



# TOMS RIVER REGIONAL SCHOOLS

## Middle School Mathematics

### Grade 8 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 8th 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 8th 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>
Unit 1 - The Number System	September (Days 1-20)
Unit 2 - Exponents and Scientific Notation	October (Days 21-40)
Unit 3 - Solving Equations in One Variable	November (Days 41-54)
Unit 4 - The Pythagorean Theorem	End-November (Days 55-65)
Unit 5 - Transformations	December (Days 66-75)
Unit 6 - Functions	January (Days 76 -90)
Unit 7 - Linear Functions	February (Days 91-106)
Unit 8 - Systems of Linear Equations	Beg-March (Days 107-122)
Unit 9 - Data Analysis and Displays	End of March/Beg of April (Days 123-135)
Unit 10 - Angles and Triangles	April through June (Days 136-181)

## Unit #1 Overview

**Unit Summary:** Students will use mathematical practices to classify every real number as either rational or irrational.

### Enduring Understandings:

*Students will understand that...*

- Every real number can be classified as either rational or irrational.
- Every number has a decimal expansion.

### Essential Questions:

- How are decimals and fractions related?
- How do you compare and order rational and irrational numbers?

## Standards

### 8.NS.A.1 The Number System

Know that there are numbers that are not rational, and approximate them by rational numbers. 1. Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually, and convert a decimal expansion which repeats eventually into a rational number.

**8.EE.A.2** Work with radicals and integer exponents. 2. Use square root and cube root symbols to represent solutions to equations of the form  $x^2 = p$  and  $x^3 = p$ , where  $p$  is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that  $\sqrt{2}$  is irrational.

**8.NS.A.2** Know that there are numbers that are not rational, and approximate them by rational numbers. 2. Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g.,  $\pi^2$ ). For example, by truncating the decimal expansion of  $\sqrt{2}$ , show that  $\sqrt{2}$  is between 1 and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations.

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

Infused within the unit are connections to the content standards for English Language Arts and Technology, specifically:

- [NJSLSA.R4](#)
- [NJSLSA.R7](#)

- [NJSLSA.R8](#)
- [8.1.8.D.4](#)
- [8.1.8.E.1](#)

### 21st Century Life and Careers

### Technology

Through well-planned, student-based instruction models, students will develop the attributes that will prepare them for life as citizens and workers in the 21st century:

- [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.B.2** Construct a simple personal savings and spending plan based on various sources of income.
- **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:

- WALT numbers that are not rational are called irrational.
- WALT understand that every number has a decimal expansion.
- WALT show that rational numbers have decimal expansions that either terminate or repeat eventually.
- WALT convert a repeating decimal to a rational number.
- WALT evaluate square roots of small perfect squares and cube roots of small perfect cubes.
- WALT 2 is irrational.
- WALT estimate the value of irrational numbers using rational approximations.
- WALT use rational approximations of irrational numbers to compare their size.
- WALT use rational approximations of irrational numbers to locate them on a number line.

#### Skills:

- Understand that every number has a decimal expansion.
- Show that rational numbers have decimal expansions that either terminate or repeat eventually.
- Convert a repeating decimal to a rational number.
- Estimate the value of irrational numbers using rational approximations

<b>Student Learning</b>	
<b>Core Instructional Materials and Resources</b>	<b>Supplemental Instructional Materials and Resources</b>
<ul style="list-style-type: none"> <li>● Big Ideas Math - Blue (Grade 8)               <ul style="list-style-type: none"> <li>○ Sections 7.1, 7.2, 7.4, and 7.4 Extension</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>● Illustrative Mathematics               <ul style="list-style-type: none"> <li>○ <a href="#">Identifying Rational Numbers</a></li> <li>○ <a href="#">Irrational Numbers on the Number Line</a></li> </ul> </li> <li>● Activities on the Team Drive:               <ul style="list-style-type: none"> <li>○ The Laundry Problem</li> </ul> </li> <li>● PARCC Released Items               <ul style="list-style-type: none"> <li>○ 2015 PBA: none</li> <li>○ 2015 EOY: #7,8,18</li> <li>○ 2016: #2,26</li> <li>○ 2017: #3,7</li> <li>○ 2018:</li> </ul> </li> <li>● Standards-based searchable i-Ready lessons</li> </ul>
<p><b>Accommodations/Modifications</b> (ELL, Students with IEPs, 504s, Gifted Learners, At Risk) <i>Each group must be listed separately</i></p>	<p><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> </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>● NJSLA</li> </ul> <p>Benchmark:</p> <ul style="list-style-type: none"> <li>● Beginning of Year i-Ready Diagnostic</li> <li>● Quarterly Portfolio</li> <li>● NJSLA</li> </ul> <p>Alternate:</p> <ul style="list-style-type: none"> <li>●</li> <li>● Authentic Performance Tasks</li> <li>● Unit Projects</li> </ul>

- 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

**Unit Summary:** Students will use mathematical practices to explore properties of exponents and scientific notation.

**Enduring Understandings:**

*Students will understand that...*

- There are several properties of exponents that can be used to simplify expressions.
- Scientific notation is used to make it easier to work with very large and very small numbers.

**Essential Questions:**

- How can we simplify expressions involving exponents?
- How do you add, subtract, multiply and divide very large and small numbers?
- How can we use scientific notation to compare magnitudes of numbers?

**Standards**

**8.EE.A.1** Work with radicals and integer exponents.

1. Know and apply the properties of integer exponents to generate equivalent numerical expressions. For example,  $32 \times 3^{-5} = 3^{-3} = 1/33 = 1/27$ .

**8.EE.A.3** Work with radicals and integer exponents.

3. Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other. For example, estimate the population of the United States as  $3 \times 10^8$  and the population of the world as  $7 \times 10^9$ , and determine that the world population is more than 20 times larger.

**8.EE.A.4** Work with radicals and integer exponents.

4. Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology.

**Interdisciplinary Connections**

[Other Cross-Curricular Opportunities](#)

*Opportunities for [SEL](#)*

Infused within the unit are connections to the content standards for English Language Arts and Technology, specifically:

- [NJSLSA.R4](#)
- [NJSLSA.R7](#)
- [NJSLSA.R8](#)
- [8.1.8.D.4](#)
- [8.1.8.E.1](#)

**21st Century Life and Careers**

**Technology**

Through well-planned, student-based instruction models,

**1. Empowered Learner**



students will develop the attributes that will prepare them for life as citizens and workers in the 21st century:

- [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.B.2** Construct a simple personal savings and spending plan based on various sources of income.
- **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.

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:**

- WALT know the properties of integer exponents.
- WALT determine whether two numerical expressions involving integer exponents are equivalent.
- WALT generate equivalent expressions using the properties of exponents.
- WALT estimate a very large or very small number as a single digit times an integer power of ten.
- WALT determine how many times larger one quantity is compared to another when written as a single digit times an integer power of ten.
- WALT add, subtract, multiply and divide numbers expressed in scientific notation.
- WALT add, subtract, multiply and divide numbers where one is expressed in decimal notation and the other is expressed in scientific notation.
- WALT choose appropriate units to represent measurements of very large or very small quantities.
- WALT interpret scientific notation generated by technology as a number multiplied by a power of ten.

**Skills:**

- Determine whether two numerical expressions involving integer exponents are equivalent.
- Generate equivalent expressions using the properties of exponents.
- Determine how many times larger one quantity is compared to another when written as a single digit times an integer power of ten.
- Add, subtract, multiply and divide numbers expressed in scientific notation.
- Add, subtract, multiply and divide numbers where one is expressed in decimal notation and the other is expressed in scientific notation.

**Student Learning**

**Core Instructional Materials and Resources**

**Supplemental Instructional Materials and Resources**

<ul style="list-style-type: none"> <li>● Big Ideas Math - Blue (Grade 8) <ul style="list-style-type: none"> <li>○ Sections 10.2, 10.3, 10.4, 10.5, 10.6, and 10.7</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>● Illustrative Mathematics <ul style="list-style-type: none"> <li>○ <a href="#">Ants versus Humans</a></li> <li>○ <a href="#">Ant and Elephant</a></li> <li>○ <a href="#">Pennies to Heaven</a></li> <li>○ <a href="#">Giantburgers</a></li> <li>○ <a href="#">Choosing Appropriate Units</a></li> </ul> </li> <li>● Activities on the Team Drive: <ul style="list-style-type: none"> <li>○ Exponents: <ul style="list-style-type: none"> <li>■ A Few Folds</li> <li>■ Applying Properties of Exponents</li> <li>■ Exploring Powers of 10</li> <li>■ Exponents Maze</li> <li>■ Ponzi Scheme</li> </ul> </li> <li>○ Scientific Notation: <ul style="list-style-type: none"> <li>■ 100 People</li> <li>■ E. coli</li> <li>■ How Many Times in a Millennium?</li> <li>■ Short Task: Expressions and Equations</li> </ul> </li> </ul> </li> <li>● PARCC Released Items <ul style="list-style-type: none"> <li>○ 2015 PBA: #1,8,11</li> <li>○ 2015 EOY: #1,19,28</li> <li>○ 2016: #1,13</li> <li>○ 2017: #10</li> <li>○ 2018: #8,15</li> </ul> </li> <li>● Standards-based searchable i-Ready lessons</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>
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- 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
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- Authentic Performance Tasks
- Unit Projects

### Unit #3 Overview

**Unit Summary:** Students will use mathematical practices to solve linear equations that represent real-life situations.

**Enduring Understandings:**

*Students will understand that...*

- Equation solving is working backwards and undoing operations.
- Like terms must be combined.
- The distributive property can be used to simplify expressions and solve equations.

**Essential Questions:**

- How can linear equations be used to represent real-life situations?

**Standards**

**8.EE.C.7** Analyze and solve linear equations and pairs of simultaneous linear equations.  
7. Solve linear equations in one variable.

**8.EE.A.2** Work with radicals and integer exponents.

Use square root and cube root symbols to represent solutions to equations of the form  $x^2 = p$  and  $x^3 = p$ , where  $p$  is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that  $\sqrt{2}$  is irrational.

**8.G.C.9** Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.

9. Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.

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

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- [NJSLSA.R4](#)
- [NJSLSA.R7](#)
- [NJSLSA.R8](#)
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**Technology**

Through well-planned, student-based instruction models, students will develop the attributes that will prepare them for life as citizens and workers in the 21st century:

- [CRP2](#) - Apply appropriate academic and technical skills.
- [CRP4](#) - Communicate clearly and effectively and

**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**

<p>with reason.</p> <ul style="list-style-type: none"> <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.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> <li>● <b>9.1.8.D.3</b> Differentiate among various investment options</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>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>
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<p><b>Unit Objectives:</b></p> <ul style="list-style-type: none"> <li>● WALT a linear equation in one variable can result in one solution, infinitely many solutions, or no solution.</li> <li>● WALT show which of these outcomes is the case by transforming the original equation into the form <math>x=a</math>, <math>a=a</math>, or <math>a=b</math>.</li> <li>● WALT solve linear equations in one variable with rational number coefficients, including those involving the distributive property and combining like terms.</li> <li>● WALT use square root and cube root symbols to represent solutions to equations in the form <math>x^2=p</math> and <math>x^3=p</math>.</li> <li>● WALT apply the formulas for volume of a cone, cylinder, or sphere in a real world context.</li> <li>● WALT calculate the volume of a cone, cylinder, or sphere.</li> <li>● WALT find a missing dimension of a cone, cylinder, or sphere given by its volume.</li> </ul>
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<p><b>Skills:</b></p> <ul style="list-style-type: none"> <li>● Understand that a linear equation in one variable can result in one solution, infinitely many solutions, or no solution.</li> <li>● Apply the formulas for volume of a cone, cylinder, or sphere in a real world context.</li> <li>● Calculate the volume of a cone, cylinder, or sphere.</li> <li>● Find a missing dimension of a cone, cylinder, or sphere given by its volume.</li> </ul>
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<b>Student Learning</b>	
<b>Core Instructional Materials and Resources</b>	<b>Supplemental Instructional Materials and Resources</b>
<ul style="list-style-type: none"> <li>● Big Ideas Math - Blue (Grade 8) <ul style="list-style-type: none"> <li>○ Sections 1.1, 1.2, 1.3, 8.1, 8.2, and 8.3</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>● Illustrative Mathematics <ul style="list-style-type: none"> <li>○ <a href="#">Solving Equations</a></li> <li>○ <a href="#">The Sign of Solutions</a></li> <li>○ <a href="#">Glasses</a></li> <li>○ <a href="#">Flower Vases</a></li> </ul> </li> <li>● Activities on the Team Drive: <ul style="list-style-type: none"> <li>○ Comparing Spheres and Cylinders</li> </ul> </li> <li>● PARCC Released Items</li> </ul>

	<ul style="list-style-type: none"> <li>○ 2015 PBA: #2,12</li> <li>○ 2015 EOY: #2,17,22,29</li> <li>○ 2016: #3,21,23</li> <li>○ 2017: #2,16</li> <li>○ 2018: #3,11,14,19</li> <li>● Standards-based searchable i-Ready lessons</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>
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<ul style="list-style-type: none"> <li>• Tiered Activities</li> </ul>	
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**Unit #4 Overview**

**Unit Summary:** Students will use mathematical practices to solve real-world problems involving right triangles using Pythagorean Theorem.

**Enduring Understandings:**  
*Students will understand that...*

- The Pythagorean Theorem can be used to solve real-world problems involving right triangles.
- The Pythagorean Theorem can be used to find distances on a coordinate grid.
- If three side lengths of a triangle uphold the Pythagorean Theorem, then they form a right triangle.

**Essential Questions:**

- When can the Pythagorean Theorem be used to solve problems?

**Standards**

**8.G.B.6** Understand and apply the Pythagorean Theorem.  
 6. Explain a proof of the Pythagorean Theorem and its converse.  
**8.G.B.8** Understand and apply the Pythagorean Theorem.  
 8. Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.  
**8.G.B.7** Understand and apply the Pythagorean Theorem.  
 7. Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in realworld and mathematical problems in two and three dimensions.

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

Infused within the unit are connections to the content standards for English Language Arts and Technology, specifically:

- [NJSLSA.R4](#)
- [NJSLSA.R7](#)
- [NJSLSA.R8](#)
- [8.1.8.D.4](#)
- [8.1.8.E.1](#)

<b>21st Century Life and Careers</b>	<b>Technology</b>
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Through well-planned, student-based instruction models, students will develop the attributes that will prepare them for life as citizens and workers in the 21st century:

- [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.B.2** Construct a simple personal savings and spending plan based on various sources of income.
- **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:

- WALT the Pythagorean Theorem states that the square of the hypotenuse of a right triangle is equal to the sum of the squares of the other two sides.
- WALT explain a proof of the Pythagorean Theorem.
- WALT explain a proof of the converse of the Pythagorean Theorem
- WALT apply the Pythagorean Theorem to find the distance between two points in a coordinate system.
- WALT apply the Pythagorean Theorem to determine unknown side lengths in right triangles in two-dimensional figures.
- WALT apply the Pythagorean Theorem to determine unknown side lengths in right triangles in three-dimensional figures.
- WALT apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world problems.

### Skills:

- Explain a proof of the Pythagorean Theorem.
- Apply the Pythagorean Theorem to find the distance between two points in a coordinate system
- Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in two-dimensional figures.
- Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in three-dimensional figures
- Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world problems

## Student Learning

### Core Instructional Materials and Resources

- Big Ideas Math - Blue (Grade 8)

### Supplemental Instructional Materials and Resources

- Illustrative Mathematics



<ul style="list-style-type: none"> <li>○ Sections 7.3 and 7.5</li> </ul>	<ul style="list-style-type: none"> <li>○ <a href="#">Running on the Football Field</a></li> <li>○ <a href="#">Area of a Trapezoid</a></li> <li>○ <a href="#">Spiderbox</a></li> <li>● Activities on the Team Drive: <ul style="list-style-type: none"> <li>○ Fencing Your Property Activity</li> </ul> </li> <li>● PARCC Released Items <ul style="list-style-type: none"> <li>○ 2015 PBA: none</li> <li>○ 2015 EOY: #26</li> <li>○ 2016: #17</li> <li>○ 2017: #18</li> <li>○ 2018: #16</li> </ul> </li> <li>● Standards-based searchable i-Ready lessons</li> </ul>
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<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>
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<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> </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> </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>● NJSLA</li> </ul> <p>Benchmark:</p> <ul style="list-style-type: none"> <li>● Beginning of Year i-Ready Diagnostic</li> <li>● Quarterly Portfolio</li> <li>● NJSLA</li> </ul> <p>Alternate:</p> <ul style="list-style-type: none"> <li>●</li> <li>● Authentic Performance Tasks</li> <li>● Unit Projects</li> </ul>
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- Opportunities for Critical Thinking
- Problem Solving/Design Challenges
- Technology Integration
- Student Choice Activities
- Student Driven Activities
- Group Projects
- Tiered Activities

## Unit #5 Overview

**Unit Summary:** Students will use mathematical practices to produce congruent figures using transformations.

### Enduring Understandings:

*Students will understand that...*

- A sequence of reflections, rotations, and/or translations produces congruent figures.
- A sequence of a dilation and a reflection, rotation, and/or translation produces similar figures.
- The effects of reflection, rotation, translation and dilation can be described using coordinates.

### Essential Questions:

- How is the coordinate plane used to analyze transformations?
- How are congruency and similarity related to transformations?

## Standards

**8.G.A.1** Understand congruence and similarity using physical models, transparencies, or geometry software.

1. Verify experimentally the properties of rotations, reflections, and translations:

- Lines are transformed to lines, and line segments to line segments of the same length.
- Angles are transformed to angles of the same measure.
- Parallel lines are transformed to parallel lines.

**8.G.A.2** Understand congruence and similarity using physical models, transparencies, or geometry software.

2. Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.

**8.G.A.3** Understand congruence and similarity using physical models, transparencies, or geometry software.

3. Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.

**8.G.A.4** Understand congruence and similarity using physical models, transparencies, or geometry

software.

4. Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.

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

Infused within the unit are connections to the content standards for English Language Arts and Technology, specifically:

- [NJSLSA.R4](#)
- [NJSLSA.R7](#)
- [NJSLSA.R8](#)
- [8.1.8.D.4](#)
- [8.1.8.E.1](#)

**21st Century Life and Careers**

**Technology**

Through well-planned, student-based instruction models, students will develop the attributes that will prepare them for life as citizens and workers in the 21st century:

- [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.B.2** Construct a simple personal savings and spending plan based on various sources of income.
- **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:**

- WALT verify that when a reflection, rotation, and/or translation is performed, lines are transformed to lines, and line segments to line segments of the same length.
- WALT verify that when a reflection, rotation, and/or translation is performed, angles are transformed to angles of the same measure.
- WALT verify that when a reflection, rotation, and/or translation is performed, parallel lines are transformed to parallel lines.
- WALT two figures are congruent if one can be obtained from the other by a sequence of rotations, reflections, and/or translations.

- WALT describe a sequence of transformations that maps one congruent figure onto another.
- WALT dilate, translate, rotate, and reflect two-dimensional figures on a coordinate plane.
- WALT describe the effects of dilations, translations, rotations, and reflections using coordinates.
- WALT two figures are similar if one can be obtained from the other by a sequence of dilations and rotations, reflections, and/or translations.
- WALT describe a sequence of transformations that maps one similar figure onto another

**Skills:**

- Verify what aspects of shapes are affected by reflection, rotation, and/or translation.
- Determine that two figures are congruent if one can be obtained from the other by a sequence of rotations, reflections, and/or translations.
- Dilate, translate, rotate, and reflect two-dimensional figures on a coordinate plane.
- Describe the effects of dilations, translations, rotations, and reflections using coordinates

<b>Student Learning</b>	
<b>Core Instructional Materials and Resources</b>	<b>Supplemental Instructional Materials and Resources</b>
<ul style="list-style-type: none"> <li>● Big Ideas Math - Blue (Grade 8)               <ul style="list-style-type: none"> <li>○ Sections 2.1, 2.2, 2.3, 2.4, 2.5, and 2.7</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>● Illustrative Mathematics               <ul style="list-style-type: none"> <li>○ <a href="#">Cutting a Rectangle into Two Congruent Triangles</a></li> <li>○ <a href="#">Congruent Triangles</a></li> <li>○ <a href="#">Triangle Congruence with Coordinates</a></li> <li>○ <a href="#">Reflecting Reflections</a></li> <li>○ <a href="#">Are They Similar?</a></li> </ul> </li> <li>● Activities on the Team Drive:               <ul style="list-style-type: none"> <li>○ Aaron's Designs</li> <li>○ Gamers for Life</li> </ul> </li> <li>● PARCC Released Items               <ul style="list-style-type: none"> <li>○ 2015 PBA: #5,6,7</li> <li>○ 2015 EOY: #9,10,11</li> <li>○ 2016: #11,18,19</li> <li>○ 2017: #8</li> <li>○ 2018: #2,7</li> </ul> </li> <li>● Standards-based searchable i-Ready lessons</li> </ul>
<p><b>Accommodations/Modifications</b> (ELL, Students with IEPs, 504s, Gifted Learners, At Risk) <i>Each group must be listed separately</i></p>	<p><b>Assessment</b> <b>(All forms must be identified)</b></p>
<p><b>Suggested Options for Differentiation</b> <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>	<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>

- Extended Time
- Flexible Grouping
- Small Group Instruction
- Peer Buddies
- Graphic Organizers
- Chunking Information
- Scaffolded Questioning
- Tiered Activities

*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
- NJSLA

**Benchmark:**

- Beginning of Year i-Ready Diagnostic
- Quarterly Portfolio
- NJSLA

**Alternate:**

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- Authentic Performance Tasks
- Unit Projects

## Unit #6 Overview

**Unit Summary:** Students will use mathematical practices to use functions as a mathematical way to describe relationships between two quantities that vary.

**Enduring Understandings:***Students will understand that...*

- Functions are a mathematical way to describe relationships between two quantities that vary.
- Functions can be represented in a variety of ways i.e. verbal description, table of values, equation, or graph.

**Essential Questions:**

- Which representation of a pattern more clearly shows whether or not the pattern is linear: a table of values, an equation, or a graph?
- How can we determine whether a function is linear?
- Are all functions linear?
- Are all lines functions?

**Standards****8.F.B.5** Use functions to model relationships between quantities

5. Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.

**8.F.A.1** Define, evaluate, and compare functions.

1. Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output.1

**8.F.A.3** Define, evaluate, and compare functions.

3. Interpret the equation  $y = mx + b$  as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. For example, the function  $A = s^2$  giving the area of a square as a function of its side length is not linear because its graph contains the points (1,1), (2,4) and (3,9), which are not on a straight line.

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

Infused within the unit are connections to the content standards for English Language Arts and Technology, specifically:

- [NJSLSA.R4](#)
- [NJSLSA.R7](#)
- [NJSLSA.R8](#)
- [8.1.8.D.4](#)
- [8.1.8.E.1](#)

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

Through well-planned, student-based instruction models, students will develop the attributes that will prepare them for life as citizens and workers in the 21st century:

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- [CRP4](#) - Communicate clearly and effectively and with reason.
- [CRP8](#) - Utilize critical thinking to make sense of

**1. Empowered Learner**

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**2. Digital Citizen**

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<ul style="list-style-type: none"> <li>● 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.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> <li>● <b>9.1.8.D.3</b> Differentiate among various investment options</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>interconnected digital world, and they act and model in ways that are safe, legal and ethical.</p> <p><b>5. Computational Thinker</b></p> <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>● WALT describe qualitatively the functional relationships between two quantities by analyzing a graph.</li> <li>● WALT sketch a graph that exhibits the qualitative features of a function given a verbal description.</li> <li>● WALT a function is a rule that assigns to each input exactly one output.</li> <li>● WALT the graph of a function is the set of ordered pairs consisting of an input and the corresponding output.</li> <li>● WALT graph linear equations.</li> <li>● WALT the equation <math>y = mx + b</math> defines a linear function.</li> <li>● WALT interpret a set of points forming a straight line as the graph of a linear function.</li> <li>● WALT give examples of nonlinear functions.</li> </ul>
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<p><b>Skills:</b></p> <ul style="list-style-type: none"> <li>● Describe qualitatively the functional relationships between two quantities by analyzing a graph.</li> <li>● Interpret a set of points forming a straight line as the graph of a linear function.</li> <li>● Give examples of nonlinear functions</li> </ul>
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<b>Student Learning</b>	
<b>Core Instructional Materials and Resources</b>	<b>Supplemental Instructional Materials and Resources</b>
<ul style="list-style-type: none"> <li>● Big Ideas Math - Blue (Grade 8) <ul style="list-style-type: none"> <li>○ Sections 6.1, 6.2, 6.4, and 6.5</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>● Illustrative Mathematics <ul style="list-style-type: none"> <li>○ <a href="#">Tides</a></li> <li>○ <a href="#">Distance</a></li> <li>○ <a href="#">Bike Race</a></li> <li>○ <a href="#">US Garbage, Version 1</a></li> <li>○ <a href="#">Introduction to Linear Functions</a></li> </ul> </li> <li>● Activities on the Team Drive: <ul style="list-style-type: none"> <li>○ Foxes and Rabbits</li> <li>○ Interpreting Distance-Time Graphs</li> <li>○ 200 Freestyle</li> <li>○ Order Matters</li> <li>○ Vending Machines</li> <li>○ Which is Which?</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>● PARCC Released Items <ul style="list-style-type: none"> <li>○ 2015 PBA: #3,4</li> <li>○ 2015 EOY: #5,13,14</li> <li>○ 2016: #7,8,9,10</li> <li>○ 2017: #1,5,9</li> <li>○ 2018: #5</li> </ul> </li> <li>● Standards-based searchable i-Ready lessons</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>
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- Group Projects
- Tiered Activities

## Unit #7 Overview

**Unit Summary:** Students will use mathematical practices to model real-world situations using linear functions.

### Enduring Understandings:

*Students will understand that...*

- Linear functions are useful for modeling real-world situations.
- Linear models can be developed from pairs of related data [(x,y) coordinates] and applied to make predictions in context.
- The slope of a linear function can be determined by the rate of change.
- The y-intercept of a linear function is represented as the initial value.

### Essential Questions:

- Why are linear functions useful in real-world settings?
- Why might you use multiple representations of linear equations?
- Why is it important to consider slope, initial value, domain and range in real-world problem situations?

## Standards

**8.EE.B.5** Understand the connections between proportional relationships, lines, and linear equations.

5. Graph proportional relationships, interpreting the unit rate as the slope of the graph.

Compare two different proportional relationships represented in different ways. For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects have greater speed.

**8.EE.B.6** Understand the connections between proportional relationships, lines, and linear equations.

6. Use similar triangles to explain why the slope  $m$  is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation  $y = mx$  for a line through the origin and the equation  $y = mx + b$  for a line intercepting the vertical axis at  $b$ .

**8.F.B.4** Use functions to model relationships between quantities.

4. Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two  $(x, y)$  values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.

**8.F.A.2** Define, evaluate, and compare functions.

2. Compare properties (e.g. rate of change, intercepts, domain and range) of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a linear function represented by a table of values and

a linear function represented by an algebraic expression, determine which function has the greater rate of change.

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

Infused within the unit are connections to the content standards for English Language Arts and Technology, specifically:

- [NJSLSA.R4](#)
- [NJSLSA.R7](#)
- [NJSLSA.R8](#)
- [8.1.8.D.4](#)
- [8.1.8.E.1](#)

**21st Century Life and Careers**

**Technology**

Through well-planned, student-based instruction models, students will develop the attributes that will prepare them for life as citizens and workers in the 21st century:

- [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.B.2** Construct a simple personal savings and spending plan based on various sources of income.
- **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:**

- WALT graph proportional relationships represented in different ways (i.e. ordered pairs, table, equation, phrases, etc.).
- WALT recognize that for proportional relationships, the unit rate is the slope of the graph.
- WALT compare the unit rates of two proportional relationships represented in different ways.
- WALT explain why the slope is the same between any two distinct points on a non-vertical line by drawing similar right triangles and comparing the ratios of their sides.
- WALT derive the equation  $y=mx$  for a line through the origin.
- WALT derive the equation  $y=mx+b$  for a line intercepting the y-axis at b.
- WALT construct a function to model a linear relationship between two quantities.
- WALT determine the rate of change and initial value of a function from a description of a relationship or from two (x,y) values, including reading these from a table or from a graph.

- WALT interpret the rate of change and initial value of a function in terms of the situation it models.
- WALT compare properties such as rate of change, intercepts, domain and range of two functions each represented in a different way.

**Skills:**

- Graph proportional relationships represented in different ways (i.e. ordered pairs, table, equation, phrases, etc.)
- Recognize that for proportional relationships, the unit rate is the slope of the graph.
- Construct a function to model a linear relationship between two quantities.
- Determine the rate of change and initial value of a function from a description of a relationship or from two (x,y) values, including reading these from a table or from a graph.

<b>Student Learning</b>	
<b>Core Instructional Materials and Resources</b>	<b>Supplemental Instructional Materials and Resources</b>
<ul style="list-style-type: none"> <li>● Big Ideas Math - Blue (Grade 8)               <ul style="list-style-type: none"> <li>○ Sections 4.1, 4.2, 4.3, 4.4, 4.5, 4.6</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>● Illustrative Mathematics               <ul style="list-style-type: none"> <li>○ <a href="#">Peaches and Plums</a></li> <li>○ <a href="#">Comparing Speeds in Graphs and Equations</a></li> <li>○ <a href="#">Sore Throats, Variation 2</a></li> <li>○ <a href="#">Coffee by the Pound</a></li> <li>○ <a href="#">Who Has the Best Job?</a></li> <li>○ <a href="#">Stuffing Envelopes</a></li> <li>○ <a href="#">Slopes Between Points on a Line</a></li> <li>○ <a href="#">Downhill</a></li> <li>○ <a href="#">Video Streaming</a></li> <li>○ <a href="#">Chicken and Steak, Variation 2</a></li> <li>○ <a href="#">Battery Charging</a></li> </ul> </li> <li>● Activities on the Team Drive:               <ul style="list-style-type: none"> <li>○ Party</li> <li>○ Start with Three See What Happens to Me</li> <li>○ 8.EE.6, 8.F.4 Linear Equations Performance Task</li> </ul> </li> <li>● PARCC Released Items               <ul style="list-style-type: none"> <li>○ 2015 PBA: #10,14,17,18</li> <li>○ 2015 EOY: #6,15,21,23,24,25,30,32,33</li> <li>○ 2016: #14,15,16,22,24,25,27</li> <li>○ 2017: #12,13,15,19,20,22</li> <li>○ 2018: #1,10,13,17,18,20</li> </ul> </li> <li>● Standards-based searchable i-Ready lessons</li> </ul>
<p><b>Accommodations/Modifications</b> (ELL, Students with IEPs, 504s, Gifted Learners, At Risk) <i>Each group must be listed separately</i></p>	<p><b>Assessment</b> <b>(All forms must be identified)</b></p>
<p><b>Suggested Options for Differentiation</b></p>	<p>Formative:</p> <ul style="list-style-type: none"> <li>● Observation</li> </ul>

<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> </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>	<ul style="list-style-type: none"> <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>● NJSLA</li> </ul> <p>Benchmark:</p> <ul style="list-style-type: none"> <li>● Beginning of Year i-Ready Diagnostic</li> <li>● Quarterly Portfolio</li> <li>● NJSLA</li> </ul> <p>Alternate:</p> <ul style="list-style-type: none"> <li>●</li> <li>● Authentic Performance Tasks</li> <li>● Unit Projects</li> </ul>
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## Unit #8 Overview

**Unit Summary:** Students will use mathematical practices to solve a system of linear equations by finding a set of values that when substituted for the variables in each equation make a true statement, through real-world problems, graphically and algebraically.

**Enduring Understandings:***Students will understand that...*

- Solving a system of linear equations is finding a set of values that when substituted for the variables in each equation make a true statement.
- Systems of linear equations are used to model and solve real-world problems involving two variables.
- Systems of equations can be solved graphically or algebraically.

**Essential Questions:**

- How are systems of equations solved graphically and algebraically?
- How are systems of linear equations useful in interpreting real-world situations?

**Standards****8.EE.C.8** Analyze and solve linear equations and pairs of simultaneous linear equations

8. Analyze and solve pairs of simultaneous linear equations. a. Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously. b. Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. For example,  $3x + 2y = 5$  and  $3x + 2y = 6$  have no solution because  $3x + 2y$  cannot simultaneously be 5 and 6. c. Solve real-world and mathematical problems leading to two linear equations in two variables. For example, given coordinates for two pairs of points, determine whether the line through the first pair of points intersects the line through the second pair

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

Infused within the unit are connections to the content standards for English Language Arts and Technology, specifically:

- [NJSLSA.R4](#)
- [NJSLSA.R7](#)
- [NJSLSA.R8](#)
- [8.1.8.D.4](#)
- [8.1.8.E.1](#)

**21st Century Life and Careers**

Through well-planned, student-based instruction models, students will develop the attributes that will prepare them for life as citizens and workers in the 21st century:

- [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.B.2** Construct a simple personal savings and

**Technology****1. Empowered Learner**

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**5. Computational Thinker**

Students develop and employ strategies for understanding and solving problems in ways that

<p>spending plan based on various sources of income.</p> <ul style="list-style-type: none"> <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> <li>● <b>9.1.8.D.3</b> Differentiate among various investment options</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>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>● WALT solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs.</li> <li>● WALT points of intersection satisfy both equations simultaneously.</li> <li>● WALT determine the number of solutions a system of two linear equations will have based upon inspection.</li> <li>● WALT estimate solutions of two linear equations in two variables by graphing the equations.</li> <li>● WALT solve systems of two linear equations in two variables algebraically.</li> <li>● WALT solve a system of two linear equations modeling real-world and mathematical problems.</li> </ul>
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<p><b>Skills:</b></p> <ul style="list-style-type: none"> <li>● Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs.</li> <li>● Determine the number of solutions a system of two linear equations will have based upon inspection.</li> <li>● Estimate solutions of two linear equations in two variables by graphing the equations.</li> <li>● Solve systems of two linear equations in two variables algebraically and modeling real-world and mathematical problems.</li> </ul>
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Student Learning	
Core Instructional Materials and Resources	Supplemental Instructional Materials and Resources
<ul style="list-style-type: none"> <li>● Big Ideas Math - Blue (Grade 8) <ul style="list-style-type: none"> <li>○ Sections 5.1, 5.2, 5.3, and 5.4</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>● Illustrative Mathematics <ul style="list-style-type: none"> <li>○ <a href="#">Fixing the Furnace</a></li> <li>○ <a href="#">How Many Solutions?</a></li> <li>○ <a href="#">Summer Swimming</a></li> <li>○ <a href="#">The Intersection of Two Lines</a></li> </ul> </li> <li>● Activities on the Team Drive: <ul style="list-style-type: none"> <li>○ Talk and Text Plans</li> <li>○ Systems of Equations Graphing vs. Substitution Partner Activity</li> <li>○ System of Equations Station Activities</li> <li>○ Meal Out - <i>(needs to be adapted for Systems of Equations)</i></li> </ul> </li> <li>● PARCC Released Items <ul style="list-style-type: none"> <li>○ 2015 PBA: #9</li> <li>○ 2015 EOY: #3,4,16,20,31</li> <li>○ 2016: #4,5,6,20</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>○ 2017: #4,6,21</li> <li>○ 2018: #4,6</li> <li>● Standards-based searchable i-Ready lessons</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> </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>● NJSLA</li> </ul> <p>Benchmark:</p> <ul style="list-style-type: none"> <li>● Beginning of Year i-Ready Diagnostic</li> <li>● Quarterly Portfolio</li> <li>● NJSLA</li> </ul> <p>Alternate:</p> <ul style="list-style-type: none"> <li>●</li> <li>● Authentic Performance Tasks</li> <li>● Unit Projects</li> </ul>

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## Unit #9 Overview

**Unit Summary:** Students will use mathematical practices to collect and analyze data that can help discover patterns in data that can be used to make predictions.

### Enduring Understandings:

*Students will understand that...*

- Collecting and analyzing data can help discover patterns in data that can be used to make predictions.
- A scatter plot is used to explore possible relationships between two variables in a data set. The data may have a positive relationship, a negative relationship, or no relationship.
- If two variables in a data set are related, a line on the graph can be used to estimate or predict values.
- Two-way tables can be used to display a pattern or frequency in categorical bivariate data.

### Essential Questions:

- What types of patterns can be found in bivariate data?
- What conclusions can be drawn from data displayed on a graph?
- How can patterns predict the future?

## Standards

**8.SP.A.1** . Investigate patterns of association in bivariate data.

1. Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.

**8.SP.A.2** Investigate patterns of association in bivariate data.

2. Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit (e.g. line of best fit) by judging the closeness of the data points to the line.

**8.SP.A.3** Investigate patterns of association in bivariate data.

3. Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept. For example, in a linear model for a biology experiment, interpret a slope of 1.5 cm/hr as meaning that an additional hour of sunlight each day is associated with an additional 1.5 cm in mature plant height.

**8.SP.A.4** Investigate patterns of association in bivariate data.

4. Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables. For example, collect data from students in your class on whether or not they have a curfew on school nights and whether or not they have assigned



chores at home. Is there evidence that those who have a curfew also tend to have chores?

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

Infused within the unit are connections to the content standards for English Language Arts and Technology, specifically:

- [NJSLSA.R4](#)
- [NJSLSA.R7](#)
- [NJSLSA.R8](#)
- [8.1.8.D.4](#)
- [8.1.8.E.1](#)

**21st Century Life and Careers**

**Technology**

Through well-planned, student-based instruction models, students will develop the attributes that will prepare them for life as citizens and workers in the 21st century:

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- [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.B.2** Construct a simple personal savings and spending plan based on various sources of income.
- **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**

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**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:**

- WALT construct scatter plots.
- WALT interpret scatter plots to investigate patterns of association between two quantities.
- WALT describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.
- WALT straight lines are used to model relationships between two quantitative variables.
- WALT informally fit a straight line for scatter plots that suggest a linear association.
- WALT informally assess the fit of the line for a scatter plot by judging the closeness of the data points to the line.
- WALT interpret the slope and intercept in the context of bivariate measurement data using the equation of a linear model.
- WALT two-way tables can be used to show patterns of association in categorical data.
- WALT construct a two-way table.

- WALT interpret a two-way table by identifying joint frequencies and calculating marginal frequencies.
- WALT use relative frequencies to describe possible association between the two variables.

**Skills:**

- Construct scatter plots.
- Interpret scatter plots to investigate patterns of association between two quantities.
- Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.
- Informally fit a straight line for scatter plots that suggest a linear association

<b>Student Learning</b>	
<b>Core Instructional Materials and Resources</b>	<b>Supplemental Instructional Materials and Resources</b>
<ul style="list-style-type: none"> <li>● Big Ideas Math - Blue (Grade 8)               <ul style="list-style-type: none"> <li>○ Sections 9.1, 9.2, and 9.3</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>● Illustrative Mathematics               <ul style="list-style-type: none"> <li>○ <a href="#">Birds' Eggs</a></li> <li>○ <a href="#">Hand Span and Height</a></li> <li>○ <a href="#">Animal Brains</a></li> <li>○ <a href="#">Laptop Battery Charge</a></li> <li>○ <a href="#">What's Your Favorite Subject?</a></li> <li>○ <a href="#">Music and Sports</a></li> </ul> </li> <li>● Activities on the Team Drive:               <ul style="list-style-type: none"> <li>○ House Prices</li> </ul> </li> <li>● PARCC Released Items               <ul style="list-style-type: none"> <li>○ 2015 PBA: none</li> <li>○ 2015 EOY: #12,27</li> <li>○ 2016: #12,28</li> <li>○ 2017: #11,17</li> <li>○ 2018: #9,12</li> </ul> </li> <li>● Standards-based searchable i-Ready lessons</li> </ul>
<p><b>Accommodations/Modifications</b> (ELL, Students with IEPs, 504s, Gifted Learners, At Risk) <i>Each group must be listed separately</i></p>	<p><b>Assessment</b> <b>(All forms must be identified)</b></p>
<p><b>Suggested Options for Differentiation</b> <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> </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>● NJSLA</li> </ul>

<ul style="list-style-type: none"> <li>● Chunking Information</li> <li>● Scaffolded Questioning</li> <li>● Tiered Activities</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><b>Benchmark:</b></p> <ul style="list-style-type: none"> <li>● Beginning of Year i-Ready Diagnostic</li> <li>● Quarterly Portfolio</li> <li>● NJSLA</li> </ul> <p><b>Alternate:</b></p> <ul style="list-style-type: none"> <li>●</li> <li>● Authentic Performance Tasks</li> <li>● Unit Projects</li> </ul>
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## Unit #10 Overview

**Unit Summary:** Students will use mathematical practices to discover a unique relationship exists between angles that are formed by parallel lines cut by a transversal.

**Enduring Understandings:**

*Students will understand that...*

- A unique relationship exists between angles that are formed by parallel lines cut by a transversal.
- The sum of the interior angles of a triangle is constant.

**Essential Questions:**

- How can we use facts about angles to construct an informal argument?

## Standards

**8.G.A.5** Understand congruence and similarity using physical models, transparencies, or geometry software.  
5. Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle angle criterion for similarity of triangles. For example, arrange three copies of the same triangle so that the sum of the three angles appears to form a line, and give an argument in terms of transversals why this is so.

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

Infused within the unit are connections to the content standards for English Language Arts and Technology, specifically:

- [NJSLSA.R4](#)
- [NJSLSA.R7](#)
- [NJSLSA.R8](#)
- [8.1.8.D.4](#)
- [8.1.8.E.1](#)

### 21st Century Life and Careers

### Technology

Through well-planned, student-based instruction models, students will develop the attributes that will prepare them for life as citizens and workers in the 21st century:

- [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.B.2** Construct a simple personal savings and spending plan based on various sources of income.
- **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:

- WALT when parallel lines are cut by a transversal, corresponding, alternate interior, and alternate exterior angles are congruent.
- WALT the sum of the interior angles of a triangle is 180 degrees.
- WALT the measure of an exterior angle of a triangle is equal to the sum of the two remote interior angles.

- WALT if two sets of corresponding angles in two triangles are congruent, then the triangles are similar.
- WALT use facts about angles to construct an informal argument.

**Skills:**

- Understand when parallel lines are cut by a transversal, corresponding, alternate interior, and alternate exterior angles are congruent.
- Use facts about angles to construct an informal argument.

**Student Learning**

<b>Core Instructional Materials and Resources</b>	<b>Supplemental Instructional Materials and Resources</b>
<ul style="list-style-type: none"> <li>● Big Ideas Math - Blue (Grade 8)               <ul style="list-style-type: none"> <li>○ Sections 3.1, 3.2, 3.4</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>● Illustrative Mathematics               <ul style="list-style-type: none"> <li>○ <a href="#">A Triangle's Interior Angles</a></li> <li>○ <a href="#">Similar Triangles II</a></li> </ul> </li> <li>● Activities on the Team Drive:               <ul style="list-style-type: none"> <li>○ Angle Measures of Polygons</li> </ul> </li> <li>● PARCC Released Items               <ul style="list-style-type: none"> <li>○ 2015 PBA: #15</li> <li>○ 2015 EOY: none</li> <li>○ 2016: none</li> <li>○ 2017: #14</li> </ul> </li> <li>● Standards-based searchable i-Ready lessons</li> </ul>
<p><b>Accommodations/Modifications</b> (ELL, Students with IEPs, 504s, Gifted Learners, At Risk) <i>Each group must be listed separately</i></p>	<p><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> </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> </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>● NJSLA</li> </ul> <p>Benchmark:</p> <ul style="list-style-type: none"> <li>● Beginning of Year i-Ready Diagnostic</li> <li>● Quarterly Portfolio</li> <li>● NJSLA</li> </ul> <p>Alternate:</p> <ul style="list-style-type: none"> <li>●</li> </ul>

- 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

- Authentic Performance Tasks
- Unit Projects