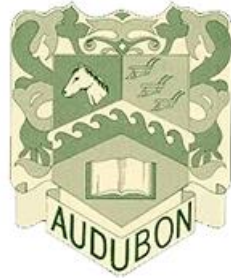


Audubon Public Schools



Grade 6: Math
Curriculum Guide

Developed by:
Ms. Natalie Busarello
Ms. Christine Fox

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Course Description

Grade 6: Math

This course will begin by introducing students to writing, interpreting, and using expressions and equations. It will then help students build on skills developed in 5th grade by reinforcing and increasing their proficiency and fluency in fractions and decimals. It will complete and extend their notion of numbers to the system of rational numbers, including negative numbers. Additionally, students will be introduced to the concept of ratio reasoning. They will connect ratios and rates to whole number multiplication and division and will use the concepts of ratio and rate to solve real-world problems. This course will guide students through finding area, surface area and volume of regular polygons and apply that understanding to applicable problems. Finally, this course will help students to develop an understanding of statistical thinking, to think mathematically, and to understand the basic structure of mathematics through experience with an appreciation of abstract concepts. This course is designed to help students develop an ever increasing proficiency in the application of mathematics and prepare them for successful experiences in both algebra and geometry. Topics included are expressions and equations, number system, ratio and proportional relationships, area and volume, and statistical data displays and measures of center and variation. This course will also help students develop an ever increasing proficiency in the application of mathematics and prepare them for successful experiences in both algebra and geometry and on the State mandated NJSLA exam at the end of this course.

Overview / Progressions

Overview	Standards for Mathematical Content	Unit Focus	Standards for Mathematical Practice
<p>Unit 1 (A) Topics 1-4</p>	<ul style="list-style-type: none"> ● 6.EE.A.1 ● 6.EE.A.2 (a, b, c) ● 6.EE.A.3 ● 6.EE.A.4 ● 6.EE.B.5 ● 6.EE.B.6 ● 6.EE.B.7 ● 6.EE.B.8 ● 6.EE.C.9 ● 6.NS.B.4 ● 6.NS.C.8 	<p>Variable and Expressions</p> <ul style="list-style-type: none"> ● Numerical Expressions ● Algebraic Expressions ● Writing Algebraic Expressions ● Evaluating Algebraic Expressions ● Expressions with Exponents <p>Equivalent Expressions</p> <ul style="list-style-type: none"> ● Combining Like Terms ● Identity and Zero Property ● Commutative Properties ● Associative Properties ● Greatest Common Factor ● Distributive Property ● Least Common Multiple <p>Equations and Inequalities</p> <ul style="list-style-type: none"> ● Expressions to Equations ● Balancing Equations ● Solving Addition and Subtraction Equations 	<p>MP.1 Make sense of problems and persevere in solving them.</p> <p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.3 Construct viable arguments & critique the reasoning of others.</p> <p>MP.4 Model with mathematics.</p>

		<ul style="list-style-type: none"> ● Solving Multiplication and Division Equations ● Equations to Inequalities ● Solving Inequalities <p>Two-Variable Relationships</p> <ul style="list-style-type: none"> ● Using Two Variables to Represent a Relationship ● Analyzing Patterns Using Tables and Graphs ● Relating Tables and Graphs to Equations 	<p>MP.5 Use appropriate tools strategically.</p> <p>MP.6 Attend to precision.</p> <p>MP.7 Look for and make use of structure.</p>
<p>Unit 2 (B & C) Topics 5-9</p>	<ul style="list-style-type: none"> ● 5.NF.A.1 ● 5.NF.A.2 ● 6.NS.A.1 ● 6.NS.B.2 ● 6.NS.B.3 ● 6.NS.C.5 ● 6.NS.C.6 (a, b, c) ● 6.NS.C.7 (a, b, c, d) ● 6.NS.C.8 ● 6.EE.B.7 ● 6.G.A.3 ● 6.G.A.4 	<p>Multiplying and Dividing Fractions</p> <ul style="list-style-type: none"> ● Multiplying Fractions and Whole Numbers ● Multiplying Two Fractions ● Multiplying Fractions and Mixed Numbers ● Multiplying Mixed Numbers ● Dividing Fractions and Whole Numbers ● Dividing Unit Fractions by Unit Fractions 	<p>MP.8 Look for and express regularity in repeated reasoning.</p>

		<ul style="list-style-type: none"> ● Dividing Fractions by Fractions ● Dividing Mixed Numbers <p>Fluency With Decimals</p> <ul style="list-style-type: none"> ● Adding and Subtracting Decimals ● Multiplying Decimals ● Dividing Multi-Digit Numbers ● Dividing Decimals ● Decimals and Fractions ● Comparing and Ordering Decimals and Fractions <p>Integers</p> <ul style="list-style-type: none"> ● Integers and the Number Line ● Comparing and Ordering Integers ● Absolute Value ● Integers and the Coordinate Plane ● Distance <p>Rational Number</p> <ul style="list-style-type: none"> ● Rational Numbers and the Number Line 	
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		<ul style="list-style-type: none"> • Comparing Rational Numbers • Ordering Rational Numbers • Rational Numbers and the Coordinate Plane • Polygons in the Coordinate Plane 	
<p>Unit 3 (D) Topics 10-12</p>	<ul style="list-style-type: none"> • 6.RP.A.1 • 6.RP.A.2 • 6.RP.A.3 (a, b, c, d) • 6.EE.C.9 	<p>Ratios</p> <ul style="list-style-type: none"> • Ratios • Exploring Equivalent Ratios • Equivalent Ratios • Ratios as Fractions • Ratios as Decimals <p>Rates</p> <ul style="list-style-type: none"> • Unit Rates • Unit Prices • Constant Speed • Measurements and Ratios • Choosing the Appropriate Rate <p>Ratio Reasoning</p> <ul style="list-style-type: none"> • Plotting Ratios and Rates • Recognizing Proportionality 	

		<ul style="list-style-type: none"> ● Introducing Percents ● Using Percents ● Sales Tax, Discounts, Tip 	
<p>Unit 4 (E) Topics 13-14</p>	<ul style="list-style-type: none"> ● 6.G.A.1 ● 6.G.A.2 ● 6.G.A.4 ● 6.EE.A.2 (c) ● 6.EE.B.7 	<p>Area</p> <ul style="list-style-type: none"> ● Rectangles and Squares ● Parallelograms ● Right Triangles ● Other Triangles ● Polygons <p>Surface Area and Volume</p> <ul style="list-style-type: none"> ● Analyzing Three-Dimensional Figures ● Nets ● Surface Areas of Prisms ● Surface Area of Pyramids ● Volumes of Rectangular Prisms 	
<p>Unit 5 (F) Topic 15-16</p>	<ul style="list-style-type: none"> ● 6.SP.A.1 ● 6.SP.A.2 ● 6.SP.A.3 ● 6.SP.B.5 (b, c, d) ● 6.SP.B.4 	<p>Data Displays</p> <ul style="list-style-type: none"> ● Statistical Questions ● Dot Plots ● Histograms ● Box Plots ● Choosing an Appropriate Display <p>Measures of Center and Variation</p>	

		<ul style="list-style-type: none">• Median• Mean• Variability• Interquartile Range• Mean Absolute Deviation	
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Subject: Math	Grade: 6	Unit 1(A): Topics 1-4	1st Trimester
Content Standards	Suggested Standards for Mathematical Practice	Critical Knowledge & Skills	
<ul style="list-style-type: none"> ● 6.EE.A.2 Write, read, and evaluate expressions in which letters stand for numbers. ● 6.EE.A.2c Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations). ● 6.EE.A.4 Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them). 	<p>MP.1 Make sense of problems and persevere in solving them.</p> <p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.4 Model with mathematics.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> ● 1-1 Numerical Expressions <p>Students are able to:</p> <ol style="list-style-type: none"> 1. Perform arithmetic operations, including those involving whole-number exponents, using the order of operations. 2. Identify when two expressions are equivalent. 3. Write simple numerical expressions without exponents. 	

<ul style="list-style-type: none"> ● 6.EE.A.2a Write expressions that record operations with numbers and with letters standing for numbers. ● 6.EE.B.6 Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set. ● 6.EE.A.2b Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity. ● 6.EE.A.2 Write, read, and evaluate expressions in which letters stand for numbers 	<p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.4 Model with mathematics.</p> <p>MP.8 Look for and express regularity in repeated reasoning.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> ● 1-2 Algebraic Expressions <p>Students are able to:</p> <ol style="list-style-type: none"> 1. Read expressions in which letters stand for numbers. 2. Identify parts of an expression using mathematical terms. 3. Use variables to represent numbers and write expressions when solving a real-world or mathematical problem.
<ul style="list-style-type: none"> ● 6.EE.A.2 Write, read, and evaluate expressions in which letters stand for numbers 	<p>MP.1 Make sense of problems and persevere in solving them.</p> <p>MP.4 Model with mathematics.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> ● 1-3 Writing Algebraic Expressions

<ul style="list-style-type: none"> ● 6.EE.B.6 Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set. ● 6.EE.A.2a Write expressions that record operations with numbers and with letters standing for numbers. 	<p>MP.7 Look for and make use of structure.</p>	<p>Students are able to:</p> <ol style="list-style-type: none"> 1. Write expressions in which letters stand for numbers 2. Use variables to represent numbers and write expressions when solving a real-world or mathematical problem.
<ul style="list-style-type: none"> ● 6.EE.A.2 Write, read, and evaluate expressions in which letters stand for numbers ● 6.EE.A.2c Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole number exponents, in the conventional order when there are no parentheses to specify a 	<p>MP.1 Make sense of problems and persevere in solving them.</p> <p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.4 Model with mathematics.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> ● 1-4 Evaluating Algebraic Expressions <p>Students are able to:</p> <ol style="list-style-type: none"> 1. Evaluate expressions in which letters stand for numbers. 2. Evaluate expressions at specific values of their variables, including expressions that arise from formulas used in real-world problems.

particular order (Order of Operations).		
<ul style="list-style-type: none"> ● 6.EE.A.1 Write and evaluate numerical expressions involving whole-number exponents. ● 6.EE.A.2c Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations). 	<p>MP.4 Model with mathematics.</p> <p>MP.6 Attend to precision.</p> <p>MP.8 Look for and express regularity in repeated reasoning.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> ● 1-5 Expressions with Exponents <p>Students are able to:</p> <ol style="list-style-type: none"> 1. Write numerical expressions involving whole-number exponents. 2. Evaluate numerical expressions involving whole-number exponents. <ol style="list-style-type: none"> 3. Evaluate expressions at specific values of their variables, including expressions that arise from formulas used in real-world problems. 4. Perform arithmetic operations, including those involving whole-number exponents, using the order of operations.
<ul style="list-style-type: none"> ● 6.EE.A.2c Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole number exponents, in the conventional 	<p>MP.1 Make sense of problems and persevere in solving them.</p> <p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.6 Attend to precision.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> ● 2-1 Identity and Zero Properties <p>Students are able to:</p> <ol style="list-style-type: none"> 1. Identify when two expressions are equivalent. 2. Apply properties of operations to generate equivalent expressions. 3. Evaluate expressions at specific values of their variables.

<p>order when there are no parentheses to specify a particular order (Order of Operations).</p> <ul style="list-style-type: none"> ● 6.EE.A.3 Apply the properties of operations to generate equivalent expressions. ● 6.EE.A.4 Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them). 	<p>MP.7 Look for and make use of structure.</p>	
<ul style="list-style-type: none"> ● 6.EE.A.3 Apply the properties of operations to generate equivalent expressions. ● 6.EE.A.4 Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them). 	<p>MP.3 Construct viable arguments & critique the reasoning. of others.</p> <p>MP.4 Model with mathematics.</p> <p>MP.7 Look for and make use of structure.</p> <p>MP.8 Look for and express regularity in repeated reasoning.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> ● 2-2 Commutative Properties <p>Students are able to:</p> <ol style="list-style-type: none"> 1. Apply properties of operations to generate equivalent expressions. 2. Identify when two expressions are equivalent.
<ul style="list-style-type: none"> ● 6.EE.A.3 Apply the properties of operations to generate equivalent expressions. 	<p>MP.2 Reason abstractly and quantitatively.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> ● 2-3 Associative Properties <p>Students are able to:</p>

<ul style="list-style-type: none"> 6.EE.A.4 Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them). 	<p>MP.3 Construct viable arguments & critique the reasoning. of others.</p> <p>MP.6 Attend to precision.</p> <p>MP.7 Look for and make use of structure.</p>	<ol style="list-style-type: none"> 1. Apply properties of operations to generate equivalent numerical expressions. 2. Apply properties of operations to generate equivalent expressions. 3. Identify when two expressions are equivalent.
<ul style="list-style-type: none"> 6.NS.B.4 Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor. 	<p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.3 Construct viable arguments & critique the reasoning. of others.</p> <p>MP.4 Model with mathematics.</p> <p>MP.7 Look for and make use of structure.</p> <p>MP.8 Look for and express regularity in repeated reasoning.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> • 2-4 Greatest Common Factor <p>Students are able to:</p> <ol style="list-style-type: none"> 1. Find the greatest common factor (GCF) of two whole numbers.
<ul style="list-style-type: none"> 6.NS.B.4 Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1– 	<p>MP.1 Make sense of problems and persevere in solving them.</p> <p>MP.7 Look for and make use of structure.</p> <p>MP.8 Look for and express regularity in repeated reasoning.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> • 2-5 Distributive Property <p>Students are able to:</p> <ol style="list-style-type: none"> 1. Use the distributive property to express a sum of two whole numbers with a common factor as a multiple of a sum of two whole numbers with no common factor. 2. Identify when two expressions are equivalent.

<p>100 with a common factor as a multiple of a sum of two whole numbers with no common factor.</p> <ul style="list-style-type: none"> ● 6.EE.A.3 Apply the properties of operations to generate equivalent expressions. ● 6.EE.A.4 Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them). 		<p>3. Apply properties of operations to generate equivalent expressions.</p>
<ul style="list-style-type: none"> ● 6.NS.B.4 Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor. 	<p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.3 Construct viable arguments & critique the reasoning. of others.</p> <p>MP.7 Look for and make use of structure.</p> <p>MP.8 Look for and express regularity in repeated reasoning.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> ● 2-6 Least Common Multiple <p>Students are able to:</p> <ol style="list-style-type: none"> 1. Find the least common multiple (LCM) of two whole numbers.

<ul style="list-style-type: none"> 6.EE.A.2 Write, read, and evaluate expressions in which letters stand for numbers 6.EE.B.5 Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true. 	<p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.5 Use appropriate tools strategically.</p> <p>MP.6 Attend to precision.</p> <p>MP.7 Look for and make use of structure.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> 3-1 Expressions to Equations <p>Students are able to:</p> <ol style="list-style-type: none"> Write numerical expressions involving whole-number exponents. Evaluate numerical expressions involving whole-number exponents. Evaluate expressions at specific values of their variables, including expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, using the order of operations.
<ul style="list-style-type: none"> 6.EE.A.2 Write, read, and evaluate expressions in which letters stand for numbers 	<p>MP.1 Make sense of problems and persevere in solving them.</p> <p>MP.3 Construct viable arguments & critique the reasoning. of others.</p> <p>MP.5 Use appropriate tools strategically.</p> <p>MP.8 Look for and express regularity in repeated reasoning.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> 3-2 Balancing Equations <p>Students are able to:</p> <ol style="list-style-type: none"> Apply and extend previous understandings of expressions and equations.
<ul style="list-style-type: none"> 6.EE.B.7 Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px =$ 	<p>MP.1 Make sense of problems and persevere in solving them.</p> <p>MP.2 Reason abstractly and</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> 3-3 Solving Addition and Subtraction Equations

<p>q for cases in which p, q and x are all nonnegative rational numbers.</p>	<p>quantitatively.</p> <p>MP.7 Look for and make use of structure.</p>	<p>Students are able to:</p> <p>1. Solve real-world and mathematical problems by writing and solving equations of the form $x +$ or $- p = q$ for cases in which p, q, and x are all nonnegative rational numbers.</p>
<p>● 6.EE.B.7 Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p, q and x are all nonnegative rational numbers.</p>	<p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.4 Model with mathematics.</p> <p>MP.6 Attend to precision.</p> <p>MP.7 Look for and make use of structure.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> ● 3-4 Solving Multiplication and Division Equations <p>Students are able to:</p> <p>1. Solve real-world and mathematical problems by writing and solving equations of the form $px = q$ for cases in which p, q, and x are all nonnegative rational numbers.</p>
<p>● 6.EE.B.8 Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real- world or mathematical problem. Recognize that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions; represent solutions of such inequalities on number line diagrams.</p>	<p>MP.1 Make sense of problems and persevere in solving them.</p> <p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.4 Model with mathematics.</p> <p>MP.5 Use appropriate tools strategically.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> ● 3-5 Equations to Inequalities <p>Students are able to:</p> <p>1. Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem.</p> <p>2. Represent solutions of inequalities of the form $x > c$ or $x < c$ on number line diagrams.</p>
<p>● 6.EE.B.5 Understand solving an equation or inequality as a</p>	<p>MP.1 Make sense of problems and persevere in solving them.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> ● 3-6 Solving Inequalities

<p>process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.</p> <ul style="list-style-type: none"> 6.EE.B.8 Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real- world or mathematical problem. Recognize that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions; represent solutions of such inequalities on number line diagrams. 	<p>MP.3 Construct viable arguments & critique the reasoning. of others.</p> <p>MP.6 Attend to precision.</p> <p>MP.8 Look for and express regularity in repeated reasoning.</p>	<p>Students are able to:</p> <ol style="list-style-type: none"> Demonstrate solving an inequality as a process of answering the question - which values from a specified set, if any, make the inequality true? Represent solutions of inequalities of the form $x > c$ or $x < c$ on number line diagrams.
<ul style="list-style-type: none"> 6.EE.C.9 Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as 	<p>MP.1 Make sense of problems and persevere in solving them.</p> <p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.3 Construct viable arguments & critique the reasoning. of others.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> 4-1 Using Two Variable to Represent a Relationship <p>Students are able to:</p> <ol style="list-style-type: none"> Use variables to represent two quantities in a real-world problem that change in relationship to one another.

<p>the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.</p>		<p>2. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.</p>
<ul style="list-style-type: none"> ● 6.NS.C.8 Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate. ● 6.EE.C.9 Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using 	<p>MP.1 Make sense of problems and persevere in solving them.</p> <p>MP.4 Model with mathematics.</p> <p>MP.7 Look for and make use of structure.</p> <p>MP.8 Look for and express regularity in repeated reasoning.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> ● 4-2 Analyzing Patterns Using Tables and Graphs <p>Students are able to:</p> <ol style="list-style-type: none"> 1. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. 2. Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane.

graphs and tables, and relate these to the equation.		
<ul style="list-style-type: none"> 6.EE.C.9 Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. 	<p>MP.1 Make sense of problems and persevere in solving them.</p> <p>MP.3 Construct viable arguments & critique the reasoning. of others.</p> <p>MP.8 Look for and express regularity in repeated reasoning.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> 4-3 Relating Tables and Graphs to Equations <p>Students are able to:</p> <ol style="list-style-type: none"> Write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. Use variables to represent two quantities in a real-world problem that change in relationship to one another.

Formative Assessments	Summative Assessments
<ul style="list-style-type: none"> Quick Writing Whiteboard work Mathematical Discourse Questions Exit tickets Checks for Understanding Quizzes Small group activities Pre-Assessment 	<ul style="list-style-type: none"> Common Assessments MAP Testing Standardized Testing Real-world Application Projects

<ul style="list-style-type: none"> Teacher’s observation 	
Suggested Primary Resources	Suggested Supplemental Resources
<p><i>Exemplar tasks or illustrative models could be provided.</i></p> <p><i>NJSLA-Math Released Items:</i> https://prc.parcconline.org/assessments/parcc-released-items</p> <p><i>NJSLA Math Practice Tests</i> https://parcctrng.testnav.com/client/index.html#login?username=17MT08PTOE01010_100&password=PCPRACTICE</p>	<p><i>District/school resources and supplementary resources that are texts as well as digital resources used to support the instruction.</i></p> <p><i>digits online</i> http://mymathuniverse.com/digitsREALIZE</p>
Cross-Curricular Connections & 21st Century Skills	
<ul style="list-style-type: none"> Open ended math problems using language from ELA The math of space, earth, and physical science Personal finance and savings in social studies 	
Essential Questions	Enduring Understanding
<ul style="list-style-type: none"> Expressions allow you to write mathematical models to represent real-world situations. What is the power of mathematical expressions? What is a property? Why are properties useful? Some relationships are equal. Some relationships are not equal. How can you represent those relationships? Why would you want to? How are two-variable relationships different from one-variable relationships? When do you need two variables? 	<ul style="list-style-type: none"> Expressions, equations, and inequalities allow you to write mathematical models to represent real-world situations. Properties of numbers shows the relationship between numbers and operations. Expressions, equations, and inequalities help represent the balanced and unbalanced relationships between numbers, variables, and operations. Two variable relationships allow you to represent both an independent and dependent relationship.

Differentiation

504	<ul style="list-style-type: none"> ● preferential seating ● extended time on tests and assignments ● reduced homework or classwork ● verbal, visual, or technology aids 	<ul style="list-style-type: none"> ● modified textbooks or audio-video materials ● behavior management support ● adjusted class schedules or grading ● verbal testing
Enrichment	<ul style="list-style-type: none"> ● Utilize collaborative media tools ● Provide differentiated feedback ● Opportunities for reflection ● 	<ul style="list-style-type: none"> ● Encourage student voice and input ● Model close reading ● Distinguish long term and short term goals
IEP	<ul style="list-style-type: none"> ● Utilize “skeleton notes” where some required information is already filled in for the student ● Provide access to a variety of tools for responses ● Provide opportunities to build familiarity and to practice with multiple media tools ● Graphic organizers 	<ul style="list-style-type: none"> ● Leveled text and activities that adapt as students build skills ● Provide multiple means of action and expression ● Consider learning styles and interests ● Provide differentiated mentors
ELLs	<ul style="list-style-type: none"> ● Pre-teach new vocabulary and meaning of symbols ● Embed glossaries or definitions ● Provide translations ● Connect new vocabulary to background knowledge 	<ul style="list-style-type: none"> ● Provide flash cards ● Incorporate as many learning senses as possible ● Portray structure, relationships, and associations through concept webs ● Graphic organizers
At-risk	<ul style="list-style-type: none"> ● Purposeful seating ● Counselor involvement ● Parent involvement 	<ul style="list-style-type: none"> ● Contracts ● Alternate assessments ● Hands-on learning

21st Century Skills

- Creativity
- Innovation
- Critical Thinking

- Problem Solving
- Communication
- Collaboration

Integrating Technology

- Chromebooks
- Internet research
- Online programs

- Virtual collaboration and projects
- Presentations using presentation hardware and software

Subject: Math	Grade: 6	Unit 2 (B &C): Topics 5-9	2nd Trimester
Content Standards	Suggested Standards for Mathematical Practice	Critical Knowledge & Skills	
<ul style="list-style-type: none"> 6.NS.A.1 Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem. 	<p>MP.1 Make sense of problems and persevere in solving them.</p> <p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.4 Model with mathematics.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> 5-1 Multiplying Fractions and Whole Numbers 5-2 Multiplying Two Fractions <p>Students are able to:</p> <ol style="list-style-type: none"> Solve word problems involving multiplication of a fraction by a whole number, by using visual fraction models and equations to represent the problem Apply and extend previous understandings of multiplication with fractions. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas. 	

		4. Apply and extend previous understandings of multiplication with fractions.
<ul style="list-style-type: none"> 6.NS.A.1 Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem. 	<p>MP.4 Model with mathematics.</p> <p>MP.7 Look for and make use of structure.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> 5-3 Multiplying Fractions and Mixed Numbers 5-4 Multiplying Mixed Numbers <p>Students are able to:</p> <ol style="list-style-type: none"> Apply and extend previous understandings of multiplication with fractions. Solve real world problems involving multiplication of fractions and mixed numbers by using visual fraction models to represent the problem. Solve real world problems involving multiplication of fractions and mixed numbers by using equations to represent the problem. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas. Solve real world problems involving multiplication of fractions and mixed numbers by using equations to represent the problem. Apply and extend previous understandings of multiplication with fractions.
<ul style="list-style-type: none"> 6.NS.A.1 Interpret and compute quotients of fractions, and solve word problems involving 	MP.1 Make sense of problems and persevere in solving them.	<p>Concept(s):</p> <ul style="list-style-type: none"> 6-1 Dividing Fractions and Whole Numbers

<p>division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem.</p>	<p>MP.4 Model with mathematics.</p> <p>MP.5 Use appropriate tools strategically.</p> <p>MP.6 Attend to precision.</p> <p>MP.7 Look for and make use of structure.</p>	<ul style="list-style-type: none"> • 6-2 Dividing Unit Fractions by Unit Fractions • 6-3 Dividing Fractions by Fractions <p>Students are able to:</p> <ol style="list-style-type: none"> 1. Interpret and compute quotients of fractions. 2. Solve word problems involving division of fractions.
<ul style="list-style-type: none"> • 6.NS.A.1 Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem. 	<p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.3 Construct viable arguments & critique the reasoning of others.</p> <p>MP.8 Look for and express regularity in repeated reasoning.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> • 6-4 Dividing Fractions and Mixed Numbers <p>Students are able to:</p> <ol style="list-style-type: none"> 1. Interpret and compute quotients of fractions. 2. Solve word problems involving division of fractions.
<ul style="list-style-type: none"> • 6.NS.B.3 Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation. 	<p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.6 Attend to precision.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> • 7-1 Adding and Subtracting Decimals <p>Students are able to:</p> <ol style="list-style-type: none"> 1. Add multi-digit decimals. 2. Subtract multi-digit decimals.

<ul style="list-style-type: none"> 6.NS.B.3 Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation. 	<p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.4 Model with mathematics.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> 7-2 Multiplying Decimals <p>Students are able to:</p> <ol style="list-style-type: none"> Multiply multi-digit decimals.
<ul style="list-style-type: none"> 6.NS.B.2 Fluently divide multi-digit numbers using the standard algorithm. 6.NS.B.3 Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation 	<p>MP.1 Make sense of problems and persevere in solving them.</p> <p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.7 Look for and make use of structure.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> 7-3 Dividing Multi-Digit Numbers 7-4 Dividing Decimals <p>Students are able to:</p> <ol style="list-style-type: none"> Divide multi-digit decimals.
<ul style="list-style-type: none"> 6.NS.C.7 Understand ordering and absolute value of rational numbers. 	<p>MP.3 Construct viable arguments & critique the reasoning of others.</p> <p>MP.6 Attend to precision.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> 7-5 Decimals and Fractions <p>Students are able to:</p> <ol style="list-style-type: none"> Convert between fractions and decimals

<ul style="list-style-type: none"> 6.NS.C.7 Understand ordering and absolute value of rational numbers. 	<p>MP.5 Use appropriate tools strategically.</p> <p>MP.6 Attend to precision.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> 7-6 Comparing and Ordering Decimals and Fractions <p>Students are able to:</p> <ol style="list-style-type: none"> Compare and order decimals and fractions.
<ul style="list-style-type: none"> 6.NS.C.5 Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation. 6.NS.C.6a Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite 	<p>MP.4 Model with mathematics.</p> <p>MP.7 Look for and make use of structure.</p> <p>MP.8 Look for and express regularity in repeated reasoning.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> 8-1 Integers and the Number Line <p>Students are able to:</p> <ol style="list-style-type: none"> Find and position integers and other rational numbers on a horizontal or vertical number line diagram. Recognize opposite signs of numbers indicating locations on opposite sides of zero on the number line. Use positive and negative numbers to represent quantities in real-world contexts.

<p>of a number is the number itself, e.g., $-(-3) = 3$, and that 0 is its own opposite.</p> <ul style="list-style-type: none"> 6.NS.C.6c Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane. 		
<ul style="list-style-type: none"> 6.NS.C.7a Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. 6.NS.C.7b Write, interpret, and explain statements of order for rational numbers in real-world contexts. 6.NS.C.7 Understand ordering and absolute value of rational numbers. 	<p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.6 Attend to precision.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> 8-2 Comparing and Ordering Integers <p>Students are able to:</p> <ol style="list-style-type: none"> Interpret statements of inequality as statements about the relative position of two numbers on a number line. Write, interpret, and explain statements of order for rational numbers in real-world contexts.

<ul style="list-style-type: none"> ● 6.NS.C.7b Write, interpret, and explain statements of order for rational numbers in real-world contexts. ● 6.NS.C.7 Understand ordering and absolute value of rational numbers. ● 6.NS.C.7d Distinguish comparisons of absolute value from statements about order. ● 6.NS.C.7 Understand ordering and absolute value of rational numbers. 	<p>MP.3 Construct viable arguments & critique the reasoning of others.</p> <p>MP.4 Model with mathematics.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> ● 8-3 Absolute Value <p>Students are able to:</p> <ol style="list-style-type: none"> 1. Interpret statements of inequality as statements about the relative position of two numbers on a number line. 2. Write, interpret, and explain statements of order for rational numbers in real-world contexts.
<ul style="list-style-type: none"> ● 6.NS.C.6c Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane. ● 6.NS.C.6b Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the 	<p>MP.6 Attend to precision.</p> <p>MP.7 Look for and make use of structure.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> ● 8-4 Integers and the Coordinate Plane <p>Students are able to:</p> <ol style="list-style-type: none"> 1. Find and position pairs of integers and other rational numbers on a coordinate plane. 2. Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. 3. Use signs of numbers in ordered pairs to indicate locations in quadrants of the coordinate plane.

<p>points are related by reflections across one or both axes.</p> <ul style="list-style-type: none"> 6.NS.C.8 Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate. 		<p>4. Recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both coordinate axes.</p>
<ul style="list-style-type: none"> 6.NS.C.8 Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate. 6.G.A.3 Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply 	<p>MP.1 Make sense of problems and persevere in solving them.</p> <p>MP.2 Reason abstractly and quantitatively.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> 8-5 Distance <p>Students are able to:</p> <ol style="list-style-type: none"> Find and position pairs of integers and other rational numbers on a coordinate plane. Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Use signs of numbers in ordered pairs to indicate locations in quadrants of the coordinate plane. Recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both coordinate axes.

<p>these techniques in the context of solving real-world and mathematical problems.</p>		
<ul style="list-style-type: none"> ● 6.NS.C.5 Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation. ● 6.NS.C.6a Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite 	<p>MP.1 Make sense of problems and persevere in solving them.</p> <p>MP.6 Attend to precision.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> ● 9-1 Rational Numbers and the Number Line <p>Students are able to:</p> <ol style="list-style-type: none"> 1. Find and position integers and other rational numbers on a horizontal or vertical number line diagram. 2. Recognize opposite signs of numbers indicating locations on opposite sides of zero on the number line. 3. Use positive and negative numbers to represent quantities in real-world contexts.

<p>of a number is the number itself, e.g., $-(-3) = 3$, and that 0 is its own opposite.</p> <ul style="list-style-type: none"> ● 6.NS.C.6c Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane. 		
<ul style="list-style-type: none"> ● 6.NS.C.6c Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane. ● 6.NS.C.7a Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. ● 6.NS.C.7b Write, interpret, and explain statements of order for rational numbers in real-world contexts. 	<p>MP.4 Model with mathematics.</p> <p>MP.6 Attend to precision.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> ● 9-2 Comparing Rational Numbers <p>Students are able to:</p> <ol style="list-style-type: none"> 1. Interpret statements of inequality as statements about the relative position of two numbers on a number line. 2. Write, interpret, and explain statements of order for rational numbers in real-world contexts. 3. Identify the absolute value of a rational number as its distance from zero on the number line.

<ul style="list-style-type: none"> ● 6.NS.C.7c Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real- world situation. 		
<ul style="list-style-type: none"> ● 6.NS.C.6c Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane. ● 6.NS.C.7a Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. ● 6.NS.C.7b Write, interpret, and explain statements of order for rational numbers in real-world contexts. ● 6.NS.C.7c Understand the absolute value of a rational number as its distance from 0 	<p>MP.4 Model with mathematics.</p> <p>MP.6 Attend to precision.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> ● 9-3 Comparing and Ordering Rational Numbers <p>Students are able to:</p> <ol style="list-style-type: none"> 1. Interpret statements of inequality as statements about the relative position of two numbers on a number line. 2. Write, interpret, and explain statements of order for rational numbers in real-world contexts.

<p>on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real- world situation.</p> <ul style="list-style-type: none"> ● 6.NS.C.7d Distinguish comparisons of absolute value from statements about order. 		
<ul style="list-style-type: none"> ● 6.NS.C.6c Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane. ● 6.NS.C.6b Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes. 	<p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.6 Attend to precision.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> ● 9-4 Ordered Pairs in the Coordinate Plane <p>Students are able to:</p> <ol style="list-style-type: none"> 1. Find and position pairs of integers and other rational numbers on a coordinate plane. 2. Recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both coordinate axes.

<ul style="list-style-type: none"> 6.G.A.3 Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems. 	<p>MP.4 Model with mathematics.</p> <p>MP.7 Look for and make use of structure.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> 9-5 Polygons in the Coordinate Plane <p>Students are able to:</p> <ol style="list-style-type: none"> 1. Draw polygons in the coordinate plane given coordinates for the vertices. 2. Use coordinates to find the length of a side of a polygon joining points with the same first coordinate or the same second coordinate.
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Formative Assessments	Summative Assessments
<ul style="list-style-type: none"> Quick Writing Whiteboard work Mathematical Discourse Questions Exit tickets Checks for Understanding Quizzes Small group activities Pre-Assessment Teacher’s observation 	<ul style="list-style-type: none"> Common Assessments MAP Testing Standardized Testing Real-world Application Projects
Suggested Primary Resources	Suggested Supplemental Resources
<p><i>Exemplar tasks or illustrative models could be provided.</i></p> <p><i>NJSLA-Math Released Items:</i> https://prc.parconline.org/assessments/parcc-released-items</p> <p><i>NJSLA Math Practice Tests</i> https://parctrng.testnav.com/client/index.html#login?username=17MT08PTOE01010_100&password=PCPRACTICE</p>	<p><i>District/school resources and supplementary resources that are texts as well as digital resources used to support the instruction.</i></p> <p><i>digits online</i> http://mymathuniverse.com/digitsREALIZE</p>

Cross-Curricular Connections & 21st Century Skills

- Open ended math problems using language from ELA
- The math of space, earth, and physical science
- Personal finance and savings in social studies

Essential Questions

- A fraction is part of a whole. What is a fraction of a fraction? Why does it matter?
- How is dividing by a fraction similar to dividing by a whole number? How is it different? How can the meaning of division be extended from whole numbers to fractions? How can you extend the use of place value to decimal operations? How is working with decimals easier than working with fractions?
- What does it mean to have less than nothing? Why do we need numbers other than positive whole numbers? How do you know when to use positive numbers and when to use negative numbers?
- Why do we need positive and negative numbers? How do you know when to use positive numbers and when to use negative numbers?

Enduring Understanding

- Fluency with fractions is necessary for real-life applications, such as finding fractional areas.
- An understanding of the place value system is essential in understanding operations with decimals.
- Real life applications require an understanding of more than just positive whole numbers.
- Negative rational numbers can represent a value less than 0.

504	<ul style="list-style-type: none"> ● preferential seating ● extended time on tests and assignments ● reduced homework or classwork ● verbal, visual, or technology aids 	<ul style="list-style-type: none"> ● modified textbooks or audio-video materials ● behavior management support ● adjusted class schedules or grading ● verbal testing
Enrichment	<ul style="list-style-type: none"> ● Utilize collaborative media tools ● Provide differentiated feedback ● Opportunities for reflection ● 	<ul style="list-style-type: none"> ● Encourage student voice and input ● Model close reading ● Distinguish long term and short term goals

IEP	<ul style="list-style-type: none"> ● Utilize “skeleton notes” where some required information is already filled in for the student ● Provide access to a variety of tools for responses ● Provide opportunities to build familiarity and to practice with multiple media tools ● Graphic organizers 	<ul style="list-style-type: none"> ● Leveled text and activities that adapt as students build skills ● Provide multiple means of action and expression ● Consider learning styles and interests ● Provide differentiated mentors
ELLs	<ul style="list-style-type: none"> ● Pre-teach new vocabulary and meaning of symbols ● Embed glossaries or definitions ● Provide translations ● Connect new vocabulary to background knowledge 	<ul style="list-style-type: none"> ● Provide flash cards ● Incorporate as many learning senses as possible ● Portray structure, relationships, and associations through concept webs ● Graphic organizers
At-risk	<ul style="list-style-type: none"> ● Purposeful seating ● Counselor involvement ● Parent involvement 	<ul style="list-style-type: none"> ● Contracts ● Alternate assessments ● Hands-on learning
21st Century Skills		
<ul style="list-style-type: none"> ● Creativity ● Innovation ● Critical Thinking 	<ul style="list-style-type: none"> ● Problem Solving ● Communication ● Collaboration 	
Integrating Technology		

- Chromebooks
- Internet research
- Online programs

- Virtual collaboration and projects
- Presentations using presentation hardware and software

Subject: Math	Grade: 6	Unit 3 (D): Topics 10-12	2nd - 3rd Trimester
Content Standards	Suggested Standards for Mathematical Practice	Critical Knowledge & Skills	
<ul style="list-style-type: none"> 6.RP.A. Understand ratio concepts and use ratio reasoning to solve problems. Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. <i>For example, “The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak.” “For every vote candidate A received, candidate C received nearly three votes.”</i> 	<p>MP.1 Make sense of problems and persevere in solving them.</p> <p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.3 Construct viable arguments & critique the reasoning. of others.</p> <p>MP.6 Attend to precision.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> 10-1 Ratios <p>Students are able to:</p> <ol style="list-style-type: none"> Use ratio language to describe a ratio relationship between two quantities. 	
<ul style="list-style-type: none"> 6.RP.A.3.c Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables 	<p>MP.1 Make sense of problems and persevere in solving them.</p> <p>MP.4 Model with mathematics.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> 10-2 Exploring Equivalent Ratios 	

<p>of equivalent ratios, tape diagrams, double number line diagrams, or equations. Make tables of equivalent ratios relating quantities with whole number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.</p>	<p>MP.7 Look for and make use of structure.</p>	<p>Students are able to:</p> <ol style="list-style-type: none"> 1. Find equivalent ratios.
<ul style="list-style-type: none"> ● 6.RP.A.3.c Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations. Make tables of equivalent ratios relating quantities with whole number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios. 	<p>MP.3 Construct viable arguments & critique the reasoning. of others.</p> <p>MP.4 Model with mathematics.</p> <p>MP.5 Use appropriate tools strategically.</p> <p>MP.8 Look for and express regularity in repeated reasoning.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> ● 10-3 Equivalent Ratios <p>Students are able to:</p> <ol style="list-style-type: none"> 1. Find equivalent ratios.

<ul style="list-style-type: none"> ● 6.RP.A.1 Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. <i>For example, “The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak.” “For every vote candidate A received, candidate C received nearly three votes.”</i> ● 6.RP.A.3 Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations. 	<p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.3 Construct viable arguments & critique the reasoning. of others.</p> <p>MP.6 Attend to precision.</p> <p>MP.7 Look for and make use of structure.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> ● 10-4 Ratios as Fractions <p>Students are able to:</p> <ol style="list-style-type: none"> 1. Use ratio language to describe a ratio relationship between two quantities. 2. Find equivalent ratios.
<ul style="list-style-type: none"> ● 6.RP.A.1 Understand the concept of a ratio and use ratio language to describe a ratio relationship between two 	<p>MP.2 Reason abstractly and quantitatively.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> ● 10-5 Ratios as Decimals

<p>quantities. For example, “The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak.” “For every vote candidate A received, candidate C received nearly three votes.”</p> <ul style="list-style-type: none"> ● 6.RP.A.3 Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations. 	<p>MP.3 Construct viable arguments & critique the reasoning. of others.</p> <p>MP.4 Model with mathematics.</p> <p>MP.7 Look for and make use of structure.</p>	<p>Students are able to:</p> <ol style="list-style-type: none"> 1. Use ratio language to describe a ratio relationship between two quantities. 2. Find equivalent ratios.
<ul style="list-style-type: none"> ● 6.RP.A.2 Understand the concept of a unit rate a/b associated with a ratio $a:b$ with $b \neq 0$, and use rate language in the context of a ratio relationship. <i>For example, “This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is $3/4$ cup of flour for each cup of sugar.” “We paid \$75 for 15 hamburgers, which is a rate of \$5 per hamburger.”</i> 	<p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.3 Construct viable arguments & critique the reasoning. of others.</p> <p>MP.7 Look for and make use of structure.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> ● 11-1 Unit Rates <p>Students are able to:</p> <ol style="list-style-type: none"> 1. Associate a unit rate with a ratio. 2. Use ratio and rate reasoning to solve real-world and mathematical problems using tables of equivalent ratios.

<ul style="list-style-type: none"> 6.RP.A.3 Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations. 		
<ul style="list-style-type: none"> 6.RP.A.3.b. Solve unit rate problems including those involving unit pricing and constant speed. <i>For example, if it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed?</i> 	<p>MP.3 Construct viable arguments & critique the reasoning. of others.</p> <p>MP.4 Model with mathematics.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> 11-2 Unit Price <p>Students are able to:</p> <ol style="list-style-type: none"> Solve unit rate problems involving unit pricing.

<ul style="list-style-type: none"> 6.RP.A.3.b. Solve unit rate problems including those involving unit pricing and constant speed. <i>For example, if it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed?</i> 	<p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.3 Construct viable arguments & critique the reasoning. of others.</p> <p>MP.6 Attend to precision.</p> <p>MP.7 Look for and make use of structure.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> 11-3 Constant Speed <p>Students are able to:</p> <ol style="list-style-type: none"> Solve unit rate problems involving constant speed.
<ul style="list-style-type: none"> 6.RP.A.3.d Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities. 	<p>MP.3 Construct viable arguments & critique the reasoning. of others.</p> <p>MP.4 Model with mathematics.</p> <p>MP.8 Look for and express regularity in repeated reasoning.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> 11-4 Measurements and Ratios <p>Students are able to:</p> <ol style="list-style-type: none"> Use ratio reasoning to convert measurement units.
<ul style="list-style-type: none"> 6.RP.A.3 Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations. 6.RP.A.3.b. Solve unit rate problems including those involving unit pricing and 	<p>MP.1 Make sense of problems and persevere in solving them.</p> <p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.3 Construct viable arguments & critique the reasoning. of others.</p> <p>MP.4 Model with mathematics.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> 11-5 Choosing the Appropriate Rate <p>Students are able to:</p> <ol style="list-style-type: none"> Use ratio and rate reasoning to solve real-world and mathematical problems using equations.

<p>constant speed. <i>For example, if it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed?</i></p>		<p>2. Solve unit rate problems involving unit pricing.</p>
<ul style="list-style-type: none"> 6.RP.A.3.a Make tables of equivalent ratios relating quantities with whole number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios. 	<p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.4 Model with mathematics.</p> <p>MP.5 Use appropriate tools strategically.</p> <p>MP.7 Look for and make use of structure.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> 12-1 Plotting Ratios and Rates <p>Students are able to:</p> <ol style="list-style-type: none"> Use reasoning to solve real-world and mathematical problems plotting pairs of values on the coordinate plane. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.

<ul style="list-style-type: none"> ● 6.RP.A.2 Understand the concept of a unit rate a/b associated with a ratio $a:b$ with $b \neq 0$, and use rate language in the context of a ratio relationship. <i>For example, “This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is $3/4$ cup of flour for each cup of sugar.” “We paid \$75 for 15 hamburgers, which is a rate of \$5 per hamburger.”</i> ● 6.RP.A.3 Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations. ● 6.RP.A.3.a Make tables of equivalent ratios relating quantities with whole number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios. 	<p>MP.1 Make sense of problems and persevere in solving them.</p> <p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.6 Attend to precision.</p> <p>MP.8 Look for and express regularity in repeated reasoning.</p>	<p style="text-align: center;">Concept(s):</p> <ul style="list-style-type: none"> ● 12-2 Recognizing Proportionality <p style="text-align: center;">Students are able to:</p> <ol style="list-style-type: none"> 1. Use rate language in the context of a ratio relationship. 2. Use ratio and rate reasoning to solve real-world and mathematical problems plotting pairs of values on the coordinate plane. 3. Use ratio and rate reasoning to solve real-world and mathematical problems using equations.
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<ul style="list-style-type: none"> 6.RP.A.3.c Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent. 	<p>MP.1 Make sense of problems and persevere in solving them.</p> <p>MP.3 Construct viable arguments & critique the reasoning. of others.</p> <p>MP.4 Model with mathematics.</p> <p>MP.7 Look for and make use of structure.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> 12-3 Introducing Percents <p>Students are able to:</p> <ol style="list-style-type: none"> Find a percent of a quantity as a rate per 100.
<ul style="list-style-type: none"> 6.RP.A.3.c Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent. 	<p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.3 Construct viable arguments & critique the reasoning. of others.</p> <p>MP.4 Model with mathematics.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> 12-4 Using Percents <p>Students are able to:</p> <ol style="list-style-type: none"> Use ratio and rate reasoning to solve problems involving percent.

<p>504</p>	<ul style="list-style-type: none"> preferential seating extended time on tests and assignments reduced homework or classwork verbal, visual, or technology aids 	<ul style="list-style-type: none"> modified textbooks or audio-video materials behavior management support adjusted class schedules or grading verbal testing
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Enrichment	<ul style="list-style-type: none"> ● Utilize collaborative media tools ● Provide differentiated feedback ● Opportunities for reflection ● 	<ul style="list-style-type: none"> ● Encourage student voice and input ● Model close reading ● Distinguish long term and short term goals
IEP	<ul style="list-style-type: none"> ● Utilize “skeleton notes” where some required information is already filled in for the student ● Provide access to a variety of tools for responses ● Provide opportunities to build familiarity and to practice with multiple media tools ● Graphic organizers 	<ul style="list-style-type: none"> ● Leveled text and activities that adapt as students build skills ● Provide multiple means of action and expression ● Consider learning styles and interests ● Provide differentiated mentors
ELLs	<ul style="list-style-type: none"> ● Pre-teach new vocabulary and meaning of symbols ● Embed glossaries or definitions ● Provide translations ● Connect new vocabulary to background knowledge 	<ul style="list-style-type: none"> ● Provide flash cards ● Incorporate as many learning senses as possible ● Portray structure, relationships, and associations through concept webs ● Graphic organizers
At-risk	<ul style="list-style-type: none"> ● Purposeful seating ● Counselor involvement ● Parent involvement 	<ul style="list-style-type: none"> ● Contracts ● Alternate assessments ● Hands-on learning
21st Century Skills		
<ul style="list-style-type: none"> ● Creativity 	<ul style="list-style-type: none"> ● Problem Solving 	

<ul style="list-style-type: none"> ● Innovation ● Critical Thinking 	<ul style="list-style-type: none"> ● Communication ● Collaboration
<p>Integrating Technology</p>	
<ul style="list-style-type: none"> ● Chromebooks ● Internet research ● Online programs 	<ul style="list-style-type: none"> ● Virtual collaboration and projects ● Presentations using presentation hardware and software

Subject: Math	Grade: 6	Unit 4 (E): Topic 13-14	3rd Trimester
Content Standards	Suggested Standards for Mathematical Practice	Critical Knowledge & Skills	
<ul style="list-style-type: none"> 6.G.A.1 Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems. 	<p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.5 Use appropriate tools strategically.</p> <p>MP.6 Attend to precision.</p> <p>MP.7 Look for and make use of structure.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> 13-1 Rectangles and Squares <p>Students are able to:</p> <ol style="list-style-type: none"> Evaluate expressions in which letters stand for numbers. Solve real-world and mathematical problems by writing and solving equations of the form $px = q$ for cases in which p, q, and x are all nonnegative rational numbers. 	
<ul style="list-style-type: none"> 6.G.A.1 Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the 	<p>MP.1 Make sense of problems and persevere in solving them.</p> <p>MP.5 Use appropriate tools strategically.</p> <p>MP.6 Attend to precision.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> 13-2 Right Triangles <p>Students are able to:</p>	

<p>context of solving real-world and mathematical problems.</p>	<p>MP.8 Look for and express regularity in repeated reasoning.</p>	<p>1. Find the area of right triangles by composing into rectangles in the context of solving real-world and mathematical problems.</p> <p>2. Evaluate expressions at specific values of their variables, including expressions that arise from formulas used in real-world problems.</p>
<ul style="list-style-type: none"> 6.G.A.1 Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems. 	<p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.3 Construct viable arguments & critique the reasoning of others</p> <p>MP.6 Attend to precision.</p> <p>MP.7 Look for and make use of structure.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> 13-3 Parallelograms <p>Students are able to:</p> <p>1. Find the area of parallelograms by composing into rectangles or decomposing into triangles or other shapes in the context of solving real-world and mathematical problems.</p> <p>2. Evaluate expressions at specific values of their variables, including expressions that arise from formulas used in real-world problems.</p>
<ul style="list-style-type: none"> 6.G.A.1 Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the 	<p>MP.1 Make sense of problems and persevere in solving them.</p> <p>MP.6 Attend to precision.</p> <p>MP.7 Look for and make use of structure.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> 13-4 Other Triangles <p>Students are able to:</p>

<p>context of solving real-world and mathematical problems.</p>	<p>MP.8 Look for and express regularity in repeated reasoning.</p>	<ol style="list-style-type: none"> 1. Find the area of other triangles by composing into other shapes in the context of solving real-world and mathematical problems. 2. Evaluate expressions at specific values of their variables, including expressions that arise from formulas used in real-world problems.
<ul style="list-style-type: none"> • 6.G.A.1 Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems. 	<p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.3 Construct viable arguments & critique the reasoning of others</p> <p>MP.6 Attend to precision.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> • 13-5 Polygons <p>Students are able to:</p> <ol style="list-style-type: none"> 1. Find the area of special quadrilaterals by composing into rectangles or decomposing into triangles or other shapes. 2. Find the area of polygons by composing into rectangles or decomposing into triangles or other shapes.
<ul style="list-style-type: none"> • 6.G.A.4 Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real- 	<p>MP.1 Make sense of problems and persevere in solving them.</p> <p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.5 Use appropriate tools strategically.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> • 14-1 Analyzing Three-Dimensional Figures <p>Students are able to:</p> <ol style="list-style-type: none"> 1. Identify three-dimensional figures made up of rectangles, triangles, and other polygons.

<p>world and mathematical problems.</p>	<p>MP.7 Look for and make use of structure.</p>	
<ul style="list-style-type: none"> 6.G.A.4 Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems. 	<p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.3 Construct viable arguments & critique the reasoning of others</p> <p>MP.7 Look for and make use of structure.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> 14-2 Nets <p>Students are able to:</p> <ol style="list-style-type: none"> 1. Represent three-dimensional figures using nets made up of rectangles and triangles, and other polygons.
<ul style="list-style-type: none"> 6.G.A.4 Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems. 	<p>MP.4 Model with mathematics.</p> <p>MP.5 Use appropriate tools strategically.</p> <p>MP.6 Attend to precision.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> 14-3 Surface Areas of Prisms <p>Students are able to:</p> <ol style="list-style-type: none"> 1. Use nets made up of rectangles and triangles to find the surface area of three-dimensional figures in the context of solving real-world and mathematical problems.

<ul style="list-style-type: none"> 6.G.A.4 Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems. 	<p>MP.1 Make sense of problems and persevere in solving them.</p> <p>MP.4 Model with mathematics.</p> <p>MP.5 Use appropriate tools strategically.</p> <p>MP.6 Attend to precision.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> 14-4 Surface Area of Pyramids <p>Students are able to:</p> <ol style="list-style-type: none"> Use nets made up of rectangles and triangles to find the surface area of three-dimensional figures in the context of solving real-world and mathematical problems.
<ul style="list-style-type: none"> 6.G.A.2 Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas $V = l w h$ and $V = B h$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems. 	<p>MP.1 Make sense of problems and persevere in solving them.</p> <p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.7 Look for and make use of structure.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> 14-5 Volumes of Right Rectangular Prisms <p>Students are able to:</p> <ol style="list-style-type: none"> Apply the formulas $V = l w h$ and $V = B h$ 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. Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths Apply the formula $V = l w h$ and $V = B h$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.

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504	<ul style="list-style-type: none"> ● preferential seating ● extended time on tests and assignments ● reduced homework or classwork ● verbal, visual, or technology aids 	<ul style="list-style-type: none"> ● modified textbooks or audio-video materials ● behavior management support ● adjusted class schedules or grading ● verbal testing
Enrichment	<ul style="list-style-type: none"> ● Utilize collaborative media tools ● Provide differentiated feedback ● Opportunities for reflection ● 	<ul style="list-style-type: none"> ● Encourage student voice and input ● Model close reading ● Distinguish long term and short term goals
IEP	<ul style="list-style-type: none"> ● Utilize “skeleton notes” where some required information is already filled in for the student ● Provide access to a variety of tools for responses ● Provide opportunities to build familiarity and to practice with multiple media tools ● Graphic organizers 	<ul style="list-style-type: none"> ● Leveled text and activities that adapt as students build skills ● Provide multiple means of action and expression ● Consider learning styles and interests ● Provide differentiated mentors

ELLs	<ul style="list-style-type: none"> ● Pre-teach new vocabulary and meaning of symbols ● Embed glossaries or definitions ● Provide translations ● Connect new vocabulary to background knowledge 	<ul style="list-style-type: none"> ● Provide flash cards ● Incorporate as many learning senses as possible ● Portray structure, relationships, and associations through concept webs ● Graphic organizers
At-risk	<ul style="list-style-type: none"> ● Purposeful seating ● Counselor involvement ● Parent involvement 	<ul style="list-style-type: none"> ● Contracts ● Alternate assessments ● Hands-on learning
21st Century Skills		
<ul style="list-style-type: none"> ● Creativity ● Innovation ● Critical Thinking 	<ul style="list-style-type: none"> ● Problem Solving ● Communication ● Collaboration 	
Integrating Technology		
<ul style="list-style-type: none"> ● Chromebooks ● Internet research ● Online programs 	<ul style="list-style-type: none"> ● Virtual collaboration and projects ● Presentations using presentation hardware and software 	

Subject: Math	Grade: 6	Unit 5 (F): Topics 15-16	3rd Trimester*
Content Standards	Suggested Standards for Mathematical Practice	Critical Knowledge & Skills	
<ul style="list-style-type: none"> ● 6.SP.A.1 Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers. ● 6.SP.B.5b Describing the nature of the attribute under investigation, including how it was measured and its units of measurement. 	<p>MP.3 Construct viable arguments & critique the reasoning of others</p> <p>MP.8 Look for and express regularity in repeated reasoning.ers</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> ● 15-1 Statistical Questions <p>Students are able to:</p> <ol style="list-style-type: none"> 1. Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers. 2. Summarize numerical data sets in relation to their context, such as by describing the nature of the attribute under investigation. 	
<ul style="list-style-type: none"> ● 6.SP.B.4 Display numerical data in plots on a number line, including dot plots, histograms, and box plots. ● 6.SP.B.5 Summarize numerical data sets in relation to their context 	<p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.6 Attend to precision.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> ● 15-2 Dot Plots ● 15-3 Histograms ● 15-4 Box Plots ● 15-5 Choosing an Appropriate Data Display 	

<ul style="list-style-type: none"> 6.SP.B.5c Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered. 		<p>Students are able to:</p> <ol style="list-style-type: none"> 1. Display numerical data in plots on a number line, including dot plots, histograms, and box plots. 2. Summarize numerical data sets in relation to their context, such as by describing any overall pattern and any striking deviations from the overall pattern.
<ul style="list-style-type: none"> 6.SP.A.3 Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number. 6.SP.B.4 Display numerical data in plots on a number line, including dot plots, histograms, and box plots. 	<p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.3 Construct viable arguments & critique the reasoning of others</p> <p>MP.6 Attend to precision.</p> <p>MP.7 Look for and make use of structure.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> 16-1 Mean and Median 16-2 Mean <p>Students are able to:</p> <ol style="list-style-type: none"> 1. Recognize that a measure of center for a numerical data set summarizes all of its values with a single number. 2. Display numerical data in plots on a number line, including box plots. 3. Summarize numerical data sets in relation to their context, such as by giving quantitative measures of center and variability.

<ul style="list-style-type: none"> ● 6.SP.B.5 Summarize numerical data sets in relation to their context ● 6.SP.B.5c Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered. 		
<ul style="list-style-type: none"> ● 6.SP.A.2 Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape. ● 6.SP.A.3 Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its 	<p>MP.3 Construct viable arguments & critique the reasoning of others</p> <p>MP.8 Look for and express regularity in repeated reasoning.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> ● 16-3 Variability <p>Students are able to:</p> <ol style="list-style-type: none"> 1. Demonstrate that a set of data collected to answer a statistical question has a distribution that can be described by its center, spread, and overall shape. 2. Recognize that a measure of variability for a numerical data set describes how its values vary with a single number.

<p>values vary with a single number.</p> <ul style="list-style-type: none"> ● 6.SP.B.5 Summarize numerical data sets in relation to their context ● 6.SP.B.5c Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered. 		<p>3. Summarize numerical data sets in relation to their context, such as by describing any overall pattern and any striking deviations from the overall pattern.</p>
<ul style="list-style-type: none"> ● 6.SP.A.3 Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number. 	<p>MP.1 Make sense of problems and persevere in solving them.</p> <p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.3 Construct viable arguments & critique the reasoning of others</p> <p>MP.4 Model with mathematics.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> ● 16-4 Interquartile Range ● 16-5 Mean Absolute Deviation <p>Students are able to:</p> <p>1. Summarize numerical data sets in relation to their context, such as by giving quantitative measures of center and variability.</p>

<ul style="list-style-type: none"> ● 6.SP.B.5 Summarize numerical data sets in relation to their context ● 6.SP.B.5c Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered. 		<p>2. Recognize that a measure of variability for a numerical data set describes how its values vary with a single number.</p> <p>3. Summarize numerical data sets in relation to their context, such as by describing any overall pattern and any striking deviations from the overall pattern.</p>
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*Topics 15-16 can be incorporated into Number Talks and mathematical applications through the year rather than being taught as an isolated unit in Trimester 3.

Formative Assessments	Summative Assessments
<ul style="list-style-type: none"> ● Quick Writing ● Whiteboard work ● Mathematical Discourse Questions ● Exit tickets ● Checks for Understanding ● Quizzes ● Small group activities ● Pre-Assessment 	<ul style="list-style-type: none"> ● Common Assessments ● MAP Testing ● Standardized Testing ● Real-world Application Projects

<ul style="list-style-type: none"> Teacher’s observation 	
Suggested Primary Resources	Suggested Supplemental Resources
<p><i>Exemplar tasks or illustrative models could be provided.</i></p> <p><i>NJSLA-Math Released Items:</i> https://prc.parcconline.org/assessments/parcc-released-items</p> <p><i>NJSLA Math Practice Tests</i> https://parcctrng.testnav.com/client/index.html#login?username=17MT08PTOE01010_100&password=PCPRACTICE</p>	<p><i>District/school resources and supplementary resources that are texts as well as digital resources used to support the instruction.</i></p> <p><i>digits online</i> http://mymathuniverse.com/digitsREALIZE</p>
Cross-Curricular Connections & 21st Century Skills	
<ul style="list-style-type: none"> Open ended math problems using language from ELA The math of space, earth, and physical science Personal finance and savings in social studies 	
Essential Questions	Enduring Understanding
<ul style="list-style-type: none"> What kinds of data displays show how things vary? What kinds of data displays hide how things vary? When would you use each kind? What can you do with data to make it more useful? How does what you are looking for determine how data is best used and represented? 	<ul style="list-style-type: none"> Data displays can summarize numerical data sets, revealing measures of center and variances in data. Some data displays may be more appropriate than others to represent particular sets of data for a given context.

504	<ul style="list-style-type: none"> preferential seating extended time on tests and assignments reduced homework or classwork verbal, visual, or technology aids 	<ul style="list-style-type: none"> modified textbooks or audio-video materials behavior management support adjusted class schedules or grading verbal testing
Enrichment	<ul style="list-style-type: none"> Utilize collaborative media tools Provide differentiated feedback Opportunities for reflection 	<ul style="list-style-type: none"> Encourage student voice and input Model close reading Distinguish long term and short term goals

IEP	<ul style="list-style-type: none"> ● Utilize “skeleton notes” where some required information is already filled in for the student ● Provide access to a variety of tools for responses ● Provide opportunities to build familiarity and to practice with multiple media tools ● Graphic organizers 	<ul style="list-style-type: none"> ● Leveled text and activities that adapt as students build skills ● Provide multiple means of action and expression ● Consider learning styles and interests ● Provide differentiated mentors
ELLs	<ul style="list-style-type: none"> ● Pre-teach new vocabulary and meaning of symbols ● Embed glossaries or definitions ● Provide translations ● Connect new vocabulary to background knowledge 	<ul style="list-style-type: none"> ● Provide flash cards ● Incorporate as many learning senses as possible ● Portray structure, relationships, and associations through concept webs ● Graphic organizers
At-risk	<ul style="list-style-type: none"> ● Purposeful seating ● Counselor involvement ● Parent involvement 	<ul style="list-style-type: none"> ● Contracts ● Alternate assessments ● Hands-on learning
21st Century Skills		
<ul style="list-style-type: none"> ● Creativity ● Innovation ● Critical Thinking 	<ul style="list-style-type: none"> ● Problem Solving ● Communication ● Collaboration 	
Integrating Technology		

- Chromebooks
- Internet research
- Online programs

- Virtual collaboration and projects
- Presentations using presentation hardware and software

Appendix A

Audubon Public Schools
Engaging Students ~

Audubon Public Schools
Engaging Students ~ Fostering Achievement ~ Cultivating 21st Century Global Skills
Written By: Beth Canzanese
Revised By: Christine Fox
Approved June 2017
Course Title: Sixth Grade Math Unit Name: The Number System Grade Level 6

<p>Content Statements Determine the values of rational numbers; compare and order numbers, plot points on the coordinate plane; determine factors and multiples of whole numbers; add, subtract, divide and multiply decimals; divide and multiply fractions</p>	<p>NJSLS: 6.NS.2-7</p>
<p>Overarching Essential Questions What is the number system?</p>	<p>Overarching Enduring Understandings In everyday life, I will be using numbers to represent quantities. These quantities will appear as whole numbers, fractions and decimals. Numbers can be positive or negative.</p>
<p>Unit Essential Questions What are integers? What are negative numbers? How can I use a number line to determine a number's opposite? In a real life situation, how can I tell if positive or negative numbers are involved when I am figuring out a problem? What is absolute value?</p>	<p>Unit Enduring Understandings Integers are whole number, their opposites and zero. Negative numbers are numbers less than zero. They have the opposite value of their positive counterpart. I can find the opposite of a number by using a horizontal or vertical number line to determine the distance from zero to the original number and then</p>

<p>What is a rational number? How can we compare and order rational numbers? What is a coordinate plane? How can I find, identify or place a point on the coordinate plane? What is a quadrant on the coordinate plane? How can I solve real-world and mathematical problems to find the distance between two points? What is a reflection? How can I check a computation problem?</p> <p>Why is the placement of decimal points important when I am computing with decimals? How can I maintain the proper place value when I am multiplying decimals? How do I divide decimals? How can I divide fractions? How can I divide multi-digit number?</p>	<p>from zero on the opposite side to the same number.</p> <p>The opposite of a positive number is its negative, and the opposite of a negative number is its positive.</p> <p>Some keywords for recognizing positive integers are: gain, increase, rise, above, more and up. Some keywords for negative integers are loss, decrease, drop, below, less and down. Absolute value is the distance of a number from zero.</p> <p>I can use absolute value to determine the distance between two points.</p> <p>A rational number can be expressed as a fraction and has an exact location on a vertical and horizontal number line.</p> <p>I can compare and order rational numbers by using a number line and by looking at real-world contexts.</p> <p>A system of two number lines is called a coordinate plane: the horizontal line is called the x-axis and the vertical line is called the y-axis. The 2 axes intersect at the origin, written as the point (0, 0).</p> <p>A point on the coordinate plane can be described by its distance along both number lines. An ordered pair (x, y) is used to locate that point and can include integers and other rational numbers. The signs of numbers in ordered pairs indicate the location in quadrants of the coordinate plane.</p>
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	<p>When the axes are extended in both directions, they divide the coordinate plane into 4 parts, called quadrants.</p> <p>I can find the distance between two points by graphing the points in all four quadrants and by using the coordinate and absolute value.</p> <p>I can tell an ordered pair is a reflection when two ordered pairs differ only by signs.</p> <p>To check an addition problem, I can use subtraction and vice versa. To check a multiplication problem, I can divide my answer and one of the factors. To check a division problem, I can multiply the whole number part of the quotient by the divisor and then add the remainder, if any, which should give me the dividend if my answer is correct.</p> <p>When I am computing with decimals using addition or subtraction, lining up the decimal points ensures that I keep the proper place value of the numbers.</p> <p>After I multiply decimals as if they were whole numbers, I count the number of digits to the right of the decimal point in each factor; then I move the decimal points that many places to the left of the product.</p> <p>If a divisor is a decimal, I should move the decimal point to the right to make it whole number; next I move the decimal point in the dividend to the right the same number of places; then I divide the decimals as if they were whole numbers; finally, I should move the decimal point</p>
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	<p>from its new location in the dividend into the quotient.</p> <p>An area model can help me to divide fractions.</p> <p>I can divide fractions by multiplying the dividend by the reciprocal of the divisor.</p> <p>I can find the reciprocal by switching the numerator and the denominator.</p> <p>I can fluently divide multi-digit numbers using the standard algorithm.</p>
<p>Unit Rationale</p> <p>Numbers in everyday life are not always represented as whole numbers. They also appear as fractions and decimals; and some numbers are negative. In order to compute accurately in many situations, students must be able to understand and apply the strategies for dealing with the number system.</p>	<p>Unit Overview</p> <p>Students will identify the values of rational numbers; compare and order numbers, plot points on the coordinate plane; determine factors and multiples of whole numbers; add, subtract, divide and multiply decimals and divide and multiply fractions.</p>
<p>Suggested Activities:</p> <p>Digits Unit B: Topics 5 and 6</p> <p>Digits Unit C: Topics 7, 8, and 9</p> <p>Khan Academy</p> <p>Ixl</p> <p>Base explanations/reasoning on the relationship between addition and subtraction or the relationship between multiplication and division.</p> <p>Base arithmetic explanations/reasoning on concrete referents such as diagrams (whether provided in the prompt or constructed by the student in their response), connecting the diagrams to a written (symbolic) method.</p> <p>Base explanations/reasoning on a number line diagram (whether provided in the prompt or constructed by the student in their response).</p> <p>Base explanations /reasoning on a coordinate plane diagram (whether provided in the prompt or constructed by the student in their response).</p>	

Written By: Beth Canzanese

Revised By: Christine Fox

Approved June 2017

Course Title: Sixth Grade Math **Unit Name:** Ratios and Proportional Relationships **Grade Level:** 6

Content Statements Represent number relationships as ratios; find the percent of a number and if given a percent or a part, find the number; use a coordinate plane to represent a rate or ratio; use ratios to convert measurements in length, weight and capacity.	NJSLS: 6.RP.1-3 6.EE.9
Overarching Essential Questions What is a ratio?	Overarching Enduring Understandings A ratio compares two numbers and describes the relationship between two quantities or the items as a whole.
Unit Essential Questions How can I express a ratio? What is a percent? How is a percent like a ratio? What is the connection between a percent and a fraction? What is a rate and unit rate? What are types of unit rates? How can I represent ratios and rates?? How can I use ratio reasoning to convert measurement units?	Unit Enduring Understandings Ratios can be written in three ways: 2 to 3, 2:3, 2/3. Percent means out of each hundred and represents the parts of a whole that are divided into 100 equal parts. A percent is a ratio per 100. If I know the percent and the whole, I can find the part of the whole that the percent represents. If I know the part and the percent, I can find the whole. A rate is a ratio that compares two different units. A unit rate is a ratio that compares two different units where one of the measurements is one. I can solve a unit rate involving unit pricing and constant speed. I can use tables, tape diagrams, double number line graphs, and equations to represent rate or ratios. I can use my ratio reasoning to convert measurement units. I can manipulate and transform units appropriately when multiplying or dividing quantities.

<p>Unit Rationale Students need to know how to compute ratios and rates because they show up often in instances involving statistical information.</p>	<p>Unit Overview Students will represent ratios; find the percent of a number and if given a percent or a part, find the number; use a coordinate plane to represent a rate or ratio; and use ratios to convert measurements in length, weight and capacity.</p>
<p>Suggested Activities Digits Unit D: Topics 10, 11, and 12 Khan Academy Ix1 Present solutions to multi-step problems in the form of valid chains of reasoning, using symbols such as equals signs appropriately, or identify or describe errors in solutions to multi-step problems and present corrected solutions.</p>	

Audubon Public Schools
Engaging Students ~ Fostering Achievement ~ Cultivating 21st Century Global Skills
Written By: Beth Canzanese
Revised By: Christine Fox
Approved June 2017

Course Title Sixth Grade Math **Unit Name:** Expressions and Equations **Grade Level: 6**

<p>Content Statements Solve for variables in math problems; write and evaluate variable expressions, inequalities and write and solve equations with variables; identify and create equivalent expressions using properties of numbers; create tables to show the relationships between dependent and independent variables.</p>	<p>NJSLS: 6.EE: 1-9</p>
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<p>Overarching Essential Questions What is an expression? What is an equation?</p>	<p>Overarching Enduring Understandings An expression is a phrase made up of numbers, operation symbols and sometimes variables. There are two kinds of expressions – numerical and algebraic. An equation is a mathematical statement which contains an equal sign which separates the equation into 2 equivalent expressions.</p>
<p>Unit Essential Questions What is a variable? What is a coefficient? What is a term? How can I translate a word phrase into a mathematical expression? How can I identify parts of an expression. How can I solve a numerical expression using whole number exponents? How can I evaluate an expression? How can I evaluate an expression with exponents? How can I evaluate expressions that arise from formulas used in real-world problems? What is a factor? What are a common factor and the greatest common factor (GCF)? What are equivalent expressions? How can I find out if two expressions are equivalent? How can properties be helpful? How can I solve an equation? What is an inequality? How do I know if a number makes an inequality true?</p>	<p>Unit Enduring Understandings A variable is a letter that represents an unknown number: when the value of one variable depends on the value of another, it is called a dependent variable; when the value of one variable does not depend on the value of the other, it is called an independent variable. A table can show the relationship between a dependent and independent variable. The number multiplied by the variable is called the coefficient. A term is a number or a variable; like terms have the same variable raised to the same exponent. I need to identify the operations by their keywords in order to translate a word expression into a mathematical expression. I can identify parts of an expression by using mathematical terms such as term, sum, difference, product, quotient, factor, coefficient. I can evaluate expressions with whole number exponents by multiplying the base by the itself, as many times as the exponent tells it to. I can evaluate an expression with a variable or symbols by substituting the given number for the</p>

<p>What is an independent and dependent variable? How can I analyze the relationship between the independent and dependent variable?</p>	<p>variable or symbol; then following the order of operations.</p> <p>I can evaluate an expression with exponents by following the order of operations.</p> <p>I can evaluate expressions that arise from formulas used in real-world problems by substituting in the specific values of their variables.</p> <p>The factor of a whole number is any whole number that divides the first number evenly.</p> <p>The factors of a number are less than or equal to the number.</p> <p>A number that is a factor of two or more numbers is called the common factor of those numbers.</p> <p>The greater common factor (GCF) is the greatest number that is a common factor.</p> <p>Two expressions are equivalent when they look different but represent the same information.</p> <p>I can use the distributive, commutative and associative properties to find out if two expressions are equivalent.</p> <p>Properties can be helpful in simplifying expressions or finding equivalent expressions.</p> <p>I can solve an equation by isolating the variable on one side of the equal sign by applying inverse operations. The solution can be checked by substituting it into the original equation to see that it makes a true statement. These equations should include real-world examples with whole numbers.</p> <p>Not every equation has a solution.</p> <p>An inequality is a mathematical sentence that compares two expressions; the symbols $<$, \leq, $>$ and</p>
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	<p>\geq are used. It has an infinite amount of solutions that could be true.</p> <p>To solve an inequality, I can follow the same rules for solving equations.</p> <p>I know whether a number makes an inequality true by using substitution.</p> <p>An independent variable affects change on the dependent variable. A dependent variable changes in response to another variable.</p> <p>I can analyze the relationship between the independent and dependent variable by using graphs and tables and relating them to an equation.</p>
<p>Unit Rationale</p> <p>Students encounter many situations in real life where they have to determine an unknown number in order to compute an amount they need to know.</p>	<p>Unit Overview</p> <p>Students will find the values of variables in math problems; write and find solutions for expressions, inequalities and equations with variables; identify and create equivalent expressions using properties of numbers; and create tables to show the relationships between dependent and independent variables.</p>
<p>Suggested Activities:</p> <p>Digits Unit A: Topics 1, 2, 3, and 4</p> <p>Khan Academy</p> <p>Ixl</p> <p>Base explanations/reasoning on the properties of operations.</p> <p>Given an equation, present the solution steps as a logical argument that concludes with a solution.</p> <p>Construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures.</p> <p>Present solutions to multi-step problems in the form of valid chains of reasoning, using symbols such as equals signs appropriately, or identify or describe errors in solutions to multi-step problems and present corrected solutions.</p>	

Audubon Public Schools
Engaging Students ~ Fostering Achievement ~ Cultivating 21st Century Global Skills
Written By: Beth Canzanese
Revised By: Christine Fox
Approved June 2017
Course Title: Sixth Grade Math Unit Name: Geometry Grade Level: 6

<p>Content Statements Review finding the area and perimeter of two-dimensional figures; find the surface area and volume of three dimensional figures; represent three dimensional figures in two dimensions using a net; draw polygons on the coordinate plane and determine the distance between their vertices</p>	<p>NJSLS: 6.G.1- 4 6.NS.8</p>
<p>Overarching Essential Questions What is dimension? How can the inside of a two dimensional figure be measured? How can the surface area and volume of a 3 dimensional figure be measured?</p>	<p>Overarching Enduring Understandings Dimension is a measure of the width, height, or length of a figure. The inside of a 2 dimensional figure can be measured by determining the square units that cover the figure. I can measure the surface area of a three dimensional figure by finding the number of square units of all of its sides; the volume of a three dimensional figure by finding the number of cubic units that fill the space.</p>
<p>Unit Essential Questions What is area? How can I find the area of a rectangle? How can I find the area of a triangle? How can I find the area of a parallelogram? How can I find the area of an irregular polygon?</p>	<p>Unit Enduring Understandings Area is the measure of the region inside a two dimensional figure. I can find the area of a rectangle by multiplying its length by its width.</p>

<p>What is volume (V)? How can I measure volume? What is a rectangular prism? How can I measure the volume of a rectangular prism? What is a net? What is a face? What is a vertex? What is surface area? How can I find the surface area of a solid? How can I draw polygons on a coordinate plane?</p> <p>How can I draw a polygon?</p>	<p>The area of a triangle is one-half the area of a rectangle with the same height and length. The area of a parallelogram can be found by multiplying its base by its height. The base and height intersect at a right angle. I can find the area of an irregular polygon by breaking it into triangles and rectangles and finding the area of those parts, then adding the areas together. Then by applying this to real-world problems. Volume is the measure of the space within a solid, a 3 dimensional figure. To measure the volume of a figure, I need to use the formula, $V = Bh$. A rectangular prism is a solid figure that has six faces that are rectangles; it is called a prism because it has the same cross-section along a length. I can measure volume of a rectangular prism in cubic units, using the formula, $V = lwh$ or $V = Bh$ or by packing the figure with unit cubes.. A net is a two dimensional connected representation of a solid that shows all of the faces, edges and vertices of the solid. The faces are the plane figures that make up the sides and base(s) of a solid. Faces intersect to form the edges of a figure. The vertex is the corner of a figure; it is the point where two or more lines intersect. Surface area is the area of all of the faces of a three-dimensional figure.</p>
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	<p>I can find the surface area of a solid by finding the sum of the areas for all of the faces in the solid's net.</p> <p>Coordinate geometry gives me a way to describe exactly where a point on a coordinate plane is located.</p> <p>I can draw polygons on a coordinate grid by using the coordinates for the vertices, then by joining the points to find the length of each side.</p> <p>I can draw a polygon using a coordinate plane.</p>
<p>Unit Rationale Shapes are found everywhere in the natural world. Students need to understand that the man-made world is constructed according to geometric principles.</p>	<p>Unit Overview Students will review finding the area and perimeter of two-dimensional figures. They will also find the volume of three dimensional figures. They will represent three dimensional figures in two dimensions using nets and find their surface area; and create polygons and determine the distance between their vertices, using coordinate planes.</p>
<p>Suggested Activities Digits Unit E: Topics 13 and 14 Khan Academy IxI</p>	

Written By: Beth Canzanese

Revised By: Christine Fox

Approved June 2017

Course Title: Sixth Grade Math Unit Name: Statistics and Probability Grade Level: 6

Content Statements Determine whether a question can be answered with statistics; use different measures to describe the center of a data set; plot data sets; and describe data sets in different ways. Find the probability that a given event will occur.	NJSLS: 6.SP.1-5
Overarching Essential Questions What is statistics? What is probability?	Overarching Enduring Understandings Statistics is a collection and analysis of data. Probability is the likelihood that a given event will occur.
Unit Essential Questions What is a statistical question? What is statistical variability? How do we describe data collected by a statistical question? How can I summarize my data? How can I solve a question which includes a subject that has variability? What is the mean, median and mode for a given data set? How can I measure a data set? What is range? What is interquartile range? What is the mean absolute deviation? How can data be plotted? What is a dot plot? What is a box plot? What is a histogram? ?	Unit Enduring Understandings A statistical question is a question that anticipates variability in the data related to the question and accounts for it in the answers. Statistical variability is when the value of something can change. Any data that is collected to answer a statistical question has a distribution, which can be described by its center, spread, and overall shape. I can summarize my data by reporting the number of observations, describing how it was measured and its units of measurement, using the measure of center that summarizes all of the values with a single numbers, and by the measure of variance which describes how its values vary with a single number. If I am solving a question which includes a subject that has variability, I can use statistics. Mean, median and mode are the indicators of the center of a data set.

	<p>The mean is the average of the data set.</p> <p>The median is the middle number in a data set arranged from least to greatest or greatest to least.</p> <p>The mode is the number that appears most often in a data set.</p> <p>I can measure a data set by using the range, interquartile range and the mean absolute deviation.</p> <p>Range is the difference between the least number and the greatest number in a data set.</p> <p>Interquartile range is the difference between the first and third quartiles of a data set.</p> <p>The mean absolute deviation is the average amount by which the measurements in a data set vary from the mean.</p> <p>I can plot data on a number line, dot plots, box plots and histogram.</p> <p>A dot plot shows the number of times each value in a data set occurs.</p> <p>A box plot shows the range of values and how they are distributed in a data set, including the minimum and maximum value.</p> <p>A histogram shows continuous data in a set.</p>
<p>Unit Rationale</p> <p>Data analysis is used in many everyday life situations from farming and traffic to sports and transportation. Because our world is increasingly dependent on data driven production, most likely, students will encounter data and the subsequent analysis in their college classroom and careers. Probability is used to make predictions and produce statistics in areas such as weather forecasting, business quality control and sports statistics.</p>	<p>Unit Overview</p> <p>Students will determine whether a question can be answered with statistics; use different measures to describe the center of a data set; plot data sets; and describe data sets in different ways by using real world problems and situations.</p>

<p>Suggested Activities: Digits Unit F: Topics 15 and 16 Khan Academy Ixl</p>	

Appendix

Differentiation	
Enrichment	<ul style="list-style-type: none"> ● Utilize collaborative media tools ● Provide differentiated feedback ● Opportunities for reflection ● Encourage student voice and input ● Model close reading ● Distinguish long term and short term goals

Intervention & Modification	<ul style="list-style-type: none"> ● Utilize “skeleton notes” where some required information is already filled in for the student ● Provide access to a variety of tools for responses ● Provide opportunities to build familiarity and to practice with multiple media tools ● Leveled text and activities that adapt as students build skills ● Provide multiple means of action and expression ● Consider learning styles and interests ● Provide differentiated mentors ● Graphic organizers
ELLs	<ul style="list-style-type: none"> ● Pre-teach new vocabulary and meaning of symbols ● Embed glossaries or definitions ● Provide translations ● Connect new vocabulary to background knowledge ● Provide flash cards ● Incorporate as many learning senses as possible ● Portray structure, relationships, and associations through concept webs ● Graphic organizers
21st Century Skills	
<ul style="list-style-type: none"> ● Creativity ● Innovation ● Critical Thinking ● Problem Solving ● Communication ● Collaboration 	

Integrating Technology

- Chromebooks
- Internet research
- Online programs
- Virtual collaboration and projects
- Presentations using presentation hardware and software