractions as a strategy to add and subtract fractions. 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. [5-NF2] Example: Recognize an incorrect result $+$ = by observing that $<$.</p> <p>Student Learning Targets:</p> <ul style="list-style-type: none"> I can use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. (5.NF.2) 	<ul style="list-style-type: none"> Students understand that addition and subtraction of fractions are applied to fractions referring to the same whole. The operation of addition with whole numbers and /or fractions represents both putting together and adding contexts; Students also understand the operation of subtraction with whole number and /or fractions represents taking apart, taking from and additive comparisons contexts. The operations of addition and subtraction performed of counts with like name/labels/denominators and that the sum or difference retains the same name/label/denominator. 	
How can I				

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<p>create a line plot to display measurement data in fractions?</p>	<p>5-MD.2 (DOK 2)</p>	<ul style="list-style-type: none"> I can solve word problems involving addition and subtraction of fractions referring to the same whole. (5.NF.2) <p>Represent and interpret data. 19. Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$). Use operations on fractions for this grade to solve problems involving information presented in line plots. [5-MD2] 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. Student Learning Targets:</p> <ul style="list-style-type: none"> I can make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). I can use operations on fractions for this grade to solve problems involving information presented in line plots. 	<p>Students:</p> <ul style="list-style-type: none"> Make and use line plots (scale to match unit of measure) to represent data generated by making measurements (to the nearest eighth unit) of several objects or by making repeated measurements Use information from the constructed line plots to generate questions and solve problems including problems that involve all four operations with fractions. Use standard units and related tools to make measurements to the nearest eighth unit Communicate justification for strategy choice and solutions to problems involving measurements. 	<p>fraction, like denominator, unlike denominator, benchmark fraction, estimate, reasonableness, equivalent fractions, common denominator, common multiples, simplify/simplest form, subdivided, bar diagram, area model, diagram model, linear model, Line plot, data set</p>
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Standards: 5.NF.1, 5.NF.2, 5.MD.2

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Multiplying and Dividing Fractions				
Essential Questions	Standard	Standard and Student Learning Targets	Content Focus	Curriculum Resources
<p>How do you interpret a fraction as a division problem?</p> <p>How can I multiply a fraction by a whole number and a fraction?</p>	<p>5-NF.3 (DOK 1, 2)</p>	<p>Apply and extend previous understandings of multiplication and division to multiply and divide fractions.</p> <p>13. Interpret a fraction as division of the numerator by the denominator ($= a \div b$). Solve word problems involving 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. [5-NF3] ab</p> <p>Examples: Interpret as the result of dividing 3 by 4, noting that multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people each person has a share of size. 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 which two whole numbers does your answer lie?</p> <p>Student Learning Targets:</p> <ul style="list-style-type: none"> I can interpret a fraction as division of the numerator by the denominator ($a/b = a \div b$). I can solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers. 	<ul style="list-style-type: none"> Students use logical reasoning to justify the reasonableness of quotients that involve fractions and mixed numbers, Students use patterns in the relationship between whole number division (when a is divided b) and the meaning of the fraction (a/b) to explain a fraction as division. Students can apply understanding of fractions as division to solve word problems involving fraction and mixed number quotients. 	<p>Unit 4: What's that Portion? & Inv. 4A -(*CC Unit)</p> <p>Additional Resources:</p> <p>http://www.mathworksheetsland.com/topic/s/fractions/fractdivset.html</p> <p>http://www.commoncoresheets.com/Math/Fractions/Examining%20Fraction%20Value/2.pdf</p> <p>http://www.commoncoresheets.com/Math/Fractions/Division%20as%20Fraction%20-%20Word/3.pdf</p> <p>Additional Resources\Unit Plan - 5NF 3-7 Multiply and Divide Fractions.docx</p> <p>Key Vocabulary</p> <p>Quotient, divisor, dividend, unit fraction, inverse operation, Scaling, resizing, fraction models, equations, area, rectangle, unit squares, length and width, area model, product, parts of a partition, unit fraction,</p>
	<p>5-NF.4 5.NF.4a (DOK 1, 2)</p>	<p>Apply and extend previous understandings of multiplication and division to multiply and divide fractions.</p> <p>14. Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction. [5-NF4]</p> <p>a. Interpret the product $() \times q$ as a parts of a partition of q into b equal parts; equivalently, as</p>	<ul style="list-style-type: none"> Students strategically choose and apply visual models to represent and solve problems involving the multiplication of fractions or whole numbers by fractions, Students also accurately compute products of fractions or whole numbers by fractions. Students use logical reasoning to 	

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<p>How does multiplying a mixed number by a whole number or fraction change the size of an area?</p>		<p>the result of a sequence of operations $a \times q \div b$. Example: Use a visual fraction model to show $() \times 4 =$, and create a story context for this equation. Do the same with $() \times () =$. (In general, $() \times () =$.)</p> <p>b. Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas. [5-NF4b]</p> <p>Student Learning Targets:</p> <ul style="list-style-type: none"> I can 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 $a \times q \div b$. In general, $(a/b) \times (c/d) = ac/bd$. (5.NF.4a) I can find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. (5.NF.4b) I can multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas. (5.NF.4b) 	<p>communicate connections between visual models and computational procedures for problems involving multiplication of fractions and whole numbers by fractions.</p> <ul style="list-style-type: none"> Students know and apply properties of operations. Students know strategies for using visual model (e.g. manipulatives, diagrams, pictures) to solve multiplication problems that involve fractions and whole numbers. Students understand that connections between representations and symbols provide justifications for solutions and solution paths. Students also understand that properties of operations allow manipulation of mathematical expressions for sense making and easier computation. 	<p>http://www.commoncoresheets.com/Math/Fractions/Finding%20Fraction%20Product/2.pdf</p> <p>http://www.commoncoresheets.com/Math/Fractions/Finding%20Fraction%20Product/2.pdf</p> <p>http://www.commoncoresheets.com/Math/Fractions/Multiplying%20Fraction%20Word%20Problems/4.pdf</p>
	<p>5.NF.5 5.NF.5a 5.NF.5b (DOK 1,2,3)</p>	<p>Apply and extend previous understandings of multiplication and division to multiply and divide fractions.</p> <p>15. Interpret multiplication as scaling (resizing), by:</p> <p>a. Comparing the size of a product to the size of one factor on the basis of the size of the other</p>	<ul style="list-style-type: none"> Students create a pictorial or physical model and compare the size of the product to the size of the factor using multiplicative language (e.g. use a strip of paper 12 inches long and strip of $\frac{1}{2}$ inch long to explain that it takes 24 of the $\frac{1}{2}$ inch strips to make the 12 inch strip thus 	<p>Additional Resources\5thGradeUnit-Fractions Multiplying and dividing.pdf</p>

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<p>How can I use my knowledge of multiplication of fractions, mixed numbers and whole numbers to solve real world problems?</p>		<p>factor, without performing the indicated multiplication. [5-NF5a] b. 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 greater than 1 as a familiar case), explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number, and relating the principle of fraction equivalence = to the effect of multiplying by 1. [5-NF5b] Student Learning Targets:</p> <ul style="list-style-type: none"> I can interpret multiplication as scaling (resizing). (5.NF.5) I can compare 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.10 (5.NF.5a) I can apply the principle of fraction equivalence $a/b = (n \times a)/(n \times b)$ to the effect of multiplying a/b by 1. (5.NF.5b) 	<p>the 12 inch strip is 24 times as long as the $\frac{1}{2}$ inch strip, or students could create a scale model of their desks showing the actual desk is 24 times larger than the model.</p> <ul style="list-style-type: none"> Students also use a multiplication problem involving a number times a fraction. Students use logical reasoning and properties of multiplication to relate the use of multiplying numerator and denominator of a fraction by the same number to generate equivalent fractions to the effect of multiplying the fraction by 1. 	<p>http://www.k-5mathteachingresources.com/support-files/fraction-x-mixed-no.-word-problems-5nf6.pdf</p> <p>http://www.k-5mathteachingresources.com/support-files/Mixed-Number-x-Fraction-Models.pdf</p>
<p>How can I divide a fraction by whole numbers and whole numbers by unit fractions, given a story context?</p>	<p>5.NF.6 (DOK 1,2)</p>	<p>Apply and extend previous understandings of multiplication and division to multiply and divide fractions. 16. 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-NF6] Student Learning Targets:</p> <ul style="list-style-type: none"> I can solve real world problems involving multiplication of fractions and mixed numbers. (5.NF.6) 	<ul style="list-style-type: none"> Students model and solve word problems involving multiplication of fractions and /or mixed numbers. Students explain and justify solutions and the reasonableness of solutions using connection among unit fractions, visual representations and an understanding of multiplication. 	<p><u>Additional Resources</u> Dividing with Unit Fractions GA 5nf7.pdf</p>
	<p>5.NF.7 (DOK 1,2)</p>	<p>Apply and extend previous understandings of multiplication and division to multiply and divide fractions. 17. Apply and extend previous understandings</p>	<p>Students:</p> <ul style="list-style-type: none"> Given a story context involving division of a unit fraction by a non-zero whole number or division of a whole number by 	

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<p>How can I analyze the attributes of two-dimensional figures to classify them into categories and subcategories?</p> <p>How can I create a line plot to display measurement data in fractions?</p>		<p>of division to divide unit fractions by whole numbers and whole numbers by unit fractions. (Students able to multiply fractions in general can develop strategies to divide fractions in general by reasoning about the relationship between multiplication and division. However, division of a fraction by a fraction is not a requirement at this grade.)</p> <p>a. Interpret division of a unit fraction by a nonzero whole number, and compute such quotients. Example: Create a story context for $() \div 4$, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $() \div 4 =$ because $() \times$</p> <p>b. Interpret division of a whole number by a unit fraction, and compute such quotients. [5-NF7b] Example: Create a story context for $4 \div ()$, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $4 \div () = 20$ because $20 \times ()$ Student Learning Targets:</p> <ul style="list-style-type: none"> I can interpret division of a unit fraction by a non-zero whole number, and compute such quotients. I can interpret division of a whole number by a unit fraction, and compute such quotients. I can Interpret division of a whole number by a unit fraction, and compute such quotients. 	<p>a unit fraction, students use visual models and properties of operations to explain and represent the division problem context, find the quotient, and explain the solution's relationship to the given multiplication problem.</p> <ul style="list-style-type: none"> Create a corresponding story context, a model to represent the division context, and accurately solve the problem. Strategically choose and apply visual models to represent and solve problems involving the division of unit fractions by non-zero whole numbers, or whole numbers by unit fractions. Use logical reasoning to communicate connections between visual models and computational procedures for problems involving division of unit fractions and whole numbers. 	<p>http://www.corestandards.org/Math/Content/5/G/B/3/ http://learnzillion.com/lessonsets/345-understand-attributes-of-twodimensional-figures-and-classifying-figures-in-a-hierarchy</p> <p align="center">Key Vocabulary</p> <p>Polygon, attributes, quadrilateral, rectangle, rhombus, triangle, right triangle, trapezoid, two-dimensional figure, parallelogram, pentagon, square, hexagon, octagon, plane, perpendicular, parallel, line segment</p> <p>http://www.engageny.org/sites/default/files/resource/attachments/math-g5-m4-lessons-1-12.pdf http://learnzillion.com/lessonsets/699-solve-problems-involving-measurement-data-in-fractions-of-a-unit-displayed-line-plots</p>
	<p>5.G.3 (DOK 1,2)</p>	<p>Classify two-dimensional figures into categories based on their properties. Understand that attributes belonging to a category of two-dimensional figures also belong</p>	<ul style="list-style-type: none"> Students use logical reasoning and knowledge of relationships among categories and subcategories of shapes to explain the attributes of the given shapes 	

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		<p>to all subcategories of that category. [5-G3] Example: All rectangles have four right angles, and squares are rectangles, so all squares have four right angles.</p> <p>Student Learning Targets:</p> <ul style="list-style-type: none"> I can explain that attributes belonging to category of two-dimensional figures also belong to all subcategories of that category. 	<p>(e.g., (1) given a triangle, a student would be able to describe it as having three sides, and then because all triangles are polygons, also describe it as being a closed figure with straight sides, or (2) given a square, a student would be able to describe it as a special rectangle having four right angles but also having four congruent sides).</p>	
	<p><u>5-MD.2</u> (DOK 2)</p>	<p>Represent and interpret data. 19. Make a line plot to display a data set of measurements in fractions of a unit. Use operations on fractions for this grade to solve problems involving information presented in line plots. [5-MD2] 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.</p> <p>Student Learning Targets:</p> <ul style="list-style-type: none"> I can make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). I can use operations on fractions for this grade to solve problems involving information presented in line plots. 	<ul style="list-style-type: none"> Make and use line plots (scale to match unit of measure) to represent data generated by making measurements (to the nearest eighth unit) of several objects or by making repeated measurements Use information from the constructed line plots to generate questions and solve problems including problems that involve all four operations with fractions. Use standard units and related tools to make measurements to the nearest eighth unit Communicate justification for strategy choice and solutions to problems involving measurements. 	
<p>Standards: 5.NF.3, 5.NF.5, 5.NF.6, 5.NF.7, 5.G.3, *5.MD.2 (fractions)</p>				

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Volume, Polygons and Graphing				
Essential Questions:	Standard	Standard and Student Learning Targets(s)	Content Focus	Teacher Resources
<p>How can I use unit cubes to model the volume of a solid?</p> <p>How can I use unit cubes to measure the volume of a solid?</p> <p>How can I explain the relationship between three different strategies for finding the volume of a</p>	<p>5-MD.3 5-MD.3a 5-MD.3b (DOK 1)</p>	<p>Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.</p> <p>20. Recognize volume as an attribute of solid figures, and understand concepts of volume measurement. [5-MD3]</p> <p>a. A cube with side length 1 unit, called a —unit cube, is said to have —one cubic unit of volume, and can be used to measure volume. [5-MD3a]</p> <p>b. A solid figure which can be packed without gaps or overlaps using n unit cubes is said to have a volume of n cubic units. [5-MD3b]</p> <p>Student Learning Targets:</p> <ul style="list-style-type: none"> I can identify volume as an attribute of a solid figure. I can recognize that a cube with a 1 unit side length is “one cubic unit” of volume. I can explain how to find volume of a figure. 	<ul style="list-style-type: none"> Students describe the process for measuring volume including using same-sized (unit) cubes and filling the figure completely with no gaps or overlaps. Students know the measurable attributes of objects, specifically volume. Students also understand that the volume of an object is measured by the number of same-sized cubes that exactly fill the interior space of the object. 	<p>Unit 2: Prisms and Pyramids & Unit 5: Measuring Polygons & CC Unit</p> <p>Include Sessions 1.5A and 2.4A</p> <p>Skip Investigation 3</p> <p>http://www.k-5mathteachingresources.com/support-files/build-a-cubic-meter.pdf</p> <p>http://www.k-5mathteachingresources.com/support-files/exploringvolume.pdf</p> <p>http://www.k-5mathteachingresources.com/support-files/3d-structures.pdf</p> <p>http://www.k-5mathteachingresources.com/support-files/3d-structures.pdf</p> <p>http://www.nextvista.org/estimating-</p>

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<p>right rectangular prism?</p>	<p>5-MD.4 (DOK 1,2)</p>	<p>Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition. 21. Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units. Student Learning Targets:</p> <ul style="list-style-type: none"> I can measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units. (5.MD.4) 	<ul style="list-style-type: none"> Students use a variety of rectangular solids with whole number length sides to accurately measure volume by counting standard unit of measure (specifically cubic cm, cubic in., and cubic ft.) sized cubes and non –standard (e.g., multilink cubes) unite sized cubes. 	<p>volume-with-cubes/ http://www.k-5mathteachingresources.com/support-files/3d-structures.pdf http://www.k-5mathteachingresources.com/support-files/rollarectangularprism.pdf http://www.mathworksheetsland.com/5/26volmea.html</p>
	<p>5-MD.5 5-MD.5a 5-MD.5b 5-MD.5c (DOK 1, 2)</p>	<p>Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition. 22. Relate volume to the operations of multiplication and addition, and solve real-world and mathematical problems involving volume. [5-MD5] a. Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication. [5-MD5a] b. Apply the formulas $V = l \times w \times h$ and $V = B \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole-number edge</p>	<p>Students</p> <ul style="list-style-type: none"> Given a right rectangular prism with whole number length sides as a physical model and within a word problem context, students find and justify the volume of the prism as part or all of the problem’s solution by relating a unit cube filled model to the corresponding multiplication problem. Given unit cubes, students create and explain rectangular prism models to show that the volume of a right rectangular prism with whole-number side lengths a, b, and c is represented by the multiplication problem $a \times b \times c$ where the multiplication of the side lengths can be done in any order. Given a solid figure compose of 2 or more right rectangular prisms in real world or mathematical contexts, students find the 	<p>Additional Resources: http://www.mathworksheetsland.com/5/27volrel.html http://www.k-5mathteachingresources.com/support-files/comparing-volumes-of-cereal-boxes-project-and-rubric.pdf http://www.k-5mathteachingresources.com/support-files/whats-the-volume.pdf http://www.k-5mathteachingresources.com/support-files/comparing-buildings.pdf http://www.k-5mathteachingresources.com/support-</p>

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<p>How do I create a graph on a coordinate plane that represents two patterns?</p> <p>How can I plot points in the first quadrant of a coordinate plane to represent real world and mathematical problems?</p>		<p>lengths in the context of solving real-world and mathematical problems. [5-MD5b]</p> <p>Student Learning Targets:</p> <ul style="list-style-type: none"> I can show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. (5.MD.5a) I can represent threefold whole-number products as volumes to represent the associative property of multiplication. (5.MD.5a) I can find volume of rectangular prisms using a variety of methods and use these techniques to solve real world and mathematical problems. (5.MD.5a) I can model and justify the formula for volume of rectangular prisms. (5.MD.5b) I can model the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes. (5.MD.5b) I can apply the formulas $V = l \times w \times h$ and $V = b \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths. (5.MD.5b) I can use the additive nature of volume to find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts. 	<p>total volume by decomposing the figure into non-overlapping rectangular prism and find the sum of the volumes.</p>	<p>files/find-the-volume</p> <p>https://grade5commoncoremath.wikispaces.com/hcps.org/5.OA.3</p> <p>http://www.insidemathematics.org/problems-of-the-month/pom-onceuponatime.pdf</p> <p>http://www.uen.org/core/math/downloads/5OA3.pdf</p> <p>http://www.engageny.org/sites/default/files/resource/attachments/math-g5-m6-full-module.pdf</p> <p>http://learnzillion.com/lessons/1703-find-distance-between-points-on-a-coordinate-plane-by-counting</p>
<p>How can I</p>	<p><u>5-OA.3</u> (DOK 1,2)</p>	<p>Analyze patterns and relationships. 3. Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from</p>	<p>Students</p> <ul style="list-style-type: none"> Given a right rectangular prism with whole number length sides as a physical model and within a word problem context, students find and justify the volume of the 	

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<p>classify two-dimensional figures in a hierarchy based on properties?</p>		<p>the two patterns, and graph the ordered pairs on a coordinate plane. 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. Student Learning Targets:</p> <ul style="list-style-type: none"> I can generate two numerical patterns using given rules. (CCSS: 5.OA.3) I can identify apparent relationships between corresponding terms. (CCSS: 5.OA.3) I can form ordered pairs consisting of corresponding terms from the two patterns, and graphs the ordered pairs on a coordinate plane.(CCSS: 5.OA.3) I can explain informally relationships between corresponding terms in the patterns. 	<p>prism as part or all of the problem’s solution by relating a unit cube filled model to the corresponding multiplication problem.</p> <ul style="list-style-type: none"> Given unit cubes, students create and explain rectangular prism models to show that the volume of a right rectangular prism with whole-number side lengths a, b, and c is represented by the multiplication problem $a \times b \times c$ where the multiplication of the side lengths can be done in any order. Given a solid figure compose of 2 or more right rectangular prisms in real world or mathematical contexts, students find the total volume by decomposing the figure into non-overlapping rectangular prism and find the sum of the volumes. 	<p>http://learnzillion.com/lessons/1704-move-a-point-and-describe-its-location-on-a-coordinate-plan</p> <p>http://learnzillion.com/lessons/1710-classify-quadrilaterals-by-looking-at-multiple-attributes</p> <p>http://www.ixl.com/math/grade-5/identify-planar-and-solid-figures http://www.ixl.com/math/grade-5/types-of-triangles</p> <p align="center">Key Vocabulary</p> <p>Classify, hierarchy, adjacent, first quadrant, Numerical pattern, rule, function, input, output, ordered pair, x axis, y axis, corresponding terms, coordinate plane, independent and dependent variable, constant rate, plot, right rectangular prism, length, width, height, base, associative property of multiplication, Cubic inch, cubic centimeter, cubic foot, cubic unit, unit cube, attribute, solid figure,</p>
	<p><u>5-G.2</u> (DOK 1,2)</p>	<p>Graph points on the coordinate plane to solve real-world and mathematical problems. 24. 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-G2] Student Learning Targets:</p> <ul style="list-style-type: none"> I can represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation. 	<p>Students</p> <ul style="list-style-type: none"> Given real world and mathematical problems involving a relationship between two variables, students create a first quadrant graph and explain its relationship to the context of the problem. Given a graph of real world or mathematical situation, students interpret the coordinate values of the points in the context of the situation. Students are able to explain how to identify the coordinates of a point on a coordinate system. 	

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	<p><u>5.G.4</u> (DOK 1,2)</p>	<p>Classify two-dimensional figures into categories based on their properties. Classify two-dimensional figures in a hierarchy based on properties. [5-G4] Student Learning Targets:</p> <ul style="list-style-type: none"> I can classify two-dimensional figures in a hierarchy based on properties. 	<ul style="list-style-type: none"> Students use the attributes of the shapes to explain their classification in as many categories and subcategories as possible (e.g., students will describe the attributes that allow a square to be classified as a polygon, a parallelogram, a rectangle, a rhombus , and a square, while the rhombus fits into the hierarch of polygon and parallelogram, but not rectangle 	
<p>Standards: 5.OA.3, 5. MD.3, 5.MD.4, 5.MD.5, 5.G.2, 5.G.4</p>				

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Place Value and Decimals				
Essential Questions:	Standard	Standard and Student Learning Targets	Content Focus	Curriculum Resources
<p>What is the rule for multiplying decimals by 10, 100, or 1000?</p> <p>What is the relationship between place value and powers of ten?</p>	<p><u>5.NBT.1</u> (DOK 1)</p>	<p>Understand the place value system. 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 of what it represents in the place to its left. [5-NBT1] 1 10 Student Learning Targets:</p> <ul style="list-style-type: none"> • I can explain 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. 	<ul style="list-style-type: none"> • Students are able to explain how two successive place values are related in a multi-digit whole number or numbers with decimal places • Students can explain that the number to the right is 1/10 of the one to its left or that the one on the left is 10 times the one on the right. • Students understand that values of digits in any multi-digit number (with or without decimal places) are based on patterns within a base-10 place value system. 	<p style="text-align: center;">Unit 6: Decimals on Grids and Number Lines & *CC Unit</p> <p>Session 1.5A, 2.5 A, and Investigation 3A</p> <p style="text-align: center;">Key Vocabulary</p> <p>Place value, align, tenths, hundredths, properties of addition, inverse operation, addend, sum quotient, divisor, dividend, remainder, properties of multiplications, rectangular arrays and/or area models, compose/de-compose, inverse, Decimal, decimal point, place value, tenths, hundredths, thousandths, exponent, base, power of 10, tenths, hundredths, thousandths, expanded form, number lines, tenths, hundredths, thousandths Greater than, less than, equal to >, <, = tenths, hundredths, thousandths</p> <p>Additional Resources:</p> <p><u>Multiply multi-digit whole numbers and multiples of 10 using place value patterns and the distributive and associative</u></p>
	<p><u>5.NBT.2</u> (DOK 1,2)</p>	<p>Understand the place value system. 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-NBT2] Student Learning Targets:</p> <ul style="list-style-type: none"> • I can explain patterns in the number of zeros of the product when multiplying a number by powers of 10. • I can explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. • I can use whole-number exponents to denote powers of 10. 	<ul style="list-style-type: none"> • Students choose strategies to find the products and describe the patterns relating the number of additional zeros in the products to the power of 10 in the problem. • When given multiplication and division problems involving a decimal and a power of 10, students choose strategies to find the products and quotients and describe the patterns relating the placement of the decimal in the answers to the power of 10 in the problem. • When given a power of 10 in standard form, students write the equivalent number using the appropriate whole-number exponent. 	

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		<p>a written method, and explain the reasoning used. [Student Learning Targets:</p> <ul style="list-style-type: none"> • I can add, subtract, multiply, and divide decimals to hundredths. (CCSS: 5.NBT.7) • I can use concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction. • I can relate strategies to a written method and explain the reasoning used. 	<p>computation problems.</p> <ul style="list-style-type: none"> • Students understand that decimal computation problems can be solved using a variety of strategies, models, and representations • Students understand relationships between models of decimal computation problems and symbolic recordings of those models can be used to justify solutions. 	
Standards: 5.NBT.1, 5.NBT.2, 5.NBT.3, 5.NBT.4, 5.NBT.7,				

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Measurement and Data				
Essential Questions	Standard	Standard and Student Learning Targets	Content Focus	Curriculum Resources
<p>- Review 5.G.2 & 5.NBT.2</p> <p>How can I use multiplication and division to convert measurements within a system to solve multi-step real world problems?</p>	<p>5-MD.1 (DOK 1, 2)</p>	<p>Convert like measurement units within a given measurement system. 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.</p> <p>Student Learning Targets:</p> <ul style="list-style-type: none"> • I can convert like measurement units within a given measurement system. • I can convert among different-sized standard measurement units within a given measurement system. <p>I can use measurement conversions in solving multi-step, real world problems.</p>	<p>Students:</p> <ul style="list-style-type: none"> • Strategically choose a unit useful in the solution of the problem, convert measures to this unit, solve the problem, and justify choices of units and strategies. • Strategically choose and apply representations and computation techniques for solving real life mathematical problems. • Accurately compute solutions. 	<p style="text-align: center;">Common Core Unit & Additional Resources</p> <p>*CC Unit 3A.8 & 3A.9</p> <p>This standard calls for work within both US Customary and metric systems. 5th graders should use and apply their understanding of place value and decimals and should explore how the base-ten system supports conversions within the METRIC system.</p> <p>Additional Resources</p>
<p>How can I create a line plot to display measurement data in fractions?</p> <p>How can I plot ordered pairs in the first quadrant on a coordinate plane?</p>	<p>5-MD.2 (DOK 2)</p>	<p>Represent and interpret data. 19. Make a line plot to display a data set of measurements in fractions of a unit. Use operations on fractions for this grade to solve problems involving information presented in line plots.</p> <p>Student Learning Targets:</p> <ul style="list-style-type: none"> • I can make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). • I can use operations on fractions for this grade to solve problems involving information presented in line plots. 	<ul style="list-style-type: none"> • Make and use line plots (scale to match unit of measure) to represent data generated by making measurements (to the nearest eighth unit) of several objects or by making repeated measurements • Use information from the constructed line plots to generate questions and solve problems including problems that involve all four operations with fractions. • Use standard units and related tools to make measurements to the nearest eighth unit • Communicate justification for strategy choice and solutions to problems involving measurements. 	<p>http://www.internet4classrooms.com/common_core/convert_among_different_sized_standard_measurement_units_measurement_data_fifth_5th_grade_math_mathematics.htm</p> <p>http://www.cpalms.org/Public/PreviewResourceLesson/Preview/28132</p> <p>http://www.ixl.com/standards/common-core/math/grade-5</p>

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<p>How can I plot points in the first quadrant of a coordinate plane to represent real world and mathematical problems?</p>	<p>5-G.1</p>	<p>Graph points on the coordinate plane to solve real-world and mathematical problems. 23. Use a pair of perpendicular 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-G1]</p> <p>Students Learning Targets:</p> <ul style="list-style-type: none"> • I can construct a coordinate system and recognize the origin. • I can recognize the x-axis and y-axis. • I can identify an ordered pair. • I can explain the relationship of an ordered pair and the location on the coordinate plane. 	<p>Students:</p> <ul style="list-style-type: none"> • Given a point on coordinate plane, students explain how to identify its coordinates using appropriate vocabulary (x-axis, y-axis, x-coordinate, y-coordinate, distance from the origin) • Given an ordered pair of numbers, students justify the placement of the corresponding point on a coordinate system. • Know coordinate system vocabulary: • Know techniques for constructing a coordinate grid and plotting points on that grid. 	<p>http://learnzillion.com/lessons/1702-read-coordinates-of-a-point-on-the-coordinate-plane</p> <p>http://www.insidemathematics.org/common-core-math-tasks/5th-grade/5-2007%20Granny's%20Balloon%20Trip.pdf</p> <p>http://www.engageny.org/sites/default/files/resource/attachments/math-g5-m6-full-module.pdf</p> <p>http://www.engageny.org/sites/default/files/resource/attachments/math-g5-m6-full-module.pdf</p> <p>http://learnzillion.com/lessons/1703-find-distance-between-points-on-a-coordinate-plane-by-counting</p> <p>http://learnzillion.com/lessons/1704-move-a-point-and-describe-its-location-on-a-coordinate-plane</p>
<p>What is the relationship between place value and powers of ten?</p>	<p>5-G.2 (DOK 1,2)</p>	<p>Graph points on the coordinate plane to solve real-world and mathematical problems. 24. 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-G2]</p> <p>Student Learning Targets:</p> <ul style="list-style-type: none"> • I can represent real world and mathematical problems by graphing points in the first quadrant of the 	<p>Students</p> <ul style="list-style-type: none"> • Given real world and mathematical problems involving a relationship between two variables, students create a first quadrant graph and explain its relationship to the context of the problem. • Given a graph of real world or mathematical situation, students interpret the coordinate values of the points in the context of the situation. 	

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		coordinate plane, and interpret coordinate values of points in the context of the situation.	<ul style="list-style-type: none"> Students are able to explain how to identify the coordinates of a point on a coordinate system. 	<p>http://www.engageny.org/sites/default/files/resource/attachments/math-g5-m2-full-module.pdf</p> <p align="center">Key Vocabulary</p> <p>Relative size, liquid volume, mass, length, kilometer, meter, centimeter, kilogram, gram, liter, milliliter, inch, foot, yard, mile, ounce, pound, cup, pint, quart, gallon, hour, minute, second (includes abbreviations), conversion and conversion factor, Line plot, data set</p>
5.NBT.2 (DOK 1,2)		<p>Understand the place value system. Explain patterns in the number of zeroes 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.</p> <p>Student Learning Targets:</p> <ul style="list-style-type: none"> I can explain patterns in the number of zeroes of the product when multiplying a number by powers of 10. I can explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. I can use whole-number exponents to denote powers of 10. 	<ul style="list-style-type: none"> Students choose strategies to find the products and describe the patterns relating the number of additional zeros in the products to the power of 10 in the problem. When given multiplication and division problems involving a decimal and a power of 10, students choose strategies to find the products and quotients and describe the patterns relating the placement of the decimal in the answers to the power of 10 in the problem. When given a power of 10 in standard form, students write the equivalent number using the appropriate whole-number exponent. 	
<p>Standards: 5.MD.1, 5.MD.2, 5.G.1 - Review 5.G.2 & 5.NBT.2</p>				

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Aspire Testing and Getting Ready for 6th Grade				
	Standard	Standard and Student Learning Targets	Content Focus	Curriculum Resources
Standards:	<u>5-NBT.1</u> <u>5-NBT.2</u> <u>5-NBT.3</u> <u>5-NBT.4</u> <u>5-NBT.7</u> <u>5-NF.1</u> <u>5-NF.2</u>	<p>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 of what it represents in the place to its left. [5-NBT1]</p> <p>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-NBT2]</p> <p>Read, write, and compare decimals to thousandths. [5-NBT3] a. Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, b. Compare two decimals to thousandths based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons.</p> <p>Use place value understanding to round decimals to any place. [5-NBT4]</p> <p>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.</p> <p>Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators.</p> <p>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,</p>	<ul style="list-style-type: none"> • Ability to build on experience with whole numbers and decimals within the base 10 system. • Knowledge of exponents with powers of 10. • Compare decimals • Round decimals • Ability to recognize that the product is not always smaller than the dividend • Ability to create equivalent fractions for each addend by using the identity property. • Knowledge of understanding addition and subtraction of fractions as joining and separating parts referring to the same whole. • Ability to recognize that a fraction is a representation of division. • Knowledge of unit fractions to multiply all 	<p>Resources:</p> <p>https://grade5commoncoremath.wikispaces.com/hcps.org/</p> <p>http://www.k-5mathteachingresources.com/5th-grade-number-activities.html</p> <p>http://www.k-5mathteachingresources.com/4th-grade-geometry.html</p> <p>http://www.k-5mathteachingresources.com/5th-grade-measurement-and-data.html</p> <p>https://www.engageny.org/resource/grade-5-mathematics</p>

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	<p><u>5-MD.3</u> <u>5-MD.4</u></p> <p><u>5-MD.5</u></p>	<p>and assess the reasonableness of answers</p> <p>Recognize volume as an attribute of solid figures, and understand concepts of volume measurement. Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units. [5-MD4]</p> <p>Relate volume to the operations of multiplication and addition, and solve real-world and mathematical problems involving volume</p>	<p>fractions.</p> <ul style="list-style-type: none"> • Knowledge of using rectangular arrays to find area • using rational numbers. • Knowledge of the relationship between multiplication and division. <ul style="list-style-type: none"> • Knowledge of classifying two dimensional figures to see relationships among the attributes of two-dimensional figures. <ul style="list-style-type: none"> • Knowledge that the volume of a prism is the area of the Base times the height. 	<p>http://www.ixl.com/standards/alabama/math/grade-5</p> <p>http://www.ixl.com/math/grade-5</p>
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