



# TOMS RIVER REGIONAL SCHOOLS

## Middle School Mathematics

### Grade 6 non-tracked

Date created: School Year 2017-2018

Board Approval: August 21, 2019

Revised: July / August 2019

## **Philosophy, Mission and Vision**

**Philosophy:** Our Middle School Mathematics Department is a family of educators dedicated to providing grades six through eight students of Toms River Regional schools with a learning experience in mathematics that is determined by individualized information about each student in terms of learner characteristics that include, but are not limited to, prerequisite skills, social and emotional development, learning styles, etc.

**Mission:** With this essential data, it is our mission to fill gaps and enrich student mathematics skills. We will deepen student understanding by incorporating critical thinking, problem solving techniques and exposing students to real world applications of mathematics.

**Vision:** It is our vision to create environments where students can grow in character, grit, and perseverance to prepare them for more challenging mathematics to come later in their school careers.

**Course description and/or program overview:** Our 6th grade non-tracked mathematics course uses a fun and innovative program that includes hands-on activities and scaffolded instruction. This allows for balanced lessons with built-in Response to Intervention that appeal to students and teachers alike.

Learning targets and success criteria help to focus student learning and make learning visible to teachers and students. Explorations help students develop a growth mindset by engaging them in productive struggle, leading to conceptual understanding of 6th grade mathematical standards and concepts.

With a strong emphasis on problem solving in the classroom, students can transfer their mathematical knowledge to new concepts and apply their understanding to real-life situations. Through practice and problem solving, students become more comfortable with the problem-solving process to become strategic mathematical thinkers.

<b>UNITS</b>	<b>PACING GUIDE</b>
1- Number Operations	September and October (Days 1-30)
2 - Number Systems	October and November (Days 31-54)
3- Ratio and Rates	December through January (Days 55-88)
4- Expressions	February and March (Days 89-115)
5- Equations and Inequalities	March and April (Days 116-131)
6- Geometry	April and May (Days 132-160)
7- Statistics and Data Displays	May and June (Days 161-181)

## Unit #1 Overview

### Unit Summary:

Students will use mathematical practices to explore operations and their applications to fractions and decimals using the standard algorithm. Students will explore greatest and least common factors.

### Enduring Understandings:

Students will understand that...

Understand that the size of a divisor affects the size of the quotient.

Division of a fraction by a proper fraction creates a larger answer.

### Essential Questions:

What is represented by the division of a fraction by a fraction?

What type of visual models can be used to represent the division of fractions?

How are division and multiplication of a fraction by a fraction related?

## Standards

### **NJSLS 6.NS.A Apply and extend previous understandings of multiplication and division to divide fractions by fractions.**

1. Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions

**NJSLS 6.NS.B. Compute fluently with multi-digit numbers and find common factors and multiples.** 2. Fluently divide multi-digit numbers using the standard algorithm. 3. Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation. 4. Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor.

The following [Standards for Mathematical Practice](#) will be covered throughout the unit:

- MP.1 - Make sense of problems and persevere in solving them.
- MP.2 - Reason abstractly and quantitatively.
- MP.3 - Construct viable arguments and 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.

## Interdisciplinary Connections

Other Cross-Curricular Opportunities

*Opportunities for SEL*

**NJSLS:**

- **RI.6.1.** Cite textual evidence and make relevant connections to support analysis of what the text says explicitly as well as inferences drawn from the text
- **RI.6.7.** Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue.
- **RI.6.8.** Trace and evaluate the argument and specific claims in a text, distinguishing claims that are supported by reasons and evidence from claims that are not.
- [8.1.8.D.1](#)
- [8.1.8.D.4](#)
- [8.1.8.E.1](#)

**21st Century Life and Careers**

**Technology**

- [CRP2](#) - Apply appropriate academic and technical skills.
- [CRP4](#) - Communicate clearly and effectively and with reason.
- [CRP8](#) - Utilize critical thinking to make sense of problems and persevere in solving them.
- [CRP11](#) - Use technology to enhance productivity.
- [CRP12](#) - Work productively in teams while using cultural global competence.
- **9.1.8.C.5** Calculate the cost of borrowing various amounts of money using different types of credit (e.g., credit cards, installment loans, mortgages).
- **9.1.8.D.3** Differentiate among various investment options
- **9.2.8.B.2** Develop a Personalized Student Learning Plan with the assistance of an adult mentor that includes information about career areas of interest, goals and an educational plan.

**1. Empowered Learner**

Students leverage technology to take an active role in choosing, achieving and demonstrating competency in their learning goals, informed by the learning sciences. Students:

**2. Digital Citizen**

Students recognize the rights, responsibilities and opportunities of living, learning and working in an interconnected digital world, and they act and model in ways that are safe, legal and ethical.

**5. Computational Thinker**

Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.

**Unit Objectives:**

- Compute quotients of fractions.
- Interpret quotients of fractions.
- Solve word problems involving division of fractions.
- Fluently divide using the standard algorithm.
- Fluently add multi-digit decimals using the standard algorithm.
- Fluently subtract multi-digit decimals using the standard algorithm.
- Fluently multiply multi-digit decimals using the standard algorithm.
- Fluently divide multi-digit decimals using the standard algorithm.
- Find the greatest common factor of two whole numbers less than or equal to 100.
- Find the least common multiple of two whole numbers less than or equal to 12.
- Use the distributive property to express a sum of two whole numbers 1-100 with a common factor as a multiple of the sum of two whole numbers with no common factor. Ex.  $36 + 8$  as  $4(9 + 2)$

**Skills:**

- Compute quotients of fractions.
- Interpret quotients of fractions.
- Fluently divide using the standard algorithm.
- Fluently add multi-digit decimals using the standard algorithm.
- Fluently subtract multi-digit decimals using the standard algorithm.
- Fluently multiply multi-digit decimals using the standard algorithm.
- Fluently divide multi-digit decimals using the standard algorithm.

<b>Student Learning</b>	
<b>Core Instructional Materials and Resources</b>	<b>Supplemental Instructional Materials and Resources</b>
Big Ideas Chapter 1 Sections 1, 5, and 6. Big Ideas Chapter 2 Big Ideas Chapter 3 Section 4 and extension	Activities on the Team Drive: -The Laundry Problem i-Ready Resources Teacher made resources including Tpt created resources.
<b>Accommodations/Modifications</b> (ELL, Students with IEPs, 504s, Gifted Learners, At Risk) <i>Each group must be listed separately</i>	<b>Assessment</b> <b>(All forms must be identified)</b>
<b>Suggested Options for Differentiation</b> <i>English Language Learners</i> <ul style="list-style-type: none"> <li>• Peer tutoring</li> <li>• Manipulatives</li> <li>• Use of Home Language</li> <li>• Limiting Concepts or Vocabulary</li> <li>• Providing Visuals</li> </ul> <i>Students at Risk of Failure</i> <ul style="list-style-type: none"> <li>• Extended Time</li> <li>• Flexible Grouping</li> <li>• Small Group Instruction</li> <li>• Peer Buddies</li> <li>• Graphic Organizers</li> <li>• Chunking Information</li> <li>• Scaffolded Questioning</li> <li>• Tiered Activities</li> <li>• Centers in Academic Activity</li> </ul> <i>Special Education</i> <ul style="list-style-type: none"> <li>• Extension activities</li> <li>• Opportunities for Critical Thinking</li> <li>• Problem Solving/Design Challenges</li> <li>• Technology Integration</li> <li>• Student Choice Activities</li> <li>• Student Driven Activities</li> <li>• Group Projects</li> <li>• Tiered Activities</li> </ul>	Formative: <ul style="list-style-type: none"> <li>• Observation</li> <li>• Homework</li> <li>• Class participation</li> <li>• Whiteboards/communicators</li> <li>• Do-Now</li> <li>• Notebook</li> <li>• Exit passes</li> </ul> Summative: <ul style="list-style-type: none"> <li>• Chapter/Unit Test</li> <li>• Quizzes</li> <li>• Presentations</li> <li>• i-Ready quizzes</li> <li>• NJSLA</li> </ul> Benchmark: <ul style="list-style-type: none"> <li>• Beginning of Year i-Ready Diagnostic</li> <li>• Quarterly Portfolio</li> <li>• NJSLA</li> </ul> Alternate: <ul style="list-style-type: none"> <li>• Authentic Performance Tasks</li> <li>• Unit Projects</li> </ul>

504

- Extension activities
- Opportunities for Critical Thinking
- Problem Solving/Design Challenges
- Technology Integration
- Student Choice Activities
- Student Driven Activities
- Group Projects
- Tiered Activities

*Gifted & Talented*

- Extension activities
- Opportunities for Critical Thinking
- Problem Solving/Design Challenges
- Technology Integration
- Student Choice Activities
- Student Driven Activities
- Group Projects
- Tiered Activities

**Persons with Disabilities rep:**

**2.1.8.E.1** Analyze how personal assets, resiliency, and protective factors support healthy social and emotional health. Respect and acceptance for individuals regardless of gender, sexual orientation, disability, ethnicity, socioeconomic background, religion, and/or culture provide a foundation for the prevention and resolution of conflict.

**2.1.8.E.2** Determine the effectiveness of existing home, school, and community efforts to address social and emotional health and prevent conflict.

**2.1.8.E.4** Compare and contrast stress management strategies that are used to address various types of stress-induced situations.

### **Unit Summary:**

Students will use mathematical practices to apply and extend previous understandings of numbers to the system of rational numbers. They will understand that positive and negative numbers are used together to describe quantities having opposite directions or values. Students will understand a rational number as a point on the number line and extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates. They will understand ordering and absolute value of rational numbers.

### **Enduring Understandings:**

Students will understand that...

Positive and negative numbers are used together to describe quantities having opposite directions or values.

A rational number is a point on a number line.

Rational numbers on the right (+) are oriented from left to right.

Rational numbers on the left (-) are oriented from right to left.

The absolute value of a rational number is its distance from 0 on the number line.

The distance from a point on the coordinate plane to the origin (0,0) is related to the absolute value of its x and y coordinates.

### **Essential Questions:**

What are some rational numbers around us?

What are some non-rational numbers around us?

How can the ordering of rational numbers help to make sense of the world around us?

When is the absolute value of a rational number used in real life?

## **Standards**

### **NJSLS.6.NS.C. Apply and extend previous understandings of numbers to the system of rational numbers.**

5. Understand that positive and negative numbers are used together to describe quantities having opposite directions or values. 6. Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates. 7. Understand ordering and absolute value of rational numbers.

The following [Standards for Mathematical Practice](#) will be covered throughout the unit:

- MP.1 - Make sense of problems and persevere in solving them.
- MP.2 - Reason abstractly and quantitatively.
- MP.3 - Construct viable arguments and 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.



**Interdisciplinary Connections**  
Other Cross-Curricular Opportunities  
*Opportunities for SEL*

**NJSLS:**

- **RI.6.1.** Cite textual evidence and make relevant connections to support analysis of what the text says explicitly as well as inferences drawn from the text
- **RI.6.7.** Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue.
- **RI.6.8.** Trace and evaluate the argument and specific claims in a text, distinguishing claims that are supported by reasons and evidence from claims that are not.
- [8.1.8.D.1](#)
- [8.1.8.D.4](#)
- [8.1.8.E.1](#)

<b>21st Century Life and Careers</b>	<b>Technology</b>
<ul style="list-style-type: none"> <li>● <a href="#">CRP2</a> - Apply appropriate academic and technical skills.</li> <li>● <a href="#">CRP4</a> - Communicate clearly and effectively and with reason.</li> <li>● <a href="#">CRP8</a> - Utilize critical thinking to make sense of problems and persevere in solving them.</li> <li>● <a href="#">CRP11</a> - Use technology to enhance productivity.</li> <li>● <a href="#">CRP12</a> - Work productively in teams while using cultural global competence.</li> <li>● <b>9.1.8.B.2</b> Construct a simple personal savings and spending plan based on various sources of income.</li> <li>● <b>9.1.8.D.2</b> Differentiate among various savings tools and how to use them most effectively.</li> </ul>	<p><b>1. Empowered Learner</b>            Students leverage technology to take an active role in choosing, achieving and demonstrating competency in their learning goals, informed by the learning sciences. Students:</p> <p><b>2. Digital Citizen</b>            Students recognize the rights, responsibilities and opportunities of living, learning and working in an interconnected digital world, and they act and model in ways that are safe, legal and ethical.</p> <p><b>5. Computational Thinker</b>            Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.</p>

**Unit Objectives:**

- Use positive and negative numbers to represent quantities in real-world contexts.
- Explain the meaning of 0 in situations using positive and negative numbers.
- Extend number-line diagrams and coordinate axes to represent points on the line and in the plane with negative number coordinates.
- 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.
- Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram.
- Write, interpret, and explain statements of order for rational numbers in real-world contexts.
- Interpret absolute value as magnitude for a positive or negative quantity in a real-world situation.
- Distinguish comparisons of absolute value from statements about order.
- Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane.
- Find distances between points with the same first coordinate or the same second coordinates

**Skills:**

- 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.
- Distinguish comparisons of absolute value from statements about order.
- Find distances between points with the same first coordinate or the same second coordinates

<b>Student Learning</b>	
<b>Core Instructional Materials and Resources</b>	<b>Supplemental Instructional Materials and Resources</b>
Big Ideas Chapter 6	Supporting Understanding Positive vs. Negative Numbers station activity- Team Drive i-Ready Resources Teacher made resources including Tpt created resources.
<b>Accommodations/Modifications</b> (ELL, Students with IEPs, 504s, Gifted Learners, At Risk) <i>Each group must be listed separately</i>	<b>Assessment</b> <b>(All forms must be identified)</b>
<b>Suggested Options for Differentiation</b> <i>English Language Learners</i> <ul style="list-style-type: none"> <li>● Peer tutoring</li> <li>● Manipulatives</li> <li>● Use of Home Language</li> <li>● Limiting Concepts or Vocabulary</li> <li>● Providing Visuals</li> </ul> <i>Students at Risk of Failure</i> <ul style="list-style-type: none"> <li>● Extended Time</li> <li>● Flexible Grouping</li> <li>● Small Group Instruction</li> <li>● Peer Buddies</li> <li>● Graphic Organizers</li> <li>● Chunking Information</li> <li>● Scaffolded Questioning</li> <li>● Tiered Activities</li> <li>● Centers in Academic Activity</li> </ul> <i>Special Education</i> <ul style="list-style-type: none"> <li>● Extension activities</li> <li>● Opportunities for Critical Thinking</li> <li>● Problem Solving/Design Challenges</li> <li>● Technology Integration</li> <li>● Student Choice Activities</li> <li>● Student Driven Activities</li> <li>● Group Projects</li> <li>● Tiered Activities</li> </ul> <i>504</i> <ul style="list-style-type: none"> <li>● Extension activities</li> <li>● Opportunities for Critical Thinking</li> <li>● Problem Solving/Design Challenges</li> <li>● Technology Integration</li> </ul>	<b>Formative:</b> <ul style="list-style-type: none"> <li>● Observation</li> <li>● Homework</li> <li>● Class participation</li> <li>● Whiteboards/communicators</li> <li>● Do-Now</li> <li>● Notebook</li> <li>● Exit passes</li> </ul> <b>Summative:</b> <ul style="list-style-type: none"> <li>● Chapter/Unit Test</li> <li>● Quizzes</li> <li>● Presentations</li> <li>● i-Ready quizzes</li> <li>● NJSLA</li> </ul> <b>Benchmark:</b> <ul style="list-style-type: none"> <li>● Quarterly Portfolio</li> <li>● NJSLA</li> </ul> <b>Alternate:</b> <ul style="list-style-type: none"> <li>● Authentic Performance Tasks</li> <li>● Unit Projects</li> </ul>

<ul style="list-style-type: none"> <li>● Student Choice Activities</li> <li>● Student Driven Activities</li> <li>● Group Projects</li> <li>● Tiered Activities</li> </ul> <p><i>Gifted &amp; Talented</i></p> <ul style="list-style-type: none"> <li>● Extension activities</li> <li>● Opportunities for Critical Thinking</li> <li>● Problem Solving/Design Challenges</li> <li>● Technology Integration</li> <li>● Student Choice Activities</li> <li>● Student Driven Activities</li> <li>● Group Projects</li> <li>● Tiered Activities</li> </ul>	
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### Unit #3 Overview

**Unit Summary:**  
 Students will use mathematical practices to understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. They will explore the concept of a unit rate and use rate language in the context of a ratio relationship. They will 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.

**Enduring Understandings:**  
 Students will understand that...  
 A ratio expresses the comparison between two quantities. Special types of ratios are rates, unit rates, and percent.  
 A rate is a type of ratio that represents one measure, quantity, or frequency measured against another type of measure, quantity, or frequency.

Ratio and rate reasoning can be applied to many different types of mathematical and real-life problems.

### Essential Questions:

- When is it useful to relate one quantity to another?
- What is the best way to compare two quantities?
- How are ratio and rate similar and different?
- What is the connection between a ratio and a fraction?

### Standards

**NJSLS6.RP.1** Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.

**NJSLS6.RP.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.

**NJSLS6.RP.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.

The following [Standards for Mathematical Practice](#) will be covered throughout the unit:

- MP.1 - Make sense of problems and persevere in solving them.
- MP.2 - Reason abstractly and quantitatively.
- MP.3 - Construct viable arguments and 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.

### Interdisciplinary Connections [Other Cross-Curricular Opportunities](#) *Opportunities for [SEL](#)*

### NJSLS:

- **RI.6.1.** Cite textual evidence and make relevant connections to support analysis of what the text says explicitly as well as inferences drawn from the text
- **RI.6.7.** Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue.
- **RI.6.8.** Trace and evaluate the argument and specific claims in a text, distinguishing claims that are supported by reasons and evidence from claims that are not.
- [8.1.8.D.1](#)
- [8.1.8.D.4](#)
- [8.1.8.E.1](#)

21st Century Life and Careers

Technology

<ul style="list-style-type: none"> <li>● <a href="#">CRP2</a> - Apply appropriate academic and technical skills.</li> <li>● <a href="#">CRP4</a> - Communicate clearly and effectively and with reason.</li> <li>● <a href="#">CRP8</a> - Utilize critical thinking to make sense of problems and persevere in solving them.</li> <li>● <a href="#">CRP11</a> - Use technology to enhance productivity.</li> <li>● <a href="#">CRP12</a> - Work productively in teams while using cultural global competence.</li> <li>● <b>9.1.8.E.5</b> Analyze interest rates and fees associated with financial services, credit cards, debit cards, and gift cards.</li> <li>● <b>9.1.8.B.8</b> Develop a system for keeping and using financial records.</li> <li>● <b>9.1.8.D.4</b> Distinguish between income and investment growth.</li> <li>● <b>9.1.8.C.5</b> Calculate the cost of borrowing various amounts of money using different types of credit (e.g., credit cards, installment loans, mortgages).</li> </ul>	<p><b>1. Empowered Learner</b> Students leverage technology to take an active role in choosing, achieving and demonstrating competency in their learning goals, informed by the learning sciences. Students:</p> <p><b>2. Digital Citizen</b> Students recognize the rights, responsibilities and opportunities of living, learning and working in an interconnected digital world, and they act and model in ways that are safe, legal and ethical.</p> <p><b>5. Computational Thinker</b> Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.</p>

<p><b>Unit Objectives:</b></p> <ul style="list-style-type: none"> <li>● Use ratio and rate reasoning to solve real-world and mathematical problems.</li> <li>● Make tables of equivalent ratios, tape diagrams, double number lines.</li> <li>● Represent ratios using manipulatives and/or pictures.</li> <li>● Represent unit rate associated with ratios using visuals, charts, or graphs.</li> <li>● Make and interpret tables of equivalent ratios.</li> <li>● Create equivalent ratios using models, manipulatives, and numbers</li> <li>● Create unit rates and understand when using unit rates is reasonable strategy.</li> <li>● Use multiple representations to solve ratio problems.</li> </ul>
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<p><b>Skills:</b></p> <ul style="list-style-type: none"> <li>● Make tables of equivalent ratios, tape diagrams, double number lines.</li> <li>● Make and interpret tables of equivalent ratios.</li> <li>● Create equivalent ratios using models, manipulatives, and numbers</li> </ul>
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<b>Student Learning</b>	
<b>Core Instructional Materials and Resources</b>	<b>Supplemental Instructional Materials and Resources</b>
Big Ideas Chapter 5	i-Ready Resources Teacher made resources including Tpt created resources
<b>Accommodations/Modifications</b>	<b>Assessment</b>

<p>(ELL, Students with IEPs, 504s, Gifted Learners, At Risk)  <i>Each group must be listed separately</i></p>	<p><b>(All forms must be identified)</b></p>
<p><b>Suggested Options for Differentiation</b></p> <p><i>English Language Learners</i></p> <ul style="list-style-type: none"> <li>● Peer tutoring</li> <li>● Manipulatives</li> <li>● Use of Home Language</li> <li>● Limiting Concepts or Vocabulary</li> <li>● Providing Visuals</li> </ul> <p><i>Students at Risk of Failure</i></p> <ul style="list-style-type: none"> <li>● Extended Time</li> <li>● Flexible Grouping</li> <li>● Small Group Instruction</li> <li>● Peer Buddies</li> <li>● Graphic Organizers</li> <li>● Chunking Information</li> <li>● Scaffolded Questioning</li> <li>● Tiered Activities</li> <li>● Centers in Academic Activity</li> </ul> <p><i>Special Education</i></p> <ul style="list-style-type: none"> <li>● Extension activities</li> <li>● Opportunities for Critical Thinking</li> <li>● Problem Solving/Design Challenges</li> <li>● Technology Integration</li> <li>● Student Choice Activities</li> <li>● Student Driven Activities</li> <li>● Group Projects</li> <li>● Tiered Activities</li> </ul> <p><i>504</i></p> <ul style="list-style-type: none"> <li>● Extension activities</li> <li>● Opportunities for Critical Thinking</li> <li>● Problem Solving/Design Challenges</li> <li>● Technology Integration</li> <li>● Student Choice Activities</li> <li>● Student Driven Activities</li> <li>● Group Projects</li> <li>● Tiered Activities</li> </ul> <p><i>Gifted &amp; Talented</i></p> <ul style="list-style-type: none"> <li>● Extension activities</li> <li>● Opportunities for Critical Thinking</li> <li>● Problem Solving/Design Challenges</li> <li>● Technology Integration</li> <li>● Student Choice Activities</li> <li>● Student Driven Activities</li> <li>● Group Projects</li> <li>● Tiered Activities</li> </ul>	<p>Formative:</p> <ul style="list-style-type: none"> <li>● Observation</li> <li>● Homework</li> <li>● Class participation</li> <li>● Whiteboards/communicators</li> <li>● Do-Now</li> <li>● Notebook</li> <li>● Exit passes</li> </ul> <p>Summative:</p> <ul style="list-style-type: none"> <li>● Chapter/Unit Test</li> <li>● Quizzes</li> <li>● Presentations</li> <li>● i-Ready quizzes</li> <li>● NJSLA</li> </ul> <p>Benchmark:</p> <ul style="list-style-type: none"> <li>● Quarterly Portfolio</li> <li>● NJSLA</li> </ul> <p>Alternate:</p> <ul style="list-style-type: none"> <li>● Authentic Performance Tasks</li> <li>● Unit Projects</li> </ul>

## Unit #4 Overview

### Unit Summary:

Students will use mathematical practices to explore numerical expressions involving whole-number exponents. Students will write, read, and evaluate expressions in which letters stand for numbers and apply the properties of operations to generate equivalent expressions.

### Enduring Understandings:

Students will understand that...

Algebraic expressions have letters that stand for numbers and arithmetic expressions have only numbers and no letters.

Numbers can be substituted in place of letters in algebraic expressions.

Algebraic expressions can be equivalent to each other

Area, perimeter, or volume formulas are algebraic expressions.

Verbal sentences or expressions can be written as algebraic expressions.

### Essential Questions:

How are mathematical expressions in which letters stand for numbers useful in real life?

What is the purpose of identifying equivalent expressions?

What is the difference between algebraic expressions and arithmetic expressions?

### Standards

**NJSLS6.EE.A.1** Write and evaluate numerical expressions involving whole-number exponents.

### NJSLS6.EE.A.2 (a-c)

Write, read, and evaluate expressions in which letters stand for numbers.

### NJSLS6.EE.A.3

Apply the properties of operations to generate equivalent expressions.

The following [Standards for Mathematical Practice](#) will be covered throughout the unit:

- MP.1 - Make sense of problems and persevere in solving them.
- MP.2 - Reason abstractly and quantitatively.
- MP.3 - Construct viable arguments and 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.

**Interdisciplinary Connections**  
[Other Cross-Curricular Opportunities](#)  
*Opportunities for [SEL](#)*

### NJSLS:

- **RI.6.1.** Cite textual evidence and make relevant connections to support analysis of what the text says explicitly as well as inferences drawn from the text
- **RI.6.7.** Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue.
- **RI.6.8.** Trace and evaluate the argument and specific claims in a text, distinguishing claims that are supported by reasons and evidence from claims that are not.
- [8.1.8.D.1](#)
- [8.1.8.D.4](#)
- [8.1.8.E.1](#)

### 21st Century Life and Careers

- [CRP2](#) - Apply appropriate academic and technical skills.
- [CRP4](#) - Communicate clearly and effectively and with reason.
- [CRP8](#) - Utilize critical thinking to make sense of problems and persevere in solving them.
- [CRP11](#) - Use technology to enhance productivity.
- [CRP12](#) - Work productively in teams while using cultural global competence.
- **9.1.8.E.6** Compare the value of goods or services from different sellers when purchasing large quantities and small quantities.
- **9.1.8.B.2** Construct a simple personal savings and spending plan based on various sources of income.
- **9.1.8.D.2** Differentiate among various savings tools and how to use them most effectively.

### Technology

- 1. Empowered Learner**  
Students leverage technology to take an active role in choosing, achieving and demonstrating competency in their learning goals, informed by the learning sciences. Students:
- 2. Digital Citizen**  
Students recognize the rights, responsibilities and opportunities of living, learning and working in an interconnected digital world, and they act and model in ways that are safe, legal and ethical.
- 5. Computational Thinker**  
Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.



**Unit Objectives:**

- Write numerical expressions involving whole-number exponents.
- Write numerical expressions in which letters stand for numbers.
- Read expressions in which letters stand for numbers.
- Evaluate expressions in which letters stand for numbers.
- Write expressions that record operations with numbers and with letters standing for numbers.
- 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.
- Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems.
  - Write expressions that record operations with numbers and with letters standing for numbers.
  - 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.
- Apply the properties of operations to generate equivalent expressions and identify when two expressions are equivalent.

**Skills:**

- Write numerical expressions involving whole-number exponents.
- Write numerical expressions in which letters stand for numbers.
- Write expressions that record operations with numbers and with letters standing for numbers.
- 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.
- Write expressions that record operations with numbers and with letters standing for numbers.
- 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.

<b>Student Learning</b>	
<b>Core Instructional Materials and Resources</b>	<b>Supplemental Instructional Materials and Resources</b>
Big Ideas Chapter 3 section 1-3	Stations Supporting Commutative and Associative Properties + Substitution (Team Drive) i-Ready Resources Teacher made resources including Tpt created resources.
<b>Accommodations/Modifications</b> (ELL, Students with IEPs, 504s, Gifted Learners, At Risk) <i>Each group must be listed separately</i>	<b>Assessment</b> <b>(All forms must be identified)</b>
<b>Suggested Options for Differentiation</b> <i>English Language Learners</i> <ul style="list-style-type: none"> <li>• Peer tutoring</li> <li>• Manipulatives</li> <li>• Use of Home Language</li> <li>• Limiting Concepts or Vocabulary</li> <li>• Providing Visuals</li> </ul> <i>Students at Risk of Failure</i> <ul style="list-style-type: none"> <li>• Extended Time</li> </ul>	Formative: <ul style="list-style-type: none"> <li>• Observation</li> <li>• Homework</li> <li>• Class participation</li> <li>• Whiteboards/communicators</li> <li>• Do-Now</li> <li>• Notebook</li> <li>• Exit passes</li> </ul>

- Flexible Grouping
- Small Group Instruction
- Peer Buddies
- Graphic Organizers
- Chunking Information
- Scaffolded Questioning
- Tiered Activities
- Centers in Academic Activity

*Special Education*

- Extension activities
- Opportunities for Critical Thinking
- Problem Solving/Design Challenges
- Technology Integration
- Student Choice Activities
- Student Driven Activities
- Group Projects
- Tiered Activities

*504*

- Extension activities
- Opportunities for Critical Thinking
- Problem Solving/Design Challenges
- Technology Integration
- Student Choice Activities
- Student Driven Activities
- Group Projects
- Tiered Activities

*Gifted & Talented*

- Extension activities
- Opportunities for Critical Thinking
- Problem Solving/Design Challenges
- Technology Integration
- Student Choice Activities
- Student Driven Activities
- Group Projects
- Tiered Activities

**Summative:**

- Chapter/Unit Test
- Quizzes
- Presentations
- i-Ready quizzes
- NJSLA

**Benchmark:**

- Middle of the Year i-Ready Diagnostic
- Quarterly Portfolio
- NJSLA

**Alternate:**

- Authentic Performance Tasks
- Unit Projects

**Unit Summary:**

Students will use mathematical practices to explore equations and inequalities in terms of finding solutions that make the statement true and in terms of its application to real world scenarios.

**Enduring Understandings:**

Students will understand that...

Solving an equation or inequality will find the value(s) that will make the statement true.

A variable can represent an unknown number.

A variable can represent any number in a specified set.

Quantities can change in relation to one another and the relationship can be expressed as an equation relating the two.

Two quantities may or may not be related.

**Essential Questions:**

What is the difference between an equation and an inequality?

What does it mean when a number does not satisfy an equation or inequality?

How are mathematical relationships represented in tables, graphs, and equations?

How can you tell if there is a relationship between two quantities?

Why is it useful to write an equation to express one quantity in terms of another quantity?

**Standards****NJSLS6.EE.B.5 & 6**

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. Use variables to represent numbers and write expressions when solving a real-world or mathematical problem.

**NJSLS6.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.

**NJSLS6.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.

**NJSLS6.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.

The following [Standards for Mathematical Practice](#) will be covered throughout the unit:

- MP.1 - Make sense of problems and persevere in solving them.

- MP.2 - Reason abstractly and quantitatively.
- MP.3 - Construct viable arguments and 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.

**Interdisciplinary Connections**  
Other Cross-Curricular Opportunities  
*Opportunities for SEL*

**NJSLS:**

- **RI.6.1.** Cite textual evidence and make relevant connections to support analysis of what the text says explicitly as well as inferences drawn from the text
- **RI.6.7.** Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue.
- **RI.6.8.** Trace and evaluate the argument and specific claims in a text, distinguishing claims that are supported by reasons and evidence from claims that are not.
- [8.1.8.D.1](#)
- [8.1.8.D.4](#)
- [8.1.8.E.1](#)

**21st Century Life and Careers**

**Technology**

- [CRP2](#) - Apply appropriate academic and technical skills.
- [CRP4](#) - Communicate clearly and effectively and with reason.
- [CRP8](#) - Utilize critical thinking to make sense of problems and persevere in solving them.
- [CRP11](#) - Use technology to enhance productivity.
- [CRP12](#) - Work productively in teams while using cultural global competence.
- **9.1.8.E.6** Compare the value of goods or services from different sellers when purchasing large quantities and small quantities.
- **9.1.8.B.2** Construct a simple personal savings and spending plan based on various sources of income.
- **9.1.8.D.2** Differentiate among various savings tools and how to use them most effectively.

**1. Empowered Learner**

Students leverage technology to take an active role in choosing, achieving and demonstrating competency in their learning goals, informed by the learning sciences. Students:

**2. Digital Citizen**

Students recognize the rights, responsibilities and opportunities of living, learning and working in an interconnected digital world, and they act and model in ways that are safe, legal and ethical.

**5. Computational Thinker**

Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.

**Unit Objectives:**

- Use substitution to determine whether a given number in a specified set makes an equation or inequality true.
- Understand that a random number may not make an equation or inequality statement true.
- Solve real-world and mathematical problems by writing and solving equations of the form  $x + p = q$  for cases in which  $p$ ,  $q$ , and  $x$  are all nonnegative rational numbers.
- Solve real-world and mathematical problems by writing and solving equations in the form of  $px = q$  for cases in which  $p$ ,  $q$ , and  $x$  are all nonnegative rational numbers.

- Understand that inequalities in the form of  $x > c$  or  $x < c$  have infinitely many solutions.
- Understand that solutions of inequalities in the form of  $x > c$  or  $x < c$  can be represented as intervals on the number line.
- 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.
- Use the equation of a relationship between two dependent and independent variable to predict ordered pairs that are not displaced in a given graph or table.

**Skills:**

- Use substitution to determine whether a given number in a specified set makes an equation or inequality true.
- Understand that a random number may not make an equation or inequality statement true.
- 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.

<b>Student Learning</b>	
<b>Core Instructional Materials and Resources</b>	<b>Supplemental Instructional Materials and Resources</b>
Big Ideas Chapter 7	Stations Supporting Representing and Solving 1-Variable Equations (Team Drive) i-Ready Resources Teacher made resources including Tpt created resources.
<b>Accommodations/Modifications</b> (ELL, Students with IEPs, 504s, Gifted Learners, At Risk) <i>Each group must be listed separately</i>	<b>Assessment</b> <b>(All forms must be identified)</b>
<b>Suggested Options for Differentiation</b> <i>English Language Learners</i> <ul style="list-style-type: none"> <li>● Peer tutoring</li> <li>● Manipulatives</li> <li>● Use of Home Language</li> <li>● Limiting Concepts or Vocabulary</li> <li>● Providing Visuals</li> </ul> <i>Students at Risk of Failure</i> <ul style="list-style-type: none"> <li>● Extended Time</li> <li>● Flexible Grouping</li> <li>● Small Group Instruction</li> <li>● Peer Buddies</li> <li>● Graphic Organizers</li> <li>● Chunking Information</li> <li>● Scaffolded Questioning</li> <li>● Tiered Activities</li> <li>● Centers in Academic Activity</li> </ul> <i>Special Education</i>	Formative: <ul style="list-style-type: none"> <li>● Observation</li> <li>● Homework</li> <li>● Class participation</li> <li>● Whiteboards/communicators</li> <li>● Do-Now</li> <li>● Notebook</li> <li>● Exit passes</li> </ul> Summative: <ul style="list-style-type: none"> <li>● Chapter/Unit Test</li> <li>● Quizzes</li> <li>● Presentations</li> <li>● i-Ready quizzes</li> <li>● NJSLA</li> </ul> Benchmark: <ul style="list-style-type: none"> <li>● Quarterly Portfolio</li> </ul>

<ul style="list-style-type: none"> <li>● Extension activities</li> <li>● Opportunities for Critical Thinking</li> <li>● Problem Solving/Design Challenges</li> <li>● Technology Integration</li> <li>● Student Choice Activities</li> <li>● Student Driven Activities</li> <li>● Group Projects</li> <li>● Tiered Activities</li> </ul> <p>504</p> <ul style="list-style-type: none"> <li>● Extension activities</li> <li>● Opportunities for Critical Thinking</li> <li>● Problem Solving/Design Challenges</li> <li>● Technology Integration</li> <li>● Student Choice Activities</li> <li>● Student Driven Activities</li> <li>● Group Projects</li> <li>● Tiered Activities</li> </ul> <p><i>Gifted &amp; Talented</i></p> <ul style="list-style-type: none"> <li>● Extension activities</li> <li>● Opportunities for Critical Thinking</li> <li>● Problem Solving/Design Challenges</li> <li>● Technology Integration</li> <li>● Student Choice Activities</li> <li>● Student Driven Activities</li> <li>● Group Projects</li> <li>● Tiered Activities</li> </ul>	<ul style="list-style-type: none"> <li>● NJSLA</li> </ul> <p>Alternate:</p> <ul style="list-style-type: none"> <li>● Authentic Performance Tasks</li> <li>● Unit Projects</li> </ul>
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## Unit #6 Overview

### Unit Summary:

Students will use mathematical practices to explore area and volume of 2- and 3-dimensional shapes.

### Enduring Understandings:

Students will understand that...

Compartmentalizing a composite figure into more familiar shapes can be a successful strategy for finding the area of that composite figure.

Graphing 2-dimensional shapes on a coordinate plane will introduce distance between two points which will provide the lengths of the sides of that shape.

Finding volume of 3-dimensional shapes with fractional side lengths is the same strategy as those with whole number side lengths.

De-compartmentalizing a 3-dimensional figure into a 2-dimensional figure will result in a net that will offer a

set of 2-dimensional shapes which result in surface area.

### Essential Questions:

How can we find the area of composite figures?

How can we draw 2-dimensional figures on a coordinate plane?

How do we find the volume of rectangular prisms?

How do we represent 3-dimensional figures using nets?

How can we use nets to find the surface area of 3-dimensional figures?

## Standards

### NJSLS.6.G

A. Solve real-world and mathematical problems involving area, surface area, and volume. 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. 2. Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas  $V = l w h$  and  $V = B h$  to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems. 3. Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems. 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.

The following [Standards for Mathematical Practice](#) will be covered throughout the unit:

- MP.1 - Make sense of problems and persevere in solving them.
- MP.2 - Reason abstractly and quantitatively.
- MP.3 - Construct viable arguments and 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.

### Interdisciplinary Connections [Other Cross-Curricular Opportunities](#) *Opportunities for [SEL](#)*

### NJSLS:

- **RI.6.1.** Cite textual evidence and make relevant connections to support analysis of what the text says explicitly as well as inferences drawn from the text
- **RI.6.7.** Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue.
- **RI.6.8.** Trace and evaluate the argument and specific claims in a text, distinguishing claims that are supported by reasons and evidence from claims that are not.
- [8.1.8.D.1](#)
- [8.1.8.D.4](#)
- [8.1.8.E.1](#)

21st Century Life and Careers	Technology
<ul style="list-style-type: none"> <li>● <a href="#">CRP2</a> - Apply appropriate academic and technical skills.</li> <li>● <a href="#">CRP4</a> - Communicate clearly and effectively and with reason.</li> <li>● <a href="#">CRP8</a> - Utilize critical thinking to make sense of problems and persevere in solving them.</li> <li>● <a href="#">CRP11</a> - Use technology to enhance productivity.</li> <li>● <a href="#">CRP12</a> - Work productively in teams while using cultural global competence.</li> <li>● <b>9.2.8.B.2</b> Develop a Personalized Student Learning Plan with the assistance of an adult mentor that includes information about career areas of interest, goals and an educational plan.</li> </ul>	<p><b>1. Empowered Learner</b> Students leverage technology to take an active role in choosing, achieving and demonstrating competency in their learning goals, informed by the learning sciences. Students:</p> <p><b>2. Digital Citizen</b> Students recognize the rights, responsibilities and opportunities of living, learning and working in an interconnected digital world, and they act and model in ways that are safe, legal and ethical.</p> <p><b>5. Computational Thinker</b> Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.</p>

### Unit Objectives:

- Find the area of right triangles and other triangles.
- Find the area of 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
- Draw polygons in the coordinate plane given coordinates for the vertices.
- Use coordinates to find the length of side joining points with the same first coordinate or the same second coordinate.
- Apply these techniques in the context of solving real-world and mathematical problems.
- Find the volume of right rectangular prisms with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism.
- Solve real-world and mathematical problems using the formula  $V=LWH$
- Represent three-dimensional figures using nets made up of rectangles and triangles.
- Use nets to find the surface area of these figures.
- Apply these techniques in the context of solving real-world and mathematical problems.

### Skills:

- Find the area of right triangles and other triangles.
- Find the area of special quadrilaterals and polygons by composing into rectangles or decomposing into triangles and other shapes.
- Find the volume of right rectangular prisms with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism

Student Learning	
Core Instructional Materials and Resources	Supplemental Instructional Materials and Resources



<p>Big Ideas Chapter 4 &amp; 8</p> <ul style="list-style-type: none"> <li>○ Sections 4.1, 4.2, 4.3, 4.4, 8.1, 8.2, 8.3, 8.4</li> </ul>	<ul style="list-style-type: none"> <li>● Illustrative Mathematics <ul style="list-style-type: none"> <li>○ <a href="#">Nets for Pyramids and Prisms</a></li> <li>○ <a href="#">Volume with Fractional Edge Lengths</a></li> <li>○ <a href="#">Polygons in the Coordinate Plane</a></li> </ul> </li> <li>● Activities on the Team Drive: <ul style="list-style-type: none"> <li>○ Stations Supporting Understanding 3D Figures</li> </ul> </li> <li>● PARCC Released Items <ul style="list-style-type: none"> <li>○ 2015 PBA:</li> <li>○ 2015 EOY:</li> <li>○ 2016:</li> <li>○ 2017:</li> <li>○ 2018:</li> </ul> </li> <li>● i-Ready Resources</li> <li>● Teacher made resources including Tpt created resources.</li> </ul>
<p style="text-align: center;"><b>Accommodations/Modifications</b> (ELL, Students with IEPs, 504s, Gifted Learners, At Risk) <i>Each group must be listed separately</i></p>	<p style="text-align: center;"><b>Assessment</b> <b>(All forms must be identified)</b></p>
<p><b>Suggested Options for Differentiation</b></p> <p><i>English Language Learners</i></p> <ul style="list-style-type: none"> <li>● Peer tutoring</li> <li>● Manipulatives</li> <li>● Use of Home Language</li> <li>● Limiting Concepts or Vocabulary</li> <li>● Providing Visuals</li> </ul> <p><i>Students at Risk of Failure</i></p> <ul style="list-style-type: none"> <li>● Extended Time</li> <li>● Flexible Grouping</li> <li>● Small Group Instruction</li> <li>● Peer Buddies</li> <li>● Graphic Organizers</li> <li>● Chunking Information</li> <li>● Scaffolded Questioning</li> <li>● Tiered Activities</li> <li>● Centers in Academic Activity</li> </ul> <p><i>Special Education</i></p> <ul style="list-style-type: none"> <li>● Extension activities</li> <li>● Opportunities for Critical Thinking</li> <li>● Problem Solving/Design Challenges</li> <li>● Technology Integration</li> <li>● Student Choice Activities</li> <li>● Student Driven Activities</li> <li>● Group Projects</li> <li>● Tiered Activities</li> </ul> <p><i>504</i></p> <ul style="list-style-type: none"> <li>● Extension activities</li> <li>● Opportunities for Critical Thinking</li> <li>● Problem Solving/Design Challenges</li> <li>● Technology Integration</li> <li>● Student Choice Activities</li> </ul>	<p>Formative:</p> <ul style="list-style-type: none"> <li>● Observation</li> <li>● Homework</li> <li>● Class participation</li> <li>● Whiteboards/communicators</li> <li>● Do-Now</li> <li>● Notebook</li> <li>● Exit passes</li> </ul> <p>Summative:</p> <ul style="list-style-type: none"> <li>● Chapter/Unit Test</li> <li>● Quizzes</li> <li>● Presentations</li> <li>● i-Ready quizzes</li> <li>● NJSLA</li> </ul> <p>Benchmark:</p> <ul style="list-style-type: none"> <li>● Middle of Year i-Ready Diagnostic</li> <li>● Quarterly Portfolio</li> <li>● NJSLA</li> </ul> <p>Alternate:</p> <ul style="list-style-type: none"> <li>● Authentic Performance Tasks</li> <li>● Unit Projects</li> </ul>

<ul style="list-style-type: none"> <li>● Student Driven Activities</li> <li>● Group Projects</li> <li>● Tiered Activities</li> </ul> <p><i>Gifted &amp; Talented</i></p> <ul style="list-style-type: none"> <li>● Extension activities</li> <li>● Opportunities for Critical Thinking</li> <li>● Problem Solving/Design Challenges</li> <li>● Technology Integration</li> <li>● Student Choice Activities</li> <li>● Student Driven Activities</li> <li>● Group Projects</li> <li>● Tiered Activities</li> </ul>	
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## Unit #7 Overview

### Unit Summary:

Students will use mathematical practices to explore area and volume of 2- and 3-dimensional shapes.

### Enduring Understandings:

Students will understand that...

- Numerical data can be displayed in multiple ways.
- Summaries of numerical data vary based on their contexts.
- Overall patterns of numerical data can vary.

### Essential Questions:

- How do measures of center and variability help us to make sense of the world around us?
- In what contexts are the measures of center and variability preferred descriptions of the data?
- Why do we need multiple ways of describing numerical data?

## Standards

### **NJSLS.SP.6.A**

**Develop an understanding of statistical variability**

### **NJSLS.SP.6.A.1**

Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for its answers.

**NJSLS.SP.6.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.

**NJSLS.SP.6.A.3**

Recognize that a measure of center for a numerical data set summarizes all of its values with a single number

**NJSLS.SP.6.B. Summarize and describe distributions.****NJSLS.SP.6.B.4**

Display numerical data in plots on a number line, including dot plots, histograms, and box plots.

**NJSLS.SP.6.B.5**

Summarize numerical data sets in relation to their context

The following [Standards for Mathematical Practice](#) will be covered throughout the unit:

- MP.1 - Make sense of problems and persevere in solving them.
- MP.2 - Reason abstractly and quantitatively.
- MP.3 - Construct viable arguments and 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.

**Interdisciplinary Connections**  
[Other Cross-Curricular Opportunities](#)  
*Opportunities for [SEL](#)*

**NJSLS:**

- **RI.6.1.** Cite textual evidence and make relevant connections to support analysis of what the text says explicitly as well as inferences drawn from the text
- **RI.6.7.** Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue.
- **RI.6.8.** Trace and evaluate the argument and specific claims in a text, distinguishing claims that are supported by reasons and evidence from claims that are not.
- [8.1.8.D.1](#)
- [8.1.8.D.4](#)
- [8.1.8.E.1](#)

**21st Century Life and Careers****Technology**

- [CRP2](#) - Apply appropriate academic and technical skills.
- [CRP4](#) - Communicate clearly and effectively and with reason.
- [CRP8](#) - Utilize critical thinking to make sense of problems and persevere in solving them.
- [CRP11](#) - Use technology to enhance productivity.
- [CRP12](#) - Work productively in teams while using cultural global competence.
- **9.2.8.B.2** Develop a Personalized Student Learning Plan with the assistance of an adult

**1. Empowered Learner**

Students leverage technology to take an active role in choosing, achieving and demonstrating competency in their learning goals, informed by the learning sciences. Students:

**2. Digital Citizen**

Students recognize the rights, responsibilities and opportunities of living, learning and working in an interconnected digital world, and they act and model in ways that are safe, legal and ethical.

**5. Computational Thinker**

<p>mentor that includes information about career areas of interest, goals and an educational plan.</p> <ul style="list-style-type: none"> <li>● <b>9.1.8.D.2</b> Differentiate among various savings tools and how to use them most effectively.</li> <li>● <b>9.1.8.D.3</b> Differentiate among various investment options</li> </ul>	<p>Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.</p>
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<p><b>Unit Objectives:</b></p> <ul style="list-style-type: none"> <li>● Use language for mathematical purposes such as justifying, representing, and interpreting.</li> <li>● Understand that a statistical question is one for which you do not expect to get a single answer.</li> <li>● Use a dot plot to record variable answers to statistical questions.</li> <li>● Understand that the spread is a measure of variation of all values in a data set about the center.</li> <li>● Find the average (mean) of a distribution set.</li> <li>● Find the center of a numerical data set.</li> <li>● Calculate the measure of center for a numerical data set to summarize its values.</li> <li>● Determine the measure of variation to describe how its values vary with a single number.</li> <li>● Construct dot plots, histograms, and box plots.</li> </ul>
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<p><b>Skills:</b></p> <ul style="list-style-type: none"> <li>● Use a dot plot to record variable answers to statistical questions.</li> <li>● Find the average (mean) of a distribution set.</li> <li>● Find the center of a numerical data set.</li> <li>● Calculate the measure of center for a numerical data set to summarize its values.</li> <li>● Construct dot plots, histograms, and box plots.</li> </ul>
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<b>Student Learning</b>	
<b>Core Instructional Materials and Resources</b>	<b>Supplemental Instructional Materials and Resources</b>
<p>Big Ideas Chapter Sections 9.1, 9.2, 9.3, 9.4, 9.5, 10.1, 10.2, 10.3, Ext. 10.3, 10.4</p>	<ul style="list-style-type: none"> <li>● Illustrative Mathematics <ul style="list-style-type: none"> <li>○ <a href="#">Identifying Statistical Questions</a></li> <li>○ <a href="#">Is it Center or Variability</a></li> <li>○ <a href="#">Puppy Weights</a></li> <li>○ <a href="#">Average Number of Siblings</a></li> <li>○ <a href="#">Mean or Median</a></li> </ul> </li> <li>● Activities on the Team Drive: <ul style="list-style-type: none"> <li>○ Stations Supporting Mean</li> <li>○ Statistics Post Unit Stations</li> </ul> </li> <li>● PARCC Released Items <ul style="list-style-type: none"> <li>○ 2015 PBA:</li> <li>○ 2015 EOY:</li> <li>○ 2016:</li> <li>○ 2017:</li> <li>○ 2018:</li> </ul> </li> <li>● i-Ready Resources</li> <li>● Teacher made resources including Tpt created resources.</li> </ul>

<p style="text-align: center;"><b>Accommodations/Modifications</b> (ELL, Students with IEPs, 504s, Gifted Learners, At Risk) <i>Each group must be listed separately</i></p>	<p style="text-align: center;"><b>Assessment</b> <b>(All forms must be identified)</b></p>
<p><b>Suggested Options for Differentiation</b></p> <p><i>English Language Learners</i></p> <ul style="list-style-type: none"> <li>● Peer tutoring</li> <li>● Manipulatives</li> <li>● Use of Home Language</li> <li>● Limiting Concepts or Vocabulary</li> <li>● Providing Visuals</li> </ul> <p><i>Students at Risk of Failure</i></p> <ul style="list-style-type: none"> <li>● Extended Time</li> <li>● Flexible Grouping</li> <li>● Small Group Instruction</li> <li>● Peer Buddies</li> <li>● Graphic Organizers</li> <li>● Chunking Information</li> <li>● Scaffolded Questioning</li> <li>● Tiered Activities</li> <li>● Centers in Academic Activity</li> </ul> <p><i>Special Education</i></p> <ul style="list-style-type: none"> <li>● Extension activities</li> <li>● Opportunities for Critical Thinking</li> <li>● Problem Solving/Design Challenges</li> <li>● Technology Integration</li> <li>● Student Choice Activities</li> <li>● Student Driven Activities</li> <li>● Group Projects</li> <li>● Tiered Activities</li> </ul> <p><i>504</i></p> <ul style="list-style-type: none"> <li>● Extension activities</li> <li>● Opportunities for Critical Thinking</li> <li>● Problem Solving/Design Challenges</li> <li>● Technology Integration</li> <li>● Student Choice Activities</li> <li>● Student Driven Activities</li> <li>● Group Projects</li> <li>● Tiered Activities</li> </ul> <p><i>Gifted &amp; Talented</i></p> <ul style="list-style-type: none"> <li>● Extension activities</li> <li>● Opportunities for Critical Thinking</li> <li>● Problem Solving/Design Challenges</li> <li>● Technology Integration</li> <li>● Student Choice Activities</li> <li>● Student Driven Activities</li> <li>● Group Projects</li> <li>● Tiered Activities</li> </ul>	<p>Formative:</p> <ul style="list-style-type: none"> <li>● Observation</li> <li>● Homework</li> <li>● Class participation</li> <li>● Whiteboards/communicators</li> <li>● Do-Now</li> <li>● Notebook</li> <li>● Exit passes</li> </ul> <p>Summative:</p> <ul style="list-style-type: none"> <li>● Chapter/Unit Test</li> <li>● Quizzes</li> <li>● Presentations</li> <li>● i-Ready quizzes</li> <li>● NJSLA</li> </ul> <p>Benchmark:</p> <ul style="list-style-type: none"> <li>● End of Year i-Ready Diagnostic</li> <li>● Quarterly Portfolio</li> <li>● NJSLA</li> </ul> <p>Alternate:</p> <ul style="list-style-type: none"> <li>● Authentic Performance Tasks</li> <li>● Unit Projects</li> </ul>

