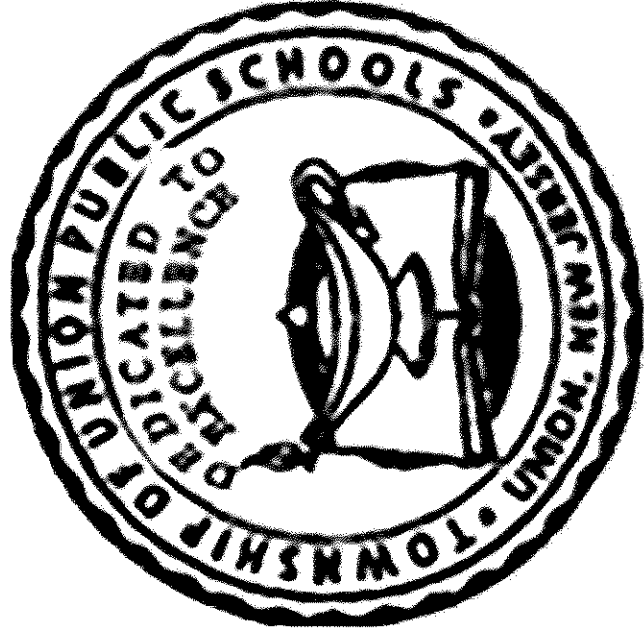


TOWNSHIP OF UNION PUBLIC SCHOOLS



Grade 6 Accelerated Mathematics

Adopted June 20, 2017

Updated December 18, 2018

Mission Statement

The mission of the Township of Union Public Schools is to build on the foundations of honesty, excellence, integrity, strong family, and community partnerships. We promote a supportive learning environment where every student is challenged, inspired, empowered, and respected as diverse learners. Through cultivation of students' intellectual curiosity, skills and knowledge, our students can achieve academically and socially, and contribute as responsible and productive citizens of our global community.

Philosophy Statement

The Township of Union Public School District, as a societal agency, reflects democratic ideals and concepts through its educational practices. It is the belief of the Board of Education that a primary function of the Township of Union Public School System is to formulate a learning climate conducive to the needs of all students in general, providing therein for individual differences. The school operates as a partner with the home and community.

Course Description

This course is designed to cover all 6th grade New Jersey State Learning Standards as well as introduce skill sets needed to be successful in an advanced 7th grade course. The sixth grade math curriculum is currently aligned with the NJSLs. All skills required for mastery are a part of the sixth grade learning goals. All lessons are created to address differentiated learning styles to ensure each lesson's objective is obtained by each student. The accelerated sixth grade curriculum focuses on sixth critical areas: (1) Ratios; (2) Arithmetic: Decimals, Fractions, and Number Theory; (3) Rational Numbers – representing, comparing and ordering, absolute value, - all operations; (4) Expressions and Equations – translating, substitution, solve one and two step equations; (5) Area, Surface Area and Volume of Prism and Pyramids; and (6) Statistics – Measures of Central Tendency and Measures of Variations. The 7th Grade Units covered in Accelerated 6 are (7) Pre-Algebra Topics – One and Two Step Equations with Negatives, Simplifying Algebraic Expressions using Combining Like Terms and the Distributive Property, Solving Multi Step Equations, Solving Equations with Variables on Both Sides, & identifying angles pairs, and solving for x given angle pairs.

Recommended Textbooks:

Eureka Math – EngageNY Grade 6 Mathematics

Eureka Math – EngageNY Grade 7 Mathematics

Curriculum Units

Unit 1: Representing and Reasoning about Ratios

Unit 2: Arithmetic

Unit 3: Rational Numbers

Unit 4: Expressions & Equations

Unit 5: Area, Surface Area and Volume

Unit 6: Statistics

Unit 7: Pre-Algebra

I. Unit Standards Overview

Overview	Standards for Mathematical Content	Unit Focus	Standards for Mathematical Practice
Unit 1 Representing & Reasoning About Ratios	<ul style="list-style-type: none"> ■ 6.RP.A.1 ■ 6.RP.A.2 ■ 6.RP.A.3a ■ 6.RP.A.3b ■ 6.RP.A.3c ■ 6.RP.A.3d 	<ul style="list-style-type: none"> • Understand ratio concepts and use ratio reasoning to solve problems • Be able create and apply Ratio Tables as well as model application problems using Ratio Tables • Calculate Unit Rate • Convert between Units of Measure using Units • Find the Percent of a quantity as a rate per 100 	MP.1 Make sense of problems and persevere in solving them. MP.2 Reason abstractly and quantitatively. MP.3 Construct viable arguments & critique the reasoning of others. MP.4 Model with mathematics. MP.5 Use appropriate tools strategically.
Unit 1: Suggested Educational Resources	6.RP.A.1 Games at Recess 6.RP.A.2 Price per pound and pounds per dollar 6.RP.A.3 Voting for Three, Variation 1 6.RP.A.3c Shirt Sale		MP.6 Attend to precision. MP.7 Look for and make use of structure. MP.8 Look for and express regularity in repeated reasoning.
Unit 2 Arithmetic	<ul style="list-style-type: none"> ■ 6.NS.A.1 ◎ 6.NS.B.2 ◎ 6.NS.B.3 ◎ 6.NS.B.4 	<ul style="list-style-type: none"> • Apply and extend previous understandings of multiplication and division to divide fractions by fractions • Compute fluently with Decimal Values (all operations) • Fluently divide multi-digit numbers • Identify Least Common Multiple & Greatest Common Factor 	
Unit 2: Suggested Educational Resources	6.NS.A.1 Traffic Jam 6.NS.B.3 Reasoning about Multiplication and Division and Place Value, Part 1 6.NS.B.4 Factors and Common Factors 6.NS.B.4 Multiples and Common Multiples		

Overview	Standards for Mathematical Content	Unit Focus	Standards for Mathematical Practice
<p>Unit 3 Rational Numbers</p>	<ul style="list-style-type: none"> ■ 6.NS.C.5 ■ 6.NS.C.6a ■ 6.NS.C.6b ■ 6.NS.C.6c ■ 6.NS.C.7 ■ 6.NS.C.8 □ 6.G.A.1 	<ul style="list-style-type: none"> • Understand Positive & Negative Numbers on the Number Line • Be able to order and understand Absolute Value • Use the Coordinate Plane to plot ordered pairs • Identify Symmetry in the Coordinate Plane 	<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>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>MP.8 Look for and express regularity in repeated reasoning.</p>
<p>Unit 3: Suggested Educational Resources</p>	<p>6.NS.C.5 Warmer in Miami 6.NS.C.6 Mile High 6.NS.C.7 Jumping Flea 6.NS.C.7a Fractions on the Number Line 6.NS.C.7b Comparing Temperatures 6.NS.C.8 Nome, Alaska 6.G.A.1, 6.G.A.3 Polygons in the Coordinate Plane</p>		
<p>Unit 4 Expressions & Equations</p>	<ul style="list-style-type: none"> ■ 6.EE.A.1 ■ 6.EE.A.2a ■ 6.EE.A.2b ■ 6.EE.A.2c ■ 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 	<ul style="list-style-type: none"> • Distinguish relationships between Inverse Operations • Compute exponents & understand the Order of Operations • Understand the concept of substitution • Apply and extend previous understanding of arithmetic to algebraic expressions. • Be able to identify parts of an algebraic expression • Use algebraic properties to write equivalent expressions (distributive property) • Be able to expand, factor, and distribute algebraic expressions • Write and evaluate expressions including the use of Formulas • Reason about and solve one variable equations • Reason about and solve one variable inequalities • Apply and solve one step equation problems in the real world 	

Overview	Standards for Mathematical Content	Unit Focus	Standards for Mathematical Practice
Unit 4: Suggested Educational Resources	6.EE.A.1 The Djinni's Offer 6.EE.A.2 Rectangle Perimeter 1 6.EE.A.4 Rectangle Perimeter 2 6.EE.A.4 Equivalent Expressions 6.EE.B.5 Make Use of Structure 6.EE.B.7 Morning Walk 6.EE.B.8 Fishing Adventures 1 6.EE.C.9 Families of Triangles		
Unit 5 Area, Surface Area, and Volume	<input type="checkbox"/> 6.G.A.1 <input type="checkbox"/> 6.G.A.2 <input type="checkbox"/> 6.G.A.3 <input type="checkbox"/> 6.G.A.4	<ul style="list-style-type: none"> Find the area of triangles and special quadrilaterals Use the known formulas to find the area of composite figures Draw polygons on the Coordinate Plane and be able to determine the perimeter and area of the figure Find the volume of a right rectangular prism Be able to find the surface area of a 3 dimensional figures using nets and formula. 	MP.1 Make sense of problems and persevere in solving them. MP.2 Reason abstractly and quantitatively. MP.3 Construct viable arguments & critique the reasoning of others. MP.4 Model with mathematics. MP.5 Use appropriate tools strategically. MP.6 Attend to precision. MP.7 Look for and make use of structure. MP.8 Look for and express regularity in repeated reasoning.
Unit 5: Suggested Educational Resources	6.G.A.2 Volumes with Fractional Edge Lengths 6.G.A.4 Nets for Pyramids and Prisms		
Unit 6 Statistics	<input type="checkbox"/> 6.SP.A.1 <input type="checkbox"/> 6.SP.A.2 <input type="checkbox"/> 6.SP.A.3 <input type="checkbox"/> 6.SP.B.4 <input type="checkbox"/> 6.SP.B.5 <input type="checkbox"/> 6.SP.B.5b	<ul style="list-style-type: none"> Be able to understand and describe distributions of numerical data Summarize a normal distribution using mean and mean absolute deviation Summarize a skewed distribution using median and interquartile range 	
Unit 6: Suggested Educational Resources	6.SP.A.1 Identifying Statistical Questions 6.SP.A.2, 6.SP.B.4 Puppy Weights 6.SP.A.3 Is It Center or Is It Variability? 6.SP.B.5c Number of Siblings 6.SP.B.5d Mean or Median?		

<p>Unit 7 Pre – Algebra</p>	<p>7.NS.A.1 7.NS.A.2 7.NS.A.3 7.EE.A.1 7.EE.A.2 7.EE.B.3 7.EE.B.4 © 7.G.B.5</p>		<ul style="list-style-type: none"> • Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers • Solve real-life and mathematical problems using numerical and algebraic expressions and equations • Solve real-life and mathematical problems involving angle measure and transversals
<p>Unit 7: Suggested Educational Resources</p>	<p>7.NS.A.1 <u>Comparing Freezing Points</u> 7.NS.A.1 <u>Bookstore Account</u> 7.NS.A.2 <u>Equivalent fractions approach to non-repeating decimals</u> 7.EE.A.1 <u>Writing Expressions</u> 7.EE.A.2 <u>Ticket to Ride</u> 7.EE.B.3 <u>Discounted Books</u> 7.EE.B.3 <u>Shrinking</u> 7.EE.B.4 <u>Fishing Adventures 2</u> 7.EE.B.4 <u>Sports Equipment Set</u></p>		

II. Units Unit 1

Unit 1 Ratios & Unit Rates												
Content & Practice Standards	SMP	Critical Knowledge & Skills										
<p>Topic A: <u>Representing and Reasoning About Ratios</u></p> <p>6.RP.A.1. Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.</p>	<p>MP.2 Reason abstractly and quantitatively.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> A ratio shows relative sizes or values of two quantities. <p>Students are able to:</p> <ul style="list-style-type: none"> describe a ratio relationship between two quantities using ratio language. Express ratios in simplest form. <p>Learning Goal 1: Explain the relationship of two quantities in given ratio using ratio language.</p>										
		<p style="text-align: center;">Standard Mastery Examples</p> <p>Can be used on formative, summative, benchmark, and alternative assessments.</p> <ul style="list-style-type: none"> The students in Mr. Hill's class played games at recess. <ul style="list-style-type: none"> 6 boys played soccer 4 girls played soccer 2 boys jumped rope 8 girls jumped rope <p>Afterward, Mr. Hill asked the students to compare the boys and girls playing different games.</p> <p>Mika said, "Four more girls jumped rope than played soccer." Chaska said, "For every girl that played soccer, two girls jumped rope." Mr. Hill said, "Mika compared the girls by looking at the difference and Chaska compared the girls using a ratio."</p> <ol style="list-style-type: none"> Compare the number of boys who played soccer and jumped rope using the difference. Write your answer as a sentence as Mika did. Compare the number of boys who played soccer and jumped rope using a ratio. Write your answer as a sentence as Chaska did. Compare the number of girls who played soccer to the number of boys who played soccer using a ratio. Write your answer as a sentence as Chaska did. 										
		<p>Book Checkout</p> <p>This table shows the numbers of books by type, checked out from the school library on Monday.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Book Type</th> <th>Number of Books</th> </tr> </thead> <tbody> <tr> <td>mystery</td> <td>24</td> </tr> <tr> <td>nonfiction</td> <td>18</td> </tr> <tr> <td>adventure</td> <td>12</td> </tr> <tr> <td>humor</td> <td>15</td> </tr> </tbody> </table> <p>Use the drop-down menus to complete the statement. For every <input type="text" value="Choose"/> mystery books checked out, <input type="text" value="Choose"/> nonfiction books were</p>	Book Type	Number of Books	mystery	24	nonfiction	18	adventure	12	humor	15
Book Type	Number of Books											
mystery	24											
nonfiction	18											
adventure	12											
humor	15											

<p><u>Topic B: Collections of Equivalent Ratios</u></p> <p>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. *(benchmarked)</p> <p>6.RP.A.3a. 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.2 Reason abstractly and quantitatively.</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> <p>MP.8 Look for and express regularity in repeated reasoning</p>	<p>Concept(s): No new concept(s) introduced</p> <p>Students are able to:</p> <ul style="list-style-type: none"> use ratio reasoning to create tables of equivalent ratios relating quantities with <i>whole number</i> measurements, find missing values in tables. compare ratios using tables of equivalent ratios. <p>Learning Goal 2: Create and complete tables of equivalent ratios to solve real world and mathematical problems using ratio and rate reasoning that include making tables of equivalent ratios, solving unit rate problems, finding percent of a quantity as a rate per 100</p>	<ul style="list-style-type: none"> John, Marie, and Will all ran for 6th grade class president. Of the 36 students, 16 voted for John, 12 for Marie, and 8 for Will. What was the ratio of votes for John to votes for Will? What was the ratio of votes for Marie to votes for Will? What was the ratio of votes for Marie to votes for John? Because no one got half the votes, they had to have a run-off election. Marie dropped out and convinced all her voters to vote for Will. What is the new ratio of Will's votes to John's? John and Will also ran for Middle School Council President. There are 90 students voting in middle school. If the ratio of Will's votes to John's votes remains the same as it was in part (b), how many more votes will Will get than John? Use a table. Sam's two new aquariums each hold exactly 200 gallons of water. One aquarium will hold small fish and the other will hold large fish. Now he needs fish for his aquariums. <ul style="list-style-type: none"> He will buy 5 small fish for every 10 gallons of water in the aquarium. He will buy 8 large fish for every 40 gallons of water in the aquarium. <p>What is the total number of fish Sam will have? What will the ratio of Sam's small fish to large fish? Show and explain the ratios in a table.</p>
<p><u>Topic C: Unit Rates</u></p> <p>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.</p> <p>6.RP.A.3b. Solve unit rate problems including those involving unit pricing and</p>	<p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.4 Model with mathematics.</p> <p>MP.5 Use appropriate tools</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> A rate is a ratio comparing two different types of quantities. <p>Students will be able to:</p> <ul style="list-style-type: none"> determine the unit rate given a ratio relationship. describe a unit rate relationship between two quantities using rate 	<ul style="list-style-type: none"> We paid \$75 for 15 hamburgers, which is a rate of \$5 per hamburger. The grocery store sells beans in bulk. The grocer's sign above the beans says, 5 pounds for \$4. At this store, you can buy any number of pounds of beans at this same rate, and all prices include tax. <ul style="list-style-type: none"> Alberto said, "The ratio of the number of dollars to the number of pounds is 4:5. That's \$0.80 per pound." Beth said, "The sign says the ratio of the number of pounds to the number of dollars is 5:4. That's 1.25 pounds per dollar." <p>1. Are Alberto and Beth both correct? Explain.</p>

<p>constant speed.</p> <p>6.RP.A.3d. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.</p>	<p>strategically</p> <p>MP.6 Attend to precision.</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>language.</p> <ul style="list-style-type: none"> • convert measurement units using ratio reasoning and proportions. • transform units appropriately when multiplying and dividing quantities. <p>Learning Goal 3: Use rate language, in the context of the ratio relationship, to describe a unit rate.</p> <p>Learning Goal 4: Use ratio and rate reasoning to convert measurement units and to transform units appropriately when multiplying or dividing quantities</p> <p>Learning Goal 5: Students will be able to set up and solve proportions.</p>	<p>2. Claude needs two pounds of beans to make soup. Show Claude how much money he will need.</p> <p>3. Dora has \$10 and wants to stock up on beans. Show Dora how many pounds of beans she can buy.</p> <p>4. Do you prefer to answer parts (b) and (c) using Alberto's rate of \$0.80 per pound, using Beth's rate of 1.25 pounds per dollar, or using another strategy? Explain.</p> <ul style="list-style-type: none"> • Chad drove 168 miles in 3 hours. Part A – How many miles per hour did Chad drive? Part B – Chad will drive 672 more miles. He continues to drive at the same rate. How many hours will it take Chad to drive the 672 miles? <p>Part C – Chad stopped and filled the car with 11 gallons of gas. He had driven 308 miles using the previous 11 gallons of gas. How many miles per gallon did Chad's car get?</p> <ul style="list-style-type: none"> • 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? • Jessica sees the following speed limit sign while visiting Australia where the units for speed are kilometers per hour:  <p>Part a. A conversion table indicates that 1 mile is 1.6 km. With this conversion rate, is the speed limit greater than or less than 65 mph? Explain.</p> <p>Part b. Jessica finds out that 1 mile is not exactly 1.6 km. This number has been rounded to the nearest tenth. Does this influence the answer to part (a).</p>
<p>Topic D: Percent</p> <p>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.</p>	<p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.4 Model with mathematics.</p> <p>MP.5 Use</p>	<p>Concept(s): No new concept(s) introduced</p> <p>Students are able to:</p> <ul style="list-style-type: none"> • Use the percent proportion to solve percent problems • Calculate a percent of a quantity and solve problems by finding the whole 	<ul style="list-style-type: none"> • John, Marie, and Will all ran for 6th grade class president. Of the 36 students, 16 voted for John, 12 for Marie, and 8 for Will. <ul style="list-style-type: none"> - What was the ratio of votes for John to votes for Will? What was the ratio of votes for Marie to votes for Will? What was the ratio of votes for Marie to votes for John? - Because no one got half the votes, they had to have a run-off election. Marie dropped out and convinced all her voters to vote for Will. What is the new ratio of Will's votes to John's?

	<p>appropriate tools strategically</p> <p>MP.6 Attend to precision.</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>when given the part and the percent.</p> <p>Learning Goal 6: Create and complete tables of equivalent ratios to solve real world and mathematical problems using ratio and rate reasoning that include making tables of equivalent ratios, solving unit rate problems, finding percent of a quantity as a rate per 100.</p>	<p>- John and Will also ran for Middle School Council President. There are 90 students voting in middle school. If the ratio of Will's votes to John's votes remains the same as it was in part (b), how many more votes will Will get than John? Use a table.</p> <ul style="list-style-type: none"> • Selina bought a shirt on sale that was 20% less than the original price. The original price was \$5 more than the sale price. What was the original price? Explain or show work. <p>Anita brings 6 dolls to her grandma's house. These dolls represent 20% of Anita's doll collection, as shown in the diagram.</p> <div data-bbox="565 331 682 772" data-label="Figure"> </div> <p>What is the total number of dolls in Anita's doll collection?</p>
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Unit 1 Vocabulary

Simplest Form; Ratio; Ratio Table; Equivalent Ratios; Rate; Unit Rate; Proportion; Percent

Suggested Activities/Modifications

Below is a list of suggested activities, modifications, accommodations, and enrichment opportunities. This includes, but is not limited to, :

1. Activities
 - a. Practice/review games
 - b. Real-World Applications
 - c. One quiz and one test
2. English Language Learners.
 - a. Read written instructions.
 - b. Model and provide examples
 - c. Extended time on assessments when needed.
 - d. Establish a non-verbal cue to redirect student when not on task.
 - e. Students may use a bilingual dictionary.
 - f. Conversion chart
3. Special Education/504 Students.
 - a. Extended time on assessments when needed.
 - b. Preferred seating to be determined by student and teacher.
 - c. Provide modified assessments when necessary.
 - d. Student may complete assessments in alternate setting when requested.
 - e. Establish a non-verbal cue to redirect student when not on task.
 - f. Maintain strong teacher / parent communication.
 - g. Conversion chart
4. Gifted and Talented Students
 - a. Converting between metric and customary systems.
 - b. Converting unit rates from metric system to the customary system and vice versa.
 - c. Provide enrichment activities to expand upon the curriculum.
 - d. Use higher level questioning techniques in class and on assessments.

New Jersey Student Learning Standards - Technology

- 8.1.8.A.2 Create a document (e.g. newsletter, reports, personalized learning plan, business letters or flyers) using one or more digital applications to be critiqued by professionals for usability.
- 8.1.8.A.3 Use and/or develop a simulation that provides an environment to solve a real world problem or theory.
- Use of Edconect, iReady.

Career Readiness Practices

- CRP1. Act as a responsible and contributing citizen and employee.
- 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.

NJSLS 9.2 - Career Awareness, Exploration, and Preparation

9.2.8.B.3 Evaluate communication, collaboration, and leadership skills that can be developed through school, home, work, and extracurricular activities for use in a career.

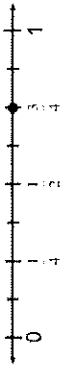
English Language Development Standard 3: Language of Mathematics: Ratios and Proportional Relationships #3 (Grade 6): Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.

Interdisciplinary Connections: Science - How much water do you use? (connect ratios & percents)

Unit 2

Unit 2 Arithmetic

Unit 2 Arithmetic			
Content & Practice Standards	Standards for Mathematical Practice	Critical Knowledge & Skills	Standard Mastery Examples
<p>Topic A: <u>Multiplying & Dividing Fractions</u></p> <p>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>Concept(s): No new concept(s) introduced</p> <p>Students are able to:</p> <ul style="list-style-type: none"> Convert mixed numbers to improper fractions and improper fractions to mixed numbers Find the reciprocal of a fraction and mixed number multiply and divide a fraction by a fraction. represent division of fractions using visual models. interpret quotients of fractions in the context of the problem. compute quotients of fractions in order to solve word problems. write equations to solve word problems involving division of fraction by a fraction. use the relationship between multiplication and division to explain division of fractions. <p>Learning Goal 1: Compute products of fractions and mixed numbers.</p> <p>Learning Goal 2: Compute quotients of fractions and mixed numbers.</p>	<p>Can be used on formative, summative, benchmark, and alternative assessments.</p> <p>Includes interdisciplinary connections</p> <ul style="list-style-type: none"> Dan observes that $\frac{6}{10} \div \frac{2}{10} = 6 \div 2$ He says, <p><i>I think that if we are dividing a fraction by a fraction with the same denominator, then we can just divide the numerators.</i></p> Is Dan's conjecture true for all fractions? Explain how you know. You are stuck in a big traffic jam on the freeway and you are wondering how long it will take to get to the next exit, which is $1\frac{1}{2}$ miles away. You are timing your progress and find that you can travel $\frac{2}{3}$ of a mile in one hour. If you continue to make progress at this rate, how long will it be until you reach the exit? Solve the problem with a diagram and explain your answer. James has a board that is $\frac{3}{4}$ foot long. He wants to cut the board into pieces that are each $\frac{1}{8}$ foot long. How many pieces can James cut from the board? Explain how James can use the number line diagram to determine the number of pieces he can cut from the board.

<p>Topic B & C: Multi-Digit Decimal Operations & Dividing Whole Numbers and Decimals</p> <p>6.NS.B.2. Fluently divide multi-digit numbers using the standard algorithm.</p> <p>6.NS.B.3. Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.</p>	<p>Learning Goal 3: Construct visual fraction models to represent quotients of fractions and use the relationship between multiplication and division to explain division of fractions.</p> <p>Learning Goal 4: Solve real-world problems involving quotients of fractions and interpret the solutions in the context given.</p>	<p>This diagram shows a number line.</p>  <p>• Every student was given a magnet in Science class today. Each magnet weighed $\frac{5}{16}$ of a pound. If there were 28 students in your class, how much did all of the magnets weigh together?</p>
<p>6.NS.B.2. Fluently divide multi-digit numbers using the standard algorithm.</p> <p>6.NS.B.3. Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.</p>	<p>Concept(s): No new concept(s) introduced</p> <p>Students are able to:</p> <ul style="list-style-type: none"> • use the standard algorithm to divide multi-digit numbers with speed and accuracy. • add and subtract multi-digit decimals with accuracy and efficiency. • multiply and divide multi-digit decimals with accuracy and efficiency. <p>Learning Goal 5: Fluently divide multi-digit numbers using the standard algorithms.</p> <p>Learning Goal 6: Fluently add, subtract, multiply and divide multi-digit decimals.</p>	<p>• Use the computation shown below to find the products.</p> $\begin{array}{r} 189 \\ 16 \overline{)3024} \\ \underline{168} \\ 142 \\ \underline{128} \\ 144 \\ \underline{144} \\ 0 \end{array}$ <p>a) 189×16</p> <p>b) 80×16</p> <p>c) 9×16</p> <p>• Use the fact that $13 \times 17 = 221$ to find the following.</p> <p>a. 13×1.7</p>

<p><u>Topic D: Number Theory</u></p> <p>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.</p>	<p>MP.7 Look for and make use of structure.</p>	<p>Concept(s): No new concept(s) introduced</p> <p>Students are able to:</p> <ul style="list-style-type: none"> determine whether a number is prime or composite. use divisibility rules. find the prime factorization of a number. create lists of factors for two whole numbers less than or equal to 100; find the largest factor common to both lists. create lists of multiples for two whole numbers less than or equal to 12; find the smallest multiple common to both lists. <p><u>Learning Goal 7:</u> Use divisibility rules to 2,3,4,5,6,9, and 10 to find factors and determine whether a number is prime or</p>	<p>b. 130×17</p> <p>c. 13×1700</p> <p>d. 1.3×1.7</p> <p>e. $2210 \div 13$</p> <p>f. $22100 \div 17$</p> <p>g. $221 \div 1.3$</p> <ul style="list-style-type: none"> Thomas buys a case of bottled water. A case contains 36 bottles of water and \$4.69. Thomas will sell each bottle of water for \$0.75 at a school event. How much profit, in dollars, will Thomas earn if he sells all the bottles of water?
			<p>Part A - List all the factors of 48. List all the factors of 64. What are the common factors of 48 and 64? What is the greatest common factor of 48 and 64?</p> <p>Part B - List all the multiples of 8 that are less than or equal to 100. List all the multiples of 12 that are less than or equal to 100. What are the common multiples of 8 and 12 from the two lists? What is the least common multiple of 8 and 12?</p> <p>Part C - Lyle noticed that the list of common multiples has a pattern. Describe a pattern in the list of numbers that Lyle might have seen.</p> <ul style="list-style-type: none"> The United States wants to adopt another state into our country. If another state joins the United States would it be possible to arrange the stars of the new flag in rows, where each row has the same number of stars? Explain why or why not using your divisibility rules The wing span of a red robin is 2×3^3 cm long. The wing span of a blue jay is $2^2 \times 3^2$ cm long. Which bird has the larger wing span? Compare the

		<p>composite.</p> <p>Learning Goal 8: Find the prime factorization of a number written in exponential form.</p> <p>Learning Goal 9: Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two numbers less than or equal to 12.</p>	<p>prime factorization of the wing spans.</p>
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Unit 2 Vocabulary

Mixed Number; Improper Fractions; Equivalent Fractions; Reciprocal; Product ; Quotient; Divisible; Prime Numbers; Composite Numbers; Prime Factorization; Greatest Common Factor; Least Common Multiple

Suggested Activities/Modifications

Below is a list of suggested activities, modifications, accommodations, and enrichment opportunities. This includes, but is not limited to,:

1. Activities
 - a. Practice/review games
 - b. Task cards
 - c. One quiz and one test
2. English Language Learners.
 - a. Read written instructions.
 - b. Model and provide examples
 - c. Extended time on assessments when needed.
 - d. Establish a non-verbal cue to redirect student when not on task.
 - e. Students may use a bilingual dictionary.

3. Special Education/504 Students.
- Students may be provided with note organizers / study guides to reinforce key topics.
 - Extended time on assessments when needed.
 - Preferred seating to be determined by student and teacher.
 - Provide modified assessments when necessary.
 - Student may complete assessments in alternate setting when requested.
 - Establish a non-verbal cue to redirect student when not on task.
 - Maintain strong teacher / parent communication.
4. Gifted and Talented Students.
- Find the GCF or LCM of larger numbers.
 - Complex order of operation problems with exponents.
 - Provide enrichment activities to expand upon the curriculum.
 - Use higher level questioning techniques in class and on assessments.

New Jersey Student Learning Standards - Technology

- 8.1.8.A.3 Use and/or develop a simulation that provides an environment to solve a real world problem or theory.
- 8.2.8.A.4 Redesign an existing product that impacts the environment to lessen its impact(s) on the environment.

Career Readiness Practices

- CRP1. Act as a responsible and contributing citizen and employee.
- 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.




NJSLS 9.2 - Career Awareness, Exploration, and Preparation

- 9.2.8.B.3 Evaluate communication, collaboration, and leadership skills that can be developed through school, home, work, and extracurricular activities for use in a career.

English Language Development Standard 3: Language of Mathematics: Ratios and Proportional Relationships #3 (Grade 6): 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.

Interdisciplinary Connections: Instructional connections through working with authentic scenarios, teachers should help students see how expressions can represent situations in life and will reflect their specific grade-level coursework in other content areas, such as English language arts, reading, science, social studies, world languages, physical education, and fine arts, among others.

Unit 3

Unit 3 Rational Numbers		Standard Mastery Examples
Content & Practice Standards	SMP	Critical Knowledge & Skills
<p>Topic A & B : Positive and Negative Numbers on a Number Line & Absolute Value</p> <p>6.NS.C.5. Understand that positive and negative numbers are used together to describe quantities having opposite directions or use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.</p> <p>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 of a number is the number itself, e.g., $-(-3) = 3$, and that 0 is its own opposite.</p> <p>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.</p> <p>6.NS.C.7. Understand ordering and absolute value of rational</p>	<p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.3 Construct viable arguments and 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"> Positive and negative numbers, used together, describe quantities having opposite directions or opposite values. Opposite signs of numbers indicate locations on opposite sides of 0 on the number line. The opposite of the opposite of a number is the number itself (e.g. the opposite of three is -3. The opposite of the opposite of three, $-(-3)$, is equal to the original number, 3). The absolute value of a rational number is its distance from 0 on the number line. <p>Students are able to:</p> <ul style="list-style-type: none"> represent quantities with positive and negative numbers in real-world contexts. interpret positive and negative numbers in real-world contexts. explain the meaning of zero, in context, in each real-world situation
<p>Can be used on formative, summative, benchmark, and alternative assessments.</p> <ul style="list-style-type: none"> Denver, Colorado is called “The Mile High City” because its elevation is 5280 feet above sea level. Someone tells you that the elevation of Death Valley, California is -282 feet. <ol style="list-style-type: none"> Is Death Valley located above or below sea level? Explain. How many feet higher is Denver than Death Valley? Below is a number line with 0 and 1 labeled: <div style="text-align: center;">  </div> <ol style="list-style-type: none"> Find and label the numbers -2 and -4 on the number line. Explain. Find and label the numbers $-(-2)$ and $-(-4)$ on the number line. Explain. Find and label the number -0 on the number line. Explain. 	<p>Can be used on formative, summative, benchmark, and alternative assessments.</p> <ul style="list-style-type: none"> Denver, Colorado is called “The Mile High City” because its elevation is 5280 feet above sea level. Someone tells you that the elevation of Death Valley, California is -282 feet. <ol style="list-style-type: none"> Is Death Valley located above or below sea level? Explain. How many feet higher is Denver than Death Valley? Below is a number line with 0 and 1 labeled: <div style="text-align: center;">  </div> <ol style="list-style-type: none"> Find and label the numbers -2 and -4 on the number line. Explain. Find and label the numbers $-(-2)$ and $-(-4)$ on the number line. Explain. Find and label the number -0 on the number line. Explain. 	<p>Can be used on formative, summative, benchmark, and alternative assessments.</p> <ul style="list-style-type: none"> Denver, Colorado is called “The Mile High City” because its elevation is 5280 feet above sea level. Someone tells you that the elevation of Death Valley, California is -282 feet. <ol style="list-style-type: none"> Is Death Valley located above or below sea level? Explain. How many feet higher is Denver than Death Valley? Below is a number line with 0 and 1 labeled: <div style="text-align: center;">  </div> <ol style="list-style-type: none"> Find and label the numbers -2 and -4 on the number line. Explain. Find and label the numbers $-(-2)$ and $-(-4)$ on the number line. Explain. Find and label the number -0 on the number line. Explain.

numbers.
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 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation.

6.NS.C.7d. Distinguish comparisons of absolute value from statements about order.

- position rational numbers on horizontal and vertical number lines.
- locate numbers and their opposites on the number line and explain their relation to 0.
- given an inequality, determine the position of one rational number relative to another.
- Be able to add, subtract, multiply, and divide rational numbers.

Learning Goal 1: Use positive and negative numbers to represent quantities in real-world situations, explaining the meaning of zero in the context of the real-world situation.

Learning Goal 2: Locate rational numbers and their opposites on horizontal and vertical number line; explain their relation of the opposites to zero.

Learning Goal 3: Use statements of inequality to determine relative positions of two rational numbers on a number line; write and explain statements of order for rational numbers in real-world contexts.

Learning Goal 4: Explain the meaning of absolute value of a rational number as distance from zero on the number line and as magnitude for a positive or negative quantity in a real-world situation

iii. $-5 < -3$

- The table below shows the lowest elevation above sea level in three American cities.

City	State	Elevation above sea level	Elevation below
Denver	Colorado	5130	
New Orleans	Louisiana	-8	
Seattle	Washington	0	

Finish filling in the table as you think about the following statements. Decide whether each of the following statements is true or false. Explain your answer for each one.

- New Orleans is $|-8|$ feet below sea level.
- New Orleans is -8 feet below sea level.
- New Orleans is 8 feet below sea level.
 - Seattle is 0 feet above sea level.
 - Seattle is $|0|$ feet below sea level.
 - Denver is -5130 feet below sea level.
 - Denver is $|-5130|$ feet below sea level.
 - Denver is $-|5130|$ feet below sea level.

Topic C: The 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.

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.

MP.5 Use appropriate tools strategically.

MP.8 Look for and express regularity in repeated reasoning.

Concept(s):

- Signs of numbers in ordered pairs indicate their locations in quadrants of the coordinate plane.
- When two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes.

Students are able to:

- position pairs of rational numbers on a coordinate plane.
- explain the conditions for which pairs of points are reflections across an axis in the coordinate plane.

Learning Goal 5: Locate rational numbers and their opposites on horizontal and vertical number line; explain their relation of the opposites to zero.

Learning Goal 6: Plot pairs of positive and negative rational numbers in the coordinate plane; describe two ordered pairs that differ only by signs as reflections across one or both axes.

- Below is a number line with 0 and 1 labeled:

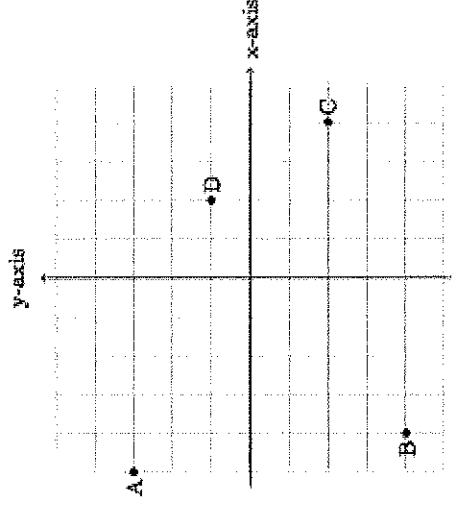


a. Find and label the numbers -2 and -4 on the number line. Explain.

b. Find and label the numbers $-(-2)$ and $-(-4)$ on the number line. Explain

c. Find and label the number -0 on the number line. Explain.

- Below are some points in the coordinate plane:



- Find the coordinates of the points.
- Reflect the points over the x-axis and find the coordinates of the new points: label the reflection of point A as A', the reflection of B as B', the reflection of C as C', and the reflection of D as D'.
- Reflect the points from (b) over the y-axis: label the reflection

			<p>of point A' as A'', the reflection of B' as B'', the reflection of C' as C'', and the reflection of D' as D''.</p> <p>d. How do the points A'', B'', C'', D'' from (c) relate to the points A, B, C, and D?</p>
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Unit 3 Vocabulary

Integers; Opposites; Absolute Value; Coordinate Plane; Quadrants; Ordered Pairs; Perimeter; Symmetry; Reflection

Suggested Activities/Modifications

Below is a list of suggested activities, modifications, accommodations, and enrichment opportunities. This includes, but is not limited to,:

1. Activities
 - a. Practice/review games
 - b. Integer project
 - c. One-three quizzes and one test
2. English Language Learners.
 - a. Read written instructions.
 - b. Students may be provided with note organizers / study guides to reinforce key topics.
 - c. Model and provide examples
 - d. Extended time on assessments when needed.
 - e. Establish a non-verbal cue to redirect student when not on task.
 - f. Students may use a bilingual dictionary.
3. Special Education/504 Students.
 - a. Students may be provided with note organizers / study guides to reinforce key topics.
 - b. Extended time on assessments when needed.
 - c. Preferred seating to be determined by student and teacher.
 - d. Provide modified assessments when necessary.

- e. Student may complete assessments in alternate setting when requested.
 - f. Establish a non-verbal cue to redirect student when not on task.
 - g. Maintain strong teacher / parent communication.
4. Gifted and Talented Students
- a. Solving two step inequalities.
 - b. Order of operations with integers.
 - c. Provide enrichment activities to expand upon the curriculum.
 - d. Use higher level questioning techniques in class and on assessments.

Career Readiness Practices

- CRP1. Act as a responsible and contributing citizen and employee.
- 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.

New Jersey Student Learning Standards - Technology

- 8.1.8.A.2 Create a document (e.g. newsletter, reports, personalized learning plan, business letters or flyers) using one or more digital applications to be critiqued by professionals for usability.
- 8.1.8.A.3 Use and/or develop a simulation that provides an environment to solve a real world problem or theory.
- 8.1.8.A.4 Graph and calculate data within a spreadsheet and present a summary of the results.
- 8.2.8.A.4 Redesign an existing product that impacts the environment to lessen its impact(s) on the environment.

NJSLS 9.2 - Career Awareness, Exploration, and Preparation

- 9.2.8.B.3 Evaluate communication, collaboration, and leadership skills that can be developed through school, home, work, and extracurricular activities for use in a career.

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Unit 4

Unit 4 Expressions and Equations		SMP	Critical Knowledge & Skills	Standard Mastery Examples
Content & Practice Standards				
<p>Topics A & D: Relationships of the Operations & Expanding, Factoring, and Distributing Expressions</p> <p>6.EE.A.3. Apply the properties of operations to generate equivalent expressions. <i>For example, apply the distributive property to the expression $3(2 + x)$ to produce the equivalent expression $6 + 3x$; apply the distributive property to the expression $24x + 18y$ to produce the equivalent expression $6(4x + 3y)$; apply properties of operations to $y + y + y$ to produce the equivalent expression $3y$</i></p> <p>6.EE.A.2. Write, read, and evaluate expressions in which letters stand for numbers</p> <p>6.EE.A.2a. Write expressions that record operations with numbers and with letters standing for numbers. <i>For example, express the calculation "Subtract y from 5" as $5 - y$.</i></p> <p>6.EE.A.2b. Identify parts</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"> Properties of operations: distributive property, combining like terms Solving multi-step problems according to the order of operations <p>Students are able to:</p> <ul style="list-style-type: none"> Write algebraic expressions from verbal descriptions. Use mathematical terms (sum, term, product, factor, quotient, coefficient) to identify the parts of an expression. Evaluate algebraic expressions and formulas, including those involving exponents. Combine like terms to generate an equivalent expression. Factor to generate an equivalent expression. Multiply (apply the distributive property) to generate an equivalent expression. <p>Learning Goal 1: Apply Commutative, Associative, and Distributive Properties to numerical and algebraic expressions to create equivalent expressions.</p> <p>Learning Goal 2: Apply properties of operations (factor, distribute, and combine like terms) to generate equivalent expressions and to identify when two expressions are equivalent.</p>	<p>Can be used on formative, summative, benchmark, and alternative assessments.</p> <ul style="list-style-type: none"> Brianna's teacher: Select each expression that is equivalent to $3(n + 6)$. Select all that apply. <ul style="list-style-type: none"> A. $3n + 6$ B. $3n + 18$ C. $2n + 2 + n + 4$ D. $2(n + 6) + (n + 6)$ E. $2(n + 6) + n$ Brianna says that: <ul style="list-style-type: none"> Brianna's thinking <ul style="list-style-type: none"> Identify the error Determine what to explain or show <p>when $x = 0$.</p> <ul style="list-style-type: none"> Identify which properties state the following: <ul style="list-style-type: none"> <input type="radio"/> $ca = ac$ <input type="radio"/> $a + (b + c) = (a + b) + c$ <input type="radio"/> $m(n + k) = mn + nk$ 	

<p>of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity. <i>For example, describe the expression $2(8 + 7)$ as a product of two factors; view $(8 + 7)$ as both a single entity and a sum of two terms</i></p> <p>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). <i>For example, the expressions $y + y + y$ and $3y$ are equivalent because they name the same number regardless of which number y stands for</i></p>	<p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.7 Look for and make use of structure.</p>	<p>Concept(s): No new concept(s) introduced</p> <p>Students are able to:</p> <ul style="list-style-type: none"> Evaluate algebraic expressions and formulas, including those involving exponents. Write numerical expressions (involving whole number exponents) from verbal descriptions. Evaluate numerical expressions involving whole number exponents. <p>Learning Goal 3: Write and evaluate numerical expressions involving whole number exponents.</p>	<ul style="list-style-type: none"> The ideal cooking time, in minutes, for a turkey that weighs p pounds is given by the expression $15 + 20p$. Which of the following shows the expression written as the product of the GCF and a sum? <ul style="list-style-type: none"> F $15p + 20$ G $15(1 + 20p)$ H $5(3 + 20p)$ J $5(3 + 4p)$
<p>Topic B: Special Notations of Operations</p> <p>6.EE.A.1. Write and evaluate numerical expressions involving whole-number exponents</p> <p>6.EE.A.2. Write, read, and evaluate expressions in which letters stand for numbers</p> <p>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</p>			<ul style="list-style-type: none"> After opening an ancient bottle you find on the beach, a Djinni appears. In payment for his freedom, he gives you a choice of either 50,000 gold coins or one magical gold coin. The magic coin will turn into two gold coins on the first day. The two coins will turn into four coins total at the end of two days. By the end of the third day there will be eight gold coins total. The Djinni explains that the magic coins will continue this pattern of doubling each day for one moon cycle, 28 days. Which prize do you choose? <p>When you have made your choice, answer these questions:</p> <p>The number of coins on the third day will be $2 \times 2 \times 2$. Can</p>

operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations). *For example, use the formulas $V = s^3$ and $A = 6s^2$ to find the volume and surface area of a cube with sides of length $s = \frac{1}{2}$*

Topics C, E, & F: Replacing Letters and Numbers, Expressing Operations in Algebraic Form, and Writing/Evaluating Expressions and Formulas

6.EE.A.2. Write, read, and evaluate expressions in which letters stand for numbers

6.EE.A.2.c. 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). *For example, use the formulas $V = s^3$ and $A = 6s^2$ to find the volume*

operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations). *For example, use the formulas $V = s^3$ and $A = 6s^2$ to find the volume and surface area of a cube with sides of length $s = \frac{1}{2}$*

MP.2 Reason abstractly and quantitatively.

MP.6 Attend to precision.

MP.7 Look for and make use of structure.

Concept(s):

- A variable can represent an unknown number or any number in a set of numbers.
- Using substitution to replace variables with numbers

Students are able to:

- Write expressions for solving real-world problems.
- Translate between word phrases and algebraic expressions
- Complete sequence tables and write algebraic expressions based on sequence tables.

Learning Goal 4: Write and evaluate algebraic expressions involving exponents (include evaluating formulas).

you write another expression using exponents for the number of coins there will be on the third day? Write an expression for the number of coins there will be on the 28th day. Is this more or less than a million coins?

- Jake tells a joke to 3 people and each of those people tells the joke to 3 more people, and so on. How many people will hear the joke in the 4th round of jokes told? How many people will hear the joke in total after the fourth round?

- Apply the formula $A = s^2$ to determine the area of a square that has a side length of 8.5 inches.

Clear Lake Kayak Rentals				
Number of Hours	1	2	3	4
Total Cost (\$)	15	20	25	30

- option of take home kayak?

- To compute the perimeter of a rectangle you add the length, l and width, w and double this sum.

- Write an expression for the perimeter of a rectangle.

- Use the expression to find the perimeter of a rectangle with length 30 and width 75.

- Determine the value of...

$$a^2 + 3b \div c - 2d, \text{ when } a = 3, b = 8, c = 2, \text{ and } d = 5?$$

- Casey brought \$36.75 with her to the state fair. She bought three admission tickets into the fair, and each ticket cost x dollars. Write an expression that represents the amount of money, in dollars, that Casey had after she bought the tickets.

- The table below shows the cost of renting a kayak.

and surface area of a cube with sides of length $s = \frac{1}{2}$

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).

For example, the expressions $y + y + y$ and $3y$ are equivalent because they name the same number regardless of which number y stands for

6.EE.A.2. Write, read, and evaluate expressions in which letters stand for numbers

6.EE.A.2a. Write expressions that record operations with numbers and with letters standing for numbers. *For example, express the calculation "Subtract y from 5" as $5 - y$.*

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. *For example, describe the expression $2(8 + 7)$ as a product of two factors; view $(8 + 7)$ as both a single entity and a sum of two terms*

Learning Goal 5: Use variables to represent numbers and write expressions when solving real world or mathematical problems.

Learning Goal 6: Use mathematical language to identify parts of an expression.

Learning Goal 7: Create and complete sequence tables given algebraic expression or determine algebraic expression based on given sequence table.

- Write 2 difference expressions that can be used for renting the kayak for h hours.
- How much does it cost to rent the kayak for 6 hours?

- Given the following table, write 2 possible expressions that could be used in this table. (6 points)

Position	3	n
Value of Term	10	?

Rule 1: _____ Rule 2: _____

- Write an algebraic expression for the following sequence table and use this expression to determine what the 9th term would be.

Position	1	2	3	4	n
Value of Term	2	6	10	14	?

- What is an expression that can represent the expression " $18 - y$ ". Select all that apply.
 - subtract 18 from y
 - y less than 18
 - the difference between 18 and y
 - take away 18 from y
 - 18 minus y

<p>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.</p>			
<p>Topic C: Solving Equations</p> <p>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> <p>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.</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.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>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"> Solving an equation is a process of answering the question: determine which values from a specified set, if any, make the equation or true. An equation is defined by two expressions that are equivalent to one another. Two quantities that change in relationship to one another may be represented with an equation in two variables, with a graph, and with a table of values. <p>Students are able to:</p> <ul style="list-style-type: none"> Substitute a number into an equation to determine whether it makes an equation true. Solve real world problems by writing and solving equations of the form $x + p = q$ (p, q, and x are non-negative and rational). Solve real world problems by writing and solving equations of the form $px = q$ (p, q, and x are non-negative and rational). Represent two quantities that related to one another, with variables. Write an equation in two variables. Distinguish the dependent variable from the independent variable. 	<ul style="list-style-type: none"> A town's total allocation for firefighter's wages and benefits in a new budget is \$600,000. If wages are calculated at \$40,000 per firefighter and benefits at \$20,000 per firefighter, write an equation whose solution is the number of firefighters the town can employ if they spend their whole budget. Solve the equation. The White House is 246 feet tall. A capital fact sheet states that it is 2,552 inches tall. Determine if these two measurements are equal. Explain. Determine whether the given value of the variable is a solution. <ul style="list-style-type: none"> $94 \div s = 26$ for $s = 3$ $v + 79 = 167$ for $v = 88$ Scott has 3 times as many cards in his hand then Jim. Scott has 54 cards. How many does Jim have? Write and solve an algebraic equation. Let $j = \#$ of Jim's cards. Jamie rented a canoe while she was on a camping trip with her family. She paid a flat rental fee of \$85 plus \$9 per day of her trip. In total, she paid \$130 for the canoe. Write AND solve a two-step equation using d for days to see how long she rented the canoe for. Chris is ordering art supplies. Each canvas costs \$16 and the shipping and handling charges are \$6 for the whole order. The total cost y depends on the number of canvases x. This function is described by the equation $y = 16x + 6$. To find the solution of the equation with 2

<p>Topic H: Relationships of the Operations & Expanding, Factoring, and Distributing Expressions</p> <p>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> <p>6.EE.B.6. Use variables to</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>	<ul style="list-style-type: none"> Analyze a given graph and table of values, and relate them to the equation. <p>Learning Goal 8: Use substitution to determine whether a given number makes an equation or true.</p> <p>Learning Goal 9: Solve real world problems by writing and solving equations of the form $x + p = q$ and $px = q$ ($p, q,$ and x are non-negative rational numbers).</p> <p>Learning Goal 10: Use knowledge of inverse operations to solve two-step equations and write two-step equations based off real-life situations.</p> <p>Learning Goal 11: Write an equation using two variables (independent and dependent) to represent two quantities that change in relationship to one another in a real world problem.</p> <p>Learning Goal 12: Analyze the relationship between the dependent and independent variables and relate the equation to a given graph and to its table of values.</p>	<p>variables, first choose a replacement value for one variable and then find the value of the other variable.</p> <ul style="list-style-type: none"> Use the given $x/$ values to write solutions of the equation $y=16x -6$ as ordered pairs. $X = 1, 2, 3,4$. Show the ordered pairs. <ul style="list-style-type: none"> Karen buys 4 bouquets of flowers. How many flowers does she buy if each bouquet contains 10, 12, 14, or 16 flowers? Write an equation letting n equal the amount of flowers in each bouquet and f represent the total number of flowers.
<p>Topic H: Relationships of the Operations & Expanding, Factoring, and Distributing Expressions</p> <p>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> <p>6.EE.B.6. Use variables to</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"> Solving an inequality is a process of answering the question: determine which values from a specified set, if any, make the equation or inequality true. An inequality may represent a constraint (or a condition) in a real-world problem. Infinity ($x > c$ and $x < c$ have an infinite number of solutions). A variable can represent an unknown number or any number in a set of numbers. Two quantities that change in relationship to one another may be represented with an equation in two variables, with a graph, and 	<ul style="list-style-type: none"> A theme park has a log ride that can hold 12 people. They also have a weight limit of 1500 lbs per log for safety reasons. If the average adult weighs 150 lbs, the average child weighs 100 lbs and the log itself weighs 200, the ride can operate safely if the inequality $150A+100C+200 \leq 1500$ is satisfied (A is the number of adults and C is the number of children in the log ride together). There are several groups of children of differing numbers waiting to ride. Group one has 4 children, group two has 3 children, group three has 9 children, group four 6 children while group five has 5 children. If 4 adults are already seated in the log, which groups of children can safely ride with them? <ul style="list-style-type: none"> Fishing Adventures rents small fishing boats to tourists

<p>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.</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>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>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. <i>For example, in a problem involving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation $d = 65t$ to</i></p>	<p>MP.6 Attend to precision.</p> <p>MP.7 Look for and make use of structure.</p>	<p>with a table of values.</p> <p>Students are able to:</p> <ul style="list-style-type: none"> • Write inequality statements to represent real-life situations • Substitute a number into an inequality to determine whether it makes the inequality true. • Represent real-world constraint or condition by writing an inequality of the form $x > c$ or $x < c$. • Graph inequalities of the form $x > c$ or $x < c$ on number lines. <p>Learning Goal 13: Use substitution to determine whether a given number makes an equation or inequality true.</p> <p>Learning Goal 14: Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real world or mathematical problem and represent them on a number line.</p> <p>Learning Goal 15: Write, interpret, and graph simple inequalities as presented in real-life situations.</p> <p>Learning Goal 16: Write, interpret, and graph simple inequalities as presented in real-life situations.</p>	<p>for day-long fishing trips. Each boat can hold at most eight people. Additionally, each boat can only carry 900 pounds of weight for safety reasons.</p> <p>A) Let p represent the total number of people. Write an inequality to describe the number of people that a boat can hold. Draw a number line diagram that shows all possible solutions.</p> <p>B) Let w represent the total weight of a group of people wishing to rent a boat. Write an inequality that describes all total weights allowed in a boat. Draw a number line diagram that shows all possible solutions.</p> <ul style="list-style-type: none"> • Water freezes at 32°F and boils at 212°F. Write 3 inequalities to show the ranges of temperatures for which water is a solid (frozen), liquid (neither frozen nor boiling), and gas (boiling). • Translate and graph the following simple inequalities. <ul style="list-style-type: none"> ○ No more than 18 students got first honor roll. ○ Fewer than 85 members attended the meeting. ○ There were at least 41 parents in attendance. ○ The height of the tree is above 18 feet. <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>Circle which of the following values satisfy each inequality.</p> $\frac{m}{-16} < 8$ <p style="text-align: center;">-120 -100 -110 -115</p> </div> <ul style="list-style-type: none"> ○ Write a real-life situation to represent this simple inequality: <div style="text-align: center; margin-top: 10px;"> <p style="text-align: center;">-3 -2 -1 0 1 2 3 4 5 6 7</p> </div>
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represent the relationship between distance and time.

Unit 4 Vocabulary

Distribute; Distributive Property; Commutative Property; Associative Property; Factor; Coefficient; Term ; Equivalent; Equivalent Expressions; Exponent; Base; Power; Exponential Form; Variable; Expression; Equation; Substitute; Evaluate; Inverse Operations; Solution; Solution Set; Inequality; Simple Inequality; Compound ; Inequality; Translate

Suggested Activities/Modifications

Below is a list of suggested activities, modifications, accommodations, and enrichment opportunities. This includes, but is not limited to, :

1. Activities
 - a. Practice/review games
 - b. Scavenger Hunt
 - c. Modeling Expressions/Equations with Algebra Tiles
 - d. Three quizzes and one test
2. English Language Learners.
 - a. Read written instructions.
 - b. Model and provide examples
 - c. Extended time on assessments when needed.
 - d. Establish a non-verbal cue to redirect student when not on task.
 - e. Students may use a bilingual dictionary.
3. Special Education/504 Students.
 - a. Students may be provided with note organizers / study guides to reinforce key topics.
 - b. Extended time on assessments when needed.
 - c. Preferred seating to be determined by student and teacher.
 - d. Provide modified assessments when necessary.
 - e. Student may complete assessments in alternate setting when requested.
 - f. Maintain strong teacher / parent communication.

4. Gifted and Talented Students.
- Write algebraic expressions for everyday situations.
 - Solve two step equations.
 - Provide enrichment activities to expand upon the curriculum.
 - Use higher level questioning techniques in class and on assessments.

New Jersey Student Learning Standards - Technology

- 8.1.8.A.2 Create a document (e.g. newsletter, reports, personalized learning plan, business letters or flyers) using one or more digital applications to be critiqued by professionals for usability.
- 8.1.8.A.3 Use and/or develop a simulation that provides an environment to solve a real world problem or theory.
- 8.1.8.A.4 Graph and calculate data within a spreadsheet and present a summary of the results.
- 8.2.8.A.4 Redesign an existing product that impacts the environment to lessen its impact(s) on the environment.

Career Readiness Practices

- CRP1. Act as a responsible and contributing citizen and employee.
- 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.

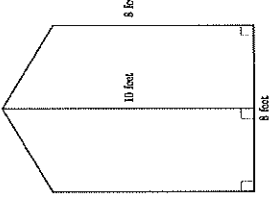
NJSLS 9.2 - Career Awareness, Exploration, and Preparation

- 9.2.8.B.3 Evaluate communication, collaboration, and leadership skills that can be developed through school, home, work, and extracurricular activities for use in a career.

Interdisciplinary Connections:

- Develop Reading Comprehension Strategies when solving word problems.
- Write an equation on the board, such as $3n=18$. Have students write real world word problems that would use the equation to solve.
- Connect life events to equations by creating word problems that reflect real world situations.

Unit 5

Unit 5 Area, Surface Area, and Volume		Standard Mastery Examples
Content & Practice Standards	SMP	Critical Knowledge & Skills
<p>Topic A: Area of Triangles, Quadrilaterals, and Polygons</p> <p>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>	<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>MP.7 Look for and make use of structure.</p>	<p>Can be used on formative, summative, benchmark, and alternative assessments.</p> <ul style="list-style-type: none"> Jamie is planning to cover a wall with red wallpaper. The dimensions of the wall are shown below:  <ul style="list-style-type: none"> 1) How many square feet of wallpaper are required to cover the wall? 2) Wallpaper comes in long rectangular strips which are 24 inches wide. If Jamie lays the strips of wallpaper vertically, can she cover the wall without wasting any wallpaper? Explain. 3) If Jamie lays the strips of wallpaper horizontally, can she cover the wall without wasting any wallpaper? Explain
<p>Topics B & C: Volume of Right Rectangular Prisms & Nets and Surface Area</p> <p>6.G.A.2. Find the volume of a right rectangular prism with fractional edge lengths by</p>	<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"> Apply area formulas for quadrilaterals and triangles Use knowledge of area formulas to break down composite figures into smaller polygons and determine area <p>Students are able to:</p> <ul style="list-style-type: none"> Compose rectangles in order to find the area of triangles, special quadrilaterals and polygons. Decompose triangles, special quadrilaterals, and polygons into triangles and other shapes in order to find their area. Compose rectangles and decompose into triangles in order to solve real-world problems. <p>Learning Goal 1: Find the area of right triangles, other triangles, special quadrilaterals and polygons by composing into rectangles or decomposing into triangles</p> <p>Concept(s):</p> <ul style="list-style-type: none"> No new concept(s) introduced <p>Students are able to:</p> <ul style="list-style-type: none"> Pack a right rectangular prism with fractional

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.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.

quantitatively.
MP.4 Model with mathematics.

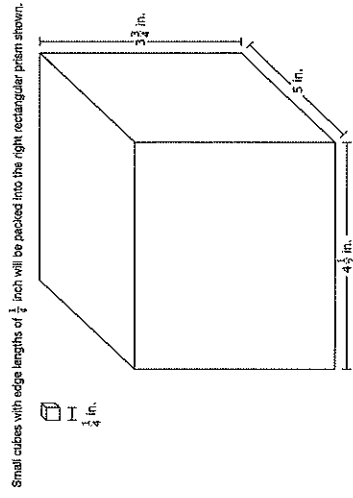
MP.5 Use appropriate tools strategically

- edge lengths with unit fraction cubes.
- Show that the volume found by packing is the same as would be found by multiplying the edge lengths of the prism.
- Apply volume formulas, $V = lwh$ and $V = bh$, to right rectangular prisms with fractional edge lengths.
- Represent three dimensional objects with nets made up of rectangles and triangles.
- Find surface area of three-dimensional objects using nets.
- Solve real world and mathematical problems involving surface area using nets.

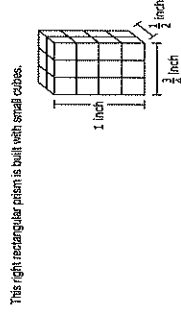
Learning Goal 2: Write and evaluate algebraic expressions involving exponents (include evaluating formulas).

Learning Goal 3: Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes and show that the volume is the same as it would be if found by multiplying the edge lengths; apply volume formulas to right rectangular prisms with fractional edge lengths.

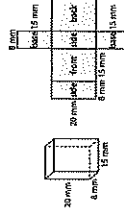
Learning Goal 4: Represent three dimensional figures objects with nets made of rectangles and triangles, and use the nets to find the surface area of the figures in order to solve real world and mathematical problems.



How many small cubes are needed to completely fill this right rectangular prism?

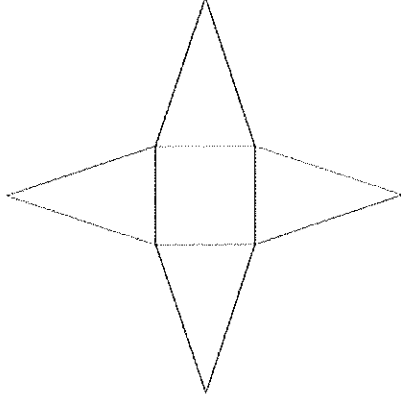


Part A
What is the volume, in cubic inches, of the right rectangular prism?



- A: The lateral area L of a prism is the area of all faces except the bases.
 $L = 2l + 2lw + 2lh$
 B: The area A of each base is _____
 C: The surface area of the prism is the sum of the lateral area L and the total area of the bases, or _____

- Below is the net for a three-dimensional shape.



The inner quadrilateral is a square and the four triangles all have the same size and shape.

- 1) What three dimensional shape does this net make? Explain.
- 2) If the side length of the square is 2 units and the height of the triangles is 3 units, what is the surface area of this shape?

Unit 5 Vocabulary

Polygon; Quadrilateral; Square; Rectangle; Parallelogram; Trapezoid; Triangle; Congruent; Parallel; Perpendicular; Right Angle; Base; Height; Surface Area; Volume; Cubic units; Squared units; Prism; Pyramid; 2-Dimensional Shape; 3-Dimensional Shape; Composite Figure

Suggested Activities/Modifications

Below is a list of suggested activities, modifications, accommodations, and enrichment opportunities. This includes, but is not limited to, :

1. Activities
 - a. Practice/review games
 - b. One quiz and one test
2. English Language Learners.
 - a. Read written instructions.
 - b. Students may be provided with note organizers / study guides to reinforce key topics.
 - c. Model and provide examples
 - d. Extended time on assessments when needed.
 - e. Establish a non-verbal cue to redirect student when not on task.
 - f. Students may use a bilingual dictionary.
3. Special Education/504 Students.
 - a. Students may be provided with note organizers / study guides to reinforce key topics.
 - b. Extended time on assessments when needed.
 - c. Preferred seating to be determined by student and teacher.
 - d. Provide modified assessments when necessary.
 - e. Student may complete assessments in alternate setting when requested.
 - f. Maintain strong teacher / parent communication.
4. Gifted and Talented Students.
 - a. Solid and net manipulatives
 - b. Deconstructing real-life objects – cereal boxes, tissue boxes, etc.

New Jersey Student Learning Standards - Technology

- 8.1.8.A.2 Create a document (e.g. newsletter, reports, personalized learning plan, business letters or flyers) using one or more digital applications to be critiqued by professionals for usability.
- 8.1.8.A.3 Use and/or develop a simulation that provides an environment to solve a real world problem or theory.
- 8.1.8.A.4 Graph and calculate data within a spreadsheet and present a summary of the results.
- 8.2.8.A.4 Redesign an existing product that impacts the environment to lessen its impact(s) on the environment.

Career Readiness Practices

- CRP1. Act as a responsible and contributing citizen and employee.
- 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.

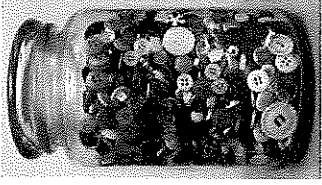
NJSLS 9.2 - Career Awareness, Exploration, and Preparation


- 9.2.8.B.3 Evaluate communication, collaboration, and leadership skills that can be developed through school, home, work, and extracurricular activities for use in a career.

Interdisciplinary Connections: Recap earlier science unit on volume of rectangular prisms.

Unit 6

Unit 6 Statistics

Unit 6 Statistics		Critical Knowledge & Skills	Standard Mastery Examples
Content & Practice Standards	SMP		
<p>Topic A: Understanding Distributions</p> <p>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.</p> <p>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.</p> <p>6.SP.B.4. Display numerical data in plots on a number line, including dot plots, histograms, and box plots.</p> <p>6.SP.B.5. Summarize numerical data sets in relation to their context, such as by:</p> <p>6.SP.B.5b. Describing the nature of the attribute under investigation, including how it was measured and its units of measurement</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>MP.6 Attend to precision</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> A statistical question is one that anticipates variability in the data that is related to the question A data set has a distribution which can be described by its center, spread, and overall shape. <p>Students are able to:</p> <ul style="list-style-type: none"> Display categorical and numerical data in a frequency table Display numerical data in dot plots on a number line. Display numerical data in histograms on a number line. Display numerical data in box plots on a number line. Distinguish questions that are statistical (anticipate variability in data) from those that are not. <p>Learning Goal 1: Distinguish questions that are statistical (anticipate variability in data) from those that are not.</p> <p>Learning Goal 2: Display numerical data in plots on the number line (including dot plots, histograms, and box plots) and summarize in relation to their</p>	<p>Can be used on formative, summative, benchmark, and alternative assessments.</p> <ul style="list-style-type: none"> Zeke likes to collect buttons and he keeps them in a jar. Zeke can empty the buttons out of the jar, so he can see all of his buttons at once.  <p>Which of the following are statistical questions that someone could ask Zeke about his buttons? (A statistical question is one that anticipates an answer based on data that vary.) For each question, explain why it is or is not a statistical question.</p> <ol style="list-style-type: none"> What is a typical number of holes for the buttons in the jar? How many buttons are in the jar? How large is the largest button in the jar? If Zeke grabbed a handful of buttons, what are the chances that all of the buttons in his hand are round? What is a typical size for the buttons in the jar? How are these buttons distributed according to color? Write another statistical question related to Zeke's button collection. <ul style="list-style-type: none"> The number of siblings for a group of sixth grade students is shown below: 1,0,2,1,6,0,2,0,1,1,0.

<p>Topics B and C: Summarizing a Distribution that is Approximately Symmetric Using the Mean and Mean Absolute Deviation and Summarizing a Distribution that is Skewed Using the Median and the Interquartile Range</p> <p>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.</p> <p>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>	<p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.4 Model with mathematics.</p> <p>MP.5 Use appropriate tools strategically.</p>	<p>context.</p>	<ul style="list-style-type: none"> <p>James surveyed a class of students. She recorded the number of hours that each student volunteered. This bar shows the results of her survey.</p>  <p>How many students did James survey? Enter your answer in the box: <input type="text"/></p> <p>What is the mean number of hours volunteered by the students in the survey? Enter your answer in the box: <input type="text"/></p>
<p>Concept(s):</p> <ul style="list-style-type: none"> A measure of center summarizes, with a single number, the values of an entire data set. A measure of variation describes, with a single number, how the values of a data set vary. Variability/Variation in numerical data or presentations of data A data set has a distribution which can be described by its center, spread, and overall shape. <p>Students are able to:</p> <ul style="list-style-type: none"> Compute mean, median, mode, and range of data sets and be able to explain how outliers can affect measures of central tendency Determine the number of observations of a data set. Describe the data in context, including how it 	<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"> A measure of center summarizes, with a single number, the values of an entire data set. A measure of variation describes, with a single number, how the values of a data set vary. Variability/Variation in numerical data or presentations of data A data set has a distribution which can be described by its center, spread, and overall shape. <p>Students are able to:</p> <ul style="list-style-type: none"> Compute mean, median, mode, and range of data sets and be able to explain how outliers can affect measures of central tendency Determine the number of observations of a data set. Describe the data in context, including how it 	<ul style="list-style-type: none"> <p>Make a dot plot of the data.</p> <p>Find the mean and median of the data.</p> <p>What does the mean tell you about the data?</p> <p>What about the median?</p> <p>Which measure of average (mean or median) do you think best describes the data? Why?</p> <p>A veterinarian monitored 18 pregnant cats in a year. The number of kittens per litter were: 4, 2, 5, 6, 3, 5, 1, 4, 3, 6, 4, 3, 7, 2, 3, 9, 5. Using this information, make a box and whisker plot. What conclusions can you make about your data?</p> <p>Using the following information find mean, and median.</p> <ul style="list-style-type: none"> The wingspan in meters is given for the following... Airbus A330-60m, McDonnell Douglas DCB Super 63-45 m, Boeing 707-44 m, Ilyshin IL-96-300-58 m, Ilyshin IL-62-43m. If there is an outlier, remove it. Will the mean or median change. Why? <p>Bobbie is a sixth grader who competes in the 100 meter hurdles. In eight track meets during the season, she recorded the following times (to the nearest one hundredth of a second).</p> <p>18.11, 31.23, 17.99, 18.25, 17.50, 35.55, 17.44, 17.85</p> <ul style="list-style-type: none"> What is the mean of Bobbie's times for these track meets? What does this mean tell you in terms of the context? What is the median of Bobbie's times? What does this median tell you in terms of the context? What information can you gather by comparison

<p>6.SP.B.4. Display numerical data in plots on a number line, including dot plots, histograms, and box plots.</p> <p>6.SP.B.5. Summarize numerical data sets in relation to their context, such as by:</p> <ul style="list-style-type: none"> 6.SP.B.5a. Reporting the number of observations. 6.SP.B.5b. Describing the nature of the attribute under investigation, including how it was measured and its units of measurement. 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. 6.SP.B.5d. 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. 		<p>was measured and the units of measurement.</p> <ul style="list-style-type: none"> • Calculate measures of center, mean and median, as well as range • Calculate measures of spread, interquartile range and mean absolute deviation. • Create box and whisker plots given data sets and find interquartile range • Describe the overall shape of a distribution (skewed left, skewed right, etc). • Identify striking deviations (outliers). • Choose measures of center and variability appropriate to the shape of the distribution and context. <p>Learning Goal 3: Calculate, and interpret measures of center (mean and median) and variability (interquartile range and mean absolute deviation); report measures of center and variability appropriate to the shape of the distribution and context.</p>	<p>of the mean and median?</p> <ul style="list-style-type: none"> • Dennis wants to find out people's opinions on a new game system. He surveys 10 people to rate the new system from 1 to 10. In his survey, 1 means the system is extremely uncool and 10 means the system is the coolest. The survey shows the following ratings: 9, 7, 7, 8, 7, 9, 9, 3, 10, and 8. <ul style="list-style-type: none"> a. What is the interquartile range of the ratings? b. What is the mean absolute deviation of the ratings? c. What do these measures of variation indicate about the ratings for the game system? • Multiple Choice A box-and-whisker plot shows that the third quartile is the same as the median. Which data set could represent the data in the box-and-whisker plot? <ul style="list-style-type: none"> <input type="radio"/> A 0, 0, 0, 0, 0, 1, 1, 1, 1 <input type="radio"/> B 11, 15, 15, 15, 15, 16, 16 <input type="radio"/> C 0, 10, 20, 30, 40, 50, 60, 70 <input type="radio"/> D 8, 8, 8, 26, 26, 26, 55 • Write About It Describe how dramatically increasing one number in a data set affects the IQR and the mean absolute deviation. Explain which measure would be most affected by unusually large or small numbers in a data set. • In 1988, 77 year old John Glenn became the oldest person to travel into space. Other astronauts traveling on that same mission were 43, 37, 38, 46, 35, and 42 years old. Find the mean, median, and mode with and without Glenn's age. Explain how his age affected the measures of central tendency.
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Topic D: Summarizing and Describing Distributions

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, such as by:

6.SP.B.5a. Reporting the number of observations.

6.SP.B.5b. Describing the nature of the attribute under investigation, including how it was measured and its units of measurement.

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.

6.SP.B.5d. Relating the choice of measures of

MP.2 Reason abstractly and quantitatively.

MP.4 Model with mathematics.

MP.5 Use appropriate tools strategically.

Concept(s): No new concept(s) introduced

Students are able to:

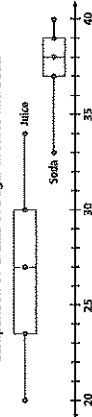
- Display and analyze data presented in a variety of ways
- Describe data distributions as either normal or skewed

Learning Goal 4: Summarize numerical data in relation to their context by identifying the number of observations and describing how the data was measured.

- **Short Response** A manager of a retirement home tracks the ages of each of the residents. She creates a dot plot with a number line from 0 to 100. Describe the most likely shape of the distribution of the manager's data, and explain why it will have that shape.

What conclusions can you make about the amount of sugar in each drink?

Comparison of Grams of Sugar in Juice and Soda



Think and Discuss

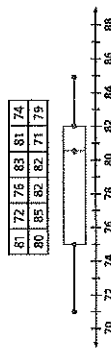
1. Explain how a box-and-whisker plot gives information that is hard to see by just looking at the numbers.
2. Describe the benefits of displaying data using a dot plot as opposed to a box-and-whisker plot.

- **3.A** The data set and dot plot display the grades of Ms. Lee's students. Describe the shape of the data distribution.

82	95	84	87	85	92	85	78	87	84	83
86	80	86	85	75	83	90	86	84	88	85



- The data set and box-and-whisker plot display the heights in inches of players on a basketball team. Describe the shape of the data distribution.



center and variability to the shape of the data distribution and the context in which the data were gathered.

Unit 6 Vocabulary

Data; Statistics; Frequency Table; Tally; Frequency; Interval; Scale; Histogram ; Line Plot; Variation; Box-and-whisker plot; Quartile; Interquartile Range; Measures of Central Tendency; Mean; Median; Mode; Outlier; Mean Absolute Deviation; Distribution

Suggested Activities/Modifications

Below is a list of suggested activities, modifications, accommodations, and enrichment opportunities. This includes, but is not limited to, :

1. Activities
 - a. Practice/review games
 - b. Review Stations
 - c. Desmos www.desmos.com
 - d. One quiz and one test
2. English Language Learners.
 - a. Read written instructions.
 - b. Students may be provided with note organizers / study guides to reinforce key topics.
 - c. Model and provide examples
 - d. Extended time on assessments when needed.
 - e. Establish a non-verbal cue to redirect student when not on task.
 - f. Students may use a bilingual dictionary.
3. Special Education/504 Students.
 - a. Students may be provided with note organizers / study guides to reinforce key topics.
 - b. Extended time on assessments when needed.
 - c. Preferred seating to be determined by student and teacher.
 - d. Provide modified assessments when necessary.
 - e. Student may complete assessments in alternate setting when requested.
 - f. Establish a non-verbal cue to redirect student when not on task.
 - g. Maintain strong teacher / parent communication.

4. Gifted and Talented Students.
- Data-Statistics Project
 - Desmos Activity
 - Use of Excel

New Jersey Student Learning Standards - Technology

- 8.1.8.A.3 Use and/or develop a simulation that provides an environment to solve a real world problem or theory.
 8.1.8.A.4 Graph and calculate data within a spreadsheet and present a summary of the results.
 8.2.8.A.4 Redesign an existing product that impacts the environment to lessen its impact(s) on the environment.

Career Readiness Practices

- CRP1. Act as a responsible and contributing citizen and employee.
- 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.

NJSLS 9.2 - Career Awareness, Exploration, and Preparation

- 9.2.8.B.3 Evaluate communication, collaboration, and leadership skills that can be developed through school, home, work, and extracurricular activities for use in a career.

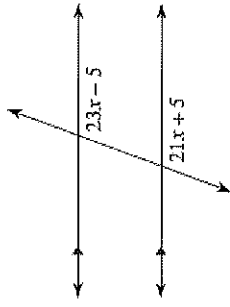
Interdisciplinary Connections: My Blood is Your Blood Project: <https://www.americasblood.org/media/43199/6-8WEBDOC.pdf>

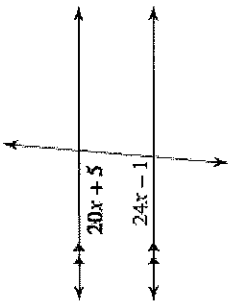
Unit 7

Unit 7 Pre-Algebra

Content & Practice Standards	SMP	Critical Knowledge & Skills	Standard Mastery Examples
<p>Topic A: One & Two Step Equations with Rational Numbers</p> <p>7.EE.B.4. Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.</p> <p>7.EE.B.4a. Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach.</p>	<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 and critique the reasoning of others.</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</p>	<p>Concept(s): No new concept(s) introduced</p> <p>Students are able to:</p> <ul style="list-style-type: none"> compare an arithmetic solution to a word problem to the algebraic solution of the word problem, identifying the sequence of operations in each solution. write an equation of the form $px + q = r$ or $p(x + q) = r$ in order to solve a word problem. fluently solve equations of the form $px + q = r$ and $p(x + q) = r$. <p>Learning Goal 1: Use variables to represent quantities in a real-world or mathematical problem by constructing one and two equations using rational numbers.</p> <p>Learning Goal 2: Fluently solve one and two step equations (Equations of the form $px + q = r$ and $p(x + q) = r$ where p, q, and r are specific rational numbers).</p>	<p>Can be used on formative, summative, benchmark, and alternative assessments.</p> <ul style="list-style-type: none"> Fishing Adventures rents small fishing boats to tourists for day-long fishing trips. Each boat can only carry 1200 pounds of people and gear for safety reasons. Assume the average weight of a person is 150 pounds. Each group will require 200 lbs. of gear for the boat plus 10 lbs. of gear for each person. Create and solve an equation. <p>Several groups of people wish to rent a boat. Group 1 has 4 people. Group 2 has 5 people. Group 3 has 8 people. Which of the groups, if any, can safely rent a boat? What is the maximum number of people that may rent a boat?</p> <ul style="list-style-type: none"> At the beginning of the month, Evan had \$24 in his account at the school bookstore. Use a variable to represent the unknown quantity in each transaction below and write an equation to represent it. Then represent each transaction on a number line. What is the unknown quantity in each case? <ol style="list-style-type: none"> First he bought some notebooks and pens that cost \$16. Then he deposited some more money and his account balance was \$28. Then he bought a book for English class that cost \$34. Then he deposited exactly enough money so that he paid off his debt to the bookstore. Explain why it makes sense to use a negative number to represent Evan's account balance when he owes money.

	structure.		
<p>Topic B: Combining Like Terms and Simplifying Expressions</p> <p>7.EE.A.1. Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.</p> <p>7.EE.A.2. Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related.</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"> Rewriting an expression in different forms in a problem context can shed light on the problem. <p>Students are able to:</p> <ul style="list-style-type: none"> add and subtract linear expressions having rational coefficients, using properties of operations. factor and expand linear expressions having rational coefficients, using properties of operations. write expressions in equivalent forms to shed light on the problem and interpret the relationship between the quantities in the context of the problem. <p>Learning Goal 3: Apply the properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.</p> <p>Learning Goal 4: Rewrite algebraic expressions in equivalent forms to highlight how the quantities in it are related.</p> <p>Learning Goal 5: Add & Subtract fractions by using the properties of combining like terms & simplifying expressions</p>	<ul style="list-style-type: none"> Using the Distributive Property SELECT ALL THE POSSIBLE ANSWERS that the following expression can be rewritten: $3(n - 5)$ <ul style="list-style-type: none"> A) $3n - 5$ B) $3n - 15$ C) $3n + 15$ D) $3n + (-15)$ E) $n - 15$ Simplify $3(4k + 5h) + 12k^2 + 5h - 4k$ A garden is 15-feet long by 5-feet wide. The length and width of the garden will each be increased by the same number of feet. This expression represents the perimeter of the larger garden: $(x + 15) + (x + 5) + (x + 15) + (x + 5)$ <p>Which expression is equivalent to the expression for the perimeter of the larger garden?</p> <p>Select all that apply.</p> <ul style="list-style-type: none"> <input type="checkbox"/> A. $4x + 40$ <input type="checkbox"/> B. $2(2x + 20)$ <input type="checkbox"/> C. $2(x + 15)(x + 5)$ <input type="checkbox"/> D. $4(x + 15)(x + 5)$ <input type="checkbox"/> E. $2(x + 15) + 2(x + 5)$ Write the simplified expression for the perimeter of the figure below <div style="text-align: center;"> </div> Solve. $\frac{3x}{10} + \frac{2x}{10} = \frac{3x}{5} + \frac{2x}{4}$

<p>Topic C: Solving Multi Step Equations & Equations with Variables on Both Sides</p> <p>7.EE.B.3. Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.</p>	<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 and critique the reasoning of others.</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"> Rational numbers can take different forms. Students are able to: Solve multi-step real-life problems using rational numbers in any form. Solve multi-step mathematical problems using rational numbers in any form. <p>Learning Goal 6: Solve multi-step real life and mathematical problems with rational numbers in any form (fractions, decimals) by applying properties of operations and converting rational numbers between forms as needed. Assess the reasonableness of answers using mental computation and estimation strategies.</p>	<ul style="list-style-type: none"> Michael opened his account with \$365 and withdrew \$20 per week. Riley opened her account with \$270 and withdrew \$15 weekly. In how many weeks will their accounts be equal? Solve. $9m + 12 = 14m - 8$ Solve. $\frac{-5x+5}{10} = -3$ Solve. $-25y + -10y - 10 = 95$
<p>Topic D: Angle Pairs & Transversals</p> <p>7.G.B.5. Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.</p>	<p>MP.3 Construct viable arguments and critique the reasoning of others.</p> <p>MP.4 Model with mathematics.</p> <p>MP.5 Use appropriate tools strategically.</p>	<p>Concept(s): No new concept(s) introduced</p> <p>Students are able to:</p> <ul style="list-style-type: none"> use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations. solve mathematical problems by writing and solving simple algebraic equations based on the relationships between and properties of angles (supplementary, complementary, 	<ul style="list-style-type: none"> 

	<p>MP.6 Attend to precision</p> <p>MP.7 Look for and make use of structure.</p>	<p>vertical, and adjacent.</p> <p>Learning Goal 7: Write and solve <i>simple</i> multi-step algebraic equations involving supplementary, complementary, vertical, and adjacent angles.</p>	<p>•</p> 
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Unit 7 Vocabulary

Terms; Like terms; Simplify ; Coefficient; Variable; Constant; Distributive Property; Inverse Operations; Angle Pairs; Parallel Lines; Transversals; Congruent; Right ; Angle; Straight Angle; Vertical Angles; Complementary Angles; Supplementary Angles; Alternate Interior Angles; Alternate Exterior Angles; Same Side Interior Angles; Corresponding Angles

Suggested Activities/Modifications

Below is a list of suggested activities, modifications, accommodations, and enrichment opportunities. This includes, but is not limited to,:

1. Activities
 - a. Do Now
 - b. Practice/Review Game
 - c. Desmos www.desmos.com
 - d. One quiz and one test
2. English Language Learners.
 - a. Read written instructions.
 - b. Students may be provided with note organizers / study guides to reinforce key topics.
 - c. Model and provide examples
 - d. Extended time on assessments when needed.
 - e. Establish a non-verbal cue to redirect student when not on task.
 - f. Students may use a bilingual dictionary.
 - g. Pair Visual Prompts with Verbal Presentations
 - h. Highlight Key Words & Formulas
3. Special Education/504 Students.

- a. Students may be provided with note organizers / study guides to reinforce key topics.
 - b. Extended time on assessments when needed.
 - c. Preferred seating to be determined by student and teacher.
 - d. Provide modified assessments when necessary.
 - e. Student may complete assessments in alternate setting when requested.
 - f. Establish a non-verbal cue to redirect student when not on task.
 - g. Maintain strong teacher / parent communication.
 - h. Repetition and practice
 - i. Pair Visual Prompts with Verbal Presentations
 - j. Provide Formulas
 - k. Check Use of Agenda
4. Gifted and Talented Students.
- a. Use of Higher Level Questioning Techniques
 - b. Extension/Challenge Questions
 - c. Provide Assessments at a Higher Level of Thinking
 - d. Exploration Problems/Proofs

New Jersey Student Learning Standards - Technology

- 8.1.8.A.5 Select and use appropriate tools and digital resources to accomplish a variety of tasks and to solve problems.

Career Readiness Practices

- 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.
- CRP9. Model integrity, ethical leadership and effective management.
- CRP11. Use technology to enhance productivity.

9.2 Career Awareness, Exploration, and Preparation

- 9.2.8.B.3 Evaluate communication, collaboration, and leadership skills that can be developed through school, home, work, and extracurricular activities for use in a career.

Career & Technical Education Content Area: 21st Century Life and Careers Standards

- 9.3.ST.2 Use technology to acquire, manipulate, analyze and report data.
- 9.3.ST-SM.4 Apply critical thinking skills to review information, explain statistical analysis, and to translate, interpret and summarize research and statistical data.
- 9.3.ST-SM.3 Analyze the impact that science and mathematics has on society.

Interdisciplinary Connections: Science — Write equations/inequalities to represent the freezing point of different elements.

III. Additional Differentiation/Modifications for Teaching

Research-Based Effective Teaching Strategies	Additional Modifications for G&I	Additional Strategies for Special Education	Additional Strategies for English Language Learners
<p>Questioning techniques to facilitate learning</p> <ul style="list-style-type: none"> • See also Five Practices for Orchestrating Math Discussion <p>Math Discourse</p> <ul style="list-style-type: none"> • Talk Moves <p>Constructivist learning opportunities</p> <ul style="list-style-type: none"> • Piaget, Vygotsky, Bruner <p>Multiple Representations</p> <p>Promote linguistic and nonlinguistic representations</p> <p>Various types of feedback</p> <ul style="list-style-type: none"> • Student to student feedback • Teacher to student feedback <p>Varied opportunities for students to communicate mathematically (orally, writing)</p> <p>Use technological and /or physical tools (manipulatives)</p>	<p>See EngageNY Grade 6 for Classroom Differentiation for Gifted Students.</p> <p>See EngageNY Grade 7 for Classroom Differentiation for Gifted Students.</p>	<p>See EngageNY Grade 6 for Classroom Differentiation for information on Special Need Students.</p>	<p>Extension: See EngageNY Grade 6 for Scaffolding Instruction for English Language Learners.</p> <p>ELD Standard Standard 3 - Language of Mathematics English language learners communicate information, ideas and concepts necessary for academic success in the content area of mathematics.</p>

IV. Instructional Resources and Materials

Formative Assessment	Summative Assessment	Supplemental Resources		Print Resource
		Teacher Resources	Student Resources	
Short constructed responses	End-of-Module Assessment (EngageNY)	Annenberg Learning	Khan Academy	Eureka Math – Engage NY Grade 6 Mathematics
Extended constructed responses	Mid-Module Assessment (EngageNY)	Mathematics Assessment Projects	Prodigy	
Teacher Observation		Achieve the Core	iReady	
Checks for understanding		Mathplanet.com	Math is Fun (website)	
Do Now		Interactive Mathematics.com	Virtual Nerd	Eureka Math – Engage NY Grade 7 Mathematics
Exit Tickets		Illustrative Mathematics	Engage NY (website)	
Problem Sets (EngageNY)		Inside Mathematics.org	Engage NY (Homework Helpers)	
Sprints (EngageNY)		EdConnect.org	A Math Dictionary for Kids	
<p>Extension – See additional performance tasks in the Unit Standards Overview.</p>		Prodigy Desmos iReady Khan Academy		

Accelerated 6th Grade Pacing Guide

Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June
<p>Ratios & Proportions (15 days)</p> <p>6.RP.A.1 6.RP.A.2 6.RP.A.3a 6.RP.A.3b 6.RP.A.3c 6.RP.A.3d</p> <p>Simplifying Fractions/Equivalent Fractions</p> <p>Ratios</p> <p>Equivalent Ratios & Tables</p> <p>Unit Rates</p> <p>Proportions</p> <p>Percent to Fraction Conversions</p> <p>Percent Proportion</p> <p>Percent of a Number</p> <p>Measurement Conversions</p>	<p>Fractions (10 days)</p> <p>6.NS.A.1</p> <p>Mixed Numbers/ Improper Fractions</p> <p>Multiplying Fractions & Mixed Numbers</p> <p>Reciprocals</p> <p>Interpreting Division using Models</p> <p>Dividing Fractions & Mixed Numbers</p> <p>Decimals (10 days)</p> <p>6.NS.A.1 6.NS.B.3</p> <p>Adding & Subtracting Decimals</p> <p>Multiplying Decimals</p> <p>Dividing Multi Digit Whole Numbers</p> <p>Dividing Decimals</p> <p>Number Theory (8 days)</p> <p>6.NS.B.1</p> <p>Prime vs Composite</p>	<p>Divisibility Rules</p> <p>Prime Factorization</p> <p>Greatest Common Factor</p> <p>Least Common Multiple</p> <p>Integers & Absolute Value (8 days)</p> <p>6.NS.C.3 6.NS.C.6 6.NS.C.7</p> <p>Representing Integers</p> <p>Opposites</p> <p>Absolute Value</p> <p>Comparing & Ordering Integers</p> <p>Adding Integers</p> <p>Subtracting Integers</p>	<p>Multiplying & Dividing Integers</p> <p>The Coordinate Plane (8 days)</p> <p>6.NS.C.6 6.NS.C.6 6.NS.C.8</p> <p>Ordered Pairs</p> <p>Quadrants</p> <p>Plotting Points on the Coordinate Plane</p> <p>Perimeter on the Coordinate Plane</p> <p>Symmetry & Reflections on the Coordinate Plane</p> <p>Algebraic Properties (10 days)</p> <p>6.EE.A.1 6.EE.A.2a 6.EE.A.2b 6.EE.A.2c 6.EE.A.3 6.EE.A.4</p> <p>Exponents</p> <p>Order of Operations</p> <p>Algebraic Properties</p>	<p>Equivalent Expressions</p> <p>Variables & Expressions (10 days)</p> <p>6.EE.A.2a 6.EE.A.2b 6.EE.A.2c 6.EE.B.6 6.EE.B.7 6.EE.B.8 6.EE.C.9</p> <p>Substitution</p> <p>Evaluating Expressions</p> <p>Translating Words into Math</p> <p>Translating Tables into Math</p> <p>Equations (10 days)</p> <p>6.EE.B.3 6.EE.B.6 6.EE.B.7</p> <p>Checking Solutions</p> <p>Solving One Step Equations</p> <p>Solving Two Step Equations</p>	<p>Using Equations to Solve Real Life Problems</p> <p>Inequalities (10 days)</p> <p>6.EE.B.6 6.EE.B.7 6.EE.C.9</p> <p>Translating Inequalities</p> <p>Simple Inequalities</p> <p>Compound Inequalities</p> <p>Checking Solutions of Inequalities</p> <p>Solving Inequalities</p> <p>Two Dimensional Figures (5 days)</p> <p>6.G.A.1</p> <p>Area of Squares & Rectangles</p> <p>Area of Triangles</p> <p>Area of Parallelograms</p>	<p>Area of Trapezoids</p> <p>Area of Composite Figures</p> <p>Three Dimensional Figures (5 days)</p> <p>6.G.A.2 6.G.A.4</p> <p>Surface Area using Nets</p> <p>Surface Area using Formula</p> <p>Volume of Rectangular Prisms</p> <p>Statistics (15 days)</p> <p>6.SP.A.1 6.SP.A.2 6.SP.A.3 6.SP.B.4 6.SP.B.5 6.SP.B.5b</p> <p>Posing Statistical Questions</p> <p>Frequency Tables Histograms</p> <p>Line Plots/Dot Plots</p>	<p>Measures of Central Tendency and Range</p> <p>Measures of Variation – Interquartile Range & Mean Absolute Deviation</p> <p>Box and Whisker Plots</p> <p>Describing Distribution</p> <p>Pre-Algebra (25 days)</p> <p>7.EE.A.2 7.EE.B.3 7.G.B.5 7.EE.A.1 7.NS.A.2 7.NS.A.3</p> <p>One and Two Step Equations with Integers</p>	<p>Simplifying Expressions (combining like terms)</p> <p>Adding and subtracting fractions with variables as numerators</p> <p>Solving Multi-Step Expressions</p> <p>Solving Equations with Variables on Both Sides</p>	<p>Identifying Angle Pairs of a Transversal</p> <p>Finding Missing Angle Measurements in Transversals</p> <p>**if time permits, slope and graphing functions will be covered.</p>

