

Original Adoption:	School Year 2017-2018
Revised On:	July / August 2019
Board Approved:	August 21, 2019

8th Grade Curriculum Documents

TIME PERIOD	UNIT	STANDARDS & STUDENT LEARNING OBJECTIVES
September (Days 1-20)	Unit 1 - The Number System *standard only addresses rational vs irrational	<ul style="list-style-type: none"> ● 8.NS.A.1 <ul style="list-style-type: none"> ○ WALT numbers that are not rational are called irrational. ○ WALT 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. ● 8.EE.A.2 <ul style="list-style-type: none"> ○ WALT evaluate square roots of small perfect squares and cube roots of small perfect cubes. ○ WALT $\sqrt{2}$ is irrational. ● 8.NS.A.2 <ul style="list-style-type: none"> ○ 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.
October (Days 21-40)	Unit 2 - Exponents and Scientific Notation *8.EE.A.4 requires students to use the calculator for scientific notation and understand what the "E" represents.	<ul style="list-style-type: none"> ● 8.EE.A.1 <ul style="list-style-type: none"> ○ 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. ● 8.EE.A.3 <ul style="list-style-type: none"> ○ 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. ● 8.EE.A.4 <ul style="list-style-type: none"> ○ WALT add, subtract, multiply and divide numbers expressed in scientific notation. ○ WALT add, subtract, multiply and divide numbers where one is expressed in decimal

		<p>notation and the other is expressed in scientific notation.</p> <ul style="list-style-type: none"> ○ 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
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<p>November (Days 41-54)</p>	<p>Unit 3 - Solving Equations in One Variable</p> <p>* 8.EE.A.2 is not covered in textbook and has been added to this unit.</p> <p>* 8.G.C.9 is the volume unit, use PARCC reference sheet.</p>	<ul style="list-style-type: none"> ● 8.EE.C.7 <ul style="list-style-type: none"> ○ WALT a linear equation in one variable can result in one solution, infinitely many solutions, or no solution. ○ WALT show which of these outcomes is the case by transforming the original equation into the form $x = a$, $a = a$, or $a = b$. ○ WALT solve linear equations in one variable with rational number coefficients, including those involving the distributive property and combining like terms. ● 8.EE.A.2 <ul style="list-style-type: none"> ○ WALT use square root and cube root symbols to represent solutions to equations in the form $x^2 = p$ and $x^3 = p$. ● 8.G.C.9 <ul style="list-style-type: none"> ○ WALT apply the formulas for volume of a cone, cylinder, or sphere in a real world context. ○ WALT calculate the volume of a cone, cylinder or sphere. ○ WALT find a missing dimension of a cone, cylinder or sphere given by its volume.
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<p>End-November (Days 55-65)</p>	<p>The Pythagorean Theorem</p>	<ul style="list-style-type: none"> ● 8.G.B.6 <ul style="list-style-type: none"> ○ WALT the Pythagorean Theorem states that the square of the hypotenuse of a right
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	* 8.G.B.8- no need for distance formula. Graph the points and use Pythagorean Theorem.	<ul style="list-style-type: none"> ○ 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. ● 8.G.B.8 <ul style="list-style-type: none"> ○ WALT apply the Pythagorean Theorem to find the distance between two points in a coordinate system. ● 8.G.B.7 <ul style="list-style-type: none"> ○ 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.
December (Days 66-75)	Transformations	<ul style="list-style-type: none"> ● 8.G.A.1 <ul style="list-style-type: none"> ○ 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. ● 8.G.A.2 <ul style="list-style-type: none"> ○ 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. ● 8.G.A.3 <ul style="list-style-type: none"> ○ 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. ● 8.G.A.4 <ul style="list-style-type: none"> ○ 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.

January	Functions	● 8.F.B.5
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<p>(Days 76 - 90)</p>	<p>*please note that the textbook chapters do not follow this scope and sequence.</p> <p>* 8.F.A.3 only expects the students to create a table of values from any function to create a graph and determine if it is linear or non linear</p>	<ul style="list-style-type: none"> ○ WALT describe qualitatively the functional relationship between two quantities by analyzing a graph (is the function relationship increasing, decreasing or staying the same and is the change happening at a constant rate or not). ○ WALT sketch a graph that exhibits the qualitative features of a function given a verbal description. ● 8.F.A.1 <ul style="list-style-type: none"> ○ WALT a function is a rule that assigns to each input exactly one output. ○ WALT the graph of a function is the set of ordered pairs consisting of an input and the corresponding output. ● 8.F.A.3 <ul style="list-style-type: none"> ○ WALT the equation $y = mx + b$ defines a linear function. ○ WALT interpret a set of points forming a straight line as the graph of a linear function. ○ WALT give examples of nonlinear functions.
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<p>February (Days 91-106)</p>	<p>Linear Functions</p> <p>*please note that the textbook chapters do not follow this scope and sequence.</p>	<ul style="list-style-type: none"> ● 8.EE.B.5 <ul style="list-style-type: none"> ○ 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. ● 8.EE.B.6 <ul style="list-style-type: none"> ○ 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. ● 8.F.A.3 <ul style="list-style-type: none"> ○ WALT graph linear equations. ● 8.F.B.4 <ul style="list-style-type: none"> ○ 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. ● 8.F.A.2 <ul style="list-style-type: none"> ○ WALT compare properties such as rate of change, intercepts, domain and range of two functions each represented in a different way.
<p>Beg-March (Days 107-122)</p>	<p>Systems of Linear Equations</p>	<ul style="list-style-type: none"> ● 8.EE.C.8 <ul style="list-style-type: none"> ○ WALT solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs. ○ WALT points of intersection satisfy both equations simultaneously. ○ WALT determine the number of solutions a system of two linear equations will have based upon inspection. ○ WALT estimate solutions of two linear equations in two variables by graphing the equations. ○ WALT solve systems of two linear equations in two variables algebraically. ○ WALT solve a system of two linear equations modeling real-world and mathematical problems.

<p>End of March/Beg of April (Days 123-135)</p>	<p>Data Analysis and Displays</p> <p>* standards only require scatter plot and two way tables. No need for 'best representation'</p>	<ul style="list-style-type: none"> ● 8.SP.A.1 <ul style="list-style-type: none"> ○ 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. ● 8.SP.A.2 <ul style="list-style-type: none"> ○ 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. ● 8.SP.A.3 <ul style="list-style-type: none"> ○ WALT interpret the slope and intercept in the context of bivariate measurement data using the equation of a linear model. ● 8.SP.A.4 <ul style="list-style-type: none"> ○ 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.
<p>April through June (Days 136-181)</p>	<p>Angles and Triangles</p> <p>*No polygons at all. Only Triangles.</p>	<ul style="list-style-type: none"> ● 8.G.A.5 <ul style="list-style-type: none"> ○ 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 (ie: prove triangle similarity - see PARCC released items in Unit resources).

Unit 1: The Number System

Grade Level: 8

Timeframe: 10 days

Unit Essential Questions:

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

Unit Enduring Understandings:

Students will understand that...

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

Primary Interdisciplinary Connections:

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

- [NJSLSA.R4](#)
- [NJSLSA.R5](#)
- [NJSLSA.R7](#)
- [NJSLSA.R8](#)
- [8.1.8.D.1](#)
- [8.1.8.D.4](#)
- [8.1.8.E.1](#)

21st Century Career Ready Practices:

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.

Standards for Mathematical Practices:

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.

Learning Targets		
Content Standard	Student Learning Objectives	Activities & Resources
8.NS.A.1	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> Big Ideas Math - Blue (Grade 8) <ul style="list-style-type: none"> Sections 7.1, 7.2, 7.4, and 7.4 Extension Illustrative Mathematics <ul style="list-style-type: none"> Identifying Rational Numbers Irrational Numbers on the Number Line Activities on the Team Drive: <ul style="list-style-type: none"> The Laundry Problem PARCC Released Items <ul style="list-style-type: none"> 2015 PBA: none 2015 EOY: #7,8,18 2016: #2,26 2017: #3,7 2018: Standards-based searchable i-Ready lessons
8.EE.A.2	<ul style="list-style-type: none"> WALT evaluate square roots of small perfect squares and cube roots of small perfect cubes. WALT $\sqrt{2}$ is irrational. 	
8.NS.A.2	<ul style="list-style-type: none"> 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. 	

Evidence of Learning			
Assessment			
Formative Assessments may include: <ul style="list-style-type: none"> Observation Homework Class participation Whiteboards/communicators Do-Now 	Benchmark Assessments may include: <ul style="list-style-type: none"> Beginning of Year i-Ready Diagnostic Quarterly Portfolio NJSLA 	Summative Assessments may include: <ul style="list-style-type: none"> Chapter/Unit Test Quizzes Presentations NJSLA 	Alternative Assessments may include: <ul style="list-style-type: none"> Authentic Performance Tasks Unit Projects

- Notebook
- Exit passes

Modifications & Reflections

Suggested Options for Differentiation

English Language Learners

- Peer tutoring
- Manipulatives
- Use of Home Language
- Limiting Concepts or Vocabulary
- Providing Visuals

Students at Risk of Failure

- Extended Time
- 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

<ul style="list-style-type: none"> ● Extension activities ● Opportunities for Critical Thinking ● Problem Solving/Design Challenges ● Technology Integration ● Student Choice Activities ● Student Driven Activities ● Group Projects ● Tiered Activities 	
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Unit 2: Exponents & Scientific Notation	
Grade Level: 8	
Timeframe: 15 days	
<p>Unit Essential Questions:</p> <ul style="list-style-type: none"> ● 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? 	<p>Unit Enduring Understandings: <i>Students will understand that...</i></p> <ul style="list-style-type: none"> ● 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.
<p>Primary Interdisciplinary Connections: Infused within the unit are connections to the content standards for English Language Arts and Technology, specifically:</p> <ul style="list-style-type: none"> ● NJSLSA.R4 ● NJSLSA.R5 ● NJSLSA.R7 ● NJSLSA.R8 ● 8.1.8.D.1 ● 8.1.8.D.4 ● 8.1.8.E.1 	<p>21st Century Career Ready Practices: 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:</p> <ul style="list-style-type: none"> ● 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.

Standards for Mathematical Practices:

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.

Learning Targets		
Content Standard	Student Learning Objectives	Activities & Resources
8.EE.A.1	<ul style="list-style-type: none"> ● 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. 	<ul style="list-style-type: none"> ● Big Ideas Math - Blue (Grade 8) <ul style="list-style-type: none"> ○ Sections 10.2, 10.3, 10.4, 10.5, 10.6, and 10.7 ● Illustrative Mathematics <ul style="list-style-type: none"> ○ Ants versus Humans ○ Ant and Elephant ○ Pennies to Heaven ○ Giantburgers ○ Choosing Appropriate Units
8.EE.A.3	<ul style="list-style-type: none"> ● 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. 	<ul style="list-style-type: none"> ● Activities on the Team Drive: <ul style="list-style-type: none"> ○ Exponents: <ul style="list-style-type: none"> ■ A Few Folds ■ Applying Properties of Exponents ■ Exploring Powers of 10 ■ Exponents Maze ■ Ponzi Scheme ○ Scientific Notation: <ul style="list-style-type: none"> ■ 100 People ■ E. coli ■ How Many Times in a Millennium? ■ Short Task: Expressions and Equations
8.EE.A.4	<ul style="list-style-type: none"> ● 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. 	<ul style="list-style-type: none"> ● PARCC Released Items <ul style="list-style-type: none"> ○ 2015 PBA: #1,8,11

	<ul style="list-style-type: none"> ● WALT interpret scientific notation generated by technology as a number multiplied by a power of ten. 	<ul style="list-style-type: none"> ○ 2015 EOY: #1,19,28 ○ 2016: #1,13 ○ 2017: #10 ○ 2018: #8,15 ● Standards-based searchable i-Ready lessons
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Evidence of Learning

Assessment

<p>Formative Assessments may include:</p> <ul style="list-style-type: none"> ● Observation ● Homework ● Class participation ● Whiteboards/communicators ● Do-Now ● Notebook ● Exit passes 	<p>Benchmark Assessments may include:</p> <ul style="list-style-type: none"> ● Quarterly Portfolio ● NJSLA 	<p>Summative Assessments may include:</p> <ul style="list-style-type: none"> ● Chapter/Unit Test ● Quizzes ● Presentations ● NJSLA 	<p>Alternative Assessments may include:</p> <ul style="list-style-type: none"> ● Authentic Performance Tasks ● Unit Projects
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Modifications & Reflections

Suggested Options for Differentiation

English Language Learners

- Peer tutoring
- Manipulatives
- Use of Home Language
- Limiting Concepts or Vocabulary
- Providing Visuals

Students at Risk of Failure

- Extended Time
- 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

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Unit 3: Solving Equations in One Variable

Grade Level: 8

Timeframe: 20 days

Unit Essential Questions:

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

Unit Enduring Understandings:

Students will understand that...

- Equation solving is working backwards and undoing operations.
- Like terms must be combined.

	<ul style="list-style-type: none"> • The distributive property can be used to simplify expressions and solve equations.
<p>Primary Interdisciplinary Connections: Infused within the unit are connections to the content standards for English Language Arts and Technology, specifically:</p> <ul style="list-style-type: none"> • NJSLSA.R4 • NJSLSA.R5 • NJSLSA.R7 • NJSLSA.R8 • 8.1.8.D.1 • 8.1.8.D.4 • 8.1.8.E.1 	<p>21st Century Career Ready Practices: 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:</p> <ul style="list-style-type: none"> • 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.E.5 Analyze interest rates and fees associated with financial services, credit cards, debit cards, and gift cards. • 9.1.8.D.4 Distinguish between income and investment growth. • 9.1.8.B.2 Construct a simple personal savings and spending plan based on various sources of income. • 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.
<p>Standards for Mathematical Practices: The following Standards for Mathematical Practice will be covered throughout the unit:</p> <ul style="list-style-type: none"> • 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. 	

Learning Targets		
Content Standard	Student Learning Objectives	Activities & Resources

8.EE.C.7	<ul style="list-style-type: none"> WALT a linear equation in one variable can result in one solution, infinitely many solutions, or no solution. WALT show which of these outcomes is the case by transforming the original equation into the form $ax = b$, $ax = c$, or $ax = d$. WALT solve linear equations in one variable with rational number coefficients, including those involving the distributive property and combining like terms. 	<ul style="list-style-type: none"> Big Ideas Math - Blue (Grade 8) <ul style="list-style-type: none"> Sections 1.1, 1.2, 1.3, 8.1, 8.2, and 8.3 Illustrative Mathematics <ul style="list-style-type: none"> Solving Equations The Sign of Solutions Glasses Flower Vases Activities on the Team Drive: <ul style="list-style-type: none"> Comparing Spheres and Cylinders PARCC Released Items <ul style="list-style-type: none"> 2015 PBA: #2,12 2015 EOY: #2,17,22,29 2016: #3,21,23 2017: #2,16 2018: #3,11,14,19 Standards-based searchable i-Ready lessons
8.EE.A.2	<ul style="list-style-type: none"> WALT use square root and cube root symbols to represent solutions to equations in the form $x^2 = p$ and $x^3 = q$. 	
8.G.C.9	<ul style="list-style-type: none"> WALT apply the formulas for volume of a cone, cylinder, or sphere in a real world context. WALT calculate the volume of a cone, cylinder, or sphere. WALT find a missing dimension of a cone, cylinder, or sphere given by its volume. 	

Evidence of Learning

Assessment

Formative Assessments may include: <ul style="list-style-type: none"> Observation Homework Class participation Whiteboards/communicators Do-Now Notebook Exit passes 	Benchmark Assessments may include: <ul style="list-style-type: none"> Quarterly Portfolio NJSLA 	Summative Assessments may include: <ul style="list-style-type: none"> Chapter/Unit Test Quizzes Presentations NJSLA 	Alternative Assessments may include: <ul style="list-style-type: none"> Authentic Performance Tasks Unit Projects
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Modifications & Reflections

Suggested Options for Differentiation

English Language Learners

- Peer tutoring
- Manipulatives
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- Limiting Concepts or Vocabulary
- Providing Visuals

Students at Risk of Failure

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504

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- Group Projects
- Tiered Activities

Unit 4: The Pythagorean Theorem

Grade Level: 8

Timeframe: 10 days

Unit Essential Questions:

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

Unit 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.

Primary Interdisciplinary Connections:

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

- [NJSLSA.R4](#)
- [NJSLSA.R5](#)
- [NJSLSA.R7](#)
- [NJSLSA.R8](#)
- [8.1.8.D.1](#)
- [8.1.8.D.4](#)
- [8.1.8.E.1](#)

21st Century Career Ready Practices:

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.
- **9.2.8.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.

Standards for Mathematical Practices:

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.

Learning Targets		
Content Standard	Student Learning Objectives	Activities & Resources
8.G.B.6	<ul style="list-style-type: none"> ● 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. 	<ul style="list-style-type: none"> ● Big Ideas Math - Blue (Grade 8) <ul style="list-style-type: none"> ○ Sections 7.3 and 7.5 ● Illustrative Mathematics <ul style="list-style-type: none"> ○ Running on the Football Field ○ Area of a Trapezoid ○ Spiderbox ● Activities on the Team Drive: <ul style="list-style-type: none"> ○ Fencing Your Property Activity ● PARCC Released Items <ul style="list-style-type: none"> ○ 2015 PBA: none ○ 2015 EOY: #26 ○ 2016: #17 ○ 2017: #18 ○ 2018: #16 ● Standards-based searchable i-Ready lessons
8.G.B.8	<ul style="list-style-type: none"> ● WALT apply the Pythagorean Theorem to find the distance between two points in a coordinate system. 	
8.G.B.7	<ul style="list-style-type: none"> ● 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. 	

Evidence of Learning

Assessment

<p>Formative Assessments may include:</p> <ul style="list-style-type: none"> ● Observation ● Homework ● Class participation ● Whiteboards/communicators ● Do-Now ● Notebook ● Exit passes 	<p>Benchmark Assessments may include:</p> <ul style="list-style-type: none"> ● Quarterly Exam ● NJSLA 	<p>Summative Assessments may include:</p> <ul style="list-style-type: none"> ● Chapter/Unit Test ● Quizzes ● Presentations ● NJSLA 	<p>Alternative Assessments may include:</p> <ul style="list-style-type: none"> ● Authentic Performance Tasks ● Unit Projects
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Modifications & Reflections

Suggested Options for Differentiation

English Language Learners

- Peer tutoring
- Manipulatives
- Use of Home Language
- Limiting Concepts or Vocabulary
- Providing Visuals

Students at Risk of Failure

- Extended Time
- 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
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- Group Projects
- Tiered Activities

Unit 5: Transformations

Grade Level: 8

Timeframe: 15 days

Unit Essential Questions:

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

Unit 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.

Primary Interdisciplinary Connections:

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

- [NJSLSA.R4](#)
- [NJSLSA.R5](#)
- [NJSLSA.R7](#)
- [NJSLSA.R8](#)

21st Century Career Ready Practices:

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

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

- 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 mentor that includes information about career areas of interest, goals and an educational plan.

Standards for Mathematical Practices:

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.

Learning Targets		
Content Standard	Student Learning Objectives	Activities & Resources
8.G.A.1	<ul style="list-style-type: none"> ● 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. 	<ul style="list-style-type: none"> ● Big Ideas Math - Blue (Grade 8) <ul style="list-style-type: none"> ○ Sections 2.1, 2.2, 2.3, 2.4, 2.5, and 2.7 ● Illustrative Mathematics <ul style="list-style-type: none"> ○ Cutting a Rectangle into Two Congruent Triangles ○ Congruent Triangles ○ Triangle Congruence with Coordinates ○ Reflecting Reflections ○ Are They Similar? ● Activities on the Team Drive: <ul style="list-style-type: none"> ○ Aaron's Designs ○ Gamers for Life ● PARCC Released Items <ul style="list-style-type: none"> ○ 2015 PBA: #5,6,7 ○ 2015 EOY: #9,10,11
8.G.A.2	<ul style="list-style-type: none"> ● 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 figures onto another. 	

8.G.A.3	<ul style="list-style-type: none"> ● 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. 	<ul style="list-style-type: none"> ○ 2016: #11,18,19 ○ 2017: #8 ○ 2018: #2,7 ● Standards-based searchable i-Ready lessons
8.G.A.4	<ul style="list-style-type: none"> ● 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. 	

Evidence of Learning

Assessment

<p>Formative Assessments may include:</p> <ul style="list-style-type: none"> ● Observation ● Homework ● Class participation ● Whiteboards/communicators ● Do-Now ● Notebook ● Exit passes 	<p>Benchmark Assessments may include:</p> <ul style="list-style-type: none"> ● Quarterly Exam / Quarterly Exam Portfolio ● NJSLA 	<p>Summative Assessments may include:</p> <ul style="list-style-type: none"> ● Chapter/Unit Test ● Quizzes ● Presentations ● NJSLA 	<p>Alternative Assessments may include:</p> <ul style="list-style-type: none"> ● Authentic Performance Tasks ● Unit Projects
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Modifications & Reflections

Suggested Options for Differentiation

English Language Learners

- Peer tutoring
- Manipulatives
- Use of Home Language
- Limiting Concepts or Vocabulary
- Providing Visuals

Students at Risk of Failure

- Extended Time

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

Special Education

- Extension activities
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- Problem Solving/Design Challenges
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- Group Projects
- Tiered Activities

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- Tiered Activities

Gifted & Talented

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- Group Projects
- Tiered Activities

Unit 6: Functions

Grade Level: 8

Timeframe: 10 days

Unit 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?

Unit 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.

Primary Interdisciplinary Connections:

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

- [NJSLSA.R4](#)
- [NJSLSA.R5](#)
- [NJSLSA.R7](#)
- [NJSLSA.R8](#)
- [8.1.8.D.1](#)
- [8.1.8.D.4](#)
- [8.1.8.E.1](#)

21st Century Career Ready Practices:

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.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.2** Differentiate among various savings tools and how to use them most effectively.
- **9.1.8.D.3** Differentiate among various investment options

Standards for Mathematical Practices:

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.

Learning Targets

Content Standard	Student Learning Objectives	Activities & Resources
8.F.B.5	<ul style="list-style-type: none"> WALT describe qualitatively the functional relationships between two quantities by analyzing a graph. WALT sketch a graph that exhibits the qualitative features of a function given a verbal description. 	<ul style="list-style-type: none"> Big Ideas Math - Blue (Grade 8) <ul style="list-style-type: none"> Sections 6.1, 6.2, 6.4, and 6.5 Illustrative Mathematics <ul style="list-style-type: none"> Tides Distance Bike Race US Garbage, Version 1 Introduction to Linear Functions Activities on the Team Drive: <ul style="list-style-type: none"> Foxes and Rabbits Interpreting Distance-Time Graphs 200 Freestyle Order Matters Vending Machines Which is Which? PARCC Released Items <ul style="list-style-type: none"> 2015 PBA: #3,4 2015 EOY: #5,13,14 2016: #7,8,9,10 2017: #1,5,9 2018: #5 Standards-based searchable i-Ready lessons
8.F.A.1	<ul style="list-style-type: none"> WALT a function is a rule that assigns to each input exactly one output. WALT the graph of a function is the set of ordered pairs consisting of an input and the corresponding output. 	
8.F.A.3	<ul style="list-style-type: none"> WALT graph linear equations. WALT the equation $y = mx + b$ defines a linear function. WALT interpret a set of points forming a straight line as the graph of a linear function. WALT give examples of nonlinear functions. 	

Evidence of Learning

Assessment

<p>Formative Assessments may include:</p> <ul style="list-style-type: none"> Observation Homework Class participation Whiteboards/communicators Do-Now Notebook 	<p>Benchmark Assessments may include:</p> <ul style="list-style-type: none"> Quarterly Exam Middle of the Year i-Ready Diagnostic NJSLA 	<p>Summative Assessments may include:</p> <ul style="list-style-type: none"> Chapter/Unit Test Quizzes Presentations NJSLA 	<p>Alternative Assessments may include:</p> <ul style="list-style-type: none"> Authentic Performance Tasks Unit Projects
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- Exit passes

Modifications & Reflections

Suggested Options for Differentiation

English Language Learners

- Peer tutoring
- Manipulatives
- Use of Home Language
- Limiting Concepts or Vocabulary
- Providing Visuals

Students at Risk of Failure

- Extended Time
- 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
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- Technology Integration
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Gifted & Talented

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Unit 7: Linear Functions

Grade Level: 8

Timeframe: 20 days

Unit 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?

Unit 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.

Primary Interdisciplinary Connections:

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

- [NJSLSA.R4](#)
- [NJSLSA.R5](#)
- [NJSLSA.R7](#)
- [NJSLSA.R8](#)
- [8.1.8.D.1](#)
- [8.1.8.D.4](#)
- [8.1.8.E.1](#)

21st Century Career Ready Practices:

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.D.2** Differentiate among various savings tools and how to use them most effectively.
- **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.

Standards for Mathematical Practices:

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.

Learning Targets		
Content Standard	Student Learning Objectives	Activities & Resources
8.EE.B.5	<ul style="list-style-type: none"> ● 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. 	<ul style="list-style-type: none"> ● Big Ideas Math - Blue (Grade 8) <ul style="list-style-type: none"> ○ Sections 4.1, 4.2, 4.3, 4.4, 4.5, 4.6 ● Illustrative Mathematics <ul style="list-style-type: none"> ○ Peaches and Plums ○ Comparing Speeds in Graphs and Equations ○ Sore Throats, Variation 2 ○ Coffee by the Pound ○ Who Has the Best Job? ○ Stuffing Envelopes ○ Slopes Between Points on a Line ○ Downhill ○ Video Streaming ○ Chicken and Steak, Variation 2 ○ Battery Charging ● Activities on the Team Drive: <ul style="list-style-type: none"> ○ Party ○ Start with Three See What Happens to Me ○ 8.EE.6, 8.F.4 Linear Equations Performance Task ● PARCC Released Items <ul style="list-style-type: none"> ○ 2015 PBA: #10,14,17,18
8.EE.B.6	<ul style="list-style-type: none"> ● 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. 	
8.F.B.4	<ul style="list-style-type: none"> ● 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, 	

	<p>including reading these from a table or from a graph.</p> <ul style="list-style-type: none"> WALT interpret the rate of change and initial value of a function in terms of the situation it models. 	<ul style="list-style-type: none"> 2015 EOY: #6,15,21,23,24,25,30,32,33 2016: #14,15,16,22,24,25,27 2017: #12,13,15,19,20,22 2018: #1,10,13,17,18,20 Standards-based searchable i-Ready lessons
8.F.A.2	<ul style="list-style-type: none"> WALT compare properties such as rate of change, intercepts, domain and range of two functions each represented in a different way. 	

Evidence of Learning

Assessment

Formative Assessments may include:

- Observation
- Homework
- Class participation
- Whiteboards/communicators
- Do-Now
- Notebook
- Exit passes

Benchmark Assessments may include:

- Quarterly Portfolio
- NJSLA

Summative Assessments may include:

- Chapter/Unit Test
- Quizzes
- Presentations
- NJSLA

Alternative Assessments may include:

- Authentic Performance Tasks
- Unit Projects

Modifications & Reflections

Suggested Options for Differentiation

English Language Learners

- Peer tutoring
- Manipulatives
- Use of Home Language
- Limiting Concepts or Vocabulary
- Providing Visuals

Students at Risk of Failure

- Extended Time
- Flexible Grouping
- Small Group Instruction
- Peer Buddies
- Graphic Organizers

- Chunking Information
- Scaffolded Questioning
- Tiered Activities
- Centers in Academic Activity

Special Education

- Extension activities
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504

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Gifted & Talented

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Unit 8: Systems of Linear Equations

Grade Level: 8

Timeframe: 15 days

Unit Essential Questions:

Unit Enduring Understandings:

<ul style="list-style-type: none"> ● How are systems of equations solved graphically and algebraically? ● How are systems of linear equations useful in interpreting real-world situations? 	<p><i>Students will understand that...</i></p> <ul style="list-style-type: none"> ● 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.
<p>Primary Interdisciplinary Connections: Infused within the unit are connections to the content standards for English Language Arts and Technology, specifically:</p> <ul style="list-style-type: none"> ● NJSLSA.R4 ● NJSLSA.R5 ● NJSLSA.R7 ● NJSLSA.R8 ● 8.1.8.D.1 ● 8.1.8.D.4 ● 8.1.8.E.1 	<p>21st Century Career Ready Practices: 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:</p> <ul style="list-style-type: none"> ● 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.D.2 Differentiate among various savings tools and how to use them most effectively. ● 9.1.8.D.3 Differentiate among various investment options.
<p>Standards for Mathematical Practices: The following Standards for Mathematical Practice will be covered throughout the unit:</p> <ul style="list-style-type: none"> ● 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. 	

Learning Targets		
Content Standard	Student Learning Objectives	Activities & Resources

8.EE.C.8	<ul style="list-style-type: none"> ● WALT solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs. ● WALT points of intersection satisfy both equations simultaneously. ● WALT determine the number of solutions a system of two linear equations will have based upon inspection. ● WALT estimate solutions of two linear equations in two variables by graphing the equations. ● WALT solve systems of two linear equations in two variables algebraically. ● WALT solve a system of two linear equations modeling real-world and mathematical problems. 	<ul style="list-style-type: none"> ● Big Ideas Math - Blue (Grade 8) <ul style="list-style-type: none"> ○ Sections 5.1, 5.2, 5.3, and 5.4 ● Illustrative Mathematics <ul style="list-style-type: none"> ○ Fixing the Furnace ○ How Many Solutions? ○ Summer Swimming ○ The Intersection of Two Lines ● Activities on the Team Drive: <ul style="list-style-type: none"> ○ Talk and Text Plans ○ Systems of Equations Graphing vs. Substitution Partner Activity ○ System of Equations Station Activities ○ Meal Out - <i>(needs to be adapted for Systems of Equations)</i> ● PARCC Released Items <ul style="list-style-type: none"> ○ 2015 PBA: #9 ○ 2015 EOY: #3,4,16,20,31 ○ 2016: #4,5,6,20 ○ 2017: #4,6,21 ○ 2018: #4,6 ● Standards-based searchable i-Ready lessons
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Evidence of Learning

Assessment

Formative Assessments may include:

- Observation
- Homework
- Class participation
- Whiteboards/communicators
- Do-Now
- Notebook
- Exit passes

Benchmark Assessments may include:

- Quarterly Portfolio
- NJSLA

Summative Assessments may include:

- Chapter/Unit Test
- Quizzes
- Presentations
- NJSLA

Alternative Assessments may include:

- Authentic Performance Tasks
- Unit Projects

Modifications & Reflections

Suggested Options for Differentiation

English Language Learners

- Peer tutoring
- Manipulatives
- Use of Home Language
- Limiting Concepts or Vocabulary
- Providing Visuals

Students at Risk of Failure

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

Special Education

- Extension activities
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Gifted & Talented

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Unit 9: Data Analysis and Displays

Grade Level: 8

Timeframe: 10 days

Unit 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?

Unit 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.

Primary Interdisciplinary Connections:

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

- [NJSLSA.R4](#)
- [NJSLSA.R5](#)
- [NJSLSA.R7](#)
- [NJSLSA.R8](#)
- [8.1.8.D.1](#)
- [8.1.8.D.4](#)
- [8.1.8.E.1](#)

21st Century Career Ready Practices:

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.
- **9.2.8.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.

Standards for Mathematical Practices:

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.

Learning Targets		
Content Standard	Student Learning Objectives	Activities & Resources
8.SP.A.1	<ul style="list-style-type: none"> ● 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. 	<ul style="list-style-type: none"> ● Big Ideas Math - Blue (Grade 8) <ul style="list-style-type: none"> ○ Sections 9.1, 9.2, and 9.3 ● Illustrative Mathematics <ul style="list-style-type: none"> ○ Birds' Eggs ○ Hand Span and Height ○ Animal Brains ○ Laptop Battery Charge ○ What's Your Favorite Subject? ○ Music and Sports ● Activities on the Team Drive: <ul style="list-style-type: none"> ○ House Prices ● PARCC Released Items <ul style="list-style-type: none"> ○ 2015 PBA: none ○ 2015 EOY: #12,27 ○ 2016: #12,28 ○ 2017: #11,17 ○ 2018: #9,12 ● Standards-based searchable i-Ready lessons
8.SP.A.2	<ul style="list-style-type: none"> ● 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. 	
8.SP.A.3	<ul style="list-style-type: none"> ● WALT interpret the slope and intercept in the context of bivariate measurement data using the equation of a linear model. 	
8.SP.A.4	<ul style="list-style-type: none"> ● 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. 	

	<ul style="list-style-type: none"> WALT use relative frequencies to describe possible association between the two variables. 	
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Evidence of Learning

Assessment

Formative Assessments may include:

- Observation
- Homework
- Class participation
- Whiteboards/communicators
- Do-Now
- Notebook
- Exit passes

Benchmark Assessments may include:

- Quarterly Exam
- NJSLA

Summative Assessments may include:

- Chapter/Unit Test
- Quizzes
- Presentations
- NJSLA

Alternative Assessments may include:

- Authentic Performance Tasks
- Unit Projects

Modifications & Reflections

Suggested Options for Differentiation

English Language Learners

- Peer tutoring
- Manipulatives
- Use of Home Language
- Limiting Concepts or Vocabulary
- Providing Visuals

Students at Risk of Failure

- Extended Time
- 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
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- Tiered Activities

Gifted & Talented

- Extension activities
- Opportunities for Critical Thinking
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- Technology Integration
- Student Choice Activities
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- Group Projects
- Tiered Activities

Unit 10: Angles & Triangles

Grade Level: 8

Timeframe: 10 days

Unit Essential Questions:

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

Unit 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.

Primary Interdisciplinary Connections:

21st Century Career Ready Practices:

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

- [NJSLSA.R4](#)
- [NJSLSA.R5](#)
- [NJSLSA.R7](#)
- [NJSLSA.R8](#)
- [8.1.8.D.1](#)
- [8.1.8.D.4](#)
- [8.1.8.E.1](#)

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.
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Learning Targets		
Content Standard	Student Learning Objectives	Activities & Resources
8.G.A.5	<ul style="list-style-type: none"> ● 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 	<ul style="list-style-type: none"> ● Big Ideas Math - Blue (Grade 8) <ul style="list-style-type: none"> ○ Sections 3.1, 3.2, 3.4 ● Illustrative Mathematics <ul style="list-style-type: none"> ○ A Triangle's Interior Angles ○ Similar Triangles II ● Activities on the Team Drive: <ul style="list-style-type: none"> ○ Angle Measures of Polygons ● PARCC Released Items <ul style="list-style-type: none"> ○ 2015 PBA: #15 ○ 2015 EOY: none

	<p>are similar.</p> <ul style="list-style-type: none"> ● WALT use facts about angles to construct an informal argument. 	<ul style="list-style-type: none"> ○ 2016: none ○ 2017: #14 ● Standards-based searchable i-Ready lessons
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- Class participation
- Whiteboards/communicators
- Do-Now
- Notebook
- Exit passes

Benchmark Assessments may include:

- Quarterly Exam
- End of Year i-Ready Diagnostic
- NJSLA

Summative Assessments may include:

- Chapter/Unit Test
- Quizzes
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Alternative Assessments may include:

- Authentic Performance Tasks
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Suggested Options for Differentiation

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Special Education

- Extension activities

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- Tiered Activities

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- Problem Solving/Design Challenges
- Technology Integration
- Student Choice Activities
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- Group Projects
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Gifted & Talented

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