

Quinton Township School District
Math
Grade 8

Pacing Chart/Curriculum MAP

Key: **Technology** **Careers** **Interdisciplinary Studies**

Marking Period:	1	Unit Title:	Topic 1: Real Numbers	Pacing:	29 days
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Unit Summary: During Topic 1, students will build on their understanding of real numbers in order to classify numbers as rational or irrational. Students will understand the relationship between squares, square roots, cubes, and cube roots. Students will understand the purpose of scientific notation and how to perform operations in scientific notation. Students will discover integer exponent relationships to develop properties to perform operations with integer exponents.

Objectives:

- Locate repeating decimals on a number line.
- Write repeating decimals as fractions.
- Classify a number as rational or irrational.
- Understand the concepts of square root and perfect squares.
- Approximate square roots by using perfect squares.
- Compare and order rational and irrational numbers.
- Evaluate square roots and cube roots to solve problems.
- Evaluate perfect squares and perfect cubes.
- Solve equations involving perfect squares or cubes.
- Solve equations involving imperfect squares or cubes.
- Multiply and divide expressions with integer exponents.
- Find the power of a power.
- Simplify exponential expressions using the Zero Exponent Property and the Negative Exponent Property.
- Estimate and compare very large and very small quantities using powers of 10.
- Write very large and very small quantities using powers of 10.
- Convert scientific notation to standard form.
- Perform operations with numbers in scientific notation.

Essential Questions:

- How can you write repeating decimals as fractions?
- How is an irrational number different from a rational number?
- How can you compare and order rational and irrational numbers?
- How do you evaluate cube roots and square roots?
- How can you solve equations with squares and cubes?
- How do properties of integer exponents help you write equivalent expressions?
- What do the Zero Exponent and Negative Exponent Properties mean?
- When would you use a power of 10 to estimate a quantity?
- What is scientific notation and why is it used?
- How does using scientific notation help when computing with very large or very small numbers?

New Jersey Student Learning Standards

Mathematics Learning Targets: 8.NS.A.1, 8.NS.A.2, 8.NS.A.3, 8.EE.A.1, 8.EE.A.2, 8.EE.A.2a, 8.EE.A.2b, 8.EE.A.3, 8.EE.A.4

Mathematics Practices: MP.1, MP.2, MP.3, MP.6, MP.7

Cross Curricular Standards: 9.4.8.TL.2, 9.4.8.TL.3: 8.1.8.DA.1: RI.CR.8.1, SL.PE.8.1

Overview of Activities

Teacher's Guide/ Resources

Core Instructional Materials

Technology Infusion

<p>1.1 - Rational Numbers as Decimals</p> <p>1.2 - Understand Irrational Numbers</p> <p>1.3 - Compare and Order Real Numbers</p> <p>1.4 - Evaluate Square Roots and Cube Roots</p> <p>1.5 - Solve Equations Using Square Roots and Cube Roots</p> <p>1.6 - Use Properties of Integer Exponents</p> <p>1.7 - More Properties of Exponents</p> <p>1.8- Use Powers of 10 to Estimate Quantities</p> <p>1.9- Understand Scientific Notation</p> <p>1.10-Operations with Number in Scientific Notation</p>	<p><i>enVision</i> Mathematics</p> <p>*Daily Review</p> <p>*Reteach to Build Understanding</p> <p>*Build Mathematical Literacy</p> <p>*Enrichment</p> <p>*<i>enVision</i> Stem Activity</p> <p>*Problem Solving Leveled-Reading Mat</p> <p>*Problem-Solving Reading Activity</p> <p>*Digital Math Tools Activities</p> <p>*Language Support Handguide</p> <p>*Listen and Look For</p> <p>*Home-School Connection</p>	<p>Student Textbook</p> <p>Additional Practice Workbook</p> <p>Notebook</p> <p>Pen/Pencil</p> <p>Index Cards</p>	<ul style="list-style-type: none"> ● Smart Board Applications ● Google Applications ● Interactive student edition ● Today's Challenge ● Adaptive Practice ● Desmos ● IXL
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Formative Assessment Plan	Summative Assessment Plan
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<p>Suggested activities to assess student progress:</p> <ul style="list-style-type: none"> - Topic Performance Task - Oral questioning - Using questioning strategies in TE - Reteach for Understanding - Classwork & Basic Skill Practice - Corrections & Reflections - Kahoot! - Quizizz - Desmos - Rubric-for projects - Self-reflection - Adaptive practice- on-line Savvas resources - Exit Slip - HW 	<p>Final Assessment/Benchmark/Project:</p> <ul style="list-style-type: none"> - Topic One Performance Task/Assessment - Lesson Quizzes - MAP benchmark test <p>Suggested skills to be assessed:</p> <ul style="list-style-type: none"> - Identify Rational Numbers - Compare and Order Rational Numbers - Square Roots/Cube Roots - Exponent Properties - Reading and Writing in Scientific Notation - Operations in Scientific Notation
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Differentiation			
Special Education	ELL	At Risk	Gifted and Talented

<ul style="list-style-type: none"> • RTI • Modify and accommodate as listed in student's IEP or 504 plan. • Utilize effective amount of wait time. • Hold high expectations. • Communicate directions clearly and concisely and repeat, reword, modify as necessary. • Utilize open-ended questioning techniques. • Utilize scaffolding to support instruction. • Chunk tasks into smaller components. • Provide step-by-step instructions. • Model and use visuals as often as possible. • Utilize extended time and/or reduce number of items given for homework, quizzes, and tests. • Teach Tiers 1,2, and 3 words to assist students' understanding of instructional texts. • Utilize a variety of formative assessments to drive next point of instruction/differentiated instructional practices. • Create rubrics/allow students to assist with task, so that all are aware of expectations. • Create modified assessments. • Allow students to utilize online books, when available, to listen to oral-recorded reading. • Provide individualized assistance as necessary. • Allow for group work (strategically selected) and collaboration as necessary. • Utilize homework recorder within SIS. • Allow for copies of notes to be shared out. • Utilize assistive technology as appropriate. • Provide meaningful feedback and utilize teachable 	<ul style="list-style-type: none"> • RTI • Basic Skills Instruction • Speech/Language Therapy • Rosetta Stone • Hold high expectations. • Provide English/Native Language Dictionary for use. • Place with native-language-speaking teacher/paraprofessional as available. • Learn/Utilize/Display some words in the students' native language. • Invite student to after-school tutoring sessions. • Utilize formative assessments to drive instruction. • Translate printed communications for parents in native language. • Hold conferences with translator present. • Utilize additional NJDOE resources/recommendations. • Review Special Education listing for additional recommendations. • Establish a consistent daily routine. 	<ul style="list-style-type: none"> • RTI Tiered Interventions following RTI framework • Basic Skills Instruction • Fountas and Pinnell Phonics • Support instruction with RTI intervention resources. • Provide after-school tutoring services. • Hold high expectations. • Hold fall and spring parent conferences. • Make modifications to instructional plans based on I and RS Plan. • Develop a record system to encourage good behavior and completion of work. • Establish a consistent daily routine. 	<ul style="list-style-type: none"> • Organize the curriculum to include more elaborate, complex, and in-depth study of major ideas and problems through compacting. • Allow for the development and application of productive thinking skills to enable students to re-conceptualize existing knowledge and/or generate new knowledge. • Enable students to explore continually changing knowledge and information and develop the attitude that knowledge is worth pursuing in an open world. • Encourage exposure to, selection and use of appropriate and specialized resources. • Promote self-initiated and self-directed learning for growth. • Provide for the development of self, an understanding of one's relationships with people, societal institutions, nature and culture. • Continue to offer Accelerated Mathematics 7 (7th grade) and Algebra 1 (8th grade).
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**Quinton Township School District
Math
Grade 8**

Pacing Chart/Curriculum MAP

Key: **Technology** **Careers** **Interdisciplinary Studies**

Marking Period:	1	Unit Title:	Topic 2: Analyze and Solve Linear Equations	Pacing:	27 days
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Unit Summary: In Topic 2, students continue their understanding of solving equations to include multi-step equations where students may have zero, one, or infinitely many solutions. Students analyze equations, tables, and linear graphs to compare proportional relationships by interpreting the unit rates in context. Students connect the slope of a line with the unit rate in proportional relationships and extend their understanding to equations with non-zero y-intercepts.

Objectives:

- Combine like terms.
- Solve equations with like terms on one side of the equation.
- Make sense of the scenarios and represent them with equations.
- Solve equations with like terms on both sides of the equation.
- Plan multiple solution pathways and choose one to find the solution.
- Determine the number of solutions to an equation.
- Analyze equations, linear graphs, and tables to find unit rates and compare proportional relationships.
- Find the slope of a line using different strategies.
- Interpret the slope in context and relate it to steepness on a graph.
- Understand how the constant of proportionality and the slope relate in a linear equation.
- Write a linear equation in the form $y=mx$ when the slope is given.
- Graph a linear equation in the form $y=mx$.
- Interpret and extend the table or graph of a linear relationship to find its y -intercept.
- Analyze graphs in context to determine and explain the meaning of the y -intercept.
- Graph a line from an equation in the form $y=mx+b$.
- Write an equation that represents the given graph of a line.

Essential Questions:

- How do you solve equations that contain like terms?
- How do you use inverse operations to solve equations with variables on both sides?
- How can you use the Distributive Property to solve multi-step equations?
- Will a one-variable equation always have only one solution?
- How can you compare proportional relationships represented in different ways?
- What is slope?
- How does slope relate to the equation for a proportional relationship?
- What is the y -intercept and what does it indicate?
- What is the equation of a line for a non proportional relationship?

New Jersey Student Learning Standards

Mathematics Learning Targets: 8.EE.B.5, 8.EE.B.6, 8.EE.C.7a, 8.EE.C.7b

Mathematics Practices: MP.2, MP.4, MP.7

Cross Curricular Standards: 9.4.8.TL.2, 9.4.8.TL.3: 8.1.8.DA.1: SL.PE.8.1

Overview of Activities

Teacher's Guide/ Resources

Core Instructional Materials

Technology Infusion

<p>2.1 - Combine Like Terms to Solve Equations</p> <p>2.2 - Solve Equations with Variables on Both Sides</p> <p>2.3 - Solve Multi-Step Equations</p> <p>2.4 - Equations with No Solutions or Infinitely Many Solutions</p> <p>2.5 - Compare Proportional Relationships</p> <p>2.6 - Connect Proportional Relationships</p> <p>2.7- Analyze Linear Equations: $y=mx$</p> <p>2.8 - Understand the y-intercept of a Line</p> <p>2.9 - Analyze Linear Equations: $y=mx+b$</p>	<p><i>enVision</i> Mathematics</p> <p>*Daily Review</p> <p>*Reteach to Build Understanding</p> <p>*Build Mathematical Literacy</p> <p>*Enrichment</p> <p>*<i>enVision</i> Stem Activity</p> <p>*Problem Solving Leveled Reading Mat</p> <p>*Problem-Solving Reading Activity</p> <p>*Digital Math Tools Activities</p> <p>*Language Support Handguide</p> <p>*Listen and Look For</p> <p>*Home-School Connection</p>	<p>Student Textbook</p> <p>Additional Practice Workbook</p> <p>Notebook</p> <p>Pen/Pencil</p> <p>Index Cards</p>	<ul style="list-style-type: none"> ● Smart Board Applications ● Google Applications ● Interactive student edition ● Today's Challenge ● Adaptive Practice ● Desmos ● IXL
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Formative Assessment Plan	Summative Assessment Plan
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<p>Suggested activities to assess student progress:</p> <ul style="list-style-type: none"> - Topic Performance Task - Oral questioning - Using questioning strategies in TE - Reteach for Understanding - Classwork & Basic Skill Practice - Corrections & Reflections - Kahoot! - Quizizz - Desmos - Rubric-for projects - Self-reflection - Adaptive practice- on-line Savvas resources - Exit Slip - HW 	<p>Final Assessment/Benchmark/Project:</p> <ul style="list-style-type: none"> - Topic 2 Performance Task/Assessment - Lesson Quizzes <p>Suggested skills to be assessed:</p> <ul style="list-style-type: none"> - Solve Multi-Step Equations - Determine Slope - Write equations in $y=mx$ form - Write equations in $y=mx+b$ form.
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Differentiation			
Special Education	ELL	At Risk	Gifted and Talented

<ul style="list-style-type: none"> • RTI • Modify and accommodate as listed in student's IEP or 504 plan. • Utilize effective amount of wait time. • Hold high expectations. • Communicate directions clearly and concisely and repeat, reword, modify as necessary. • Utilize open-ended questioning techniques. • Utilize scaffolding to support instruction. • Chunk tasks into smaller components. • Provide step-by-step instructions. • Model and use visuals as often as possible. • Utilize extended time and/or reduce number of items given for homework, quizzes, and tests. • Teach Tiers 1,2, and 3 words to assist students' understanding of instructional texts. • Utilize a variety of formative assessments to drive next point of instruction/differentiated instructional practices. • Create rubrics/allow students to assist with task, so that all are aware of expectations. • Create modified assessments. • Allow students to utilize online books, when available, to listen to oral-recorded reading. • Provide individualized assistance as necessary. • Allow for group work (strategically selected) and collaboration as necessary. • Utilize homework recorder within SIS. • Allow for copies of notes to be shared out. • Utilize assistive technology as appropriate. • Provide meaningful feedback and utilize teachable 	<ul style="list-style-type: none"> • RTI • Basic Skills Instruction • Speech/Language Therapy • Rosetta Stone • Hold high expectations. • Provide English/Native Language Dictionary for use. • Place with native-language-speaking teacher/paraprofessional as available. • Learn/Utilize/Display some words in the students' native language. • Invite student to after-school tutoring sessions. • Utilize formative assessments to drive instruction. • Translate printed communications for parents in native language. • Hold conferences with translator present. • Utilize additional NJDOE resources/recommendations. • Review Special Education listing for additional recommendations. • Establish a consistent daily routine. 	<ul style="list-style-type: none"> • RTI Tiered Interventions following RTI framework • Basic Skills Instruction • Fountas and Pinnell Phonics • Support instruction with RTI intervention resources. • Provide after-school tutoring services. • Hold high expectations. • Hold fall and spring parent conferences. • Make modifications to instructional plans based on I and RS Plan. • Develop a record system to encourage good behavior and completion of work. • Establish a consistent daily routine. 	<ul style="list-style-type: none"> • Organize the curriculum to include more elaborate, complex, and in-depth study of major ideas and problems through compacting. • Allow for the development and application of productive thinking skills to enable students to re-conceptualize existing knowledge and/or generate new knowledge. • Enable students to explore continually changing knowledge and information and develop the attitude that knowledge is worth pursuing in an open world. • Encourage exposure to, selection and use of appropriate and specialized resources. • Promote self-initiated and self-directed learning for growth. • Provide for the development of self, an understanding of one's relationships with people, societal institutions, nature and culture. • Continue to offer Accelerated Mathematics 7 (7th grade) and Algebra 1 (8th grade).
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**Quinton Township School District
Math
Grade 8**

Pacing Chart/Curriculum MAP

Key: Technology Careers Interdisciplinary Studies

Marking Period:	2	Unit Title:	Topic 3: Use Functions to Model Relationships	Pacing:	21 Days
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Unit Summary: In Topic 3, students are introduced to the concept of a function. Students begin with mapping diagrams to illustrate the difference between relations and functions. Students use their understanding of functions to relate to linear equations. Every linear equation is a function. Students also discover that functions do not have to be linear. Students sketch graphs to show relationships between two quantities that are not necessarily linear.

Objectives:

- Identify whether a relation is a function.
- Interpret a function.
- Identify functions in different representations: equations, tables, and graphs.
- Identify linear and nonlinear functions in different representations.
- Compare properties of linear and nonlinear functions in different representations.
- Construct a linear function to model a relationship using an equation in the form $y=mx+b$.
- Describe qualitatively the behavior of a function by analyzing its graph.
- Describe the graph of a function at each interval.
- Draw a qualitative graph of a function based on a verbal description.
- Analyze and interpret the sketch of a graph of a function.

Essential Questions:

- When is a relation a function?
- What are different representations of a function?
- How can you compare two functions?
- How can you use a function to represent a linear relationship?
- How does a qualitative graph describe the relationship between quantities?
- How does the sketch of a graph of a function help describe its behavior?

New Jersey Student Learning Standards**Mathematics Learning Targets:** 8.F.A.1, 8.F.A.2, 8.F.A.3, 8.F.B.4, 8.F.B.5**Mathematics Practices:** MP.2, MP.3, MP.4**Cross Curricular Standards:** 9.4.8.TL.2, 9.4.8.TL.3 : 8.1.8.DA.1: RI.CR.8.1, SL.PE.8.1**Overview of Activities****Teacher's Guide/ Resources****Core Instructional Materials****Technology Infusion**

<p>3.1 - Understand Relations and Functions</p> <p>3.2 - Connect Representations of Functions</p> <p>3.3 - Compare Linear and Nonlinear Functions</p> <p>3.4 - Construct Functions to Model Linear Relationships</p> <p>3.5 - Intervals of Increase and Decrease</p> <p>3.6 - Sketch Functions From Verbal Descriptions</p>	<p><i>enVision</i> Mathematics</p> <p>*Daily Review</p> <p>*Reteach to Build Understanding</p> <p>*Build Mathematical Literacy</p> <p>*Enrichment</p> <p>*<i>enVision</i> Stem Activity</p> <p>*Problem Solving Leveled Reading Mat</p> <p>*Problem-Solving Reading Activity</p> <p>*Digital Math Tools Activities</p> <p>*Language Support Handguide</p> <p>*Listen and Look For</p> <p>*Home-School Connection</p>	<p>Student Textbook</p> <p>Additional Practice Workbook</p> <p>Notebook</p> <p>Pen/Pencil</p> <p>Index Cards</p> <p>paper</p> <p>colored markers</p>	<ul style="list-style-type: none"> ● Smart Board Applications ● Google Applications ● Interactive student edition ● Today's Challenge ● Adaptive Practice ● Desmos ● IXL
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Formative Assessment Plan	Summative Assessment Plan
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<p>Suggested activities to assess student progress:</p> <ul style="list-style-type: none"> - Topic Performance Task - Oral questioning - Using questioning strategies in TE - Reteach for Understanding - Classwork & Basic Skill Practice - Corrections & Reflections - Kahoot! - Quizizz - Desmos - Rubric-for projects - Self-reflection - Adaptive practice- on-line Savvas resources - Exit Slip - HW 	<p>Final Assessment/Benchmark/Project:</p> <ul style="list-style-type: none"> - Topic 3 Performance Task/Assessment - Lesson Quizzes <p>Suggested skills to be assessed:</p> <ul style="list-style-type: none"> - Determine if a relation is a function - Determine if a function is linear or nonlinear - Describe the shape of a nonlinear function - Sketch functions to represent real-life situations
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Differentiation			
Special Education	ELL	At Risk	Gifted and Talented

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**Quinton Township School District
Math
Grade 8**

Pacing Chart/Curriculum MAP

Key: Technology Careers Interdisciplinary Studies

Marking Period:	2	Unit Title:	Topic 4: Investigate Bivariate Data	Pacing:	20 days
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Unit Summary: In Topic 4, students analyze data. They create scatter plots from a data set. Using their skills from Topic 2, they are able to create lines of fit using point-slope form and slope intercept form of linear equations to model the data and make predictions. Students also analyze two categories of data collected from the same source using two-way tables.

Objectives:

- Construct a scatter plot graph to model paired data.
- Utilize a scatter plot to identify and interpret the relationship between paired data.
- Recognize whether the paired data has a linear association, a nonlinear association, or no association.
- Draw a trend line to determine whether a linear association is positive or negative and strong or weak.
- Use the slope and y-intercept of a trend line to make a prediction.
- Make a prediction when no equation is given by drawing trend lines and write the equation of the linear model.
- Organize paired categorical data into a two-way frequency table.
- Compare and make conjectures about data displayed in a two-way frequency table.
- Construct two-way frequency tables and two-way relative frequency tables.
- Compare and make conjectures about data displayed in a two-way relative frequency table.

Essential Questions:

- How does a scatter plot show the relationship between paired data?
- How can you describe the association of two data sets?
- How do linear models help you to make a prediction?
- How does a two-way frequency table show the relationships between sets of paired data?
- What is the advantage of a two-way relative frequency table for showing relationships between sets of paired data?

New Jersey Student Learning Standards

Mathematics Learning Targets: 8.SP.A.1, 8.SP.A.2, 8.SP.A.3, 8.SP.A.4, 8.F.A.3, 8.F.B.4

Mathematics Practices: MP.1, MP.5, MP.7, MP.8

Cross Curricular Standards: 9.4.8.IML.4, 9.4.8.IML.5: 8.1.12.DA.1, 8.1.8.DA.1: RI.CR.8.1, SL.PE.8.1

Overview of Activities	Teacher's Guide/ Resources	Core Instructional Materials	Technology Infusion
4.1 - Construct and Interpret Scatter Plots 4.2 - Analyze Linear Associations 4.3 - Use Linear Models to Make Predictions 4.4 - Interpret Two-Way Frequency Tables 4.5 - Interpret Two-Way Relative Frequencies Tables	<i>enVision</i> Mathematics *Daily Review *Reteach to Build Understanding *Build Mathematical Literacy *Enrichment * <i>enVision</i> Stem Activity *Problem Solving Leveled Reading Mat *Problem-Solving Reading Activity *Digital Math Tools Activities *Language Support Handguide *Listen and Look For *Home-School Connection	Student Textbook Additional Practice Workbook Notebook Pen/Pencil Index Cards	<ul style="list-style-type: none"> ● Smart Board Applications ● Google Applications ● Interactive student edition ● Today's Challenge ● Adaptive Practice ● Desmos ● IXL

Formative Assessment Plan	Summative Assessment Plan
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<p>Suggested activities to assess student progress:</p> <ul style="list-style-type: none"> - Topic Performance Task - Oral questioning - Using questioning strategies in TE - Reteach for Understanding - Classwork & Basic Skill Practice - Corrections & Reflections - Kahoot! - Quizizz - Desmos - Rubric-for projects - Self-reflection - Adaptive practice- on-line Savvas resources - Exit Slip - HW 	<p>Final Assessment/Benchmark/Project:</p> <ul style="list-style-type: none"> - Topic 4 Performance Task/Assessment - Lesson Quizzes <p>Suggested skills to be assessed:</p> <ul style="list-style-type: none"> - Construct and Interpret a Scatter Plot - Write equations based on trend lines - Compare and make conjectures from a two-way table
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Differentiation			
Special Education	ELL	At Risk	Gifted and Talented

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Quinton Township School District
Math
Grade 8

Pacing Chart/Curriculum MAP

Key: **Technology** **Careers** **Interdisciplinary Studies**

Marking Period:	3	Unit Title:	Topic 5: Analyze and Solve Systems of Linear Equations	Pacing:	18 Days
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Unit Summary: In Topic 5, students continue to explore relationships in linear equations. Students determine a solution that satisfies two equations, or a system of equations, by using three different methods; graphing, substitution, and elimination. Students examine special systems that have no solution or infinitely many solutions and identify what type of lines create those special systems.

Objectives:

- Examine graphs of linear systems of equations to determine the number of solutions, based on the number of intersection points.
- Compare the equations in a linear system to look for a relationship between the number of solutions and the slopes of y-intercepts of the equations.
- Create and examine graphs of linear equations to determine the solution.
- Understand how substitution can be used to solve a linear system of equations.
- Apply this understanding to solve a system of linear equations with one solution, no solutions, or infinitely many solutions.
- Apply the process of elimination to solve a system of linear equations with no solution, one solution, or infinitely many solutions.
- Apply this understanding to solve mathematical and real-world problems.

Essential Questions:

- How are slopes and y-intercepts related to the number of solutions of a system of linear equations?
- How does the graph of a system of linear equations represent its solution?
- When is substitution a useful method for solving systems of equations?
- How are the properties of equality used to solve systems of linear equations?

New Jersey Student Learning Standards**Mathematics Learning Targets:** 8.EE.C.8a, 8.EE.C.8b, 8.EE.C.8c**Mathematics Practices:** MP.2, MP.3, MP.8**Cross Curricular Standards:** 9.4.8.TL.2, 9.4.8.TL.3 : 8.1.8.DA.1: SL.PE.8.1**Overview of Activities****Teacher's Guide/ Resources****Core Instructional Materials****Technology Infusion**

<p>5.1 - Estimate Solutions by Inspection</p> <p>5.2 - Solve Systems by Graphing</p> <p>5.3 - Solve Systems by Substitution</p> <p>5.4 - Solve Systems by Elimination</p>	<p><i>enVision</i> Mathematics</p> <p>*Daily Review</p> <p>*Reteach to Build Understanding</p> <p>*Build Mathematical Literacy</p> <p>*Enrichment</p> <p>*<i>enVision</i> Stem Activity</p> <p>*Problem Solving Leveled Reading Mat</p> <p>*Problem-Solving Reading Activity</p> <p>*Digital Math Tools Activities</p> <p>*Language Support Handguide</p> <p>*Listen and Look For</p> <p>*Home-School Connection</p>	<p>Student Textbook</p> <p>Additional Practice Workbook</p> <p>Notebook</p> <p>Pen/Pencil</p> <p>Index Cards</p>	<ul style="list-style-type: none"> ● Smart Board Applications ● Google Applications ● Interactive student edition ● Today's Challenge ● Adaptive Practice ● Desmos ● IXL
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<p>Formative Assessment Plan</p>	<p>Summative Assessment Plan</p>
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<p>Suggested activities to assess student progress:</p> <ul style="list-style-type: none"> - Topic Performance Task - Oral questioning - Using questioning strategies in TE - Reteach for Understanding - Classwork & Basic Skill Practice - Corrections & Reflections - Kahoot! - Quizizz - Desmos - Rubric-for projects - Self-reflection - Adaptive practice- on-line Savvas resources - Exit Slip - HW 	<p>Final Assessment/Benchmark/Project:</p> <ul style="list-style-type: none"> - Topic 5 Performance Task/Assessment - Lesson Quizzes <p>Suggested skills to be assessed:</p> <ul style="list-style-type: none"> - Write and solve systems of equations by graphing - Write and solve systems of equations by substitution - Write and solve systems of equations by elimination. - Determine when a system of equations has no solution or infinitely many solutions.
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Differentiation			
Special Education	ELL	At Risk	Gifted and Talented

<ul style="list-style-type: none"> • RTI • Modify and accommodate as listed in student's IEP or 504 plan. • Utilize effective amount of wait time. • Hold high expectations. • Communicate directions clearly and concisely and repeat, reword, modify as necessary. • Utilize open-ended questioning techniques. • Utilize scaffolding to support instruction. • Chunk tasks into smaller components. • Provide step-by-step instructions. • Model and use visuals as often as possible. • Utilize extended time and/or reduce items given for homework and tests. • Teach Tiers 1,2, and 3 words to assist students' understanding of instructional texts. • Utilize a variety of formative assessments to drive next point of instruction/differentiated instructional practices. • Create rubrics/allow students to assist with task, so that all are aware of expectations. • Create modified assessments. • Allow students to utilize online books, when available, to listen to oral-recorded reading. • Provide individualized assistance as necessary. • Allow for group work (strategically selected) and collaboration as necessary. • Utilize homework recorder within SIS. • Allow for copies of notes to be shared out. • Utilize assistive technology as appropriate. • Provide meaningful feedback and utilize teachable 	<ul style="list-style-type: none"> • RTI • Basic Skills Instruction • Speech/Language Therapy • Rosetta Stone • Hold high expectations. • Provide English/Native Language Dictionary for use. • Place with native-language-speaking teacher/paraprofessional as available. • Learn/Utilize/Display some words in the students' native language. • Invite student to after-school tutoring sessions. • Utilize formative assessments to drive instruction. • Translate printed communications for parents in native language. • Hold conferences with translator present. • Utilize additional NJDOE resources/recommendations. • Review Special Education listing for additional recommendations. • Establish a consistent daily routine. 	<ul style="list-style-type: none"> • RTI Tiered Interventions following RTI framework • Basic Skills Instruction • Fountas and Pinnell Phonics • Support instruction with RTI intervention resources. • Provide after-school tutoring services. • Hold high expectations. • Hold fall and spring parent conferences. • Make modifications to instructional plans based on I and RS Plan. • Develop a record system to encourage good behavior and completion of work. • Establish a consistent daily routine. 	<ul style="list-style-type: none"> • Organize the curriculum to include more elaborate, complex, and in-depth study of major ideas and problems through compacting. • Allow for the development and application of productive thinking skills to enable students to re-conceptualize existing knowledge and/or generate new knowledge. • Enable students to explore continually changing knowledge and information and develop the attitude that knowledge is worth pursuing in an open world. • Encourage exposure to, selection and use of appropriate and specialized resources. • Promote self-initiated and self-directed learning for growth. • Provide for the development of self, an understanding of one's relationships with people, societal institutions, nature and culture. • Continue to offer Accelerated Mathematics 7 (7th grade) and Algebra 1 (8th grade).
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**Quinton Township School District
Math
Grade 8**

Pacing Chart/Curriculum MAP

Key: **Technology** **Careers** **Interdisciplinary Studies**

Marking Period:	3	Unit Title:	Topic 6: Congruence and Similarity	Pacing:	29 Days
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Unit Summary: Topic 6 exposes students to relationships in two-dimensional figures. Students use experimentation to determine the rules for performing transformations in the coordinate plane. The resulting image will either be a congruent figure or a similar figure. Students discover the angle relationships formed when parallel lines are cut by a transversal. Using experimentation, students discover relationships between interior and exterior angles of a triangle.

Objectives:

- Understand translations.
- Translate a figure on a coordinate plane.
- Describe a translation.
- Understand and describe a reflection.
- Reflect two-dimensional figures.
- Identify and perform a rotation.
- Determine how a rotation affects a two-dimensional figure.
- Understand a sequence of transformations.
- Describe and perform a sequence of transformations.
- Understand congruence of figures using a series of transformations.
- Identify congruent figures.
- Understand dilations.
- Dilate to enlarge or reduce a figure in a coordinate plane.
- Understand similarity.
- Complete a similarity transformation.
- Identify similar figures.
- Understand the relationships of angles formed by parallel lines and a transversal.
- Find unknown angle measures.
- Understand the relationship of the interior angles of a triangle.
- Determine whether triangles are similar.
- Solve problems involving similar triangles.

Essential Questions:

- How does a translation affect the properties of a two-dimensional figure?
- How does a reflection affect the properties of a two-dimensional figure?
- How does a rotation affect the properties of a two-dimensional figure?
- How can you use a sequence of transformations to map a preimage to its image?
- How does a sequence of translations, reflections, and rotations result in congruent figures?
- What is the relationship between a preimage and its image after a dilation?
- How are similar figures related by a sequence of transformations?
- How are the interior and exterior angles of a triangle related?
- How can you use angle measures to determine whether two triangles are similar?

New Jersey Student Learning Standards

Mathematics Learning Targets: 8.G.A.1a, 8.G.A.1b, 8.G.A.1c, 8.G.A.2, 8.G.A.3, 8.G.A.4, 8.G.A.5

Mathematics Practices: MP.1, MP.2, MP.3, MP.4, MP.7, MP.8

Cross Curricular Standards: 9.4.8.TL.2, 9.4.8.TL.3: 8.1.8.DA.1: SL.PE.8.1

Overview of Activities

Teacher's Guide/ Resources

Core Instructional Materials

Technology Infusion

<p>6.1 - Analyze Translations 6.2 - Analyze Reflections 6.3 - Analyze Rotations 6.4 - Compose Transformations 6.5 - Understand Congruent Figures 6.6 - Describe Dilations 6.7 - Understand Similar Figures 6.8 - Angles, Lines, and Transversals 6.9 - Interior and Exterior Angles of Triangles 6.10 - Angle-Angle Triangle Similarity</p>	<p><i>enVision</i> Mathematics *Daily Review *Reteach to Build Understanding *Build Mathematical Literacy *Enrichment *<i>enVision</i> Stem Activity *Problem Solving Leveled Reading Mat *Problem-Solving Reading Activity *Digital Math Tools Activities *Language Support Handguide *Listen and Look For *Home-School Connection</p>	<p>Student Textbook Additional Practice Workbook Notebook Pen/Pencil Index Cards</p>	<ul style="list-style-type: none"> ● Smart Board Applications ● Google Applications ● Interactive student edition ● Today's Challenge ● Adaptive Practice ● Desmos ● IXL
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Formative Assessment Plan	Summative Assessment Plan
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<p>Suggested activities to assess student progress:</p> <ul style="list-style-type: none"> - Topic Performance Task - Oral questioning - Using questioning strategies in TE - Reteach for Understanding - Classwork & Basic Skill Practice - Corrections & Reflections - Kahoot! - Quizizz - Desmos - Rubric-for projects - Self-reflection - Adaptive practice- on-line Savvas resources - Exit Slip - HW 	<p>Final Assessment/Benchmark/Project:</p> <ul style="list-style-type: none"> - Topic 6 Performance Task/Assessment - Lesson Quizzes <p>Suggested skills to be assessed:</p> <ul style="list-style-type: none"> - Transform a figure in the coordinate plane to create similar or congruent figures - Identify congruent figures - Identify similar figures - Determine unknown angle measures using angles relationships created when a transversal intersects parallel lines - Determine unknown interior and exterior angles of a triangle - Solve problems involving similar triangles
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Differentiation			
Special Education	ELL	At Risk	Gifted and Talented

<ul style="list-style-type: none"> • RTI • Modify and accommodate as listed in student's IEP or 504 plan. • Utilize effective amount of wait time. • Communicate directions clearly and concisely and repeat, reword, modify as necessary. • Utilize open-ended questioning techniques. • Utilize scaffolding to support instruction. • Chunk tasks into smaller components. • Provide step-by-step instructions. • Model and use visuals as often as possible. • Utilize extended time and/or reduce number of items given for homework, quizzes, and tests. • Teach Tiers 1,2, and 3 words to assist students' understanding of instructional texts. • Utilize a variety of formative assessments to drive next point of instruction/differentiated instructional practices. • Create rubrics/allow students to assist with task, so that all are aware of expectations. • Create modified assessments. • Allow students to utilize online books, when available, to listen to oral-recorded reading. • Allow for group work (strategically selected) and collaboration as necessary. • Utilize homework recorder within SIS. • Allow for copies of notes to be shared out. • Utilize assistive technology as appropriate. • Provide meaningful feedback and utilize teachable moments. • Utilize graphic organizers. • Introduce/review study skills 	<ul style="list-style-type: none"> • RTI • Basic Skills Instruction • Speech/Language Therapy • Rosetta Stone • Hold high expectations. • Provide English/Native Language Dictionary for use. • Place with native-language-speaking teacher/paraprofessional as available. • Learn/Utilize/Display some words in the students' native language. • Invite student to after-school tutoring sessions. • Utilize formative assessments to drive instruction. • Translate printed communications for parents in native language. • Hold conferences with translator present. • Utilize additional NJDOE resources/recommendations. • Review Special Education listing for additional recommendations. • Establish a consistent daily routine. 	<ul style="list-style-type: none"> • RTI Tiered Interventions following RTI framework • Basic Skills Instruction • Fountas and Pinnell Phonics • Support instruction with RTI intervention resources. • Provide after-school tutoring services. • Hold high expectations. • Hold fall and spring parent conferences. • Make modifications to instructional plans based on I and RS Plan. • Develop a record system to encourage good behavior and completion of work. • Establish a consistent daily routine. 	<ul style="list-style-type: none"> • Organize the curriculum to include more elaborate, complex, and in-depth study of major ideas and problems through compacting. • Allow for the development and application of productive thinking skills to enable students to re-conceptualize existing knowledge and/or generate new knowledge. • Enable students to explore continually changing knowledge and information and develop the attitude that knowledge is worth pursuing in an open world. • Encourage exposure to, selection and use of appropriate and specialized resources. • Promote self-initiated and self-directed learning for growth. • Provide for the development of self, an understanding of one's relationships with people, societal institutions, nature and culture. • Continue to offer Accelerated Mathematics 7 (7th grade) and Algebra 1 (8th grade).
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**Quinton Township School District
Math
Grade 8**

Pacing Chart/Curriculum MAP

Key: Technology Careers Interdisciplinary Studies

Marking Period:	4	Unit Title:	Topic 7: Understand and Apply the Pythagorean Theorem	Pacing:	18 Days
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Unit Summary: In Topic 7, students examine the Pythagorean Theorem and use it to find unknown side lengths of right triangles and solids. Students also apply the converse of the Pythagorean Theorem to determine if a triangle is a right triangle, and they develop the distance formula for any two points in the coordinate plane.

Objectives:

- Explain the Pythagorean Theorem.
- Given two side lengths of a right triangle, use the Pythagorean Theorem to find the length of the third side.
- Explain why the Converse of the Pythagorean Theorem is true.
- Apply the Converse of the Pythagorean Theorem to identify right triangles.
- Use the Converse of the Pythagorean Theorem to analyze two-dimensional shapes.
- Apply the Pythagorean Theorem and its converse to solve real-world problems.
- Apply the Pythagorean Theorem to solve problems that involve three-dimensions.
- Apply the Pythagorean Theorem to find the distance between two points on a map or coordinate plane.
- Find the perimeter of a figure on a coordinate plate.
- Identify the coordinates of the third vertex of a triangle on the coordinate plane.

Essential Questions:

- How does the Pythagorean Theorem relate the side lengths of a right triangle?
- How can you determine whether a triangle is a right triangle?
- What types of problems can be solved using the Pythagorean Theorem?
- How can you use the Pythagorean Theorem to find the distance between two points?

New Jersey Student Learning Standards**Mathematics Learning Targets:** 8.G.B.6, 8.G.B.7, 8.G.B.8**Mathematics Practices:** MP.3, MP.4, MP.7, MP.8**Cross Curricular Standards:** 9.4.8.TL.2, 9.4.8.TL.3: 8.1.8.DA.1: SL.PE.8.1**Overview of Activities****Teacher's Guide/ Resources****Core Instructional Materials****Technology Infusion**

<p>7.1 - Understand the Pythagorean Theorem</p> <p>7.2 - Understand the Converse of the Pythagorean Theorem</p> <p>7.3 - Apply the Pythagorean Theorem to Solve Problems</p> <p>7.4 - Find Distance on the Coordinate Plane</p>	<p><i>enVision</i> Mathematics</p> <ul style="list-style-type: none"> *Daily Review *Reteach to Build Understanding *Build Mathematical Literacy *Enrichment *<i>enVision</i> Stem Activity *Problem Solving Leveled Reading Mat *Problem-Solving Reading Activity *Digital Math Tools Activities *Language Support Handguide *Listen and Look For *Home-School Connection 	<p>Student Textbook</p> <p>Additional Practice Workbook</p> <p>Notebook</p> <p>Pen/Pencil</p> <p>Index Cards</p>	<ul style="list-style-type: none"> ● Smart Board Applications ● Google Applications ● Interactive student edition ● Today's Challenge ● Adaptive Practice ● Desmos ● IXL
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<p>Formative Assessment Plan</p>	<p>Summative Assessment Plan</p>
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<p>Suggested activities to assess student progress:</p> <ul style="list-style-type: none"> - Topic Performance Task - Oral questioning - Using questioning strategies in TE - Reteach for Understanding - Classwork & Basic Skill Practice - Corrections & Reflections - Kahoot! - Quizizz - Desmos - Rubric-for projects - Self-reflection - Adaptive practice- on-line Savvas resources - Exit Slip - HW 	<p>Final Assessment/Benchmark/Project:</p> <ul style="list-style-type: none"> - Topic 7 Performance Task/Assessment - Lesson Quizzes <p>Suggested skills to be assessed:</p> <ul style="list-style-type: none"> - Use Pythagorean Theorem to find missing sides in right triangles - Use the converse of the Pythagorean Theorem to determine if a triangle is a right triangle - Apply the Pythagorean Theorem to solve real-world problems - Use the Pythagorean Theorem to find the distance between two points on the coordinate plane.
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Differentiation			
Special Education	ELL	At Risk	Gifted and Talented

<ul style="list-style-type: none"> • RTI • Modify and accommodate as listed in student's IEP or 504 plan. • Utilize effective amount of wait time. • Hold high expectations. • Communicate directions clearly and concisely and repeat, reword, modify as necessary. • Utilize open-ended questioning techniques. • Utilize scaffolding to support instruction. • Chunk tasks into smaller components. • Provide step-by-step instructions. • Model and use visuals as often as possible. • Utilize extended time and/or reduce number of items given for homework, quizzes, and tests. • Teach Tiers 1,2, and 3 words to assist students' understanding of instructional texts. • Utilize a variety of formative assessments to drive next point of instruction/differentiated instructional practices. • Create rubrics/allow students to assist with task, so that all are aware of expectations. • Create modified assessments. • Allow students to utilize online books, when available, to listen to oral-recorded reading. • Provide individualized assistance as necessary. • Allow for group work (strategically selected) and collaboration as necessary. • Utilize homework recorder within SIS. • Allow for copies of notes to be shared out. • Utilize assistive technology as appropriate. • Provide meaningful feedback and utilize teachable 	<ul style="list-style-type: none"> • RTI • Basic Skills Instruction • Speech/Language Therapy • Rosetta Stone • Hold high expectations. • Provide English/Native Language Dictionary for use. • Place with native-language-speaking teacher/paraprofessional as available. • Learn/Utilize/Display some words in the students' native language. • Invite student to after-school tutoring sessions. • Utilize formative assessments to drive instruction. • Translate printed communications for parents in native language. • Hold conferences with translator present. • Utilize additional NJDOE resources/recommendations. • Review Special Education listing for additional recommendations. • Establish a consistent daily routine. 	<ul style="list-style-type: none"> • RTI Tiered Interventions following RTI framework • Basic Skills Instruction • Fountas and Pinnell Phonics • Support instruction with RTI intervention resources. • Provide after-school tutoring services. • Hold high expectations. • Hold fall and spring parent conferences. • Make modifications to instructional plans based on I and RS Plan. • Develop a record system to encourage good behavior and completion of work. • Establish a consistent daily routine. 	<ul style="list-style-type: none"> • Organize the curriculum to include more elaborate, complex, and in-depth study of major ideas and problems through compacting. • Allow for the development and application of productive thinking skills to enable students to re-conceptualize existing knowledge and/or generate new knowledge. • Enable students to explore continually changing knowledge and information and develop the attitude that knowledge is worth pursuing in an open world. • Encourage exposure to, selection and use of appropriate and specialized resources. • Promote self-initiated and self-directed learning for growth. • Provide for the development of self, an understanding of one's relationships with people, societal institutions, nature and culture. • Continue to offer Accelerated Mathematics 7 (7th grade) and Algebra 1 (8th grade).
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**Quinton Township School District
Math
Grade 8**

Pacing Chart/Curriculum MAP

Key: Technology Careers Interdisciplinary Studies

Marking Period:	4	Unit Title:	Topic 8: Solve Problems Involving Surface Area and Volume	Pacing:	18 Days
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Unit Summary: In Topic 8, students extend their understanding of surface area to cylinders, cones, and spheres. They also examine the volume of cylinders, cones, and spheres. Through experimentation, students develop the formulas to determine the surface area or volume of a figure. Students will also calculate missing dimensions of a figure.

Objectives:

- Find the surface areas of cylinders, cones, and spheres.
- Explain the relationship between the volume of a rectangular prism and the volume of a cylinder.
- Solve real-world problems involving the volume of a cylinder.
- Use the formula for the volume of a cylinder to find an unknown measure.
- Explain the relationship between the volume of a cylinder and the volume of a cone.
- Use the Pythagorean Theorem when solving volume problems.
- Find the volume of a cone. Given the circumference of the base, find the volume of a cone.
- Recognize the relationship between the volume of a cone and the volume of a sphere.
- Find the volume of a sphere. Given the surface area, find the volume of a sphere.
- Find the volume of a composite figure.

Essential Questions:

- How are the areas of polygons used to find the surface area formulas for three-dimensional figures?
- How is the volume of a cylinder related to the volume of a rectangular prism?
- How is the volume of a cone related to the volume of a cylinder?
- How is the volume of a sphere related to the volume of a cone?

New Jersey Student Learning Standards**Mathematics Learning Targets:** 8.G.C.9**Mathematics Practices:** MP.5, MP.6, MP.7**Cross Curricular Standards:** 9.4.8.TL.2, 9.4.8.TL.3: 8.1.8.DA.1: SL.PE.8.1**Overview of Activities****Teacher's Guide/ Resources****Core Instructional Materials****Technology Infusion**

<p>8.1 -Find Surface Area of Three-Dimensional Figures</p> <p>8.2 - Find Volume of Cylinders</p> <p>8.3 - Find Volume of Cones</p> <p>8.4 - Find Volume of Spheres</p>	<p><i>enVision</i> Mathematics</p> <p>*Daily Review</p> <p>*Reteach to Build Understanding</p> <p>*Build Mathematical Literacy</p> <p>*Enrichment</p> <p>*<i>enVision</i> Stem Activity</p> <p>*Problem Solving Leveled-Reading Mat</p> <p>*Problem-Solving Reading Activity</p> <p>*Digital Math Tools Activities</p> <p>*Language Support Handguide</p> <p>*Listen and Look For</p> <p>*Home-School Connection</p>	<p>Student Textbook</p> <p>Additional Practice Workbook</p> <p>Notebook</p> <p>Pen/Pencil</p> <p>Index Cards</p>	<ul style="list-style-type: none"> ● Smart Board Applications ● Google Applications ● Interactive student edition ● Today's Challenge ● Adaptive Practice ● Desmos ● IXL
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Formative Assessment Plan	Summative Assessment Plan
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<p>Suggested activities to assess student progress:</p> <ul style="list-style-type: none"> - Topic Performance Task - Oral questioning - Using questioning strategies in TE - Reteach for Understanding - Classwork & Basic Skill Practice - Corrections & Reflections - Kahoot! - Quizizz - Desmos - Rubric-for projects - Self-reflection - Adaptive practice- on-line Savvas resources - Exit Slip - HW 	<p>Final Assessment/Benchmark/Project:</p> <ul style="list-style-type: none"> - Topic 8 Performance Task/Assessment - Lesson Quizzes - MAP Testing <p>Suggested skills to be assessed:</p> <ul style="list-style-type: none"> - Find surface areas of three dimensional figures - Find the volume of a cone, cylinder, or sphere - Determine missing dimensions of a cone, cylinder, or sphere when given the volume
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Differentiation			
Special Education	ELL	At Risk	Gifted and Talented

<ul style="list-style-type: none"> • RTI • Modify and accommodate as listed in student's IEP or 504 plan. • Utilize effective amount of wait time. • Hold high expectations. • Communicate directions clearly and concisely and repeat, reword, modify as necessary. • Utilize open-ended questioning techniques. • Utilize scaffolding to support instruction. • Chunk tasks into smaller components. • Provide step-by-step instructions. • Model and use visuals as often as possible. • Utilize extended time and/or reduce number of items given for homework, quizzes, and tests. • Teach Tiers 1,2, and 3 words to assist students' understanding of instructional texts. • Utilize a variety of formative assessments to drive next point of instruction/differentiated instructional practices. • Create rubrics/allow students to assist with task, so that all are aware of expectations. • Create modified assessments. • Allow students to utilize online books, when available, to listen to oral-recorded reading. • Provide individualized assistance as necessary. • Allow for group work (strategically selected) and collaboration as necessary. • Utilize homework recorder within SIS. • Allow for copies of notes to be shared out. • Utilize assistive technology as appropriate. • Provide meaningful feedback and utilize teachable 	<ul style="list-style-type: none"> • RTI • Basic Skills Instruction • Speech/Language Therapy • Rosetta Stone • Hold high expectations. • Provide English/Native Language Dictionary for use. • Place with native-language-speaking teacher/paraprofessional as available. • Learn/Utilize/Display some words in the students' native language. • Invite student to after-school tutoring sessions. • Utilize formative assessments to drive instruction. • Translate printed communications for parents in native language. • Hold conferences with translator present. • Utilize additional NJDOE resources/recommendations. • Review Special Education listing for additional recommendations. • Establish a consistent daily routine. 	<ul style="list-style-type: none"> • RTI Tiered Interventions following RTI framework • Basic Skills Instruction • Fountas and Pinnell Phonics • Support instruction with RTI intervention resources. • Provide after-school tutoring services. • Hold high expectations. • Hold fall and spring parent conferences. • Make modifications to instructional plans based on I and RS Plan. • Develop a record system to encourage good behavior and completion of work. • Establish a consistent daily routine. 	<ul style="list-style-type: none"> • Organize the curriculum to include more elaborate, complex, and in-depth study of major ideas and problems through compacting. • Allow for the development and application of productive thinking skills to enable students to re-conceptualize existing knowledge and/or generate new knowledge. • Enable students to explore continually changing knowledge and information and develop the attitude that knowledge is worth pursuing in an open world. • Encourage exposure to, selection and use of appropriate and specialized resources. • Promote self-initiated and self-directed learning for growth. • Provide for the development of self, an understanding of one's relationships with people, societal institutions, nature and culture. • Continue to offer Accelerated Mathematics 7 (7th grade) and Algebra 1 (8th grade).
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