

# PITTSGROVE TOWNSHIP SCHOOL DISTRICT



<b>Course Name:6th Grade Mathematics</b>	<b>Grade Level(s):6</b>
<b>Department:Mathematics</b>	<b>Credits:</b>
<b>BOE Adoption Date: October 17, 2019</b>	<b>Revision Date(s): June 18, 2020</b>

## Course Description

In Grade 6, instructional time should focus on four critical areas: (1) connecting ratio and rate to whole number multiplication and division and using concepts of ratio and rate to solve problems; (2) completing understanding of division of fractions and extending the notion of number to the system of rational numbers, which includes negative numbers; (3) writing, interpreting, and using expressions and equations; and (4) developing understanding of statistical thinking.

(1) Students use reasoning about multiplication and division to solve ratio and rate problems about quantities. By viewing equivalent ratios and rates as deriving from, and extending, pairs of rows (or columns) in the multiplication table, and by analyzing simple drawings that indicate the relative size of quantities, students connect their understanding of multiplication and division with ratios and rates. Thus students expand the scope of problems for which they can use multiplication and division to solve problems, and they connect ratios and fractions. Students solve a wide variety of problems involving ratios and rates.

(2) Students use the meaning of fractions, the meanings of multiplication and division, and the relationship between multiplication and division to understand and explain why the procedures for dividing fractions make sense. Students use these operations to solve problems. Students extend their previous understandings of number and the ordering of numbers to the full system of rational numbers, which includes negative rational numbers, and in particular negative integers. They reason about the order and absolute value of rational numbers and about the location of points in all four quadrants of the coordinate plane.

(3) Students understand the use of variables in mathematical expressions. They write expressions and equations that correspond to given situations, evaluate expressions, and use expressions and formulas to solve problems. Students understand that expressions in different forms can be equivalent, and they use the properties of operations to rewrite expressions in equivalent forms. Students know that the solutions of an equation are the values of the variables that make the equation true. Students use properties of operations and the idea of maintaining the equality of both sides of an equation to solve simple one-step equations. Students construct and analyze tables, such as tables of quantities that are in equivalent ratios, and they use equations (such as  $3x = y$ ) to describe relationships between quantities.

(4) Building on and reinforcing their understanding of number, students begin to develop their ability to think statistically. Students recognize that a data distribution may not have a definite center and that different ways to measure center yield different values. The median measures center in the sense that it is roughly the middle value. The mean measures center in the sense that it is the value that each data point would take on if the total of the data values were redistributed equally, and also in the sense that it is a balance point. Students recognize that a measure of variability (interquartile range or mean absolute deviation) can also be useful for summarizing data because two very different sets of data can have the same mean and median yet be distinguished by their variability. Students learn to describe and summarize numerical data sets, identifying clusters, peaks, gaps, and symmetry, considering the context in which the data were collected.

Students in Grade 6 also build on their work with area in elementary school by reasoning about relationships among shapes to determine area, surface area, and volume. They find areas of right triangles, other triangles, and special quadrilaterals by decomposing these shapes, rearranging or removing pieces, and relating the shapes to rectangles. Using these methods, students discuss, develop, and justify formulas for areas of triangles and parallelograms. Students find areas of polygons and surface areas of prisms and pyramids by decomposing them into pieces whose area they can determine. They reason about right rectangular prisms with fractional side lengths to extend formulas for the volume of a right rectangular prism to fractional side lengths. They prepare for work on scale drawings and constructions in Grade 7 by drawing polygons in the coordinate plane.

## **Mathematical Practices:**

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning

### **Mission Statement**

*The Pittsgrove Township School District believes in growing all learners to thrive. The district offers an intellectually rigorous, dynamic curriculum aligned to state and national standards coupled with research-based practices in classrooms. The Pittsgrove Township School District strives to highlight critical thinking, problem-solving, intercultural literacy, digital literacy, collaboration, innovation, and a growth mindset as part of the instructional core of learning. The district provides high quality resources to provide young people the knowledge they need to approach the future as leaders and learners.*

### **Curriculum & Instruction Goals**

1. To ensure students are college and career ready upon graduation
2. To vertically and horizontally align curriculum PreK-12 to ensure successful transition of students at each grade level
3. To identify individual student strengths and weaknesses utilizing various assessment measures (formative, summative, alternative, etc.) so as to differentiate instruction while meeting the rigor of the applicable content standards
4. To improve student achievement as assessed through multiple measures including, but not limited to, state testing, local assessments, and ongoing progress monitoring

### How to Read this Document

This curricular document contains both a  *pacing guide*  and  *curriculum units* . The pacing guide serves to communicate an estimated timeframe as to  *when*  critical knowledge and skills will be taught throughout the year. The pacing, however, may differ slightly depending upon the unique needs of each learner. The  *curriculum units*  contain more detailed information as to the content, goals, objectives, instructional strategies, resources, and assessments.

#### **NJ Administrative Code and Statutes Key**

**^=Amistad Law**

**O=Diversity & Inclusion Law**

**<>=Holocaust**

**=LGBT and Disabilities Law**

**\*=AAPI (Asian American and Pacific Islanders)**

**\$=Financial Literacy**

**Use this key to understand where the NJ mandates are being implemented in the K-12 curriculum units.**

## Pacing Guide

**Course Title: Math 6**

**Prerequisite(s): Math 5**

Unit Title	Duration/ Month(s)	Related Standards	Learning Goals	Critical Knowledge and Skills
Unit 1: Number System Part 1	11 weeks Sept/Nov	Major: 6.NS.A.1  Additional Clusters: 6.NS.B.2 6.NS.B.3 6.NS.B.4	<ol style="list-style-type: none"><li>1. Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions.</li><li>2. Compute fluently with multi-digit numbers and find common factors and multiples.</li><li>3. Fluently divide multi-digit numbers using the standard algorithm.</li><li>4. Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.</li><li>5. 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.</li></ol>	<i>Students will be able to:</i> <ol style="list-style-type: none"><li>1. Use the standard algorithm to divide multi-digit numbers with speed and accuracy.</li><li>2. Add, subtract, multiply, divide decimals and to solve problems involving decimals.</li><li>3. Add, subtract, multiply, and divide fractions and mixed numbers.</li><li>4. Find the greatest common factor and least common multiple of numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12.</li></ol>
Unit 2: Number System Part 2	4 weeks Nov/Dec	Major: 6.NS.C.5 6.NS.C.6 6.NS.C.7 6.NS.C.8	<ol style="list-style-type: none"><li>1. Position rational numbers on horizontal and vertical number lines.</li><li>2. Position pairs of rational numbers on a coordinate plane.</li></ol>	<i>Students will be able to:</i> <ol style="list-style-type: none"><li>1. Understand that the number line extends beyond zero into negative numbers and be able to</li></ol>

			<ol style="list-style-type: none"> <li>3. Explain the conditions for which pairs of points are reflections across an axes in the coordinate plane.</li> <li>4. Locate numbers and their opposites on the number line and explain their relation to 0.</li> <li>5. Given an inequality, determine the position of one rational number relative to another.</li> <li>6. Write an inequality and explain statements of order for rational numbers in real world situations.</li> <li>7. Graph points in all four quadrants of the coordinate plane in order to solve real-world and mathematical problems.</li> <li>8. Use absolute value to find distances between points with the same first coordinate or the same second coordinate.</li> </ol>	<p>find rational numbers on a number line.</p> <ol style="list-style-type: none"> <li>2. Position pairs of rational numbers on a coordinate plane.</li> <li>3. Reflect points across the x and y-axes in the coordinate plane. Explain how to reflect points.</li> <li>4. Locate numbers and their opposites on the number line and explain their relation to 0.</li> <li>5. Given an inequality, determine the position of one rational number relative to another.</li> <li>6. Write an inequality and explain statements of order for rational numbers in real world situations.</li> <li>7. Graph points in all four quadrants of the coordinate plane in order to solve real-world and mathematical problems.</li> <li>8. Use absolute value to find distances between points with the same first coordinate or the same second coordinate.</li> </ol>
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<p><b>Unit 3: Expressions &amp; Equations</b></p>	<p><b>9 weeks Jan/Feb</b></p>	<p><b>Major:</b> 6.EE.A.1 6.EE.A.2 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</p>	<ol style="list-style-type: none"> <li>1. Write and evaluate mathematical and algebraic expressions from verbal descriptions, including those with exponents.</li> <li>2. Apply the properties of operations to generate equivalent expressions.</li> <li>3. Use mathematical terms (sum, term, product, factor, quotient, coefficient) to identify the parts of an expression.</li> <li>4. Identify when two expressions are equivalent.</li> <li>5. Combine like terms, factor and distribute to create equivalent expressions.</li> <li>6. Solve equations and inequalities by using substitution.</li> <li>7. Use variables to represent numbers and write expressions when solving a real-world or mathematical problem.</li> <li>8. Solve real-world and mathematical problems by writing and solving equations of the form <math>x + p = q</math> and <math>px = q</math> for cases in which <math>p</math>, <math>q</math> and <math>x</math> are all nonnegative rational numbers.</li> <li>9. Write an inequality of the</li> </ol>	<p><i>Students will be able to:</i></p> <ol style="list-style-type: none"> <li>1. Write numerical expressions (involving whole number exponents) from verbal descriptions.</li> <li>2. Evaluate numerical expressions involving whole number exponents.</li> <li>3. Write algebraic expressions from verbal descriptions.</li> <li>4. Use mathematical terms (sum, term, product, factor, quotient, coefficient) to identify the parts of an expression.</li> <li>5. Evaluate algebraic expressions and formulas, including those involving exponents.</li> <li>6. Combine like terms to generate an equivalent expression.</li> <li>7. Factor to generate an equivalent expression.</li> <li>8. Multiply (apply the distributive property) to generate an equivalent expression.</li> <li>9. Write expressions for solving real-world problems.</li> <li>10. Substitute a number into an equation to determine</li> </ol>
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			<p>form <math>x &gt; c</math> or <math>x &lt; c</math> to represent a constraint or condition in a realworld or mathematical problem.</p> <p>10. Recognize that inequalities of the form <math>x &gt; c</math> or <math>x &lt; c</math> have infinitely many solutions; represent solutions of such inequalities on number line diagrams.</p> <p>11. 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.</p> <p>12. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.</p>	<p>whether it makes an equation true.</p> <p>11. Substitute a number into an inequality to determine whether it makes the inequality true.</p> <p>12. Solve real world problems by writing and solving equations of the form <math>x + p = q</math> (<math>p</math>, <math>q</math>, and <math>x</math> are non-negative and rational).</p> <p>13. Solve real world problems by writing and solving equations of the form <math>px = q</math> (<math>p</math>, <math>q</math>, and <math>x</math> are non-negative and rational).</p> <p>14. Analyze a given graph and table of values, and relate them to the equation.</p>
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<p><b>Unit 4: Ratios, Proportions and Percents</b></p>	<p><b>5 weeks March</b></p>	<p><b>Major: 6.RP.A.1 6.RP.A.2 6.RP.A.3</b></p>	<ol style="list-style-type: none"> <li>1. Describe a ratio relationship between two quantities using ratio language.</li> <li>2. Determine the unit rate given a ratio relationship and solve real world problems.</li> <li>3. Use ratio and rate reasoning to create tables of equivalent ratios relating quantities with <i>whole number</i> measurements, find missing values in tables and plot pairs of values.</li> <li>4. Compare ratios using tables of equivalent ratios.</li> <li>5. Calculate a percent of a quantity and solve problems by finding the whole when given the part and the percent.</li> <li>6. Convert measurement units using ratio reasoning.</li> <li>7. Convert fractions to decimals and percents and vice versa.</li> </ol>	<p><i>Students will be able to:</i></p> <ol style="list-style-type: none"> <li>1. Describe a ratio relationship between two quantities using ratio language.</li> <li>2. Determine the unit rate given a ratio relationship.</li> <li>3. Describe a unit rate relationship between two quantities using rate language.</li> <li>4. Use ratio and rate reasoning to create tables of equivalent ratios relating quantities with <i>whole number</i> measurements, find missing values in tables and plot pairs of values.</li> <li>5. Compare ratios using tables of equivalent ratios.</li> <li>6. Solve real world and mathematical problems involving unit rate (including unit price and constant speed).</li> <li>7. Calculate a percent of a quantity and solve problems by finding the whole when given the part and the percent.</li> <li>8. Convert measurement units using ratio reasoning.</li> </ol>
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				<ul style="list-style-type: none"> <li>9. Convert a fraction to a decimal and percent.</li> <li>10. Convert a percent to a decimal and fraction.</li> <li>11. Convert a decimal to a percent and fraction.</li> </ul>
Unit 5: Geometry	4-5 weeks April-May	Supporting: 6.GA.1 6.GA.2 6.GA.3 6.GA.4	<ul style="list-style-type: none"> <li>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</li> <li>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.</li> <li>3. Apply the formulas <math>V = l w h</math> and <math>V = B h</math> to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.</li> </ul>	<p><i>Students will be able to:</i></p> <ul style="list-style-type: none"> <li>1. Find the volume using right rectangular prisms with fractional edge lengths with unit fraction cubes.</li> <li>2. Apply volume formulas, <math>V = l w h</math> and <math>V = b h</math>, to right rectangular prisms with fractional edge lengths.</li> <li>3. Represent three dimensional objects with nets made up of rectangles and triangles.</li> <li>4. Find surface area of three-dimensional objects using nets.</li> <li>5. Solve real world and mathematical problems involving surface area using nets.</li> <li>6. Compose rectangles in order to find the area of triangles, special quadrilaterals and polygons.</li> <li>7. Decompose triangles, special quadrilaterals, and</li> </ul>

			<ol style="list-style-type: none"> <li>4. Draw polygons in the coordinate plane given coordinates for the vertices</li> <li>5. 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.</li> <li>6. 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.</li> </ol>	<p>polygons into triangles and other shapes in order to find their area.</p> <ol style="list-style-type: none"> <li>8. Compose rectangles and decompose into triangles in order to solve real-world problems.</li> </ol>
<b>Unit 6: Statistics and Probability</b>	<b>4 weeks May/June</b>	<b>Additional Cluster: 6.SP.A.1 6.SP.A.2 6.SP.A.3 6.SP.B.4 6.SP.B.5</b>	<ol style="list-style-type: none"> <li>1. Distinguish questions that are statistical (anticipate variability in data) from those that are not.</li> <li>2. Distinguish center from variation.</li> <li>3. Display numerical data in dot plots, histograms and boxplots on a number line.</li> <li>4. Calculate measures of center, mean and median.</li> </ol>	<p><i>Students will be able to:</i></p> <ol style="list-style-type: none"> <li>1. Distinguish questions that are statistical (anticipate variability in data) from those that are not.</li> <li>2. Distinguish center from variation.</li> <li>3. Display numerical data in dot plots, histograms and boxplots on a number line.</li> <li>4. Calculate measures of center, mean and median.</li> </ol>

			<ol style="list-style-type: none"> <li>5. Calculate measures of spread, interquartile range and mean absolute deviation.</li> <li>6. Describe the overall shape of a distribution (skewed left, skewed right, etc) and striking deviations (outliers).</li> <li>7. Choose measures of center and variability appropriate to the shape of the distribution and context.</li> <li>8. Visually assess, given a distribution, the measure of spread (mean absolute deviation or interquartile range).</li> </ol>	<ol style="list-style-type: none"> <li>5. Calculate measures of spread, interquartile range and mean absolute deviation.</li> <li>6. Describe the overall shape of a distribution (skewed left, skewed right, etc) and striking deviations (outliers).</li> <li>7. Choose measures of center and variability appropriate to the shape of the distribution and context.</li> <li>8. Visually assess, given a distribution, the measure of spread (mean absolute deviation or interquartile range).</li> </ol>
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Course Title: **6th grade Math**

Unit Title	Unit 1: Number System Part 1		Start Date:	September
			Length of Unit:	11 weeks
Content Standards What do we want them to know, understand, & do?	Major: 6.NS.A Apply and extend previous understandings of multiplication and division to divide fractions by fractions. 6.NS.A.1. Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions.  Additional Clusters: 6.NS.B Compute fluently with multi-digit numbers and find common factors and multiples. 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.  6.NS.B.4	Learning Goals	<i>Students will know how to:</i> <ol style="list-style-type: none"><li>1. Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions.</li><li>2. Apply multiplication of fractions and mixed numbers.</li><li>3. Compute fluently with multi-digit numbers and find common factors and multiples.</li><li>4. Fluently divide multi-digit numbers using the standard algorithm.</li><li>5. Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.</li><li>6. 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.</li></ol>	

	<p>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> <p>* this part of the standard is addressed in a later unit.</p>						
<p>Essential Questions</p>	<p>How can we use decimals and fractions in the real world?          Why is decimal placement important when computing with decimals?          How do models help us describe dividing fractions?          How do you know which operations to choose when solving real life problems?          How do we use numbers and their operations in the real world?</p>						
<p>Assessments          How will we know they have gained the knowledge &amp; skills?</p>	<table border="1" style="width: 100%; background-color: black; color: white;"> <tr> <td style="width: 33%; text-align: center;">Formative</td> <td style="width: 33%; text-align: center;">Summative</td> <td style="width: 33%; text-align: center;">Alternative</td> </tr> </table>				Formative	Summative	Alternative
Formative	Summative	Alternative					
	<ul style="list-style-type: none"> <li>● Warm ups and Exit Tickets.</li> <li>● Homework</li> <li>● Choral and individual responses to questioning.</li> <li>● Thumbs up/down, and other interactive answering strategies.</li> </ul>	<ul style="list-style-type: none"> <li>● Unit Assessment</li> <li>● Quizzes and End of Chapter Tests</li> <li>● Projects</li> <li>● Stations</li> </ul>					

	<ul style="list-style-type: none"> <li>• White-board responses or Pear Deck responses.</li> <li>• Quizizz, Khan Academy, Kahoot, Prodigy and other on-line assessment tools.</li> <li>• I Have, Who Has questions.</li> </ul>			
Unit Pre-Assessment(s) What do they already know?	Whole number Pre-test Decimal Pre-test Fraction Pre-test (given at approximately week 7)			
Instructional Strategies/Student Activities	<ul style="list-style-type: none"> <li>• Direct Instruction</li> <li>• Guided Practice</li> <li>• Cooperative learning</li> <li>• Modeling</li> <li>• Learning Centers</li> <li>• Guided note pages</li> <li>• Turn and talk/Think-pair-share</li> <li>• Student choice of assignments</li> <li>• Use mnemonic devices for division such as “Does McDonalds Serve Cheeseburgers” –Divide, multiply, subtract, check</li> </ul>			
Instructional/Assessment Scaffolds (Modifications /Accommodations) – planned for prior to instruction	<b>English Language Learners</b>	<b>Special Education Learners</b>	<b>Struggling Learners</b>	<b>Advanced Learners</b>
	<ul style="list-style-type: none"> <li>*Simplify instructions</li> <li>*Give students extra time to complete tests</li> <li>*Make all or part of the assessment oral</li> <li>*Small group administration of classroom tests/quizzes as needed and/or available</li> <li>*Class “Buddy”</li> <li>*Provide vocabulary list for the unit.</li> </ul>	<ul style="list-style-type: none"> <li>*Allow extra time for task completion as needed</li> <li>*Allow for oral follow-up for student to expand on written responses</li> <li>*Read, restate and clarify directions/instructions.</li> <li>*Additional time to complete classroom tests/quizzes</li> </ul>	<ul style="list-style-type: none"> <li>*Small group instruction.</li> <li>*Chunk projects or long-term assignments.</li> <li>*Give directions in small pieces</li> <li>*Modified length of test</li> <li>*Use manipulatives</li> <li>*Test re-takes</li> </ul>	<ul style="list-style-type: none"> <li>*Individualized assessment or Independent study</li> <li>*Have students answer open ended questions</li> <li>*Additional research into topics</li> <li>*Tiered assignments</li> </ul>

		*Small group administration of classroom tests/quizzes as needed *Allow students to make corrections to tests for partial credit.		
Differentiated Instructional Methods: (Multiple means for students to access content and multiple modes for student to express understanding)	<b>Access (Resources and/or Process)</b>		<b>Expression (Products and/or Performance)</b>	
	<ul style="list-style-type: none"> <li>• Interactive notebook</li> <li>• Classroom presentations</li> <li>• Standard-aligned Learning Stations</li> <li>• Targeted IXL lessons based on results of diagnostic and classroom progress</li> <li>• Flexible grouping</li> </ul>		<ul style="list-style-type: none"> <li>• Student choice of assignments</li> <li>• Leveled assignments</li> </ul>	
Vocabulary Highlight key vocabulary (both Tier II and Tier III words)	Tier II: solve, explain, compute, sum, difference, multiplication, product, decimal, fraction, division, numerator, denominator, quotient, divisor, dividend, multiple, least, common, factor, greatest, terminating decimal, repeating decimal  Tier III: standard algorithm			
Integration of Technology <a href="#">SAMR</a>	S/A: Quiz via Google Forms; Quizizz, and Kahoot S/A: Pear Deck A/M: Differentiated IXL lessons assigned based on student strengths/weaknesses A/M: Prodigy S/A/M: Khan Academy A: Math teaching videos R: Kahoot or Quizizz, created by student to prepare for a test and shared with their peers.			
Interdisciplinary Connections <a href="#">NJ Student Learning Standards</a>	<p>ELA:</p> <p>NJSLSA.R1. Read closely to determine what the text says explicitly and to make logical inferences and relevant connections from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.</p> <p>NJSLSA.R4. Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and analyze how specific word choices shape meaning or tone.</p> <p>NJSLSA.W1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.</p> <p>Technology:</p>			



	<p>8.1.P.C.1 Collaborate with peers by participating in interactive digital games or activities.  8.1.5.A.1 Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems.</p> <p>21st Century Life and Careers:  CRP2. Apply appropriate academic and technical skills.  CRP4. Communicate clearly and effectively and with reason.  CRP6. Demonstrate creativity and innovation.  CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.  CRP11. Use technology to enhance productivity.</p> <p>Financial Literacy:  9.1.8.E.1 Explain what it means to be a responsible consumer and the factors to consider when making consumer decisions.</p>	
21 <sup>st</sup> Century Themes/Skills <a href="#">P21 Framework</a>	<b>Themes</b>	<b>Skills</b>
Resources/Materials	Resources: NJCTL website Math Antics IXL Khan Academy Google Classroom Pear Deck Google Slides Illustrative Mathematics	
Financial, Economic, Business, and Entrepreneurial Literacy <ul style="list-style-type: none"> <li>• Know how to make appropriate personal economic choices</li> <li>• Understand the role of the economy in society</li> </ul>	<ul style="list-style-type: none"> <li>• Flexibility and adaptability</li> <li>• Initiative and Self-Direction</li> <li>• Social and Cross-Cultural Skills</li> <li>• Productivity and accountability</li> <li>• Leadership and Responsibility</li> <li>• Think creatively</li> <li>• Work creatively with others</li> <li>• Reason effectively</li> <li>• Make judgements and decisions</li> <li>• Communicate clearly</li> <li>• Collaborate with others</li> <li>• Adapt to change</li> <li>• Work independently</li> <li>• Interact effectively with others</li> </ul>	

	Materials: Interactive notebooks Chromebooks Manipulatives White boards
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Instructional Unit Map			
Course Title: 6th grade math			
Unit Title	Unit 2: Number System part 2		Start Date: November Length of Unit: 4 weeks
<b>Content Standards</b> <i>What do we want them to know, understand, &amp; do?</i>	<b>Major:</b> <b>6.NS.C.5</b> Understand that positive and negative numbers are used together to describe quantities having opposite directions or values; use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation. <b>6.NS.C.6</b> Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in	<b>Learning Goals</b>	<i>Students will know how to:</i> <ol style="list-style-type: none"> <li>1. Position rational numbers on horizontal and vertical number lines.</li> <li>2. Position pairs of rational numbers on a coordinate plane.</li> <li>3. Explain the conditions for which pairs of points are reflections across an axes in the coordinate plane.</li> <li>4. Locate numbers and their opposites on the number line and explain their relation to 0.</li> <li>5. Given an inequality, determine the position of one rational number relative to another.</li> <li>6. Write an inequality and explain statements of order for rational numbers in real world situations.</li> <li>7. Graph points in all four quadrants of the coordinate plane in order to solve real-world and mathematical problems.</li> <li>8. Use absolute value to find distances between points with the same first coordinate or the same second coordinate.</li> </ol>

	<p>the plane with negative number coordinates</p> <p><b>6.NS.C.7</b> Understand ordering and absolute value of rational numbers.</p> <p><b>6.NS.C.8</b> 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>									
<p><b>Essential Questions</b></p>	<p>What does it mean to have less than zero?          Why do we need numbers other than positive whole numbers?          What is absolute value?          What do we use maps for and why are they useful?          How does a coordinate plane help you solve real-world problems?</p>									
<p><b>Assessments</b> <i>How will we know they have gained the knowledge &amp; skills?</i></p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: black; color: white;"> <th data-bbox="562 1044 982 1130" style="width: 33%;">Formative</th> <th data-bbox="982 1044 1514 1130" style="width: 33%;">Summative</th> <th data-bbox="1514 1044 1934 1130" style="width: 33%;">Alternative</th> </tr> </thead> <tbody> <tr> <td data-bbox="562 1130 982 1347"> <ul style="list-style-type: none"> <li>● Warm ups and Exit Tickets.</li> <li>● Homework</li> <li>● Choral and individual responses to questioning.</li> </ul> </td> <td data-bbox="982 1130 1514 1347"> <ul style="list-style-type: none"> <li>● Unit Assessment</li> <li>● Quizzes and End of Chapter Tests</li> <li>● Projects</li> <li>● Stations</li> </ul> </td> <td data-bbox="1514 1130 1934 1347"></td> </tr> </tbody> </table>				Formative	Summative	Alternative	<ul style="list-style-type: none"> <li>● Warm ups and Exit Tickets.</li> <li>● Homework</li> <li>● Choral and individual responses to questioning.</li> </ul>	<ul style="list-style-type: none"> <li>● Unit Assessment</li> <li>● Quizzes and End of Chapter Tests</li> <li>● Projects</li> <li>● Stations</li> </ul>	
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	<p><b>Vocabulary</b> <i>Highlight key vocabulary (both Tier II and Tier III words)</i></p> <p>Tier II: solve, explain, compute, sum, difference, multiplication, product, division, quotient, inequality, coordinate, opposites, reflection</p> <p>Tier III: rational number, integer, absolute value, x-axis, y-axis</p>			
<p><b>Integration of Technology</b> <u>SAMR</u></p>	<p>S/A: Quiz via Google Forms; Quizizz, and Kahoot</p> <p>S/A: Pear Deck</p> <p>A/M: Differentiated IXL lessons assigned based on student strengths/weaknesses</p> <p>A/M: Prodigy</p> <p>S/A/M: Khan Academy</p> <p>A: Math teaching videos</p> <p>R: Kahoot, created by student to prepare for a test and shared with their peers.</p>			

<p><b>Interdisciplinary Connections</b> <u>NJ Student Learning Standards</u></p>	<p><b>ELA:</b>  NJSLSA.R1. Read closely to determine what the text says explicitly and to make logical inferences and relevant connections from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.  NJSLSA.R4. Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and analyze how specific word choices shape meaning or tone.  NJSLSA.W1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.</p> <p><b>Technology:</b>  8.1.P.C.1 Collaborate with peers by participating in interactive digital games or activities.  8.1.5.A.1 Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems.</p> <p><b>21st Century Life and Careers:</b>  CRP2. Apply appropriate academic and technical skills.  CRP4. Communicate clearly and effectively and with reason.  CRP6. Demonstrate creativity and innovation.  CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.  CRP11. Use technology to enhance productivity.</p>					
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<b>Resources/Materials</b>	<p><b>Resources:</b>  NJCTL website  Math Antics website  IXL  Khan Academy  Google Classroom  Pear Deck  Google Slides  Illustrative Mathematics</p> <p><b>Materials:</b>  Interactive notebooks  Chromebooks  Manipulatives  White boards</p>	

Instructional Unit Map			
<b>Course Title: 6th Grade Math</b>			
<b>Unit Title</b>	<b>Unit 3: Expressions and Equations</b>	<b>Start Date:</b>	January
		<b>Length of Unit:</b>	9 weeks

<p><b>Content Standards</b>  <i>What do we want them to know, understand, &amp; do?</i></p>	<p><b>Major:</b>  <b>6.EE.A.1</b>  Write and evaluate numerical expressions involving whole-number exponents.  <b>6.EE.A.2</b>  Write, read, and evaluate expressions in which letters stand for numbers.  <b>6.EE.A.3</b>  Apply the properties of operations to generate equivalent expressions.  <b>6.EE.A.4</b>  Identify when two expressions are equivalent.  <b>6.EE.B.5</b>  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.  <b>6.EE.B.6</b>  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</p>	<p><b>Learning Goals</b></p>	<p><i>Students will know how to:</i></p> <ol style="list-style-type: none"> <li>1. Write and evaluate mathematical and algebraic expressions from verbal descriptions, including those with exponents.</li> <li>2. Apply the properties of operations to generate equivalent expressions.</li> <li>3. Use mathematical terms (sum, term, product, factor, quotient, coefficient) to identify the parts of an expression.</li> <li>4. Identify when two expressions are equivalent.</li> <li>5. Combine like terms, factor and distribute to create equivalent expressions.</li> <li>6. Solve equations and inequalities by using substitution.</li> <li>7. Use variables to represent numbers and write expressions when solving a real-world or mathematical problem.</li> <li>8. Solve real-world and mathematical problems by writing and solving equations of the form <math>x + p = q</math> and <math>px = q</math> for cases in which <math>p</math>, <math>q</math> and <math>x</math> are all nonnegative rational numbers.</li> <li>9. Write an inequality of the form <math>x &gt; c</math> or <math>x &lt; c</math> to represent a constraint or condition in a realworld or mathematical problem.</li> <li>10. Recognize that inequalities of the form <math>x &gt; c</math> or <math>x &lt; c</math> have infinitely many solutions; represent solutions of such inequalities on number line diagrams.</li> <li>11. 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.</li> <li>12. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.</li> </ol>
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purpose at hand, any number in a specified set.

**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.

**6.EE.B.8**

Write an inequality of the form  $x > c$  or  $x < c$  to represent a constraint or condition in a realworld 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.

**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.		
<b>Essential Questions</b>	<p>Why do we use variables?</p> <p>How can equations be used to help us solve real world problems?</p> <p>How can we represent mathematical expressions that have unknown numbers?</p> <p>Why is order so important when solving mathematical problems?</p> <p>What does it mean for two expressions to be equivalent?</p> <p>Are there times in life when more than one answer can make a statement true, explain?</p>		
<b>Assessments</b> <i>How will we know they have gained the knowledge &amp; skills?</i>	<b>Formative</b> <span style="margin-left: 150px;"><b>Summative</b></span> <span style="margin-left: 150px;"><b>Alternative</b></span>		
	<ul style="list-style-type: none"> <li>● Warm ups and Exit Tickets.</li> <li>● Homework</li> <li>● Choral and individual responses to questioning.</li> <li>● Thumbs up/down, and other interactive answering strategies.</li> <li>● White-board responses or Pear Deck responses.</li> <li>● Quizizz, Khan Academy, Kahoot, Prodigy and other on-line assessment tools.</li> <li>● I Have, Who Has questions.</li> </ul>	<ul style="list-style-type: none"> <li>● Unit Assessment</li> <li>● Quizzes and End of Chapter Tests</li> <li>● Projects</li> <li>● Stations</li> </ul>	
<b>Unit Pre-Assessment(s)</b> <i>What do they already know?</i>	Expressions and Equations Pre-test		

<b>Instructional Strategies/Student Activities</b>	Direct Instruction <ul style="list-style-type: none"> <li>● Guided Practice</li> <li>● Cooperative learning</li> <li>● Modeling</li> <li>● Learning Centers</li> <li>● Guided note pages</li> <li>● Turn and talk/Think-pair-share</li> <li>● Student choice of assignments</li> <li>● Use mnemonic devices: Please Excuse My Dear Aunt Sally, for order of operations</li> </ul>			
<b>Instructional/Assessment Scaffolds</b> <i>(Modifications /Accommodations) – planned for prior to instruction</i>	<b>English Language Learners      Special Education Learners      Struggling Learners      Advanced Learners</b>			
	<ul style="list-style-type: none"> <li>*Simplify instructions</li> <li>*Give students extra time to complete tests</li> <li>*Make all or part of the assessment oral</li> <li>*Small group administration of classroom tests/quizzes as needed and/or available</li> <li>*Class “Buddy”</li> <li>*Provide vocabulary list for the unit.</li> </ul>	<ul style="list-style-type: none"> <li>*Allow extra time for task completion as needed</li> <li>*Allow for oral follow-up for student to expand on written responses</li> <li>*Read, restate and clarify directions/instructions.</li> <li>*Additional time to complete classroom tests/quizzes</li> <li>*Small group administration of classroom tests/quizzes as needed</li> <li>*Allow students to make corrections to tests for partial credit.</li> </ul>	<ul style="list-style-type: none"> <li>*Small group instruction.</li> <li>*Chunk projects or long-term assignments.</li> <li>*Give directions in small pieces</li> <li>*Modified length of test</li> <li>*Use manipulatives</li> <li>*Test re-takes</li> </ul>	<ul style="list-style-type: none"> <li>*Individualized assessment or Independent study</li> <li>*Have students answer open ended questions</li> <li>*Additional research into topics</li> <li>*Tiered assignments</li> </ul>

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	<p>Illustrative Mathematics</p> <p><b>Materials:</b>          Interactive notebooks          Chromebooks          Manipulatives          White boards</p>
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Instructional Unit Map							
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<b>Unit Title</b>	<b>Unit 4: Ratios, Proportions and Percents</b>		<table border="1" style="width: 100%;"> <tr> <td style="background-color: black; color: white;"><b>Start Date:</b></td> <td>March</td> </tr> <tr> <td style="background-color: black; color: white;"><b>Length of Unit:</b></td> <td>5 Weeks</td> </tr> </table>	<b>Start Date:</b>	March	<b>Length of Unit:</b>	5 Weeks
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<b>Content Standards</b> <i>What do we want them to know, understand, &amp; do?</i>	<p><b>Major:</b></p> <p><b>6.RP.A.1</b> Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.</p> <p><b>6.RP.A.2</b> Understand the concept of a unit rate <math>a/b</math> associated with a ratio</p>	<b>Learning Goals</b>	<p><i>Students will know how to:</i></p> <ol style="list-style-type: none"> <li>1. Describe a ratio relationship between two quantities using ratio language.</li> <li>2. Determine the unit rate given a ratio relationship and solve real world problems.</li> <li>3. Use ratio and rate reasoning to create tables of equivalent ratios relating quantities with <i>whole number</i> measurements, find missing values in tables and plot pairs of values.</li> </ol>				

a:b with  $b \neq 0$ , and use rate language in the context of a ratio relationship.

**6.RP.A.3a**

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.

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.

**6.RP.A.3b**

Solve unit rate problems including those involving unit pricing and constant speed.

**6.RP.A.3c**

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.

**6.RP.A.3d**

Use ratio reasoning to

4. Compare ratios using tables of equivalent ratios.
5. Calculate a percent of a quantity and solve problems by finding the whole when given the part and the percent.
6. Convert measurement units using ratio reasoning.
7. Convert fractions to decimals and percents and vice versa.

	convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.					
<b>Essential Questions</b>	<p>How can you represent a relationship between two quantities?  How can you find two ratios that describe the same relationship?  How can you use rates to describe changes in real life problems?  What are percentages? How do they relate to ratios?  How can you compare lengths between the customary and metric system?</p>					
<b>Assessments</b> <i>How will we know they have gained the knowledge &amp; skills?</i>	<table border="1" style="width: 100%; text-align: center;"> <tr> <th data-bbox="562 618 982 704">Formative</th> <th data-bbox="982 618 1514 704">Summative</th> <th data-bbox="1514 618 1934 704">Alternative</th> </tr> </table>			Formative	Summative	Alternative
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<b>Unit Pre-Assessment(s)</b> <i>What do they already know?</i>	Ratios and Proportions Pre-Test Percents Pre-Test ( third week of the unit)			
<b>Instructional Strategies/Student Activities</b>	<ul style="list-style-type: none"> <li>● Direct Instruction</li> <li>● Guided Practice</li> <li>● Cooperative learning</li> <li>● Modeling</li> <li>● Learning Centers</li> <li>● Guided note pages</li> <li>● Turn and talk/Think-pair-share</li> <li>● Student choice of assignments</li> </ul>			
<b>Instructional/Assessment Scaffolds</b> <i>(Modifications /Accommodations) – planned for prior to instruction</i>	<b>English Language Learners      Special Education Learners      Struggling Learners      Advanced Learners</b>			
	<ul style="list-style-type: none"> <li>*Simplify instructions</li> <li>*Give students extra time to complete tests</li> <li>*Make all or part of the assessment oral</li> <li>*Small group administration of classroom tests/quizzes as needed and/or available</li> <li>*Class “Buddy”</li> <li>*Provide vocabulary list for the unit.</li> </ul>	<ul style="list-style-type: none"> <li>*Allow extra time for task completion as needed</li> <li>*Allow for oral follow-up for student to expand on written responses</li> <li>*Read, restate and clarify directions/instructions.</li> <li>*Additional time to complete classroom tests/quizzes</li> <li>*Small group administration of classroom tests/quizzes as needed</li> <li>*Allow students to make corrections to</li> </ul>	<ul style="list-style-type: none"> <li>*Small group instruction.</li> <li>*Chunk projects or long-term assignments.</li> <li>*Give directions in small pieces</li> <li>*Modified length of test</li> <li>*Use manipulatives</li> <li>*Test re-takes</li> </ul>	<ul style="list-style-type: none"> <li>*Individualized assessment or Independent study</li> <li>*Have students answer open ended questions</li> <li>*Additional research into topics</li> <li>*Tiered assignments</li> </ul>

		tests for partial credit.		
<b>Differentiated Instructional Methods:</b> <i>(Multiple means for students to access content and multiple modes for student to express understanding)</i>	<b>Access (Resources and/or Process)</b>		<b>Expression (Products and/or Performance)</b>	
	<ul style="list-style-type: none"> <li>● Interactive notebook</li> <li>● Classroom presentations</li> <li>● Standard-aligned Learning Stations</li> <li>● Targeted IXL lessons based on results of diagnostic and classroom progress</li> <li>● Flexible grouping</li> </ul>		<ul style="list-style-type: none"> <li>● Student choice of assignments</li> <li>● Leveled assignments</li> </ul>	
<b>Vocabulary</b> <i>Highlight key vocabulary (both Tier II and Tier III words)</i>	Tier II: solve, explain, compute, sum. difference, multiplication, product, division, quotient, fraction, decimal, equation, equivalent, expression, ratio, percent, metric, measurement, proportion, rates, conversion, rate, tax, discount, tip  Tier III: cross products, unit rate			
<b>Integration of Technology SAMR</b>	S/A: Quiz via Google Forms; Quizizz, and Kahoot S/A: Pear Deck A/M: Differentiated IXL lessons assigned based on student strengths/weaknesses A/M: Prodigy S/A/M: Khan Academy A: Math teaching videos A: Math Snacks R: Kahoot, created by student to prepare for a test and shared with their peers.			
<b>Interdisciplinary Connections</b> <u>NJ Student Learning Standards</u>	<b>ELA:</b> NJLSA.R1. Read closely to determine what the text says explicitly and to make logical inferences and relevant connections from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text. NJLSA.R4. Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and analyze how specific word choices shape meaning or tone. NJLSA.W1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.  <b>Technology:</b>			

	<p>8.1.P.C.1 Collaborate with peers by participating in interactive digital games or activities.  8.1.5.A.1 Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems.</p> <p><b>21st Century Life and Careers:</b>  CRP2. Apply appropriate academic and technical skills.  CRP4. Communicate clearly and effectively and with reason.  CRP6. Demonstrate creativity and innovation.  CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.  CRP11. Use technology to enhance productivity.</p>	
<p><b>21<sup>st</sup> Century Themes/Skills</b>  <u>P21 Framework</u></p>	<p>Themes Skills</p>	
	<p><b>Financial, Economic, Business, and Entrepreneurial Literacy</b></p> <ul style="list-style-type: none"> <li>• Know how to make appropriate personal economic choices</li> <li>• Understand the role of the economy in society</li> </ul>	<ul style="list-style-type: none"> <li>• Flexibility and adaptability</li> <li>• Initiative and Self-Direction</li> <li>• Social and Cross-Cultural Skills</li> <li>• Productivity and accountability</li> <li>• Leadership and Responsibility</li> <li>• Think creatively</li> <li>• Work creatively with others</li> <li>• Reason effectively</li> <li>• Make judgements and decisions</li> <li>• Communicate clearly</li> <li>• Collaborate with others</li> <li>• Adapt to change</li> <li>• Work independently</li> <li>• Interact effectively with others</li> </ul>
<p><b>Resources/Materials</b></p>	<p><b>Resources:</b>  NJCTL website  Math Antics website  IXL  Khan Academy  Google Classroom  Pear Deck</p>	

	<p>Google Slides Math Snacks Illustrative Mathematics</p> <p><b>Materials:</b> Interactive notebooks Chromebooks Manipulatives White boards</p>
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Instructional Unit Map			
Course Title: 6th Grade Math			
Unit Title	Unit 5: Geometry		Start Date:
			Length of Unit:
<p><b>Content Standards</b> <i>What do we want them to know, understand, &amp; do?</i></p>	<p><b>Supporting:</b> <b>6.GA.1</b> 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. <b>6.GA.2</b> Find the volume of a</p>	<p><b>Learning Goals</b></p>	<p><i>Students will know how to:</i></p> <ol style="list-style-type: none"> <li>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</li> <li>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.</li> <li>3. Apply the formulas <math>V = l w h</math> and <math>V = B h</math> to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical</li> </ol>

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  $V = lwh$  and  $V = Bh$  to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.

**6.GA.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.

**6.GA.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

problems.

4. Draw polygons in the coordinate plane given coordinates for the vertices
5. 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.
6. 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.

	real-world and mathematical problems.		
<b>Essential Questions</b>	<p>How can we decompose shapes into more familiar ones?</p> <p>How are formulas helpful when finding the area of a shape?</p> <p>How can we represent the surfaces of 3D objects in two dimensions?</p> <p>What is a net?</p> <p>What is surface area?</p> <p>What is volume?</p> <p>How are nets used to find surface area and volume?</p>		
<b>Assessments</b> <i>How will we know they have gained the knowledge &amp; skills?</i>	<b>Formative</b> <span style="margin-left: 150px;"><b>Summative</b></span> <span style="margin-left: 150px;"><b>Alternative</b></span>		
	<ul style="list-style-type: none"> <li>● Warm ups and Exit Tickets.</li> <li>● Homework</li> <li>● Choral and individual responses to questioning.</li> <li>● Thumbs up/down, and other interactive answering strategies.</li> <li>● White-board responses or Pear Deck responses.</li> <li>● Quizizz, Khan Academy, Kahoot, Prodigy and other on-line assessment tools.</li> <li>● I Have, Who Has questions.</li> <li>● Math Snacks worksheets</li> </ul>	<ul style="list-style-type: none"> <li>● Unit Assessment</li> <li>● Quizzes and End of Chapter Tests</li> <li>● Projects</li> <li>● Stations</li> </ul>	<ul style="list-style-type: none"> <li>● Create an irregular figure picture to represent a real life image.</li> </ul>
<b>Unit Pre-Assessment(s)</b> <i>What do they already know?</i>	<p>2D Geometry Pre-Test</p> <p>3D Geometry Pre-test (given in week 2)</p>		

<b>Instructional Strategies/Student Activities</b>	<ul style="list-style-type: none"> <li>● Direct Instruction</li> <li>● Guided Practice</li> <li>● Cooperative learning</li> <li>● Modeling</li> <li>● Learning Centers</li> <li>● Guided note pages</li> <li>● Turn and talk/Think-pair-share</li> <li>● Student choice of assignments</li> </ul>			
<b>Instructional/Assessment Scaffolds</b> ( <i>Modifications /Accommodations</i> ) – planned for prior to instruction	<b>English Language Learners      Special Education Learners      Struggling Learners      Advanced Learners</b>			
	<ul style="list-style-type: none"> <li>*Simplify instructions</li> <li>*Give students extra time to complete tests</li> <li>*Make all or part of the assessment oral</li> <li>*Small group administration of classroom tests/quizzes as needed and/or available</li> <li>*Class “Buddy”</li> <li>*Provide vocabulary list for the unit.</li> </ul>	<ul style="list-style-type: none"> <li>*Allow extra time for task completion as needed</li> <li>*Allow for oral follow-up for student to expand on written responses</li> <li>*Read, restate and clarify directions/instructions.</li> <li>*Additional time to complete classroom tests/quizzes</li> <li>*Small group administration of classroom tests/quizzes as needed</li> <li>*Allow students to make corrections to tests for partial credit.</li> </ul>	<ul style="list-style-type: none"> <li>*Small group instruction.</li> <li>*Chunk projects or long-term assignments.</li> <li>*Give directions in small pieces</li> <li>*Modified length of test</li> <li>*Use manipulatives</li> <li>*Test re-takes</li> </ul>	<ul style="list-style-type: none"> <li>*Individualized assessment or Independent study</li> <li>*Have students answer open ended questions</li> <li>*Additional research into topics</li> <li>*Tiered assignments</li> </ul>
<b>Differentiated Instructional Methods:</b>	<b>Access</b> (Resources and/or Process)		<b>Expression</b> (Products and/or Performance)	

<p><i>(Multiple means for students to access content and multiple modes for student to express understanding)</i></p>	<ul style="list-style-type: none"> <li>● Interactive notebook</li> <li>● Classroom presentations</li> <li>● Standard-aligned Learning Stations</li> <li>● Targeted IXL lessons based on results of diagnostic and classroom progress</li> <li>● Flexible grouping</li> </ul>	<ul style="list-style-type: none"> <li>● Student choice of assignments</li> <li>● Leveled assignments</li> </ul>
<p><b>Vocabulary</b> <i>Highlight key vocabulary (both Tier II and Tier III words)</i></p>	<p>Tier II: solve, explain, compute, sum. difference, multiplication, product, division, quotient, fraction, decimal, equation, equivalent, expression, area, nets, triangle, rectangle, square, trapezoid, parallelogram, irregular, volume, surface area, solid, two dimensional, three dimensional, prism, pyramid, polygons, quadrilaterals, edge, faces</p> <p>Tier III: polyhedron, vertex</p>	
<p><b>Integration of Technology</b> <u>SAMR</u></p>	<p>S/A: Quiz via Google Forms; Quizizz, and Kahoot S/A: Pear Deck A/M: Differentiated IXL lessons assigned based on student strengths/weaknesses A/M: Prodigy S/A/M: Khan Academy A: Math teaching videos R: Kahoot, created by student to prepare for a test and shared with their peers.</p>	
<p><b>Interdisciplinary Connections</b> <u>NJ Student Learning Standards</u></p>	<p><b>ELA:</b> NJSLSA.R1. Read closely to determine what the text says explicitly and to make logical inferences and relevant connections from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text. NJSLSA.R4. Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and analyze how specific word choices shape meaning or tone. NJSLSA.W1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.</p> <p><b>Technology:</b> 8.1.P.C.1 Collaborate with peers by participating in interactive digital games or activities. 8.1.5.A.1 Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems.</p> <p><b>21st Century Life and Careers:</b></p>	



	<p>CRP2. Apply appropriate academic and technical skills.  CRP4. Communicate clearly and effectively and with reason.  CRP6. Demonstrate creativity and innovation.  CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.  CRP11. Use technology to enhance productivity.</p>	
<b>21<sup>st</sup> Century Themes/Skills</b> <u>P21 Framework</u>	Themes Skills	
	<p><b>Financial, Economic, Business, and Entrepreneurial Literacy</b></p> <ul style="list-style-type: none"> <li>• Know how to make appropriate personal economic choices</li> <li>• Understand the role of the economy in society</li> </ul>	<ul style="list-style-type: none"> <li>• Flexibility and adaptability</li> <li>• Initiative and Self-Direction</li> <li>• Social and Cross-Cultural Skills</li> <li>• Productivity and accountability</li> <li>• Leadership and Responsibility</li> <li>• Think creatively</li> <li>• Work creatively with others</li> <li>• Reason effectively</li> <li>• Make judgements and decisions</li> <li>• Communicate clearly</li> <li>• Collaborate with others</li> <li>• Adapt to change</li> <li>• Work independently</li> <li>• Interact effectively with others</li> </ul>
<b>Resources/Materials</b>	<p><b>Resources:</b>  NJCTL website  Math Antics website  IXL  Khan Academy  Google Classroom  Pear Deck  Google Slides  Math Snacks</p> <p><b>Materials:</b>  Interactive notebooks</p>	

	Chromebooks Manipulatives White boards
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Instructional Unit Map			
Course Title: 6th Grade Math			
Unit Title	<b>Unit 6: Statistics</b>	Start Date:	May-June
Unit Title	<b>Unit 6: Statistics</b>	Length of Unit:	4 weeks
<b>Content Standards</b> <i>What do we want them to know, understand, &amp; do?</i>	<b>Additional Cluster:</b> <b>6.SP.A.1</b> Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers <b>6.SP.A.2</b> 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. <b>6.SP.A.3</b> 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. <b>6.SP.B.4</b>	<b>Learning Goals</b>	<i>Students will know how to:</i> <ol style="list-style-type: none"> <li>1. <b>Distinguish questions that are statistical (anticipate variability in data) from those that are not.</b></li> <li>2. <b>Distinguish center from variation.</b></li> <li>3. <b>Display numerical data in dot plots, histograms and boxplots on a number line.</b></li> <li>4. <b>Calculate measures of center, mean and median.</b></li> <li>5. <b>Calculate measures of spread, interquartile range and mean absolute deviation.</b></li> <li>6. <b>Describe the overall shape of a distribution (skewed left, skewed right, etc) and striking deviations (outliers).</b></li> <li>7. <b>Choose measures of center and variability appropriate to the shape of the distribution and context.</b></li> <li>8. <b>Visually assess, given a distribution, the measure of spread (mean absolute deviation or interquartile range).</b></li> </ol>

	<p>Display numerical data in plots on a number line, including dot plots, histograms, and box plots</p> <p><b>6.SP.B.5</b></p> <p>Summarize numerical data sets in relation to their context, such as by:</p> <ul style="list-style-type: none"> <li>a. Reporting the number of observations.</li> <li>b. Describing the nature of the attribute under investigation, including how it was measured and its units of measurement.</li> <li>c. 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.</li> <li>d. Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.</li> </ul>		
<p><b>Essential Questions</b></p>	<p>What are the ways to organize, measure, and display data?</p> <p>What is statistical variability?</p>		



<b>Instructional/Assessment Scaffolds</b> <i>(Modifications /Accommodations) – planned for prior to instruction</i>	<b>English Language Learners</b>	<b>Special Education Learners</b>	<b>Struggling Learners</b>	<b>Advanced Learners</b>
	<ul style="list-style-type: none"> <li>*Simplify instructions</li> <li>*Give students extra time to complete tests</li> <li>*Make all or part of the assessment oral</li> <li>*Small group administration of classroom tests/quizzes as needed and/or available</li> <li>*Class “Buddy”</li> <li>*Provide vocabulary list for the unit.</li> </ul>	<ul style="list-style-type: none"> <li>*Allow extra time for task completion as needed</li> <li>*Allow for oral follow-up for student to expand on written responses</li> <li>*Read, restate and clarify directions/instructions.</li> <li>*Additional time to complete classroom tests/quizzes</li> <li>*Small group administration of classroom tests/quizzes as needed</li> <li>*Allow students to make corrections to tests for partial credit.</li> </ul>	<ul style="list-style-type: none"> <li>*Small group instruction.</li> <li>*Chunk projects or long-term assignments.</li> <li>*Give directions in small pieces</li> <li>*Modified length of test</li> <li>*Use manipulatives</li> <li>*Test re-takes</li> </ul>	<ul style="list-style-type: none"> <li>*Individualized assessment or Independent study</li> <li>*Have students answer open ended questions</li> <li>*Additional research into topics</li> <li>*Tiered assignments</li> </ul>
<b>Differentiated Instructional Methods:</b> <i>(Multiple means for students to access content and multiple modes for student to express understanding)</i>	<b>Access (Resources and/or Process)</b>		<b>Expression (Products and/or Performance)</b>	
	<ul style="list-style-type: none"> <li>● Interactive notebook</li> <li>● Classroom presentations</li> <li>● Standard-aligned Learning Stations</li> <li>● Targeted IXL lessons based on results of diagnostic and classroom progress</li> <li>● Flexible grouping</li> </ul>		<ul style="list-style-type: none"> <li>● Student choice of assignments</li> <li>● Leveled assignments</li> </ul>	

<p><b>Vocabulary</b>  <i>Highlight key vocabulary (both Tier II and Tier III words)</i></p>	<p>Tier II: solve, explain, compute, sum, difference, multiplication, product, division, quotient, fraction, decimal, equation, equivalent, expression, mean, median, mode, range, variability</p> <p>Tier III: mean absolute deviation, box and whisker plot, histogram, dot plot, line plot</p>	
<p><b>Integration of Technology</b>  <u>SAMR</u></p>	<p>S/A: Quiz via Google Forms; Quizizz, and Kahoot</p> <p>S/A: Pear Deck</p> <p>A/M: Differentiated IXL lessons assigned based on student strengths/weaknesses</p> <p>A/M: Prodigy</p> <p>S/A/M: Khan Academy</p> <p>A: Math teaching videos</p> <p>R: Kahoot, created by student to prepare for a test and shared with their peers.</p>	
<p><b>Interdisciplinary Connections</b>  <u>NJ Student Learning Standards</u></p>	<p><b>ELA:</b></p> <p>NJSLSA.R1. Read closely to determine what the text says explicitly and to make logical inferences and relevant connections from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.</p> <p>NJSLSA.R4. Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and analyze how specific word choices shape meaning or tone.</p> <p>NJSLSA.W1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.</p> <p><b>Technology:</b></p> <p>8.1.P.C.1 Collaborate with peers by participating in interactive digital games or activities.</p> <p>8.1.5.A.1 Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems.</p> <p><b>21st Century Life and Careers:</b></p> <p>CRP2. Apply appropriate academic and technical skills.</p> <p>CRP4. Communicate clearly and effectively and with reason.</p> <p>CRP6. Demonstrate creativity and innovation.</p> <p>CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.</p> <p>CRP11. Use technology to enhance productivity.</p>	
<p><b>21<sup>st</sup> Century Themes/Skills</b></p>	<p>Themes</p>	<p>Skills</p>

<p><u>P21 Framework</u></p>	<p><b>Financial, Economic, Business, and Entrepreneurial Literacy</b></p> <ul style="list-style-type: none"> <li>• Know how to make appropriate personal economic choices</li> <li>• Understand the role of the economy in society</li> </ul>	<ul style="list-style-type: none"> <li>• Flexibility and adaptability</li> <li>• Initiative and Self-Direction</li> <li>• Social and Cross-Cultural Skills</li> <li>• Productivity and accountability</li> <li>• Leadership and Responsibility</li> <li>• Think creatively</li> <li>• Work creatively with others</li> <li>• Reason effectively</li> <li>• Make judgements and decisions</li> <li>• Communicate clearly</li> <li>• Collaborate with others</li> <li>• Adapt to change</li> <li>• Work independently</li> <li>• Interact effectively with others</li> </ul>
<p><b>Resources/Materials</b></p>	<p><b>Resources:</b>  NJCTL website  Math Antics website  IXL  Khan Academy  Google Classroom  Pear Deck  Google Slides  Math Snacks</p> <p><b>Materials:</b>  Interactive notebooks  Chromebooks  Manipulatives  White boards</p>	