

**Quinton Township School District
Mathematics
Grade 8**

Pacing Chart/Curriculum MAP

Marking Period:	1	Unit Title:	Equations	Pacing:	18 days
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Unit Summary: In this unit, students extend their knowledge of solving equations to include multi-step equations and equations with variables on both sides. They will also learn how to rewrite equations to solve for one variable in terms of the other. This skill will become important as students progress through the year and begin converting between different forms of equations.

Objectives: Students will be able to:

- solve simple equations using addition, subtraction, multiplication, or division.
- use inverse operations to solve multi-step equations.
- use the Distributive Property to solve multi-step equations.
- solve equations with variables on both sides.
- determine whether equations have no solution or infinitely many solutions.
- rewrite equations to solve for one variable in terms of the other variable(s).

Essential Questions:

- How can you use inductive reasoning to discover rules in mathematics?
- How can you test a rule?
- How can you solve a multi-step equation?
- How can you check the reasonableness of your solution?

- How can you solve an equation that has variables on both sides?
- How can you use a formula for one measurement to write a formula for a different measurement?

Common Core State Standards/Learning Targets:

- 8.EE.C.7: Solve linear equations in one variable.
 - 8.EE.C.7.A: Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form $x = a$, $a = a$, or $a = b$ results (where a and b are different numbers).
 - 8.EE.C.7.B: Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.

Interdisciplinary Connections/Including 21st Century Themes and Skills:

21st Century Life and Career Standards:

9.1.8.A.5 Relate how the demand for certain skills determines an individual's earning power.

9.1.8.A.6 Explain how income affects spending decisions.

21st Century Career Ready Practices:

CRP2. Apply appropriate academic and technical skills.

CRP3. Attend to personal health and financial well-being.

CRP4. Communicate clearly and effectively and with reason.

CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.

Science: 1.1 - Discuss the melting point of a solid. Use an equation comparing the melting point of bromine to nitrogen. 1.4 -

Students rewrite the temperature formula from Celsius to Fahrenheit.

Overview of Activities	Teacher's Guide/ Resources	Core Instructional Materials	Technology Infusion
<p>1.1 Solving Simple Equations 1.2 Solving Multi-Step Equations 1.3 Solving Equations with Variables on Both Sides 1.4 Rewriting Equations and Formulas</p>	<p>Curriculum Map Teacher's Guide Chapter 1 p.1-39 Big Ideas website Desmos.com IXL</p>	<p>Student Textbook p.1-39 Record and Practice Journal p. 1-18 Calculator</p>	<ul style="list-style-type: none"> ● Smart Board Applications ● Google Applications ● BigIdeasMath.com ● ixl.com <ul style="list-style-type: none"> ○ W.2 ○ W.6-W.10 ○ W.14 ○ W.15 ● Two Step Equation Basketball Game

Formative Assessment Plan	Summative Assessment Plan
<p><i>Formative assessment informs instruction and is on going through a unit to determine how students are progressing with the high expectations of standards.</i></p> <p>Suggested activities to assess student progress: Weekly Homework Completion Classwork & Basic Skill Practice Corrections & Reflections Solving Equations Foldable BigIdeasMath.com daily assessments Kahoot/Quizizz daily assessments Self-reflection</p>	<p><i>Summative assessment is an opportunity for students to demonstrate mastery of the skills taught during a particular unit.</i></p> <p>Final Assessment/Benchmark/Project: 1.1-1.2 Mid Quiz 1.2-1.4 End Quiz Chapter 1 Test Chapter 1 Standards Assessment Fall MAP Benchmark Assessment</p>

Suggested skills to be assessed:

Writing and solving multi-step equations. Writing and solving equations with variables on both sides. Rewriting equations and formulas to solve for one variable in terms of the other.

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 amount of items given for homework, quizzes, and tests. • Teach Tiers 1,2, and 3 words to 	<ul style="list-style-type: none"> • RTI • Speech/Language Therapy • Rosetta Stone • Hold high expectations • Provide English/Spanish Dictionary for use • Place with Spanish speaking teacher/paraprofessional as available • Learn/Utilize/Display some words in the students' native language • Invite student to after school tutoring sessions • Basic Skills Instruction • 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 	<ul style="list-style-type: none"> • RTI Tiered Interventions following RTI framework • Support instruction with RTI intervention resources • Provide after school tutoring services • Basic Skills Instruction • Hold high expectations • Utilize Go Math! RTI strategies • Fountas and Pinnell Phonics • Hold parent conferences fall and spring • 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 and 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 and growth. • Provide for the development of self-understanding of one's

<p>assist students' understanding of instructional texts.</p> <ul style="list-style-type: none"> ● 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 moments. ● Utilize graphic organizers ● Introduce/review study skills ● Provide reading material at or slightly above students' reading levels. ● Utilize manipulatives as necessary. ● Utilize auditory reminders as deemed necessary. ● Provide breaks to allow for refocusing as necessary. ● Establish a consistent and daily routine. 	<p>listing for additional recommendations</p> <ul style="list-style-type: none"> ● Establish a consistent and daily routine 		<p>relationships with people, societal institutions, nature and culture.</p> <ul style="list-style-type: none"> ● Continue to offer Accelerated Mathematics 7 (7th grade) and Algebra 1 (8th grade).
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**Quinton Township School District
Mathematics
Grade 8**

Pacing Chart/Curriculum MAP

Marking Period:	1	Unit Title:	Transformations	Pacing:	18 days
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Unit Summary: In this unit, 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 also discover the relationship between perimeters and areas of similar figures. They will use this relationship to determine missing values in similar figures.

Objectives: Students will be able to:

- name corresponding angles and corresponding sides of congruent figures.
- identify congruent figures.
- identify translations
- translate figures in the coordinate plane.
- identify reflections.
- reflect figures in the x -axis or the y -axis of the coordinate plane.
- identify rotations.
- rotate figures in the coordinate plane.
- use more than one transformation to find images of figures.
- name corresponding angles and corresponding sides of similar figures.

- identify similar figures.
- find unknown measures of similar figures.
- understand the relationship between perimeters of similar figures.
- understand the relationship between areas of similar figures.
- find ratios of perimeters and areas of similar figures.
- identify dilations.
- dilate figures in the coordinate plane.

Essential Questions:

- How can you identify congruent triangles?
- How can you arrange triangles to make a tessellation?
- How can you identify transformations using coordinate rules?
- What are three basic ways to move an object on a coordinate plane?
- How can you use proportions to determine if figures are the same shape?
- How do changes in dimensions of similar geometric figures affect the perimeters and areas of the figures?
- How can you enlarge or reduce a figure in the coordinate plane?

Common Core State Standards/Learning Targets:

- 8.G.A.1: Verify experimentally the properties of rotations, reflections, and translations:
 - 8.G.A.1.A: Lines are taken to lines, and line segments to line segments of the same length.
 - 8.G.A.1.B: Angles are taken to angles of the same measure.
 - 8.G.A.1.C: Parallel lines are taken to parallel lines.
- 8.G.A.2: Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.
- 8.G.A.3: Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.

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

Interdisciplinary Connections/Including 21st Century Themes and Skills:

21st Century Career Ready Practices:

CRP2. Apply appropriate academic and technical skills.

CRP4. Communicate clearly and effectively and with reason.

CRP6. Demonstrate creativity and innovation.

CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.

Visual and Performing Arts: 2.2 - Students create a tessellation project. 2.3 - Student create a name reflection project. 2.4 -

Students create a rotation project. 2.7 - Students create a dilation project with pumpkins.

History: 2.5 - Discuss the history of the Berlin Wall.

Overview of Activities	Teacher's Guide/ Resources	Core Instructional Materials	Technology Infusion
<p>2.1 Congruent Figures 2.2 Translations 2.3 Reflections 2.4 Rotations 2.5 Similar Figures 2.6 Perimeters and Areas of Similar Figures 2.7 Dilations</p>	<p>Curriculum Map Teacher's Guide Chapter 2 p.40-99 Big Ideas website Desmos.com IXL</p>	<p>Student Textbook p.40-99 Record and Practice Journal p. 19-44 Calculator Graph Paper</p>	<ul style="list-style-type: none"> ● Smart Board Applications ● Google Applications ● BigIdeasMath.com ● ixl.com <ul style="list-style-type: none"> ○ P.2-P.10 ○ Q.1-Q.5 ○ T.16 ● Billy Bug 2 Game

Formative Assessment Plan	Summative Assessment Plan
<p><i>Formative assessment informs instruction and is on going through a unit to determine how students are progressing with the high expectations of standards.</i></p> <p>Suggested activities to assess student progress: Transformations Graphic Organizer Weekly Homework Completion Classwork & Basic Skill Practice Corrections & Reflections BigIdeasMath.com daily assessments Kahoot/Quizizz daily assessments</p>	<p><i>Summative assessment is an opportunity for students to demonstrate mastery of the skills taught during a particular unit.</i></p> <p>Final Assessment/Benchmark/Project: 2.1-2.4 Mid Quiz 2.5-2.7 End Quiz Chapter 2 Test Chapter 2 Standards Assessment Geometry Portfolio</p> <p>Suggested skills to be assessed: Identifying congruent figures. Identifying parts of congruent figures. Performing translations, reflections, rotations, and dilations on a figure to produce an image. Performing more than one transformation on a figure. Identifying similar figures. Using similar figures to determine missing side lengths. Determining perimeters and areas of similar figures.</p>

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 amount 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. 	<ul style="list-style-type: none"> • RTI • Speech/Language Therapy • Rosetta Stone • Hold high expectations • Provide English/Spanish Dictionary for use • Place with Spanish speaking teacher/paraprofessional as available • Learn/Utilize/Display some words in the students' native language • Invite student to after school tutoring sessions • Basic Skills Instruction • 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 and daily routine 	<ul style="list-style-type: none"> • RTI Tiered Interventions following RTI framework • Support instruction with RTI intervention resources • Provide after school tutoring services • Basic Skills Instruction • Hold high expectations • Utilize Go Math! RTI strategies • Fountas and Pinnell Phonics • Hold parent conferences fall and spring • 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 and 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 and growth. • Provide for the development of self-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).

<ul style="list-style-type: none">● 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 moments.● Utilize graphic organizers● Introduce/review study skills● Provide reading material at or slightly above students' reading levels.● Utilize manipulatives as necessary.● Establish a consistent and daily routine			
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**Quinton Township School District
Mathematics
Grade 8**

Pacing Chart/Curriculum MAP

Marking Period:	1	Unit Title:	Angles and Triangles	Pacing:	16 days
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Unit Summary: This unit exposes students to relationships in two-dimensional figures. Students discover the angle relationships formed when parallel lines are cut by a transversal. Using experimentation, students discover the interior and exterior angle sums of polygons and students use those sums to determine missing angle measures. Students will learn how to use indirect measurement to determine heights of objects that would be too difficult to measure.

Objectives: Students will be able to:

- identify the angles formed when parallel lines are cut by a transversal.
- find the measures of angles formed when parallel lines are cut by a transversal.
- understand that the sum of the interior angle measures of a triangle is 180° .
- find the measures of interior and exterior angles of triangles.
- find the sum of the interior angle measures of polygons.
- understand that the sum of the exterior angle measures of a polygon is 360° .
- find the measures of interior and exterior angles of polygons.
- understand the concept of similar triangles.

- identify similar triangles.
- use indirect measurement to find missing measures.

Essential Questions:

- How can you describe angles formed by parallel lines and transversals?
- How can you describe the relationships among the angles of a triangle?
- How can you find the sum of the interior angles and the exterior angles of a polygon?
- How can you use angles to tell whether triangles are similar?

Common Core State Standards/Learning Targets:

- 8.G.A.5: Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles.

Interdisciplinary Connections/Including 21st Century Themes and Skills:

21st Century Life and Career Standards:

9.2.8.B.1 Research careers within the 16 Career Clusters® and determine attributes of career success.

21st Century Career Ready Practices:

CRP2. Apply appropriate academic and technical skills.

CRP4. Communicate clearly and effectively and with reason.

CRP6. Demonstrate creativity and innovation.

CRP7. Employ valid and reliable research strategies.

CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.

CRP11. Use technology to enhance productivity.

Science: 3.3 - Discuss a cloud system on Saturn that is in the approximate shape of a regular hexagon.

Overview of Activities	Teacher's Guide/ Resources	Core Instructional Materials	Technology Infusion
<p>3.1 Parallel Lines and Transversals 3.2 Angles of Triangles 3.3 Angles of Polygons 3.4 Using Similar Triangles</p>	<p>Curriculum Map Teacher's Guide Chapter 3 p.100-139 Big Ideas website Desmos.com IXL</p>	<p>Student Textbook p.100-139 Record and Practice Journal p. 45-66 Protractor Calculator</p>	<ul style="list-style-type: none"> ● Smart Board Applications ● Google Applications ● BigIdeasMath.com ● ixl.com <ul style="list-style-type: none"> ○ O.6-O.12 ○ Q.1 ● Banana Hunt Game

Formative Assessment Plan	Summative Assessment Plan
<p><i>Formative assessment informs instruction and is on going through a unit to determine how students are progressing with the high expectations of standards.</i></p> <p>Suggested activities to assess student progress: Parallel Lines and Transversals Vocabulary Cards Weekly Homework Completion Classwork & Basic Skill Practice Corrections & Reflections BigIdeasMath.com daily assessments Kahoot/Quizizz daily assessments</p>	<p><i>Summative assessment is an opportunity for students to demonstrate mastery of the skills taught during a particular unit.</i></p> <p>Final Assessment/Benchmark/Project: 3.1-3.2 Mid Quiz 3.3-3.4 End Quiz Chapter 3 Test Chapter 3 Standards Assessment City Map Project on Parallel Lines and Transversals</p>

Suggested skills to be assessed:

Determine missing angles in parallel lines cut by a transversal. Determine missing interior and exterior angles of polygons using angle sums.
Determine if triangles are similar based on their angles.

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 amount of items given for homework, quizzes, and 	<ul style="list-style-type: none"> • RTI • Speech/Language Therapy • Rosetta Stone • Hold high expectations • Provide English/Spanish Dictionary for use • Place with Spanish speaking teacher/paraprofessional as available • Learn/Utilize/Display some words in the students' native language • Invite student to after school tutoring sessions • Basic Skills Instruction • 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 	<ul style="list-style-type: none"> • RTI Tiered Interventions following RTI framework • Support instruction with RTI intervention resources • Provide after school tutoring services • Basic Skills Instruction • Hold high expectations • Utilize Go Math! RTI strategies • Fountas and Pinnell Phonics • Hold parent conferences fall and spring • 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 and 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 and

<p>tests.</p> <ul style="list-style-type: none"> ● 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 moments. ● Utilize graphic organizers ● Introduce/review study skills ● Provide reading material at or slightly above students' reading levels. ● Utilize manipulatives as necessary. ● Establish a consistent and daily routine 	<p>listing for additional recommendations</p> <ul style="list-style-type: none"> ● Establish a consistent and daily routine 		<p>growth.</p> <ul style="list-style-type: none"> ● Provide for the development of self-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
Mathematics
Grade 8**

Pacing Chart/Curriculum MAP

Marking Period:	2	Unit Title:	Graphing and Writing Linear Equations	Pacing:	25 days
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Unit Summary: This unit is one of the most important units for preparing the students for Algebra. The students are introduced to graphing equations and the meaning of the lines. Students determine the slope of a line and how it is used to write the equation of a line. By using the slope formula and the x and y -intercepts, students learn how to write equations in slope-intercept form, standard form, and point-slope form. This unit teaches students how to move between graphs and equations.

Objectives: Students will be able to:

- understand that lines represent solutions of linear equations.
- graph linear equations.
- find slopes of lines by using two points.
- find slopes of lines from tables.
- identify parallel and perpendicular lines.
- write and graph proportional relationships.
- find slopes and y -intercepts of graphs of linear equations.
- graph linear equations written in slope-intercept form.
- graph linear equations written in standard form.

- write equations of lines in slope-intercept form.
- write equations of lines using a slope and a point.
- write equations of lines using two points.

Essential Questions:

- How do you recognize a linear equation? How can you draw its graph?
- How can you use the slope of a line to describe the line?
- How can you describe the graph of the equation $y = mx$?
- How can you describe the graph of the equation $y = mx + b$?
- How can you describe the graph of the equation $ax + by = c$?
- How can you write an equation of a line when you are given the slope and the y -intercept of the line?
- How can you write an equation of a line when you are given the slope and a point on the line?

Common Core State Standards/Learning Targets:

- 8.EE.B.5: Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways.
- 8.EE.B.6: Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation $y = mx$ for a line through the origin and the equation $y = mx + b$ for a line intercepting the vertical axis at b .
- 8.F.B.4: Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.

Interdisciplinary Connections/Including 21st Century Themes and Skills:

21st Century Life and Career Standards:

9.1.8.A.2 Relate how career choices, education choices, skills, entrepreneurship, and economic conditions affect income.

9.1.8.A.6 Explain how income affects spending decisions.

21st Century Career Ready Practices:

CRP2. Apply appropriate academic and technical skills.

CRP3. Attend to personal health and financial well-being.

CRP4. Communicate clearly and effectively and with reason.

CRP6. Demonstrate creativity and innovation.

CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.

CRP11. Use technology to enhance productivity.

Science: 4.1 - Discuss when a tropical storm becomes a hurricane. Use a linear equation to determine how many hours until the storm becomes a hurricane. 4.3 - Use a proportional relationship to compare an object's weight on Titan, one of Saturn's moons, and Earth. Use the distance formula to compare speeds.

Overview of Activities	Teacher's Guide/ Resources	Core Instructional Materials	Technology Infusion
<p>4.1 Graphing Linear Equations</p> <p>4.2 Slope of a Line</p> <p>4.3 Graphing Proportional Relationships</p> <p>4.4 Graphing Linear Equations in Slope-Intercept Form</p> <p>4.5 Graphing Linear Equations in Standards Form</p> <p>4.6 Writing Equations in Slope-Intercept Form</p>	<p>Curriculum Map</p> <p>Teacher's Guide Chapter 4 p.140-199</p> <p>Big Ideas website</p> <p>Desmos.com</p> <p>IXL</p>	<p>Student Textbook p.140-199</p> <p>Record and Practice Journal p. 67-98</p> <p>Calculator</p> <p>Graph Paper</p>	<ul style="list-style-type: none"> ● Smart Board Applications ● Google Applications ● desmos.com ● BigIdeasMath.com ● ixl.com <ul style="list-style-type: none"> ○ Y.1-Y.13 ● Slope-Intercept Form Basketball Game

4.7 Writing Equations in Point-Slope Form			
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Formative Assessment Plan	Summative Assessment Plan
<p><i>Formative assessment informs instruction and is on going through a unit to determine how students are progressing with the high expectations of standards.</i></p> <p>Suggested activities to assess student progress: Slope Man Visual Slope Scavenger Hunt Weekly Homework Completion Classwork & Basic Skill Practice Corrections & Reflections BigIdeasMath.com daily assessments Kahoot/Quizizz daily assessments</p>	<p><i>Summative assessment is an opportunity for students to demonstrate mastery of the skills taught during a particular unit.</i></p> <p>Final Assessment/Benchmark/Project: 4.1-4.3 Mid Quiz 4.4-4.7 End Quiz Chapter 4 Test Chapter 4 Standards Assessment Creating Initials on Desmos.com</p> <p>Suggested skills to be assessed: Graphing linear equations using a table. Determine the slope of a line by using the slope formula. Writing and graphing proportional relationships. Writing and graphing equations in slope-intercept form, standard form, and slope-intercept form.</p>

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 amount 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 	<ul style="list-style-type: none"> • RTI • Speech/Language Therapy • Rosetta Stone • Hold high expectations • Provide English/Spanish Dictionary for use • Place with Spanish speaking teacher/paraprofessional as available • Learn/Utilize/Display some words in the students' native language • Invite student to after school tutoring sessions • Basic Skills Instruction • 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 and daily routine 	<ul style="list-style-type: none"> • RTI Tiered Interventions following RTI framework • Support instruction with RTI intervention resources • Provide after school tutoring services • Basic Skills Instruction • Hold high expectations • Utilize Go Math! RTI strategies • Fountas and Pinnell Phonics • Hold parent conferences fall and spring • 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 and 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 and growth. • Provide for the development of self-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).

<p>instructional practices.</p> <ul style="list-style-type: none">• 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 moments.• Utilize graphic organizers• Introduce/review study skills• Provide reading material at or slightly above students' reading levels.• Utilize manipulatives as necessary.• Establish a consistent and daily routine			
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**Quinton Township School District
Mathematics
Grade 8**

Pacing Chart/Curriculum MAP

Marking Period:	2	Unit Title:	Systems of Linear Equations	Pacing:	17 days
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Unit Summary: In this unit, 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. At the end of the unit, students examine special systems that have no solution or infinitely many solutions and identify what type of lines create those special systems.

Objectives: Students will be able to:

- write and solve systems of linear equations by graphing.
- write and solve systems of linear equations by substitution.
- write and solve systems of linear equations by elimination.
- solve systems of linear equations with no solution or infinitely many solutions.
- solve linear equations by graphing a system of linear equations.

- solve real-life equations.

Essential Questions:

- How can you solve a system of linear equations?
- How can you use substitution to solve a system of linear equations?
- How can you use elimination to solve a system of linear equations?
- Can a system of linear equations have no solution or many solutions?

Common Core State Standards/Learning Targets:

- 8.EE.C.7: Solve linear equations in one variable.
 - 8.EE.C.7.A: Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form $x = a$, $a = a$, or $a = b$ results (where a and b are different numbers).
 - 8.EE.C.7.B: Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.
- 8.EE.C.8: Analyze and solve pairs of simultaneous linear equations.
 - 8.EE.C.8.A: Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously.
 - 8.EE.C.8.B: Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection.
 - 8.EE.C.8.C: Solve real-world and mathematical problems leading to two linear equations in two variables.

Interdisciplinary Connections/Including 21st Century Themes and Skills:

21st Century Life and Career Standards:

9.1.8.A.6 Explain how income affects spending decisions.

21st Century Career Ready Practices:

CRP2. Apply appropriate academic and technical skills.

CRP3. Attend to personal health and financial well-being.

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.

Financial Literacy: 5.1, 5.4 - Find the break-even point between cost and revenue of a business.

Overview of Activities	Teacher's Guide/ Resources	Core Instructional Materials	Technology Infusion
<p>5.1 Solving Systems of Linear Equations by Graphing</p> <p>5.2 Solving Systems of Linear Equations by Substitution</p> <p>5.3 Solving Systems of Linear Equations by Elimination</p> <p>5.4 Solving Special Systems of Linear Equations</p>	<p>Curriculum Map</p> <p>Teacher's Guide Chapter 5 p.200-239</p> <p>Big Ideas website</p> <p>Desmos.com</p> <p>IXL</p>	<p>Student Textbook p.200-239</p> <p>Record and Practice Journal p. 99-117</p> <p>Calculator</p> <p>Graph Paper</p>	<ul style="list-style-type: none"> ● Smart Board Applications ● Google Applications ● desmos.com ● BigIdeasMath.com ● ixl.com <ul style="list-style-type: none"> ○ AA.2-AA.5 ○ AA.8-AA.11

Formative Assessment Plan	Summative Assessment Plan
<p><i>Formative assessment informs instruction and is on going through a unit to determine how students are progressing with the high expectations of standards.</i></p>	<p><i>Summative assessment is an opportunity for students to demonstrate mastery of the skills taught during a particular unit.</i></p>

<p>Suggested activities to assess student progress: Weekly Homework Completion Classwork & Basic Skill Practice Corrections & Reflections BigIdeasMath.com daily assessments Kahoot/Quizizz daily assessments</p>	<p>Final Assessment/Benchmark/Project: 5.1-5.2 Mid Quiz 5.3-5.4 End Quiz Chapter 5 Test Chapter 5 Standards Assessment</p> <p>Suggested skills to be assessed: 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.</p>
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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 	<ul style="list-style-type: none"> • RTI • Speech/Language Therapy • Rosetta Stone • Hold high expectations • Provide English/Spanish Dictionary for use • Place with Spanish speaking teacher/paraprofessionals as available • Learn/Utilize/Display some words in the students' native language • Invite student to after school 	<ul style="list-style-type: none"> • RTI Tiered Interventions following RTI framework • Support instruction with RTI intervention resources • Provide after school tutoring services • Basic Skills Instruction • Hold high expectations • Utilize Go Math! RTI strategies • Fountas and Pinnell Phonics • Hold parent conferences fall and spring • Make modifications to 	<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.

<p>questioning techniques</p> <ul style="list-style-type: none"> • 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 amount 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 	<p>tutoring sessions</p> <ul style="list-style-type: none"> • Basic Skills Instruction • 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 and daily routine 	<p>instructional plans based on I and RS Plan.</p> <ul style="list-style-type: none"> • Develop a record system to encourage good behavior and completion of work. • Establish a consistent and daily routine. 	<ul style="list-style-type: none"> • 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 and growth. • Provide for the development of self-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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and utilize teachable moments.

- Utilize graphic organizers
- Introduce/review study skills
- Provide reading material at or slightly above students' reading levels.
- Utilize manipulatives as necessary.
- Establish a consistent and daily routine

**Quinton Township School District
Mathematics
Grade 8**

Pacing Chart/Curriculum MAP

Marking Period:	2-3	Unit Title:	Functions	Pacing:	20 days
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Unit Summary: Students are introduced to the concept of a function. Students begin with mapping diagrams to illustrate that every input has exactly one output in a function. Once students understand functions, they use this 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: Students will be able to:

- define relations and functions.
- determine whether relations are functions.
- describe patterns in mapping diagrams.
- write function rules.
- use input-output tables to represent functions.
- use graphs to represent functions.
- understand that the equation $y = mx + b$ defines a linear function.

- write linear functions using graphs or tables.
- compare linear functions.
- identify linear and nonlinear functions from tables or graphs.
- compare linear and nonlinear functions.
- analyze the relationship between two quantities using graphs.
- sketch graphs to represent the relationship between two quantities.

Essential Questions:

- How can you use a mapping diagram to show the relationship between two data sets?
- How can you represent a function in different ways?
- How can you use a function to describe a linear pattern?
- How can you recognize when a pattern in real life is linear or nonlinear?
- How can you use a graph to represent relationships between quantities without using numbers?

Common Core State Standards/Learning Targets:

- 8.F.A.1: Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output.
- 8.F.A.2: Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).
- 8.F.A.3: Interpret the equation $y = mx + b$ as defining a linear function, whose graph is a straight line; give examples of functions that are not linear.
- 8.F.B.4: Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.
- 8.F.B.5: Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a

function that has been described verbally.

Interdisciplinary Connections/Including 21st Century Themes and Skills:

21st Century Life and Career Standards:

9.1.8.A.2 Relate how career choices, education choices, skills, entrepreneurship, and economic conditions affect income.

9.1.8.A.6 Explain how income affects spending decisions.

9.3.12.FN.1 Utilize mathematical concepts, skills and problem solving to obtain necessary information for decision making in the finance industry.

21st Century Career Ready Practices:

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

CRP2. Apply appropriate academic and technical skills.

CRP3. Attend to personal health and financial well-being.

CRP4. Communicate clearly and effectively and with reason.

CRP5. Consider the environmental, social and economic impacts of decisions.

CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.

Science: 6.2 - Determining the amount of carbon dioxide produced by a car. 6.4 - Discuss how the air resistance and gravity affect the rate at which a parachute jumper and a bowling ball fall.

Financial Literacy: 6.3 - Students compare the earnings of a nighttime employee, a daytime employee, and a manager. 6.4 - Students compare two accounts, one earning simple interest, the other earning compound interest.

Overview of Activities	Teacher's Guide/ Resources	Core Instructional Materials	Technology Infusion
<p>6.1 Relations and Functions 6.2 Representations of Functions 6.3 Linear Functions 6.4 Comparing Linear and Nonlinear</p>	<p>Curriculum Map Teacher's Guide Chapter 6 p.240-285 Big Ideas website Desmos.com</p>	<p>Student Textbook p.240-285 Record and Practice</p>	<ul style="list-style-type: none"> ● Smart Board Applications ● Google Applications ● YouTube Graphing

<p>Functions 6.5 Analyzing and Sketching Graphs</p>	IXL	<p>Journal p. 119-140</p> <p>Calculator</p> <p>Graph Paper</p>	<p>Stories</p> <ul style="list-style-type: none"> ● BigIdeasMath.com ● ixl.com <ul style="list-style-type: none"> ○ Z.1-Z.2 ○ Z.8 ○ Z.10-Z.11 ○ Z.14-Z.15
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Formative Assessment Plan	Summative Assessment Plan
<p><i>Formative assessment informs instruction and is on going through a unit to determine how students are progressing with the high expectations of standards.</i></p> <p>Suggested activities to assess student progress: YouTube Graphing Stories Activity Weekly Homework Completion Classwork & Basic Skill Practice Corrections & Reflections BigIdeasMath.com daily assessments Kahoot/Quizizz daily assessments</p>	<p><i>Summative assessment is an opportunity for students to demonstrate mastery of the skills taught during a particular unit.</i></p> <p>Final Assessment/Benchmark/Project: 6.1-6.3 Mid Quiz 6.4-6.5 End Quiz Chapter 6 Test Chapter 6 Standards Assessment Winter MAP Benchmark Assessment</p> <p>Suggested skills to be assessed: Determine if relations are functions. Graph functions using inputs. Write linear functions. Determine if a function is linear. Analyze and sketch graphs to represent the relationship between two quantities.</p>

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 amount 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 	<ul style="list-style-type: none"> • RTI • Speech/Language Therapy • Rosetta Stone • Hold high expectations • Provide English/Spanish Dictionary for use • Place with Spanish speaking teacher/paraprofessional as available • Learn/Utilize/Display some words in the students' native language • Invite student to after school tutoring sessions • Basic Skills Instruction • 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 and daily routine 	<ul style="list-style-type: none"> • RTI Tiered Interventions following RTI framework • Support instruction with RTI intervention resources • Provide after school tutoring services • Basic Skills Instruction • Hold high expectations • Utilize Go Math! RTI strategies • Fountas and Pinnell Phonics • Hold parent conferences fall and spring • 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 and 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 and growth. • Provide for the development of self-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).

<p>instructional practices.</p> <ul style="list-style-type: none">● 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 moments.● Utilize graphic organizers● Introduce/review study skills● Provide reading material at or slightly above students' reading levels.● Utilize manipulatives as necessary.● Establish a consistent and daily routine			
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**Quinton Township School District
Mathematics
Grade 8**

Pacing Chart/Curriculum MAP

Marking Period:	3	Unit Title:	Real Numbers and the Pythagorean Theorem	Pacing:	12 days
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Unit Summary: In this unit, students' understanding of types of numbers extends to irrational numbers. Students begin by determining perfect squares and perfect cubes. Students then determine the square roots of numbers that are not perfect squares, which are irrational. After examining a geometric proof of the Pythagorean Theorem, students can determine missing side lengths in right triangles. Students apply 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: Students will be able to:

- find the square roots of perfect squares.
- evaluate expressions involving square roots.
- use square roots to solve equations.
- find cube roots of perfect cubes
- evaluate expressions involving cube roots.

- use cube roots to solve equations.
- provide geometric proof of the Pythagorean Theorem.
- use the Pythagorean Theorem to find missing side lengths of right triangles.
- define irrational numbers.
- approximate square roots.
- approximate values of expressions involving irrational numbers.
- write a repeating decimal as a fraction.
- use the converse of the Pythagorean Theorem to identify right triangles.
- use the Pythagorean Theorem to find distances in a coordinate plane.
- solve real-life problems.

Essential Questions:

- How can you find the dimensions of a square when you are given its area?
- How is a cube root of a number different from the square root of a number?
- How are the lengths of the sides of a right triangle related?
- How can you find decimal approximations of square roots that are not rational?
- In what other ways can you use the Pythagorean Theorem?

Common Core State Standards/Learning Targets:

- 8.EE.A.2: Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that $\sqrt{2}$ is irrational.
- 8.NS.A.1: Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually, and convert a decimal expansion which repeats eventually into a rational number.
- 8.NS.A.2: Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., π^2).

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

Interdisciplinary Connections/Including 21st Century Themes and Skills:

21st Century Career Ready Practices:

CRP2. Apply appropriate academic and technical skills.

CRP4. Communicate clearly and effectively and with reason.

CRP7. Employ valid and reliable research strategies.

CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.

History: 7.3 - Research Pythagoras

Overview of Activities	Teacher's Guide/ Resources	Core Instructional Materials	Technology Infusion
<p>7.1 Finding Square Roots 7.2 Finding Cube Roots 7.3 The Pythagorean Theorem 7.4 Approximating Square Roots 7.5 Using the Pythagorean Theorem</p>	<p>Curriculum Map Teacher's Guide Chapter 7 p.286-331 Big Ideas website Desmos.com IXL</p>	<p>Student Textbook p.286-331 Record and Practice Journal p.141-164 Calculator</p>	<ul style="list-style-type: none"> ● Smart Board Applications ● Google Applications ● BigIdeasMath.com ● ixl.com <ul style="list-style-type: none"> ○ F.14 ○ F.16 ○ F.19-F.20 ○ R.1-R.5 ○ Algebra I: A.5

Formative Assessment Plan	Summative Assessment Plan
<p><i>Formative assessment informs instruction and is on going through a unit to determine how students are progressing with the high expectations of standards.</i></p> <p>Suggested activities to assess student progress: Pythagorean Theorem Poster Real Numbers Diagram Weekly Homework Completion Classwork & Basic Skill Practice Corrections & Reflections BigIdeasMath.com daily assessments Kahoot/Quizizz daily assessments</p>	<p><i>Summative assessment is an opportunity for students to demonstrate mastery of the skills taught during a particular unit.</i></p> <p>Final Assessment/Benchmark/Project: 7.1-7.3 Mid Quiz Square Roots and Cube Roots Quiz 7.4-7.5 End Quiz Chapter 7 Test Chapter 7 Standards Assessment</p> <p>Suggested skills to be assessed: Evaluate expressions use square root and cube root. Determine the missing side length in a right triangle by using the Pythagorean Theorem. Classify real numbers. Approximate square roots. Determine if a triangle is a right triangle. Use the Distance Formula to determine the distance between any two points in the coordinate plane.</p>

Differentiation

Special Education	ELL	At Risk	Gifted and Talented
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<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 amount 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 	<ul style="list-style-type: none"> • RTI • Speech/Language Therapy • Rosetta Stone • Hold high expectations • Provide English/Spanish Dictionary for use • Place with Spanish speaking teacher/paraprofessional as available • Learn/Utilize/Display some words in the students' native language • Invite student to after school tutoring sessions • Basic Skills Instruction • 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 and daily routine 	<ul style="list-style-type: none"> • RTI Tiered Interventions following RTI framework • Support instruction with RTI intervention resources • Provide after school tutoring services • Basic Skills Instruction • Hold high expectations • Utilize Go Math! RTI strategies • Fountas and Pinnell Phonics • Hold parent conferences fall and spring • 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 and 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 and growth. • Provide for the development of self-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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<p>reading.</p> <ul style="list-style-type: none">● 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 moments.● Utilize graphic organizers● Introduce/review study skills● Provide reading material at or slightly above students' reading levels.● Utilize manipulatives as necessary.● Establish a consistent and daily routine			
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**Quinton Township School District
Mathematics
Grade 8**

Pacing Chart/Curriculum MAP

Marking Period:	3	Unit Title:	Volume and Similar Solids	Pacing:	11 days
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Unit Summary: In this unit, students' understand of volume extends to cylinders, cones, and spheres. Through experimentation, students develop the formulas to determine volumes of cylinders, cones, and spheres. Students will also determine missing dimensions when given the volume. Students also investigate the relationship between the volumes and surfaces areas of similar figures.

Objectives: Students will be able to:

- find the volumes of cylinders.
- find the heights of cylinders given the volumes.
- find the volumes of cones.
- find the heights of cones given the volumes.
- find the volumes of spheres.
- find the radii of spheres given the volumes.
- identify similar solids.
- use properties of similar solids to find missing measures.

- understand the relationship between surface areas of similar solids.
- understand the relationship between volumes of similar solids.
- solve real-life problems.

Essential Questions:

- How can you find the volume of a cylinder?
- How can you find the volume of a cone?
- How can you find the volume of a sphere?
- When the dimensions of a solid increase by a factor of 'k', how do the surface area and volume change?

Common Core State Standards/Learning Targets:

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

Interdisciplinary Connections/Including 21st Century Themes and Skills:

21st Century Life and Career Standards:

9.3.MN-PPD.2 Research, design and implement alternative manufacturing processes to manage production of new and/or improved products.

9.3.ST-ET.4 Apply the elements of the design process.

9.3.ST-SM.2 Apply science and mathematics concepts to the development of plans, processes and projects that address real world problems.

21st Century Career Ready Practices:

CRP2. Apply appropriate academic and technical skills.

CRP3. Attend to personal health and financial well-being.

CRP4. Communicate clearly and effectively and with reason.

CRP6. Demonstrate creativity and innovation.

CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.

Financial Literacy: 8.1 - Students design a candle using \$20 worth a materials to make 8 candles. Students set a reasonable price to make a profit.

Overview of Activities	Teacher's Guide/ Resources	Core Instructional Materials	Technology Infusion
<p>8.1 Volumes of Cylinders 8.2 Volumes of Cones 8.3 Volumes of Spheres 8.4 Surface Areas and Volumes of Similar Solids</p>	<p>Curriculum Map Teacher's Guide Chapter 8 p.332-369 Big Ideas website Desmos.com IXL</p>	<p>Student Textbook p.332-369 Record and Practice Journal p. 165-182 Calculator</p>	<ul style="list-style-type: none"> ● Smart Board Applications ● Google Applications ● BigIdeasMath.com ● ixl.com <ul style="list-style-type: none"> ○ T.9-T.10 ○ T.13 ○ T.15

Formative Assessment Plan	Summative Assessment Plan
<p><i>Formative assessment informs instruction and is on going through a unit to determine how students are progressing with the high expectations of standards.</i></p> <p>Suggested activities to assess student progress: Weekly Homework Completion Classwork & Basic Skill Practice Corrections & Reflections BigIdeasMath.com daily assessments</p>	<p><i>Summative assessment is an opportunity for students to demonstrate mastery of the skills taught during a particular unit.</i></p> <p>Final Assessment/Benchmark/Project: 8.1-8.2 Mid Quiz 8.3-8.4 End Quiz Chapter 8 Test Chapter 8 Standards Assessment</p>

Kahoot/Quizizz daily assessments

Suggested skills to be assessed:

Determine volumes of cylinders, cones, and spheres. Determine missing dimensions of cylinders, cones, and spheres given the volume. Determine surface areas and volumes of similar figures.

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 	<ul style="list-style-type: none"> • RTI • Speech/Language Therapy • Rosetta Stone • Hold high expectations • Provide English/Spanish Dictionary for use • Place with Spanish speaking teacher/paraprofessional as available • Learn/Utilize/Display some words in the students' native language • Invite student to after school tutoring sessions • Basic Skills Instruction • Utilize formative assessments to drive instruction • Translate printed communications for parents in native language 	<ul style="list-style-type: none"> • RTI Tiered Interventions following RTI framework • Support instruction with RTI intervention resources • Provide after school tutoring services • Basic Skills Instruction • Hold high expectations • Utilize Go Math! RTI strategies • Fountas and Pinnell Phonics • Hold parent conferences fall and spring • 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 and 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

<ul style="list-style-type: none"> ● Model and use visuals as often as possible ● Utilize extended time and/or reduce amount 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 moments. ● Utilize graphic organizers ● Introduce/review study skills ● Provide reading material at or slightly above students' reading levels. 	<ul style="list-style-type: none"> ● Hold conferences with translator present ● Utilize additional NJDOE resources/recommendations ● Review Special Education listing for additional recommendations ● Establish a consistent and daily routine 		<p>appropriate and specialized resources.</p> <ul style="list-style-type: none"> ● Promote self-initiated and self-directed learning and growth. ● Provide for the development of self-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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- Utilize manipulatives as necessary.
- Establish a consistent and daily routine.

**Quinton Township School District
Mathematics
Grade 8**

Pacing Chart/Curriculum MAP

Marking Period:	4	Unit Title:	Data Analysis and Displays	Pacing:	18 days
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Unit Summary: In this unit, students analyze data. They create scatter plots from a data set. Using their skills from Chapter 4, they are able to create lines of fit using point-slope form of linear equations. Students also analyze two categories of data collected from the same source using two-way tables. Once students are given a data set, they will determine the best data display.

- Objectives:** Students will be able to:
- construct and interpret scatter plots.
 - describe patterns in scatter plots.
 - find lines of fit.
 - use lines of fit to solve problems.
 - read two-way tables.
 - make and interpret two-way tables.

- choose appropriate data displays.
- identify and analyze misleading data displays.

Essential Questions:

- How can you construct and interpret a scatter plot?
- How can you use data to predict an event?
- How can you read and make two-way tables?
- How can you display data in a way that helps you make decisions?

Common Core State Standards/Learning Targets:

- 8.SP.A.1: Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.
- 8.SP.A.2: Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line.
- 8.SP.A.3: Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept.
- 8.SP.A.4: Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables.

Interdisciplinary Connections/Including 21st Century Themes and Skills:

21st Century Life and Career Standards:

9.3.ST.2 Use technology to acquire, manipulate, analyze and report data.

9.3.ST-SM.4 Apply critical thinking skills to review information, explain statistical analysis, and to translate, interpret and summarize research and statistical data.

21st Century Career Ready Practices:

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

CRP2. Apply appropriate academic and technical skills.

CRP4. Communicate clearly and effectively and with reason.

CRP5. Consider the environmental, social and economic impacts of decisions.

CRP6. Demonstrate creativity and innovation.

CRP7. Employ valid and reliable research strategies.

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.

Overview of Activities	Teacher's Guide/ Resources	Core Instructional Materials	Technology Infusion
<p>9.1 Scatter Plots 9.2 Lines of Fit 9.3 Two-Way Tables 9.4 Choosing a Data Display</p>	<p>Curriculum Map Teacher's Guide Chapter 9 p.370-408 Big Ideas website Desmos.com IXL</p>	<p>Student Textbook p.370-408 Record and Practice Journal p. 183-200 Calculator</p>	<ul style="list-style-type: none"> ● Smart Board Applications ● Google Applications ● BigIdeasMath.com ● ixl.com <ul style="list-style-type: none"> ○ CC.14 ○ CC.17 ○ DD.9

Formative Assessment Plan	Summative Assessment Plan
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Formative assessment informs instruction and is on going through a unit to determine how students are progressing with the high expectations of standards.

Suggested activities to assess student progress:

- Weekly Homework Completion
- Classwork & Basic Skill Practice
- Corrections & Reflections
- BigIdeasMath.com daily assessments
- Kahoot/Quizizz daily assessments

Summative assessment is an opportunity for students to demonstrate mastery of the skills taught during a particular unit.

Final Assessment/Benchmark/Project:

- 9.1-9.2 Mid Quiz
- 9.3-9.4 End Quiz
- Chapter 9 Test
- Chapter 9 Standards Assessment
- Endangered Species Project
- Data Collection Project

Suggested skills to be assessed:

Create and analyze scatter plots. Write the equation of the line of fit for a scatter plot. Use line of fit to make predictions. Create and analyze two-way tables. Choose an appropriate data display for a given situation.

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 	<ul style="list-style-type: none"> • RTI • Speech/Language Therapy • Rosetta Stone • Hold high expectations • Provide English/Spanish Dictionary for use • Place with Spanish speaking 	<ul style="list-style-type: none"> • RTI Tiered Interventions following RTI framework • Support instruction with RTI intervention resources • Provide after school tutoring services • Basic Skills Instruction 	<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

<ul style="list-style-type: none"> • 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 amount 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 	<p>teacher/paraprofessional as available</p> <ul style="list-style-type: none"> • Learn/Utilize/Display some words in the students' native language • Invite student to after school tutoring sessions • Basic Skills Instruction • 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 and daily routine 	<ul style="list-style-type: none"> • Hold high expectations • Utilize Go Math! RTI strategies • Fountas and Pinnell Phonics • Hold parent conferences fall and spring • 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 and daily routine. 	<p>and application of productive thinking skills to enable students to re-conceptualize existing knowledge and/or generate new knowledge.</p> <ul style="list-style-type: none"> • 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 and growth. • Provide for the development of self-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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<p>within SIS.</p> <ul style="list-style-type: none">• 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• Provide reading material at or slightly above students' reading levels.• Utilize manipulatives as necessary.• Establish a consistent and daily routine			
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**Quinton Township School District
Mathematics
Grade 8**

Pacing Chart/Curriculum MAP

Marking Period:	4	Unit Title:	Exponents and Scientific Notation	Pacing:	25 days
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Unit Summary: In this unit, students analyze the relationships between powers. They determine the Power Rules through experimentation and use those rules to simplify and evaluate expressions. Students are also introduced to scientific notation. They learn how to read and write values in scientific notation. They also investigate how to perform operations in scientific notation.

Objectives: Students will be able to:

- write expressions using integer exponents.
- evaluate expressions involving integer expressions.
- multiply powers with the same base.
- find a power of a power.
- find a power of a product.
- divide powers with the same base.
- simplify expressions involving the quotients of powers.
- evaluate expressions involving numbers with zero as an exponent.
- evaluate expressions involving negative integer exponents.

Essential Questions:

- How can you use exponents to write numbers?
- How can you use inductive reasoning to observe patterns and write general rules involving properties of exponents?
- How can you divide two powers that have the same base?
- How can you evaluate a nonzero number with an exponent of zero or a negative integer exponent?
- How can you read numbers that are written in scientific notation?
- How can you write a number in scientific notation?
- How can you perform operations with numbers that are written in scientific notation?

Common Core State Standards/Learning Targets:

- 8.EE.A.1: Know and apply the properties of integer exponents to generate equivalent numerical expressions.
- 8.EE.A.3: Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other.
- 8.EE.A.4: Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology.

Interdisciplinary Connections/Including 21st Century Themes and Skills:

21st Century Career Ready Practices:

CRP2. Apply appropriate academic and technical skills.

CRP4. Communicate clearly and effectively and with reason.

CRP6. Demonstrate creativity and innovation.

CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.

Science: 10.5 - Students investigate the density of objects using scientific notation. 10.6 - Discuss the difference between an acid and a base. Determine the pH levels of different liquids. Students create a scale model of the solar system. Students order three

geologic eras from earliest to the most recent using scientific notation.

Overview of Activities	Teacher's Guide/ Resources	Core Instructional Materials	Technology Infusion
<p>10.1 Exponents 10.2 Product of Powers Property 10.3 Quotient of Powers Property 10.4 Zero and Negative Exponents 10.5 Reading Scientific Notation 10.6 Writing Scientific Notation 10.7 Operations in Scientific Notation</p>	<p>Curriculum Map Teacher's Guide Chapter 10 p.408-461 Big Ideas website Desmos.com IXL</p>	<p>Student Textbook p.408-461 Record and Practice Journal p. 201-230 Calculator</p>	<ul style="list-style-type: none"> ● Smart Board Applications ● Google Applications ● BigIdeasMath.com ● ixl.com <ul style="list-style-type: none"> ○ F.1-F.2 ○ F.4 ○ F.6-F.12 ○ G.1-G.4 ● Powers Concentration Game

Formative Assessment Plan	Summative Assessment Plan
<p><i>Formative assessment informs instruction and is on going through a unit to determine how students are progressing with the high expectations of standards.</i></p> <p>Suggested activities to assess student progress: Scale Model of the Solar System</p>	<p><i>Summative assessment is an opportunity for students to demonstrate mastery of the skills taught during a particular unit.</i></p> <p>Final Assessment/Benchmark/Project: 10.1-10.4 Mid Quiz</p>

<p>Weekly Homework Completion Classwork & Basic Skill Practice Corrections & Reflections BigIdeasMath.com daily assessments Kahoot/Quizizz daily assessments</p>	<p>10.5-10.7 End Quiz Chapter 10 Test Chapter 10 Standards Assessment Spring MAP Benchmark Assessment Suggested skills to be assessed: Use Power Rules to simplify and evaluate expressions. Read and write in scientific notation. Evaluate expressions in scientific notation.</p>
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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 	<ul style="list-style-type: none"> • RTI • Speech/Language Therapy • Rosetta Stone • Hold high expectations • Provide English/Spanish Dictionary for use • Place with Spanish speaking teacher/paraprofessional as available • Learn/Utilize/Display some words in the students' native language • Invite student to after school tutoring sessions • Basic Skills Instruction • Utilize formative assessments to drive instruction • Translate printed communications for parents in 	<ul style="list-style-type: none"> • RTI Tiered Interventions following RTI framework • Support instruction with RTI intervention resources • Provide after school tutoring services • Basic Skills Instruction • Hold high expectations • Utilize Go Math! RTI strategies • Fountas and Pinnell Phonics • Hold parent conferences fall and spring • 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 and 	<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.

<p>instructions</p> <ul style="list-style-type: none"> ● Model and use visuals as often as possible ● Utilize extended time and/or reduce amount 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 moments. ● Utilize graphic organizers ● Introduce/review study skills ● Provide reading material at or slightly above students' 	<p>native language</p> <ul style="list-style-type: none"> ● Hold conferences with translator present ● Utilize additional NJDOE resources/recommendations ● Review Special Education listing for additional recommendations ● Establish a consistent and daily routine 	<p>daily routine.</p>	<ul style="list-style-type: none"> ● Encourage exposure to, selection and use of appropriate and specialized resources. ● Promote self-initiated and self-directed learning and growth. ● Provide for the development of self-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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reading levels.

- Utilize manipulatives as necessary.
- Establish a consistent and daily routine