

# **Pascack Valley Regional High School District**

**Pascack Hills High School, Montvale, New Jersey  
Pascack Valley High School, Hillsdale, New Jersey**

**Course Name:     Algebra I (MA2300/2400/2500)  
                         Algebra I Enhanced (MA2400)**

Born On: August, 2016  
Previous Revision: August, 2020  
Current Revision: August, 2023  
Board Approval: 8/28/23

## **COURSE DESCRIPTION: Algebra I/Algebra I Enhanced**

*Algebra I Enhanced* (MA2400) and *Algebra I* (MA2300/2500) are full year college preparatory, five-credit courses, aligned with the *New Jersey Student Learning Standards*, that are designed to formalize and extend the mathematics that students learned in the middle grades. *Algebra I* deepens and extends students' understanding of linear and exponential relationships by contrasting them with each other and by applying linear models to data that exhibit a linear trend. In addition, students engage in methods for analyzing, solving, and using quadratic functions. Both courses emphasize deep conceptual understanding, but *Algebra I Enhanced* (MA2400) places additional emphasis on procedural fluency.

All mathematics courses in the Pascack Valley Regional High School District *are* designed to address multiple learning styles and needs, and accommodations and modifications are made for students with disabilities, multilingual students, students at risk of failure, gifted and talented students, and students with 504 plans. *Algebra I* builds on concepts learned and skills developed in *Pre-Algebra*, while also spiraling in those concepts and skills to reinforce and strengthen students' algebraic foundation. Additionally, *Algebra I* anticipates higher-level mathematics that will be learned in *Algebra II with Trigonometry* and beyond, and enrichment opportunities are provided to challenge students and engage them in rich, interesting mathematics. Students are encouraged to analyze data using tools and models to make valid and reliable claims (9.4.12.IML.3), and various technologies are integrated throughout the curriculum, including scientific calculators, graphing calculators, specialized software, and various Internet programs and subscriptions. These tools enrich the curriculum by giving students' access to additional mathematical representations, and they also help to differentiate by providing students with additional options to engage with mathematical tasks.

The Pascack Valley Regional High School Mathematics Department integrates 21st century life and career skills across its courses, with the dual goal of informing students about careers and fields of study that use mathematics (9.3.ST.5, 9.3.ST-ET.5 and 9.3.ST-SM.2), and helping students improve the quantitative, mathematical, and statistical reasoning skills they will need to be effective producers and consumers of quantitative information in their everyday lives (9.2.12.CAP.2). Mathematics courses address the *New Jersey Student Learning Standards for Career Readiness, Life Literacies and Key Skills*, with a particular emphasis on demonstrating the ability to reflect, analyze and use creative skills and ideas (9.4.12.CI.1), investigating new challenges and opportunities for personal growth, advancement and transition (9.4.12.CI.3), identifying problem-solving strategies used in the development of an innovative product or practice (9.4.12.CT.1), and explaining the potential benefits of collaborating to enhance critical thinking and problem solving (9.4.12.CT.2). Mathematics courses also address the *New Jersey Student Learning Standards for English Language Arts Companion Standards*, with a particular focus on following complex multistep procedures (RST.9-10.3/RST.11-12.3), determining the meaning of symbols, key terms, and other domain-specific words and phrases (RST.9-10.4/RST.11-12.3), and translating quantitative or technical information expressed in words into visual forms and translating information expressed visually or mathematically into words (RST.9-10.7). Similarly, the mathematics department seeks to support students by providing them with opportunities to use quantitative, statistical, and mathematical reasoning in interdisciplinary contexts, in contexts that are meaningful to students, and in contexts that attend to the

contributions and perspectives of historically marginalized groups. Specifically, mathematics courses will look to incorporate, when appropriate, contributions and experiences of people from the LGBTQ+ community and individuals with disabilities, and references to issues of social and cultural relevance, including climate change.

<b>Algebra I:</b> <i>Algebra I</i> deepens and extends students' understanding of linear and exponential relationships by contrasting them with each other and by applying linear models to data that exhibit a linear trend. In addition, students engage in methods for analyzing, solving, and using quadratic functions.					
<b>Content/Topic:</b>	<b>Key Learning Items/Concepts and Pacing Guide</b>	<b>Observable Proficiencies and Skills:</b>	<b>NJSLS</b>	<b>Formative, Summative, Benchmark, and Alternative Assessments</b>	<b>Core Instructional and Supplemental Materials/ Modifications and Accommodations</b>
<p><b>Unit 1 – Functions</b></p> <p><b>Time:</b> 5 weeks (<i>see column 2 for a more detailed breakdown</i>)</p> <p><b>Content Statement:</b> Students become comfortable with function features, nomenclature, and symbols so that more advanced math topics can be described in a function-based environment.</p> <p><b>Enduring Understandings:</b> Models can be written as functions.</p> <p>Function operations depict real applications, and foster a “building block” approach to modeling.</p> <p>Function domain and range come from the consideration of what inputs are permitted and what outputs will result.</p>	<p><b>Key learning items/concepts:</b></p> <ol style="list-style-type: none"> <li>1. Definition of function; domain and range (1 week)</li> <li>2. Function notation (1 week)</li> <li>3. Multiple representations of functions (1 week)</li> <li>4. Interpret key features of graphs (1 week)</li> <li>5. Sequences as functions; properties with rational and irrational numbers (1 week)</li> </ol> <p><b>Content-specific modifications and accommodations</b></p> <ul style="list-style-type: none"> <li>- multiple representations will be utilized to support conceptual understanding</li> <li>- scaffolding will be utilized to transition students from (x, y) to (x, f(x)) notation</li> <li>- technology will be utilized to support</li> </ul>	<p><i>Reason quantitatively and use units to solve problems.</i></p> <p><i>Understand the concept of a function and use function notation.</i></p> <p><i>Interpret functions that arise in applications in terms of the context.</i></p> <p><i>Analyze functions using different representations.</i></p>	<p><b>NJSLS Content Standards</b></p> <p>N-Q 1-3 F-IF 1-5, 9 N-RN 3</p> <p><b>NJSLS SMP</b></p> <p>MP1. Make sense of problems and persevere in solving them MP2. Construct viable arguments and critique the reasoning of others MP3. Reason abstractly and quantitatively MP4. Model with mathematics MP5. Attend to precision MP6. Use appropriate tools strategically MP7. Look for and make use of structure MP8. Look for and express regularity in repeated reasoning</p> <p><b>NJSLS for ELA Companion Standards</b></p>	<p>Students will be assessed regularly throughout this course, with a focus on both conceptual understanding and procedural fluency. Assessment tools may include the following:</p> <ul style="list-style-type: none"> <li>- quizzes (F)</li> <li>- tests (S)</li> <li>- performance tasks (F/S)</li> <li>- projects (S)</li> <li>- homework (F)</li> <li>- discussions (F)</li> <li>- journals (F)</li> <li>- Form A, B, or C benchmark (B)</li> <li>- alternative assessments (A)</li> <li>- function story problems (F)</li> </ul>	<p>Selection of primary sources <i>Suggestion(s):</i> Texts: Pearson Algebra I Common Core (on grade level); teacher-created extension problems (advanced); Deltamath (remediation, on grade level, and advanced)</p> <p><i>Suggestion(s):</i> <a href="#">N.Q.A.1 Runners' World</a> <a href="#">N.Q.A.2 Giving Raises</a> <a href="#">N.Q.A.3 Calories in a Sports Drink</a> <a href="#">F.IF.A.1 The Parking Lot</a> <a href="#">F.IF.A.2 Yam in the Oven</a> <a href="#">F.IF.B.4 Words – Tables - Graphs</a> <a href="#">F.IF.B.5 The restaurant</a> <a href="#">N.RN.B.3 Operations with Rational and Irrational Numbers</a></p> <p><b>Modifications and Accommodations:</b> <b>Students with special needs:</b> Teachers and support staff will attend to all modifications and accommodations listed in students' IEPs and 504s. Teachers will incorporate manipulatives, extra time, alternative assessments, scaffolding, spiraling, technology,</p>

<b>Algebra I:</b> <i>Algebra I</i> deepens and extends students' understanding of linear and exponential relationships by contrasting them with each other and by applying linear models to data that exhibit a linear trend. In addition, students engage in methods for analyzing, solving, and using quadratic functions.					
	students' graphical understanding - differentiated problem sets may be utilized  <b>Interdisciplinary/additional connections</b> - various graphs may be explored, including those with contexts that draw on the experiences of diverse people and contexts that relate to climate change - problems may include applications in science or engineering		RST.9-10.3 RST.9-10.4 RST.9-10.7 RST.11-12.3 RST.11-12.4  <b>NJSLS-CLKS</b> <b>- 21<sup>st</sup> Century Life and Careers</b> 9.4.12.CI.1 9.4.12.CI.3 9.4.12.CT.1 9.4.12.CT.2  <b>- Technology</b> 9.4.12.IML.3  <b>- Career Education</b> 9.2.12.CAP.2 9.3.ST.5 9.3.ST-ET.5 9.3.ST-SM.2  <b>NJSLS – CSDT</b> 8.1.12.DA.1 8.1.12.DA.5 8.1.12.DA.6 8.1.12.AP.1 8.2.12.ETW.2		and flexible grouping to support student learning. <b>Multilingual students:</b> Teachers and support staff will work to support multilingual students in their first language and in English, providing materials and/or resources to support students' understanding. Students will be given additional time, as appropriate, and translation tools will be utilized as needed. <b>Students at risk of school failure:</b> Formative and summative data will be used to monitor student success, and students at risk of failure will receive additional supports and services, which may include parent consultation, extra help, and differentiation strategies, including small group instruction, group work, scaffolding, and spiraling. <b>Gifted and Talented Students:</b> Students who excel in their mastery of course standards will be further challenged with more complex tasks, extensions of concepts and skills, and extended problem solving and critical thinking opportunities.

<b>Algebra I:</b> <i>Algebra I</i> deepens and extends students' understanding of linear and exponential relationships by contrasting them with each other and by applying linear models to data that exhibit a linear trend. In addition, students engage in methods for analyzing, solving, and using quadratic functions.					
<b>Content/Topic:</b>	<b>Key Learning Items/Concepts and Pacing Guide</b>	<b>Observable Proficiencies and Skills:</b>	<b>NJSLS</b>	<b>Formative, Summative, Benchmark, and Alternative Assessments</b>	<b>Core Instructional and Supplemental Materials/ Modifications and Accommodations</b>
<p><b>Unit 2 – Linear Functions</b></p> <p><b>Time:</b> 10 weeks (<i>see column 2 for a more detailed breakdown</i>)</p> <p><b>Content Statement:</b> Students will be able to model real-life phenomena with linear functions.</p> <p><b>Enduring Understandings:</b> Linear functions grow at a constant rate.</p> <p>Linear functions can be represented algebraically, graphically, numerically, and verbally.</p> <p>Two points (or a point and slope) define a line.</p> <p>Regression equations enable us to make predictions about the behavior of real-world phenomena, with qualifications.</p>	<p><b>Key learning items/concepts:</b></p> <ol style="list-style-type: none"> <li>1. Calculate and interpret average rate of change (1 week)</li> <li>2. Solve linear equations and inequalities; solve equations and inequalities graphically (2 weeks)</li> <li>3. Graph linear functions and show key features; multiple representations (2 weeks)</li> <li>4. Create equations and inequalities and use them to solve problems (1 week)</li> <li>5. Write functions; both forms of arithmetic sequences (1 week)</li> <li>6. Find inverses; literal equations (1 week)</li> <li>7. systems; solve linear inequalities; consider constraints (2 weeks)</li> </ol>	<p><i>Interpret functions that arise in applications in terms of the context.</i></p> <p><i>Analyze functions using different representations.</i></p> <p><i>Build a function that models a relationship between two quantities.</i></p> <p><i>Build a function that models a relationship between two quantities.</i></p> <p><i>Build new functions from existing functions.</i></p> <p><i>Construct and compare linear, quadratic, and exponential model and solve problems.</i></p> <p><i>Understand solving</i></p>	<p><b>NJSLS Content Standards</b></p> <p>F-IF 6, 7, 9 F-BF 1, 2, 4 F-LE 1 A-REI 1, 3, 11 A-CED 1-4 A-REI 5, 6, 10, 12</p> <p><b>NJSLS SMP</b></p> <p>MP1. Make sense of problems and persevere in solving them MP2. Construct viable arguments and critique the reasoning of others MP3. Reason abstractly and quantitatively MP4. Model with mathematics MP5. Attend to precision MP6. Use appropriate tools strategically MP7. Look for and make use of structure MP8. Look for and express regularity in repeated reasoning</p>	<p>Students will be assessed regularly throughout this course, with a focus on both conceptual understanding and procedural fluency. Assessment tools may include the following:</p> <ul style="list-style-type: none"> <li>- quizzes (F)</li> <li>- tests (S)</li> <li>- performance tasks (F/S)</li> <li>- projects (S)</li> <li>- homework (F)</li> <li>- discussions (F)</li> <li>- journals (F)</li> <li>- Form A, B, or C benchmark (B)</li> <li>- alternative assessments (A)</li> <li>- extended system of linear inequalities problems (F)</li> </ul>	<p>Selection of primary sources <i>Suggestion(s):</i> Texts: Pearson Algebra I Common Core (on grade level); teacher-created extension problems (advanced); Deltamath (remediation, on grade level, and advanced)</p> <p><u>F.IF.B.6 Temperature Change</u> <u>F.IF.C.7b Bank Account Balance</u> <u>F.BF.A.1a Skeleton Tower</u> <u>F.LE.A.1 Finding Linear and Exponential Models</u> <u>A.REI.B.3, A.REI.A.1 Reasoning with linear inequalities</u> <u>A.REI.C.6 Cash Box</u> <u>A.REI.D.11 Introduction to Polynomials – College Fund</u> <u>A-CED.A.1 Paying the rent</u> <u>A.CED.A.2 Clean an Escalator</u> <u>A.CED.A.3 Dimes and Quarters</u></p> <p><b>Modifications and Accommodations:</b> <b>Students with special needs:</b> Teachers and support staff will attend to all modifications and accommodations listed in students' IEPs and 504s. Teachers will</p>

	<p><b>Content-specific modifications and accommodations</b></p> <ul style="list-style-type: none"> <li>- multiple representations will be utilized to support conceptual understanding, with a particular focus on graphical and algebraic solutions</li> <li>- technology will be utilized to support students' understanding of systems of linear inequalities</li> <li>- differentiated problem sets may be utilized</li> </ul> <p><b>Interdisciplinary/additional connections</b></p> <ul style="list-style-type: none"> <li>- various contexts may be utilized to explore systems of linear inequalities and constraints, including contexts that draw on the experiences of diverse people and contexts that relate to climate change</li> <li>- problems may include applications in science or engineering</li> </ul>	<p><i>equations as a process of reasoning and explain the reasoning.</i></p> <p><i>Solve equations and inequalities in one variable.</i></p> <p><i>Represent and solve equations and inequalities graphically.</i></p> <p><i>Create equations that describe numbers or relationships.</i></p> <p><i>Solve systems of equations.</i></p> <p><i>Represent and solve equations and inequalities graphically.</i></p>	<p><b>NJSLS for ELA Companion Standards</b></p> <p>RST.9-10.3 RST.9-10.4 RST.9-10.7 RST.11-12.3 RST.11-12.4</p> <p><b>NJSLS-CLKS - 21<sup>st</sup> Century Life and Careers</b></p> <p>9.4.12.CI.1 9.4.12.CI.3 9.4.12.CT.1 9.4.12.CT.2</p> <p><b>- Technology</b></p> <p>9.4.12.IML.3</p> <p><b>- Career Education</b></p> <p>9.2.12.CAP.2 9.3.ST.5 9.3.ST-ET.5 9.3.ST-SM.2</p> <p><b>NJSLS – CSDT</b></p> <p>8.1.12.DA.1 8.1.12.DA.5 8.1.12.DA.6 8.1.12.AP.1 8.2.12.ETW.2</p>	<p>incorporate manipulatives, extra time, alternative assessments, scaffolding, spiraling, technology, and flexible grouping to support student learning.</p> <p><b><u>Multilingual students:</u></b> Teachers and support staff will work to support multilingual students in their first language and in English, providing materials and/or resources to support students' understanding. Students will be given additional time, as appropriate, and translation tools will be utilized as needed.</p> <p><b><u>Students at risk of school failure:</u></b> Formative and summative data will be used to monitor student success, and students at risk of failure will receive additional supports and services, which may include parent consultation, extra help, and differentiation strategies, including small group instruction, group work, scaffolding, and spiraling.</p> <p><b><u>Gifted and Talented Students:</u></b> Students who excel in their mastery of course standards will be further challenged with more complex tasks, extensions of concepts and skills, and extended problem solving and critical thinking opportunities.</p>
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<b>Algebra I:</b> <i>Algebra I</i> deepens and extends students' understanding of linear and exponential relationships by contrasting them with each other and by applying linear models to data that exhibit a linear trend. In addition, students engage in methods for analyzing, solving, and using quadratic functions.					
<b>Content/Topic:</b>	<b>Key Learning Items/Concepts and Pacing Guide</b>	<b>Observable Proficiencies and Skills:</b>	<b>NJSLS</b>	<b>Formative, Summative, Benchmark, and Alternative Assessments</b>	<b>Core Instructional and Supplemental Materials/ Modifications and Accommodations</b>
<p><b>Unit 3 – Quadratic Functions</b></p> <p><b>Time:</b> 9 weeks (<i>see column 2 for a more detailed breakdown</i>)</p> <p><b>Content Statement:</b> Students will be able to model real-life phenomena with quadratic functions.</p> <p><b>Enduring Understandings:</b> Non-linear functions have non-constant rates of change.</p> <p>Zeros of a function correspond to linear factors and x-intercepts.</p> <p>Quadratic equations can be solved by factoring because of the zero-product property.</p> <p>Transformations have a predictable algebraic structure, regardless of the function.</p>	<p><b>Key learning items/concepts:</b></p> <ol style="list-style-type: none"> <li>1. Calculate and interpret average rate of change (1/2 week)</li> <li>2. Sketch key features of a graph; constraints; rewrite functions in equivalent forms; multiple representations (2 weeks)</li> <li>3. Operations with polynomials (1/2 week)</li> <li>4. Factoring; completing the square; solve quadratic equations; quadratic formula; recognize complex solutions (4 weeks)</li> <li>5. Construct a rough graph of cubic polynomials with linear/quadratic factors (1/2 week)</li> <li>6. Transformations (1 week)</li> </ol>	<p><i>Interpret functions that arise in applications in terms of the context.</i></p> <p><i>Analyze functions using different representations.</i></p> <p><i>Build a function that models a relationship between two quantities.</i></p> <p><i>Build new functions from existing functions.</i></p> <p><i>Write expressions in equivalent forms to solve problems.</i></p> <p><i>Solve equations and inequalities in one variable.</i></p> <p><i>Solve systems of equations.</i></p>	<p><b>NJSLS Content Standards</b></p> <p>F-IF 4-9 F-BF 3 A-SSE 3 A-REI 4, 7 A-APR 3</p> <p><b>NJSLS SMP</b></p> <p>MP1. Make sense of problems and persevere in solving them MP2. Construct viable arguments and critique the reasoning of others MP3. Reason abstractly and quantitatively MP4. Model with mathematics MP5. Attend to precision MP6. Use appropriate tools strategically MP7. Look for and make use of structure MP8. Look for and express regularity in repeated reasoning</p> <p><b>NJSLS for ELA Companion Standards</b></p> <p>RST.9-10.3</p>	<p>Students will be assessed regularly throughout this course, with a focus on both conceptual understanding and procedural fluency. Assessment tools may include the following:</p> <ul style="list-style-type: none"> <li>- quizzes (F)</li> <li>- tests (S)</li> <li>- performance tasks (F/S)</li> <li>- projects (S)</li> <li>- homework (F)</li> <li>- discussions (F)</li> <li>- journals (F)</li> <li>- Form A, B, or C benchmark (B)</li> <li>- alternative assessments (A)</li> <li>- factoring practice sets (F)</li> </ul>	<p>Selection of primary sources <i>Suggestion(s):</i> Texts: Pearson Algebra I Common Core (on grade level); teacher-created extension problems (advanced); Deltamath (remediation, on grade level, and advanced)</p> <p><u>F.IF.B.4, F.IF.B.5 Average Cost</u> <u>F.IF.B.6 Temperature Change</u> <u>F.IF.C.7b Bank Account Balance</u> <u>F.IF.C.8a Which Function?</u> <u>F.IF.B.9 Throwing Baseballs</u> <u>F.BF.B.3 Transforming the graph of a function</u> <u>A.REI.B.4 Braking Distance</u> <u>A.APR.B.3 Graphing from Factors 1</u></p> <p><b>Modifications and Accommodations:</b> <b>Students with special needs:</b> Teachers and support staff will attend to all modifications and accommodations listed in students' IEPs and 504s. Teachers will incorporate manipulatives, extra time, alternative assessments, scaffolding, spiraling, technology,</p>



	<p>7. Nonlinear systems (1/2 week)</p> <p><b>Content-specific modifications and accommodations</b></p> <ul style="list-style-type: none"> <li>- multiple representations will be utilized to support conceptual understanding</li> <li>- technology will be utilized to support students' understanding of transformations</li> <li>- differentiated problem sets may be utilized</li> <li>- scaffolding strategies will be utilized to support students' understanding of, and skill with factoring</li> </ul> <p><b>Interdisciplinary/additional connections</b></p> <ul style="list-style-type: none"> <li>- applications of quadratic functions to projectile motion will be explored</li> </ul>		<p>RST.9-10.4 RST.9-10.7 RST.11-12.3 RST.11-12.4</p> <p><b>NJSLS-CLKS</b> <b>- 21<sup>st</sup> Century Life and Careers</b></p> <p>9.4.12.CI.1 9.4.12.CI.3 9.4.12.CT.1 9.4.12.CT.2</p> <p><b>- Technology</b> 9.4.12.IML.3</p> <p><b>- Career Education</b> 9.2.12.CAP.2 9.3.ST.5 9.3.ST-ET.5 9.3.ST-SM.2</p> <p><b>NJSLS – CSDT</b> 8.1.12.DA.1 8.1.12.DA.5 8.1.12.DA.6 8.1.12.AP.1 8.2.12.ETW.2</p>		<p>and flexible grouping to support student learning.</p> <p><b><u>Multilingual students:</u></b> Teachers and support staff will work to support multilingual students in their first language and in English, providing materials and/or resources to support students' understanding. Students will be given additional time, as appropriate, and translation tools will be utilized as needed.</p> <p><b><u>Students at risk of school failure:</u></b> Formative and summative data will be used to monitor student success, and students at risk of failure will receive additional supports and services, which may include parent consultation, extra help, and differentiation strategies, including small group instruction, group work, scaffolding, and spiraling.</p> <p><b><u>Gifted and Talented Students:</u></b> Students who excel in their mastery of course standards will be further challenged with more complex tasks, extensions of concepts and skills, and extended problem solving and critical thinking opportunities.</p>
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<b>Algebra I:</b> <i>Algebra I</i> deepens and extends students' understanding of linear and exponential relationships by contrasting them with each other and by applying linear models to data that exhibit a linear trend. In addition, students engage in methods for analyzing, solving, and using quadratic functions.					
<b>Content/Topic:</b>	<b>Key Learning Items/Concepts and Pacing Guide</b>	<b>Observable Proficiencies and Skills:</b>	<b>NJSLS</b>	<b>Formative, Summative, Benchmark, and Alternative Assessments</b>	<b>Core Instructional and Supplemental Materials/ Modifications and Accommodations</b>
<p><b>Unit 4 – Exponential Functions</b></p> <p><b>Time:</b> 3 weeks (<i>see column 2 for a more detailed breakdown</i>)</p> <p><b>Content Statement:</b> Students will be able to model real-life phenomena with exponential functions.</p> <p><b>Enduring Understandings:</b> Exponential functions/geometric sequences have a constant ratio.</p> <p>Exponential functions send inputs to infinity (growth) or asymptotically towards a constant value (decay).</p> <p>Linear, quadratic, and exponential functions can be distinguished by analyzing a table of values.</p>	<p><b>Key learning items/concepts:</b></p> <ol style="list-style-type: none"> <li>1. Distinguish between linear and exponential (1 week)</li> <li>2. Interpret parameters of an exponential function in context (1 week)</li> <li>3. Arithmetic and geometric sequences (1 week)</li> </ol> <p><b>Content-specific modifications and accommodations</b> - multiple representations will be utilized to support conceptual understanding, with a particular focus on the differences between linear and exponential functions - differentiated problem sets may be utilized</p> <p><b>Interdisciplinary/additional connections</b></p>	<p><i>Construct and compare linear, quadratic, and exponential models and solve problems.</i></p> <p><i>Interpret expressions for functions in terms of the situation they model.</i></p> <p><i>Interpret the structure of expressions.</i></p> <p><i>Write expressions in equivalent forms to solve problems.</i></p> <p><i>Build a function that models a relationship between two quantities.</i></p>	<p><b>NJSLS Content Standards</b></p> <p>F-LE 1, 2, 3, 5 A-SSE 1, 3c F-BF 2</p> <p><b>NJSLS SMP</b></p> <p>MP1. Make sense of problems and persevere in solving them MP2. Construct viable arguments and critique the reasoning of others MP3. Reason abstractly and quantitatively MP4. Model with mathematics MP5. Attend to precision MP6. Use appropriate tools strategically MP7. Look for and make use of structure MP8. Look for and express regularity in repeated reasoning</p> <p><b>NJSLS for ELA Companion Standards</b></p> <p>RST.9-10.3</p>	<p>Students will be assessed regularly throughout this course, with a focus on both conceptual understanding and procedural fluency. Assessment tools may include the following:</p> <ul style="list-style-type: none"> <li>- quizzes (F)</li> <li>- tests (S)</li> <li>- performance tasks (F/S)</li> <li>- projects (S)</li> <li>- homework (F)</li> <li>- discussions (F)</li> <li>- journals (F)</li> <li>- Form A, B, or C benchmark (B)</li> <li>- alternative assessments (A)</li> <li>- explorations of exponential applications (F)</li> </ul>	<p>Selection of primary sources <i>Suggestion(s):</i> Texts: Pearson Algebra I Common Core (on grade level); teacher-created extension problems (advanced); Deltamath (remediation, on grade level, and advanced)</p> <p><u>F.LE.A.1 Finding Linear and Exponential Models</u> <u>F.LE.A.2 Interesting Interest Rates</u> <u>F.LE.A.3 Population and Food Supply</u> <u>F.LE.B.5 US Population 1982-1988</u> <u>A.SSE.A.1 Kitchen Floor Tiles</u> <u>A.SSE.B.3 Profit of a company</u></p> <p><b>Modifications and Accommodations:</b> <b>Students with special needs:</b> Teachers and support staff will attend to all modifications and accommodations listed in students' IEPs and 504s. Teachers will incorporate manipulatives, extra time, alternative assessments, scaffolding, spiraling, technology, and flexible grouping to support student learning. <b>Multilingual students:</b> Teachers and support staff will work to support</p>

	<p>- exponential functions will be explored in context, and applications may include population growth (including populations of diverse peoples), compounding interest, half-life, and climate change</p>		<p>RST.9-10.4 RST.9-10.7 RST.11-12.3 RST.11-12.4</p> <p><b>NJSLS-CLKS</b> <b>- 21<sup>st</sup> Century Life and Careers</b> 9.4.12.CI.1 9.4.12.CI.3 9.4.12.CT.1 9.4.12.CT.2</p> <p><b>- Technology</b> 9.4.12.IML.3</p> <p><b>- Career Education</b> 9.2.12.CAP.2 9.3.ST.5 9.3.ST-ET.5 9.3.ST-SM.2</p> <p><b>NJSLS – CSDT</b> 8.1.12.DA.1 8.1.12.DA.5 8.1.12.DA.6 8.1.12.AP.1 8.2.12.ETW.2</p>		<p>multilingual students in their first language and in English, providing materials and/or resources to support students' understanding. Students will be given additional time, as appropriate, and translation tools will be utilized as needed.</p> <p><b><u>Students at risk of school failure:</u></b> Formative and summative data will be used to monitor student success, and students at risk of failure will receive additional supports and services, which may include parent consultation, extra help, and differentiation strategies, including small group instruction, group work, scaffolding, and spiraling.</p> <p><b><u>Gifted and Talented Students:</u></b> Students who excel in their mastery of course standards will be further challenged with more complex tasks, extensions of concepts and skills, and extended problem solving and critical thinking opportunities.</p>
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<b>Algebra I:</b> <i>Algebra I</i> deepens and extends students' understanding of linear and exponential relationships by contrasting them with each other and by applying linear models to data that exhibit a linear trend. In addition, students engage in methods for analyzing, solving, and using quadratic functions.					
<b>Content/Topic:</b>	<b>Key Learning Items/Concepts and Pacing Guide</b>	<b>Observable Proficiencies and Skills:</b>	<b>NJSLS</b>	<b>Formative, Summative, Benchmark, and Alternative Assessments</b>	<b>Core Instructional and Supplemental Materials/ Modifications and Accommodations</b>
<b>Unit 5 – Statistics</b>  <b>Time:</b> 4 weeks ( <i>see column 2 for a more detailed breakdown</i> )  <b>Content Statement:</b> Lines of best fit enable us to make predictions.  <b>Enduring Understandings:</b> Statistics can be used or misused to support a point of view.	<b>Key learning items/concepts:</b>  1. Two-way frequency tables (1/2 week) 2. Scatter plots; curves of best fit; residuals; correlation coefficient; distinguish correlation and causation (2 weeks) 3. Modeling with linear, exponential, and quadratic functions (1 ½ weeks)  <b>Content-specific modifications and accommodations</b> - multiple representations will be utilized to support conceptual understanding, with a particular focus on graphical and numerical representations - technology will be utilized to facilitate students' understanding of statistics	<i>Summarize, represent, and interpret data on two categorical and quantitative variables.</i>  <i>Interpret linear models.</i>	<b>NJSLS Content Standards</b>  S-ID 5-9  <b>NJSLS SMP</b>  MP1. Make sense of problems and persevere in solving them MP2. Construct viable arguments and critique the reasoning of others MP3. Reason abstractly and quantitatively MP4. Model with mathematics MP5. Attend to precision MP6. Use appropriate tools strategically MP7. Look for and make use of structure MP8. Look for and express regularity in repeated reasoning  <b>NJSLS for ELA Companion Standards</b>  RST.9-10.3 RST.9-10.4 RST.9-10.7 RST.11-12.3 RST.11-12.4	Students will be assessed regularly throughout this course, with a focus on both conceptual understanding and procedural fluency. Assessment tools may include the following: - quizzes (F) - tests (S) - performance tasks (F/S) - projects (S) - homework (F) - discussions (F) - journals (F) - Form A, B, or C benchmark (B) - alternative assessments (A) - modeling projects involving data collection and regression (S)	Selection of primary sources <i>Suggestion(s):</i> Texts: Pearson Algebra I Common Core (on grade level); teacher-created extension problems (advanced); Deltamath (remediation, on grade level, and advanced)  <u>S.ID.B.5 Support for a Longer School Day?</u> <u>S.ID.B.6 Laptop Battery Charge 2</u>  <b>Modifications and Accommodations:</b> <b>Students with special needs:</b> Teachers and support staff will attend to all modifications and accommodations listed in students' IEPs and 504s. Teachers will incorporate manipulatives, extra time, alternative assessments, scaffolding, spiraling, technology, and flexible grouping to support student learning. <b>Multilingual students:</b> Teachers and support staff will work to support multilingual students in their first language and in English, providing materials and/or resources to support students' understanding.

	<p>- different data sets that interest different groups of students may be utilized</p> <p><b>Interdisciplinary/additional connections</b></p> <p>- various data sets may be utilized to explore statistical concepts, including data sets related to diverse people and climate change</p> <p>- data sets may include applications to science or engineering</p>		<p><b>NJSLS-CLKS</b></p> <p><b>- 21<sup>st</sup> Century Life and Careers</b></p> <p>9.4.12.CI.1</p> <p>9.4.12.CI.3</p> <p>9.4.12.CT.1</p> <p>9.4.12.CT.2</p> <p><b>- Technology</b></p> <p>9.4.12.IML.3</p> <p><b>- Career Education</b></p> <p>9.2.12.CAP.2</p> <p>9.3.ST.5</p> <p>9.3.ST-ET.5</p> <p>9.3.ST-SM.2</p> <p><b>NJSLS – CSDT</b></p> <p>8.1.12.DA.1</p> <p>8.1.12.DA.5</p> <p>8.1.12.DA.6</p> <p>8.1.12.AP.1</p> <p>8.2.12.ETW.2</p>		<p>Students will be given additional time, as appropriate, and translation tools will be utilized as needed.</p> <p><b><u>Students at risk of school failure:</u></b></p> <p>Formative and summative data will be used to monitor student success, and students at risk of failure will receive additional supports and services, which may include parent consultation, extra help, and differentiation strategies, including small group instruction, group work, scaffolding, and spiraling.</p> <p><b><u>Gifted and Talented Students:</u></b></p> <p>Students who excel in their mastery of course standards will be further challenged with more complex tasks, extensions of concepts and skills, and extended problem solving and critical thinking opportunities.</p>
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