ALGEBRA I PARCC MATH SYLLABUS

Explorations in Core Math Algebra I
2010 by Houghton Mifflin Harcourt

Major objectives of the course:

- **Short reviews of algebraic skills**
- **PARCC level 3-5 questions**
- **Utilizing the graphing calculator**

Grading policies

- 25% PARCC review portfolio (packet of PARCC word problems for each Test)
- 10% Benchmark (cumulative application based assessment)
- 40% Tests (application based assessments)
- 15% Quizzes (skill based assessments)
- 10% Classwork

Marking Period 1 Linear Functions, Inequalities, Absolute Value, and Systems

Test 1

- Solving Equations
  - 1.1 Variables and Expressions *(NJSLS.A.SSE.A.1, NJSLS.A.SSE.A.1a, NJSLS.A.SSE.A.1b)*
  - 1.2 - 1.6 Solving Equations *(NJSLS.A.REI.B.3, NJSLS.A.REI.A.1, NJSLS.A.CED.4)*
  - 1.8 - 1.9 Rates, Ratios and Proportions and applications *(NJSLS.N.Q.1, NJSLS.A.CED.A.1, NJSLS.A.SSE.A1, NJSLS.N.Q.A.1)*
- Solving Inequalities
  - 2.1 Graphing and Writing Inequalities *(NJSLS.A.CED.A.1)*
  - 2.2 - 2.5 Solving Inequalities *(NJSLS.A.REI.B.3)*

Test 2

- Functions
  - 3.1 Graphing relationships *(NJSLS.F.IF.B.4)*
  - 3.2 Relations and Functions *(NJSLS..F.IF.A.1, NJSLS..F.IF.A.2, NJSLS..F.IF.B.5)*
  - 3.3 Writing Functions (operations) *(NJSLS.F.BF.A.1b, NJSLS..F.IF.B.4a)*
  - 3.4 Piecewise functions *(NJSLS..A.CED.A.2, NJSLS..F.IF.A.2, NJSLS.F.IF.C.7b, NJSLS..F.BF.A.1)*
- Linear Functions
  - 4.1 - 4.2 Identify linear functions and using intercepts (emphasis on using graphing calculators) *(NJSLS..F.IF.A.2, NJSLS..F.IF.A.3, NJSLS..F.IF.B.5, NJSLS.F.IF.C.9, NJSLS.A.REI.D.10)*
  - 4.3-4.4 Rate of change and slope *(NJSLS.F.IF.B.6)*
  - 4.5 - 4.6 Direct Variation and Slope-intercept form *(NJSLS..A.CED.A.2, NJSLS..F.IF.C.7b, NJSLS..F.BF.A.1, NJSLS.F.BF.B.3, NJSLS..A.REI.D.11, NJSLS..F.IF.C.7a, NJSLS.F.LE.A.2)*

Test 3

- Absolute Value and Inequalities
  - 1.7 Solving Absolute Value Equations *(NJSLS..A.CED.A.2, NJSLS..A.REI.A.1, NJSLS.A.REI.D.11)*
  - Graphing Absolute Value Equations (supplemental material)
  - 2.6 Compound Inequalities *(NJSLS.A.REI.B.3)*
  - 2.7 Solving Absolute Value Inequalities *(NJSLS.A.REI.B.3)*

Test 4

- Solving Systems of Linear Equations and Inequalities
  - 5.1 Solve systems by Graphing *(NJSLS.A.REI.C.6)*
  - 5.2 Solve systems by Substitution *(NJSLS.A.REI.C.6)*
  - 5.3 Solve systems by Elimination *(NJSLS.A.REI.C.5, NJSLS.A.REI.C.6)*
  - 5.4 Solve special systems *(NJSLS.A.REI.C.6)*
  - 5.5 Solve Linear Inequalities *(NJSLS.A.REI.D.12)*
  - 5.6 Solving systems of linear inequalities *(NJSLS.N.Q.A.2, NJSLS.A.CED.A.3, NJSLS.A.REI.C.6)*

<u>Marking Period 2 Non Linear</u>

Test 1

- Real number system
  - 6.2 Understanding Real numbers and their properties *(NJSLS.N.RN.A.1, NJSLS.N.RN.A.2, NJSLS.N.RN.B.3)*
- Exponents
  - 6.1 Integer Exponents *(NJSLS.N.RN.A.1)*
  - Simplifying Radicals and Radical operations (supplemental material)
  - 6.2 Rational Exponents *(NJSLS.N.RN.A.1, NJSLS.N.RN.A.2, NJSLS.N.RN.B.3)*
- Exponential Functions
  - 9.2 exponential functions *(NJSLS.F.BF.B.3, NJSLS.F.BF.B.3, NJSLS.F.LE.A.2)*
  - 9.3 Exponential Growth and Decay *(NJSLS.F.LE.A.1c, NJSLS.F.LE.A.2, NJSLS.F.IF.C.7e)*
  - 9.4 Linear, Quadratic and Exponential Models *(NJSLS.A.REI.A.1, NJSLS.A.REI.D.11, NJSLS.S.ID.B.6a, NJSLS.S.ID.B.6b)*
  - 9.5 Comparing Models *(NJSLS.F.LE.A.3, NJSLS.F.LE.A.1c)*

Test 2

- Polynomials
  - 6.3 Polynomials *(NJSLS.A.SSE.A.1, NJSLS.A.SSE.A.1a, NJSLS.A.SSE.A.1b)*
  - 6.4 Adding and Subtracting polynomials *(NJSLS.A.APR.a.1, NJSLS.F.BF.A.1a)*
  - 6.5 - 6.6 Multiplying polynomials and Special products of binomials *(NJSLS.A.APR.A.1, NJSLS.A.SSE.A.2)*
  - 7.1-7.2 Factors and GCFs *(NJSLS.A.SSE.A.1a, NJSLS.A.SSE.A.1b, NJSLS.A.SSE.A.2)*
  - 7.3-7.4 Factoring trinomials *(NJSLS.A.SSE.A.2)*
  - 7.5 Factoring Special products *(NJSLS.A.SSE.A.2)*
  - 7.6 Choosing a factoring method *(NJSLS.A.SSE.A.1b, NJSLS.A.SSE.A.2)*

Test 3

- Quadratics
  - 8.1-8.2 Identifying Quadratic Functions and characteristics *(NJSLS.F.IF.B.4, NJSLS.F.BF.A.1, NJSLS.F.BF.B.3)*
  - 8.3 Graphing quadratic functions (standard form) *(NJSLS.F.IF.C.7a)*
  - 8.4 Transforming quadratic functions *(NJSLS.F.BF.A.1, NJSLS.F.BF.B.3)*
  - 8.5 Solving quadratics by Graphing *(NJSLS.A.CED.A.2, NJSLS.A.REI.D.11)*
  - 8.6 Solving quadratics by Factoring *(NJSLS.A.CED.A.1, NJSLS.A.REI.B.4b)*
  - 8.7 Solving quadratics by using Square Roots *(NJSLS.A.CED.A.1, NJSLS.A.REI.B.4b)*
  - 8.8 Completing the Square *(NJSLS.A.REI.B.4b)*
  - 8.9 The Quadratic Formula and the Discriminant *(NJSLS.A.REI.4a, NJSLS.A.REI.4b)*

Test 4

- Statistics - data analysis (interpreting a graph, scatter plots, central tendencies)

- 3.5 Scatter Plots and Trend lines *(NJSLS.S.ID.B.6a, NJSLS.S.ID.B.6c, NJSLS.S.ID.C.8, NJSLS.S.ID.C.9)*
- 4.8 Line of Best fit *(NJSLS.S.ID.B.6b, NJSLS.S.ID.B.6c)*
- 3.6 Arithmetic Sequences *(NJSLS.F.IF.A.3, NJSLS.F.BF.A.2, NJSLS.F.LE.A.2)*
- 9.1 Geometric Sequences *(NJSLS.F.BF.A.1a, NJSLS.F.LE.A.2)*
- 10.1 Organizing and Displaying Data *(NJSLS.S.ID.B.5)*
- 10.2 Frequency and Histograms *(NJSLS.S.ID.A.1, NJSLS.S.ID.A.2)*
- 10.3 Data Distributions *(NJSLS.S.ID.A.1, NJSLS.S.ID.A.2)*
- 10.4 Misleading Graphs and Statistics *(NJSLS.S.ID.A.1, NJSLS.S.ID.A.2, NJSLS.S.ID.A.3)*

Black Horse Pike Regional School District Curriculum Template

ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS

Course Name: ALGEBRA 1 - PARCC

Course Number:

PART I: UNIT RATIONALE

WHY ARE STUDENTS LEARNING THIS CONTENT AND THESE SKILLS?

Course/Unit Title: Linear Equations/Inequalities **Grade Level(s):** **9-10**	**Unit Summary**: Students will focus on the mathematics of linearity. SWBAT solve, graph, and write linear equations and inequalities, as well as properties of absolute value functions and solving systems of linear equations and inequalities.
Essential Question(s): - How do you interpret, evaluate, and write algebraic expressions that model real world situations? - How can you use properties to justify solutions to equations that involve multiplication and division? - How can you justify solutions to multi-step equations? - How can you use properties to justify solutions to equations with variables on both sides? - How do you solve literal equations and rewrite formulas? - How can you use units to solve real-world problems? - How can you use units to write and solve proportions? - How can you represent relationships using inequalities? - How can you use properties to justify solutions to inequalities that involve addition, subtraction, multiplication and division? - How can you use properties to justify solutions to multi-step inequalities and inequalities with variables on both sides?	**Enduring Understanding(s):** - Interpreting Expressions - Evaluating and Writing Algebraic Expressions - Modeling with Algebraic Expressions - Solving Equations using Different Methods - Adding/Subtracting to find the Solution Set - Multiplying/Dividing to find the Solution Set - Solving Multi-Step Equations - Solving with Variables on Both Sides of an Equation - Solving a Multi-Step Linear Equation - Understanding Literal Equation - Solving a Literal Equation and Evaluating its Solution - Solving a Formula for a Variable - Writing and Rearranging a Formula - Evaluating Real World Expressions - Using Unit Analysis to Guide Modeling - Solving Real World Proportions - Using Dimensional Analysis - Writing and Solving Inequalities - Properties of Inequality - Adding/Subtracting to Find the Solution Set - Multiplying/Dividing by a Negative Number - Multiplying/Dividing to find the Solutions Set - Solving Inequalities with More than One Step - Using Properties of Inequalities to Justify Solutions

PART II: INSTRUCTIONAL STRATEGIES AND RESOURCES

DESCRIBE THE LEARNING TARGETS.

After each target, identify the New Jersey Student Learning Standards that are applicable

Learning Target	**NJSLS**
SOLVING EQUATIONS FOR A VARIABLE (Sections 1.1-1.6) **NJSLS.A-CED.A4** - *Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations.* **NJSLS.A-REI.A.1** - *Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.* **NJSLS.A-REI.B3** - *Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.* **NJSLS.A-SSE.A.1** – *Interpret quantities that represent a quantity in terms of its content* **NJSLS.A-SSE.A.1a** – *Interpret parts of an expression, such as terms, factors, and coefficients* **NJSLS.A-SSE.A.1b** – *Interpret complicated expressions by viewing one or more of their parts as a single entity.*	**1.1 - NJSLS.A.SSE.A.1, NJSLS.A.SSE.A.1a, NJSLS.A.SSE.A.1b** **1.2 - NJSLS.A.REI.A.1, NJSLS.A.REI.B.3** **1.3 - NJSLS.A.REI.A.1** **1.4 - NJSLS.A.REI.A.1** **1.5 - NJSLS.A.REI.A.1** **1.6 - NJSLS.A.CED.B4, NJSLS.A.REI.B.3** **1.8 - NJSLS.N.Q.A.1, NJSLS.A.SSE.A.1**
UNDERSTANDING RATES, RATIOS, AND PROPORTIONS (Sections 1.8-1.9) **NJSLS.A.CED.A1 -** *Create equations and inequalities in one variable and use them to solve problems.* **NJSLS.A.SSE.A.1** – *Interpret quantities that represent a quantity in terms of its content* **NJSLS.N.Q.A1 -** *Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.*	**1.9 - NJSLS.N.Q.A.1, NJSLS.A.CED.A.1** **2.1 – NJSLS.A.CED.A.1** **2.2 – NJSLS.A.REI.B.3** **2.3 – NJSLS.A.REI.B.3**
GRAPHING AND WRITING INEQUALITIES (Section 2.1) **NJSLS.A.CED.A1 -** *Create equations and inequalities in one variable and use them to solve problems.*	**2.4 – NJSLS.A.REI.B.3** **2.5 – NJSLS.A.REI.B.3**
SOLVING INEQUALITIES FOR A VARIABLE (Sections 2.2-2.6) **NJSLS.A.REI.B3** - *Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.*	

Inter-Disciplinary Connections:

Real World Problem Solving Examples:
Average speed of a car (p. 9), economics (p. 12), radius of the Earth vs. Mars (p. 17), postage (p. 21), collecting (p. 31), ordering books, (p. 75), memory in an MP3 (p. 83)

Inter-Disciplinary Problem Solving Examples:
Business (p 10.), economics (p. 12) , anatomy (p 17), geometry (p. 21), geography (p. 27), construction (p. 58), astrophysics (p. 84), sports (p. 94)

Students will engage with the following text:

Explorations in Core Math for Common Core, Algebra 1; Holt McDougal Mathematics Text

Students will write:

Students will define and compare/contrast given terms. Students will describe and write about a diagram using mathematical language. Students will relate and model real world situations using algebraic terminology and symbols. Students will explain their reasoning when problem solving. Students will provide examples and counterexamples to justify their reasoning. Students will perform error analysis where they will identify the error and explain how to correctly answer the problem.

PART III: TRANSFER OF KNOWLEDGE AND SKILLS

DESCRIBE THE LEARNING EXPERIENCE.

How will students uncover content and build skills.

Opportunities for developing students' understanding in this chapter include: explore and reflect activities, engagement of prior knowledge activities, problem solving techniques, test taking strategies, modeling examples, using real-life application and construction of models or other hands on activities such as projects. Technology such as Video tutor links, Smart Board, graphing calculators, and Desmos will also be explored through the learning experience. Other interests could include, but is not limited to alternative lesson openers, using note-taking strategies, math and history applications, and interdisciplinary applications.

Suggested warm-up activities, instructional strategies/activities, and assignments:

Section 1.1 - Variables and Expressions

Warm-up/Starting Options	**Engage & Reflect 1 p.5**
Practice and Apply	**p. 5-8, Examples 1-4** **p. 9-10 Practice, #2-20 even**
Resources	**Additional Practice p. 11 #1-15** **Kuta Software for additional practice** **Online Dynamic Classroom for Algebra I** **PARCC Review Portfolio for MP 1 Unit 1** **PARCC Released Algebra I Problems** **Video Tutor p. 5**

Section 1.2 – Solving Equations by Adding or Subtracting:

Warm-up/Starting Options	**Explore & Reflect 1 p. 13**
Practice and Apply	**p. 14-15 Examples 2 & 3** **p. 16 Practice, #1-8** **Problem Solving p 18, #1-7**
Resources	**Additional Practice p. 17** **Kuta Software for additional practice** **PARCC Review Portfolio for MP 1 Unit 1** **PARCC Released Algebra I Problems** **Video Tutor Link p 13**

Section 1.3 – Solving Equations by Multiplying or Dividing:

Warm-up/Starting Options	**Explore & Reflect 1 p. 19**
Practice and Apply	**p. 20 Practice, #1-3** **Problem Solving p. 22, #1-7**
Resources	**Additional Practice p. 21** **Kuta Software for additional practice** **Online Dynamic Classroom for Algebra I** **PARCC Review Portfolio for MP 1 Unit 1** **PARCC Released Algebra I Problems** **Video Tutor Link p 19**

Section 1.4 – Solving Two-Step and Multi-Step Equations:

Warm-up/Starting Options	**Explore & Reflect 1 p. 23**
Practice and Apply	**p. 24 Examples 2** **p. 24 Practice, #1-3** **Problem Solving p 26, #1-6**
Resources	**Additional Practice p. 25** **Kuta Software for additional practice** **Online Dynamic Classroom for Algebra I** **PARCC Review Portfolio for MP 1 Unit 1** **PARCC Released Algebra I Problems** **Video Tutor Link p 23**

Section 1.5 – Solving Equations with Variables on Both Sides:

Warm-up/Starting Options	**Explore & Reflect 1 p. 27**
Practice and Apply	**p. 28 Examples 2** **p. 29-30 Practice, #1-6** **Problem Solving p 32 , #1-7**
Resources	**Additional Practice p. 31** **Kuta Software for additional practice** **Online Dynamic Classroom for Algebra I** **PARCC Review Portfolio for MP 1 Unit 1** **PARCC Released Algebra I Problems** **Video Tutor Link p 27**

Section 1.6 – Solving for a Variable:

Warm-up/Starting Options	**Explore and Reflect, Understanding Literal Equations, p 33 #1a-d**
Practice and Apply	**p.34-37 Examples 2-4** **p. 37-38 Practice, #1-7** **Problem Solving p 40, #1-8**
Resources	**Additional Practice p. 39 #1-10** **Kuta Software for additional practice** **Online Dynamic Classroom for Algebra I** **PARCC Review Portfolio for MP 1 Unit 1** **PARCC Released Algebra I Problems** **Video Tutor Link p 33**

Section 1.8 – Rates, Ratios, and Proportions:

Warm-up/Starting Options	**Example & Reflect 1 p. 47**
Practice and Apply	**p.48-49 Example 2** **p. 49-50 Practice, #1-5** **Problem Solving p 52, #1-8**
Resources	**Additional Practice p. 51 #1-8** **Kuta Software for additional practice** **PARCC Review Portfolio for MP 1 Unit 1** **PARCC Released Algebra I Problems** **Video Tutor Link p 47**

Section 1.9 – Applications of Proportions:

Warm-up/Starting Options	**Engage and Reflect, Writing Valid Proportions, p 53 #1a-c**
Practice and Apply	**p.54-55 Examples 2-3** **p. 56 Practice, #1-3** **Problem Solving p 58, #1-8**
Resources	**Additional Practice p. 57 #1-5** **Kuta Software for additional practice** **Online Dynamic Classroom for Algebra I** **PARCC Review Portfolio for MP 1 Unit 1** **PARCC Released Algebra I Problems** **Video Tutor Link p 53**

Section 2.1 – Graphing and Writing Inequalities:

Warm-up/Starting Options	**Example and Reflect, p 73-74 #1 a-d**
Practice and Apply	**p. 74-76 Practice, #1-16** **Problem Solving p 78, #1-8**
Resources	**Additional Practice p. 77 #1-12** **Kuta Software for additional practice** **Online Dynamic Classroom for Algebra I** **PARCC Review Portfolio for MP 1 Unit 1** **PARCC Released Algebra I Problems** **Video Tutor Link p 73**

Section 2.2 – Solving Inequalities by Adding or Subtracting:

Warm-up/Starting Options	**Engage and Reflect, Properties of Inequality, p 79 #1a**
Practice and Apply	**p. 80-81 Examples 2-3** **p. 82 Practice, #1-5** **Problem Solving p 84, #1-7**
Resources	**Additional Practice p. 83 #1-9** **Kuta Software for additional practice** **Online Dynamic Classroom for Algebra I** **PARCC Review Portfolio for MP 1 Unit 1** **PARCC Released Algebra I Problems** **Video Tutor Link p 79**

Section 2.3 – Solving Inequalities by Multiplying or Dividing:

Warm-up/Starting Options	**Explore and Reflect, Multiplying and Dividing by a negative number, p 85 #1a-d**
Practice and Apply	**p.86-87 Examples 2-3** **p. 88 Practice, #1-5** **Problem Solving p 94, #1-7**
Resources	**Additional Practice p. 93 #1-10** **Kuta Software for additional practice** **Online Dynamic Classroom for Algebra I** **PARCC Review Portfolio for MP 1 Unit 1** **PARCC Released Algebra I Problems** **Video Tutor Link p 85**

Section 2.4 – Solving Two-Step and Multi-Step Inequalities:

Warm-up/Starting Options	**Example and Reflect, p 91 #1a-b**
Practice and Apply	**p. 92 Example 2** **p. 92 Practice, #1-2** **Problem Solving p 94, #1-7**
Resources	**Additional Practice p. 93 #1-10** **Kuta Software for additional practice** **Online Dynamic Classroom for Algebra I** **PARCC Review Portfolio for MP 1 Unit 1** **PARCC Released Algebra I Problems** **Video Tutor Link p 91**

Section 2.5 – Solving Inequalities with Variables on Both Sides:	
Warm-up/Starting Options	**Example and Reflect, Using Properties to Justify Solutions p 95 #1a-c**
Practice and Apply	**p. 96 Practice, #1-3** **Problem Solving p 98, #1-6**
Resources	**Additional Practice p. 97 #1-13** **Kuta Software for additional practice** **Online Dynamic Classroom for Algebra I** **PARCC Review Portfolio for MP 1 Unit 1** **PARCC Released Algebra I Problems** **Video Tutor Link p 95**

PART IV: EVIDENCE OF LEARNING

IDENTIFY THE METHODS BY WHICH STUDENTS WILL DEMONSTRATE THEIR UNDERSTANDING OF CONTENT AND THEIR ABILITY TO APPLY SKILLS.

IDENTIFY BLOOM'S LEVELS.

Formative Assessments:

The effectiveness of the instructional program will be based on numerous activities and strategies including the following: teacher observations, students collaborating with peers, questioning strategies, student record-keeping, quizzes (skill based assessments), exit/admit assignments, peer/self-assessments, learning/response logs, discussions and practice presentations.

Accommodations/Modifications:

As Per IEP

Summative Assessments:

The following assessments will be used to evaluate student learning, skill acquisition and academic achievement of the Standards of Mathematical Practice and the New Jersey Learning Standards for Mathematics listed under each chapter in the Geometry curriculum/syllabus at the conclusion of an instructional time period.

- **Chapter Tests (application based assessments)**
- **Periodic Benchmark Tests**
- **PARCC review portfolio packets (for each unit)**
- **Standardized Tests**

Accommodations/Modifications:

As per I.E.P.

Performance Assessments:

Performance Tasks, Display of Student Work

Accommodations/Modifications:

As per I.E.P.

Black Horse Pike Regional School District Curriculum Template

ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS

Course Name: ALGEBRA 1 - PARCC

Course Number:

PART I: UNIT RATIONALE

WHY ARE STUDENTS LEARNING THIS CONTENT AND THESE SKILLS?

Course/Unit Title: Introduction to Functions and Linear Functions **Grade Level(s):** **9-10**	**Unit Summary**: Students will be introduced to mathematical relationships called functions and be able to recognize whether a relation is or is not a function, describe characteristics of functions, graph functions, and write rules for functions and their inverses. Students will also examine characteristics of linear functions and their graphs, recognize linear functions by their constant rate of change, write linear functions based upon given values, and use paper/pencil and technological methods for analyzing linear functions.
Essential Question(s): - How can you describe a relationship given a graph and sketch a graph given a description? - How do you represent functions? - How can you use operations to combine functions and how can you find inverses of functions? - How are piecewise functions and their graphs different from other functions? - What is a discrete linear function and how are discrete and continuous linear functions alike and how are they different? - How can you use intercepts to graph the solutions to a linear equation in two variables? - What is the slope of a linear function and how can you use it to graph the function? - How can you estimate the average rate of change of a function from a graph? - How does changing the values of *m* affect the graph of *f(x) = mx*? - How can you represent relationships using linear functions?	**Enduring Understanding(s):** - Interpreting Graphs - Matching Graphs and Sketching them to Situation - Understanding Functions - Representing Discrete Linear and Nonlinear Functions - Performing Operations with Functions - Adding and Multiplying Linear Models - Using Inverse Operations to Find Inverse Functions - Finding the Inverse by solving *y = f(x)* for *x* - Finding Inverses of Real-World Functions - Evaluating Piecewise Functions - Writing and Graphing Piecewise Functions - Writing a Function when Given a Graph - Analyzing a Discrete Real-World Function - Recognizing Linear Functions - Comparing Functions Given a Table and a Rule - Determining Whether an Ordered Pair is a Solution - Graphing a Linear Equation in Standard Form - Vertical and Horizontal Lines and Lines Through the Origin - Changes in Independent and Dependent Variables - Understanding Slope of a Linear Function - Classifying Slopes of Lines and Finding the Slope of a Linear Function - Changing the Value of *m* in *f(x) = mx* - Graphing a Line Using the Slope and *y* – intercept - Writing a Linear Function - Writing a Linear Function from a Graph

PART II: INSTRUCTIONAL STRATEGIES AND RESOURCES

DESCRIBE THE LEARNING TARGETS.

After each target, identify the New Jersey Student Learning Standards that are applicable

Learning Target	**NJSLS:**
	3.1 – NJSLS.F.IF.B.4
RELATIONS AND FUNCTIONS	
NJSLS.F.IF.A.1 - *Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If f is a function and x is an element of its domain, then f(x) denotes the output of f corresponding to the input x. The graph of f is the graph of the equation y = f(x).*	**3.2 – NJSLS.F.IF.A.1, NJSLS.F.IF.A.2, NJSLS.F.IF.B.5**
NJSLS.F.IF.A.2 - *Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context*	**3.3 – NJSLS.F.BF.1b, NJSLS.F.BF.4a**
NJSLS.F.IF.B.4 - *For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship.*	**3.4 – NJSLS.A.CED.2, NJSLS.F.IF.2, NJSLS.F.IF.C.7b, NJSLS.F.BF.A.1**
NJSLS.F.IF.B.5 - *Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes.*	
WRITING AND GRAPHING FUNCTIONS	**4.1 – NJSLS.F.IF.2, NJSLS.F.IF.3, NJSLS.F.IF.5, NJSLS.F.IF.9**
NJSLS.A.CED.A.2 – *Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.*	
NJSLS.F.BF.A.1 - *Write a function that describes a relationship between two quantities.*	
NJSLS.F.BF.A.1b - *Combine standard function types using arithmetic operations.*	
NJSLS.F.BF.B.4a - *Solve an equation of the form f(x) = c for a simple function f that has an inverse and write an expression for the inverse.*	**4.2 – NJSLS.A.REI.10**
NJSLS.F.IF.A.2 – *Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context*	**4.3 – NJSLS.F.IF.B.6**
NJSLS.F.IF.C.7b - *Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.*	**4.4 – NJSLS.F.IF.B.6**
	4.5 – NJSLS.A.CED.2, NJSLS.F.IF.7b, NJSLS.F.BF.1, NJSLS.F.BF.3
LINEAR FUNCTIONS	
NJSLS.A.CED.A.2 – *Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.*	
NJSLS.A.REI.D-10 - *Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line)*	**4.6 – NJSLS.A.REI.11, NJSLS.F.IF.7a, NJSLS.F.LE.2**
NJSLS.A.REI.D.11 – *Explain why the x-coordinates of the points where the graphs of the equations y = f(x) and y = g(x) intersect are the solutions of the equation f(x) = g(x); find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where f(x) and/or g(x) are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.*	

NJSLS.F.BF.A.1 – *Write a function that describes a relationship between two quantities.* **NJSLS.F.BF.B.3 -** *Identify the effect on the graph of replacing f(x) by f(x) + k, k f(x), f(kx), and f(x + k) for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology.* **NJSLS.F.IF.A.2** - *Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context* **NJSLS.F.IF.A.3 -** *Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers.* **NJSLS.F.IF.B.5 -** *Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes.* **NJSLS.F.IF.B.6 –** *Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph* **NJSLS.F.IF.C.7a –** *Graph linear and quadratic functions and show intercepts, maxima, and minima* **NJSLS.F.IF.C.7b –** *Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.* **NJSLS.F.IF.C.9 -** *Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).* **NJSLS.F.LE.A.2 -** *Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table)*	

Inter-Disciplinary Connections:

Real-World problem solving examples:
The rising of a hot-air balloon (p 118), tiling a floor (p 124) camp enrollment (p 130), fundraising (p 135), growth of bank accounts (p 138), the cost of sending a package between cities (p. 144), remaining balance on a gift card (p 179), river rising (p. 181), sales of hamburgers and hot dogs at a fair (p. 189), game design (p. 214), public transportation scheduling (p. 218), catering a local dinner (p. 224)

Inter-Disciplinary problem solving examples:
Construction – tiling a floor (p. 124), Economics – Cost functions (p 131), Physical Science – Fahrenheit to Celsius Calculation (p 136), Finance – Accounts with Interest (p 138), Meteorology – estimating rain fall (p 178-179), Geology – The Rising of a Somali river (p. 181), Geometry – making a bank shot in miniature golf (p 209), Economics – Gasoline Prices (p. 196),

Students will engage with the following text:

Explorations in Core Math Algebra I, 2010 by Houghton Mifflin Harcourt Publishing

Students will write:

Students will define and compare/contrast given terms. Students will describe and write about a diagram using mathematical language. Students will relate and model real world situations using algebraic terminology and symbols. Students will explain their reasoning when problem solving. Students will provide examples and counterexamples to justify their reasoning. Students will perform error analysis where they will identify the error and explain how to correctly answer the problem.

PART III: TRANSFER OF KNOWLEDGE AND SKILLS

DESCRIBE THE LEARNING EXPERIENCE.

How will students uncover content and build skills.

Opportunities for developing students' understanding in this chapter include: explore and reflect activities, engagement of prior knowledge activities, problem solving techniques, test taking strategies, modeling examples, using real-life application and construction of models or other hands on activities such as projects. Technology such as Video tutor links, Smart Board, graphing calculators, and Desmos will also be explored through the learning experience. Other interests could include, but is not limited to alternative lesson openers, using note-taking strategies, math and history applications, and interdisciplinary applications.

Suggested warm-up activities, instructional strategies/activities, and assignments:

Section 3.1 – Graphing Relationships:

Warm-up/Starting Options	**Explore & Reflect 1 p. 115**
Practice and Apply	**p. 116-117 Examples 2-3** **p. 118 Practice, #1-5** **Problem Solving; p. 120 #1-8**
Resources	**Additional Practice, p. 119 #1-6** **Kuta Software for additional practice** **Online Dynamic Classroom for Algebra I** **PARCC Review Portfolio for MP 1 Unit 2** **PARCC Released Algebra I Problems** **Video Tutor p. 115**

Section 3.2 – Relations and Functions:

Warm-up/Starting Options	**Engage & Reflect 1 p. 121 #1a-e**
Practice and Apply	**p. 122-125 Examples 2-3** **p. 125 Practice, #1-6** **Problem Solving; p. 128**
Resources	**Additional Practice, p 127 #1-5** **Kuta Software for additional practice** **Online Dynamic Classroom for Algebra I** **PARCC Review Portfolio for MP 1 Unit 2** **PARCC Released Algebra I Problems** **Video Tutor p. 121**

Section 3.3 – Writing Functions;

Warm-up/Starting Options	**Example & Reflect 1 p. 129-130**
Practice and Apply	**p. 130-134 Examples 2-6** **p. 135-136 Practice, #1-16** **p. 138 Problem Solving, #1-8**
Resources	**Additional Practice, p. 137 #1-12**

	Kuta Software for additional practice **Online Dynamic Classroom for Algebra I** **PARCC Review Portfolio for MP 1 Unit 2** **PARCC Released Algebra I Problems** **Video Tutor p. 129**

Section 3.4 – Graphing Functions;

Warm-up/Starting Options	**Example & Reflect 1 p. 139-140**
Practice and Apply	**p. 140-143 Examples 2-4** **p. 143-144 Practice, #1-8** **Problem Solving; p. 146 #1-4**
Resources	**Additional Practice; p. 145 #1-3** **Kuta Software for additional practice** **Online Dynamic Classroom for Algebra I** **PARCC Review Portfolio for MP 1 Unit 2** **PARCC Released Algebra I Problems** **Video Tutor p. 139**

Section 4.1 – Identifying Linear Functions

Warm-up/Starting Options	**Explore & Reflect 1 p.175-176**
Practice and Apply	**p. 176-179 Examples 2-5** **p. 179-180 Practice, #1-3** **Problem Solving; p. 182 #1-6**
Resources	**Additional Practice; p. 181 #1-5** **Kuta Software for additional practice** **Online Dynamic Classroom for Algebra I** **PARCC Review Portfolio for MP 1 Unit 2** **PARCC Released Algebra I Problems** **Video Tutor p. 175**

Section 4.2 – Using Intercepts

Warm-up/Starting Options	**Explore & Reflect 1 p.183**
Practice and Apply	**p. 184-187 Examples 2-5** **p. 188 Practice, #1-5** **Problem Solving; p. 190**
Resources	**Additional practice; p. 189 #1-6** **Kuta Software for additional practice** **Online Dynamic Classroom for Algebra I** **PARCC Review Portfolio for MP 1 Unit 2** **PARCC Released Algebra I Problems** **Video Tutor p. 183**

Section 4.3 – Rate of Change and Slope

Warm-up/Starting Options	Explore & Reflect 1 p. 191
Practice and Apply	p. 192-193 Examples 2-3 p. 194 Practice, #1-9 Problem Solving, p. 196 #1-7
Resources	Additional Practice; p. 195 #1-10 Kuta Software for additional practice PARCC Review Portfolio for MP 1 Unit 2 PARCC Released Algebra I Problems Video Tutor p. 191

Section 4.4 – The Slope Formula

Warm-up/Starting Options	Explore & Reflect 1 p.197-198
Practice and Apply	p. 198-200 Examples 2-3 p. 200 Practice, #1-2 Problem Solving, p. 202 #1-7
Resources	Additional Practice; p. 201 #1-10 Online Dynamic Classroom for Algebra I PARCC Review Portfolio for MP 1 Unit 2 PARCC Released Algebra I Problems Video Tutor p. 197

Section 4.5 – Exploring Direct Variation (no absolute value!)

Warm-up/Starting Options	Explore & Reflect p.203-205
Practice and Apply	p. 210 Practice, #1 Problem Solving; p. 214 #1,3
Resources	Additional Practice; p. 213 #1-2 PARCC Review Portfolio for MP 1 Unit 2 PARCC Released Algebra I Problems Video Tutor p. 203

Section 4.6 – Graphing and Writing Linear Functions

Warm-up/Starting Options	Example & Reflect p. 215-216
Practice and Apply	p. 216-220 Examples 2-4 p. 220-221 Practice, #1-16 Problem Solving p. 224 #1-7
Resources	Additional Practice p. 223 #1-8 Online Dynamic Classroom for Algebra I PARCC Released Algebra I Problems Video Tutor; p. 215

PART IV: EVIDENCE OF LEARNING

IDENTIFY THE METHODS BY WHICH STUDENTS WILL DEMONSTRATE THEIR UNDERSTANDING OF CONTENT AND THEIR ABILITY TO APPLY SKILLS. IDENTIFY BLOOM'S LEVELS.

Formative Assessments:

The effectiveness of the instructional program will be based on numerous activities and strategies including the following: teacher observations, students collaborating with peers, questioning strategies, student record-keeping, quizzes (skill based assessments), exit/admit assignments, peer/self-assessments, learning/response logs, discussions and practice presentations.

Accommodations/Modifications:

As per IEP.

Summative Assessments:

The following assessments will be used to evaluate student learning, skill acquisition and academic achievement of the Standards of Mathematical Practice and the New Jersey Learning Standards for Mathematics listed under each chapter in the Geometry curriculum/syllabus at the conclusion of an instructional time period.

- Chapter Tests (application based assessments)
- Periodic Benchmark Tests
- PARCC review portfolio packets (for each unit)
- Standardized Tests

Accommodations/Modifications:

As per IEP.

Performance Assessments:

Performance Tasks, Display of Student Work

Accommodations/Modifications:

As per IEP.

Black Horse Pike Regional School District Curriculum Template

ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS

Course Name: ALGEBRA 1 - PARCC

Course Number:

PART I: UNIT RATIONALE

WHY ARE STUDENTS LEARNING THIS CONTENT AND THESE SKILLS?

Course/Unit Title: Absolute Value **Grade Level(s):** **9-10**	**Unit Summary**: Students will focus on absolute value equations and inequalities, apply compound inequalities to absolute value problems, and understand how the parent absolute value function is affected by transformation
Essential Question(s): - How can you use graphing to solve equations involving absolute value? - How can you solve special compound inequalities? - How does solving absolute value inequalities relate to solving compound inequalities? - How does changing the value of *a* affect the graph $g(x) = a\|x\|$? -	**Enduring Understanding(s):** - Solving an Absolute Value Equation by Graphing - Solving an Absolute Value Equation Using Algebra - Solving a Real-World Absolute Value Problem - Solving Compound Inequalities - Solving Absolute Value Inequalities with < and > - Understanding the Parent Absolute Value Function - Graphing $g(x) = a\|x\|$ when $\|a\| < 1$ and when $\|a\| > 1$ - Writing the Equation for an Absolute Value Function -

PART II: INSTRUCTIONAL STRATEGIES AND RESOURCES

DESCRIBE THE LEARNING TARGETS.

After each target, identify the New Jersey Student Learning Standards that are applicable

Learning Target	**NJSLS:**
1.7 – Solving Absolute Value Equations **NJSLS.A.CED.A.2 –** *Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.* **NJSLS.A-REI.A.1** - *Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.* **NJSLS.A.REI.D.11 –** *Explain why the x-coordinates of the points where the graphs of the equations y = f(x) and y = g(x) intersect are the solutions of the equation f(x) = g(x); find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where f(x) and/or g(x) are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.*	**1.7 – NJSLS.A.CED.A.2, NJSLS.A.REI.A.1, NJSLS.A.REI.D.11** **2.6 – NJSLS.A.REI.B.3** **2.7 – NJSLS.A.REI.B.3** **4.5 – NJSLS.A.CED.A.2, NJSLS.F.IF.C.7b, NJSLS.F.BF.A.1, NJSLS.F.BF.3**

2.6 – Solving Compound Inequalities **NJSLS.A-REI.B3** - *Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.* **2.7 – Solving Absolute Value Inequalities** **NJSLS.A-REI.B3** - *Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.* **4.5 – Direct Variation** **NJSLS.A.CED.A.2 –** *Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.* **NJSLS.F.BF.A.1 –** *Write a function that describes a relationship between two quantities* **NJSLS.F.BF.B.3 -** *Identify the effect on the graph of replacing f(x) by f(x) + k, k f(x), f(kx), and f(x + k) for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology.* **NJSLS.F.IF.C.7b –** *Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.*	

Inter-Disciplinary Connections:

Real-World problem solving examples:
Exercise running a path from one place to another and back (p. 43) water storage in a tank (p. 44), manufacturing – margin of error (p. 46), making jewelry (p. 46), maintaining certain weight to box (p. 100), temperature needed to keep a Tetra fish alive in a tank (p. 102), hiring employees (p. 102), carpentry – acceptable tolerance (p. 106), quality control of product (p. 106), miniature golf (p. 208), game design (p. 214).

Inter-Disciplinary problem solving examples:
Health (p. 43), Business – number of shoppers in a store for a day (p. 44), Engineering – expansion and contraction of metal on a bridge (p. 46), Manufacturing – margin of error or a wheel diameter (p. 46), Physics – sound, in Hertz, the human ear can distinguish (p. 100), Astronomy – studying orbits of the outer planets and distances at Aphelion and Perihelion (p. 102), Biology – average lifespan of certain mammals (p. 106), Optics – reflection of light in a mirror (p. 212),

Students will engage with the following text:

Explorations in Core Math Algebra I, 2010 by Houghton Mifflin Harcourt Publishing

Students will write:

Students will define and compare/contrast given terms. Students will describe and write about a diagram using mathematical language. Students will relate and model real world situations using algebraic terminology and symbols. Students will explain their reasoning when problem solving. Students will provide examples and counterexamples to justify their reasoning. Students will perform error analysis where they will identify the error and explain how to correctly answer the problem.

PART III: TRANSFER OF KNOWLEDGE AND SKILLS

DESCRIBE THE LEARNING EXPERIENCE.

How will students uncover content and build skills.

Opportunities for developing students' understanding in this chapter include: explore and reflect activities, engagement of prior knowledge activities, problem solving techniques, test taking strategies, modeling examples, using real-life application and construction of models or other hands on activities such as projects. Technology such as Video tutor links, Smart Board, graphing calculators, and Desmos will also be explored through the learning experience. Other interests could include, but is not limited to alternative lesson openers, using note-taking strategies, math and history applications, and interdisciplinary applications.

Suggested warm-up activities, instructional strategies/activities, and assignments:

Section 1.7 – Solving Absolute Value Equations:

Warm-up/Starting Options	**Example & Reflect #1 p. 41**
Practice and Apply	**p. 42-43 Examples 2-3** **p. 44 Practice, #1-8** **Problem Solving; p. 46 #1-6**
Resources	**Additional Practice, p. 45 #1-17** **Kuta Software for additional practice** **Online Dynamic Classroom for Algebra I** **PARCC Review Portfolio for MP 1 Unit 3** **PARCC Released Algebra I Problems** **Video Tutor p. 41**

Section 2.6 – Solving Compound Inequalities:

Warm-up/Starting Options	**Example & Reflect 1 p. 99-100 #1**
Practice and Apply	**p. 100 Practice, #1-4** **Problem Solving; p. 102 #1-7**
Resources	**Additional Practice, p 101 #1-12** **Kuta Software for additional practice** **Online Dynamic Classroom for Algebra I** **PARCC Review Portfolio for MP 1 Unit 3** **PARCC Released Algebra I Problems** **Video Tutor p. 99**

Section 2.7 – Solving Absolute-Value Inequalities;

Warm-up/Starting Options	**Explore & Reflect 1 p. 103 #1**
Practice and Apply	**p. 104 – Explore #2** **p. 138 Problem Solving, #1-6**
Resources	**Additional Practice, p. 105 #1-13** **Kuta Software for additional practice** **Online Dynamic Classroom for Algebra I**

	PARCC Review Portfolio for MP 1 Unit 3 **PARCC Released Algebra I Problems** **Video Tutor p. 103**

Section 4.5 – Exploring Direct Variation;

Warm-up/Starting Options	**Explore & Reflect #1 p. 203-205**
Practice and Apply	**p. 205-206 Engage #2** **p. 206-209 Examples 3-6** **p. 210-212 Practice, #1-12** **Problem Solving; p. 214 #1-4**
Resources	**Additional Practice; p. 213 #1-4** **Kuta Software for additional practice** **Online Dynamic Classroom for Algebra I** **PARCC Review Portfolio for MP 1 Unit 3** **PARCC Released Algebra I Problems** **Video Tutor p. 203**

PART IV: EVIDENCE OF LEARNING

IDENTIFY THE METHODS BY WHICH STUDENTS WILL DEMONSTRATE THEIR UNDERSTANDING OF CONTENT AND THEIR ABILITY TO APPLY SKILLS. IDENTIFY BLOOM'S LEVELS.

Formative Assessments:

The effectiveness of the instructional program will be based on numerous activities and strategies including the following: teacher observations, students collaborating with peers, questioning strategies, student record-keeping, quizzes (skill based assessments), exit/admit assignments, peer/self-assessments, learning/response logs, discussions and practice presentations.

Accommodations/Modifications:

As per IEP.

Summative Assessments:

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Accommodations/Modifications:

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Performance Assessments:

Performance Tasks, Display of Student Work

Accommodations/Modifications:

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Black Horse Pike Regional School District Curriculum Template

ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS

Course Name: ALGEBRA 1 - PARCC

Course Number:

PART I: UNIT RATIONALE

WHY ARE STUDENTS LEARNING THIS CONTENT AND THESE SKILLS?

Course/Unit Title: Systems of Linear Equations and Inequalities **Grade Level(s):** **9-10**	**Unit Summary**: Students will learn how to solve systems of linear equations and inequalities by the methods of graphing, substitution, and elimination. Students will extend those skills to learn how to graph systems of linear inequalities and interpret their solutions
Essential Question(s): - How do you approximate the solution of a system of linear equations by graphing? - How do you use substitution to solve a system of linear equations? - How do you solve a system of linear equations by adding or subtracting? - How do you solve systems with no or infinitely many solutions? - How do you graph a linear inequality in two variables?	**Enduring Understanding(s):** - Solving a Linear System by Graphing - Estimating a Solution by Graphing - Solving a Linear System by Substitution - Solving a Linear System by Adding and Subtracting - Understanding Linear Systems and Multiplication - Solving a Linear System by Multiplying One Equation - Solving a Linear System by Multiplying Both Equations - Solving Special Systems by Graphing - Solving Special Systems Algebraically - Graphing a Linear Inequality - Graphing a Linear Inequality in Two Variables

PART II: INSTRUCTIONAL STRATEGIES AND RESOURCES

DESCRIBE THE LEARNING TARGETS.

After each target, identify the New Jersey Student Learning Standards that are applicable

Learning Target	**NJSLS:**
SOLVING SYSTEMS OF EQUATIONS **NJSLS.A.REI.C.5** - *Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions* **NJSLS.A-REI.C.6** - *Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.*	**5.1 – NJSLS.A.REI.C.5** **5.2 – NJSLS.A.REI.C.6** **5.3 – NJSLS.A.REI.C.5, NJSLS.A.REI.6** **5.4 – NJSLS.A.REI.C.6**

SOLVING SYSTEMS OF INEQUALITIES **NJSLS.A-CED.A.3** - *Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context.* **NJSLS.A-REI.C.6** - *Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.* **NJSLS.A-REI.D.12** - *Graph the solutions to a linear inequality in two variables as a half plane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.*	**5.5 – NJSLS.A.REI.D.12** **5.6 – NJSLS.N.Q.2, NJSLS.A.CED.A.3, NJSLS.A REI.C.6**

Inter-Disciplinary Connections:

Real-World problem solving examples:
Comparing savings plans (p. 273), comparing comic book collections and subscriptions (p. 274), comparing tree growth (p. 274), comparing commissions at a job (p. 277), comparing membership fees (p. 278), determining individual cost for medical treatment (p. 290), comparing reading rates (p. 295), comparing earnings (p. 296), gardening across an area (p. 304), analyzing earnings through two incomes (p. 312)

Inter-Disciplinary problem solving examples:
Finance – comparing saving account plans (p. 274), Economics – comparing supply and demand curves (supplemental), Construction – cost comparison for a particular remodeling job (p. 278), Business – comparison of delivery rates for courier companies (p. 296), Business – determining possible combinations of materials to yield products (p. 312)

Students will engage with the following text:

Explorations in Core Math Algebra I, 2010 by Houghton Mifflin Harcourt Publishing Resources

Students will write:

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Suggested warm-up activities, instructional strategies/activities, and assignments:

Section 5.1 – Solving Systems by Graphing:

Warm-up/Starting Options	**Example & Reflect #1 p. 269-270**
Practice and Apply	**p. 271 Example 2** **p. 118 Practice, #1-5** **Problem Solving; p. 274 #1-6**
Resources	**Additional Practice, p. 273 #1-5** **Kuta Software for additional practice** **Online Dynamic Classroom for Algebra I** **PARCC Review Portfolio for MP 1 Unit 4** **PARCC Released Algebra I Problems** **Video Tutor p. 269**

Section 5.2 – Solving Systems by Substitution:

Warm-up/Starting Options	**Example & Reflect 1 p. 275-276 #1a-d, 1a-c**
Practice and Apply	**p. 276 Practice, #1-7** **Problem Solving; p. 278 #1-8**
Resources	**Additional Practice, p 277 #1-11** **Kuta Software for additional practice** **Online Dynamic Classroom for Algebra I** **PARCC Review Portfolio for MP 1 Unit 4** **PARCC Released Algebra I Problems** **Video Tutor p. 275**

Section 5.3 – Solving Systems by Elimination;

Warm-up/Starting Options	**Example & Reflect #1 p. 279-280**
Practice and Apply	**p. 280-281, 283-286 Example #2, 4,5** **p. 282-283 Explore #3** **p. 286-288 Practice, #1-15** **p. 290 Problem Solving, #1-8**
Resources	**Additional Practice, p. 289 #1-10**

	Kuta Software for additional practice **Online Dynamic Classroom for Algebra I** **PARCC Review Portfolio for MP 1 Unit 4** **PARCC Released Algebra I Problems** **Video Tutor p. 279**

Section 5.4 – Solving Special Systems;

Warm-up/Starting Options	**Example & Reflect #1 p. 291-292**
Practice and Apply	**p. 292-293 Example #2** **p. 293-294 Practice, #1-11** **Problem Solving; p. 146 #1-8**
Resources	**Additional Practice; p. 295 #1-8** **Kuta Software for additional practice** **Online Dynamic Classroom for Algebra I** **PARCC Review Portfolio for MP 1 Unit 4** **PARCC Released Algebra I Problems** **Video Tutor p. 291**

Section 5.5 – Solving Linear Inequalities

Warm-up/Starting Options	**Example & Reflect #1 p.297-298**
Practice and Apply	**p. 299 Example 2** **p. 300-302 Practice, #1-6** **Problem Solving; p. 304 #1-6**
Resources	**Additional Practice; p. 303 #1-10** **Kuta Software for additional practice** **Online Dynamic Classroom for Algebra I** **PARCC Review Portfolio for MP 1 Unit 4** **PARCC Released Algebra I Problems** **Video Tutor p. 297**

Section 5.6 – Solving Systems of Linear Inequalities

Warm-up/Starting Options	**Focus on Modeling # 1 p.305**
Practice and Apply	**p. 306-308 Examples 2-5** **p. 308-310 Extend, #1-12** **Problem Solving; p. 312 #1-4**
Resources	**Additional practice; p. 311 #1-7** **Kuta Software for additional practice** **Online Dynamic Classroom for Algebra I** **PARCC Review Portfolio for MP 1 Unit 4** **PARCC Released Algebra I Problems**

PART IV: EVIDENCE OF LEARNING

IDENTIFY THE METHODS BY WHICH STUDENTS WILL DEMONSTRATE THEIR UNDERSTANDING OF CONTENT AND THEIR ABILITY TO APPLY SKILLS. IDENTIFY BLOOM'S LEVELS.

Formative Assessments:

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Accommodations/Modifications:

As per IEP.

Summative Assessments:

The following assessments will be used to evaluate student learning, skill acquisition and academic achievement of the Standards of Mathematical Practice and the New Jersey Learning Standards for Mathematics listed under each chapter in the Geometry curriculum/syllabus at the conclusion of an instructional time period.

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- PARCC review portfolio packets (for each unit)
- Standardized Tests

Accommodations/Modifications:

As per IEP.

Performance Assessments:

Performance Tasks, Display of Student Work

Accommodations/Modifications:

As per IEP.

Black Horse Pike Regional School District Curriculum Template

ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS

Course Name: Algebra I PARCC

Course Number:

PART I: UNIT RATIONALE

WHY ARE STUDENTS LEARNING THIS CONTENT AND THESE SKILLS?

Course/Unit Title: Algebra I PARCC/Real Number System, Exponents, Exponential Functions **Grade Level(s):** 9 - 12	**Unit Summary**: In this unit students will be able to understand real numbers and their properties. Students will develop and use the properties of integer and rational exponents. Students will also simplify radicals and understand operations with square root expressions.
Essential Question(s): • **What are rational and irrational numbers and how are radicals related to rational exponents?** • **How can you develop and use the properties of integer exponents?** • **How do you simplify radical expressions?** • **How do you perform operations with radical expressions?** • **How does changing the values of *a*, *h*, and *k* affect the graph of an exponential function?** • **How do you write, graph, and interpret exponential growth and decay functions?** • **How can you model and solve problems involving exponential data?** • **How can you recognize, describe, and compare linear and exponential functions?**	**Enduring Understanding(s):** Students will be able to: • Understand real numbers and their properties • Prove that a set is closed • Prove that the sum of a rational number and irrational number is irrational • Understand radicals and rational exponents • Use patterns of integer exponents • Apply properties of integer exponents • Use exponent properties to simplify radical expressions • Simplify expressions involving rational exponents • Simplify radical expressions • Add, subtract, multiply and divide radical expressions • Graph exponential growth and decay functions • Write an equation from an exponential growth/decay graph • Describe end behavior of an exponential function • Model exponential growth and decay • Write an exponential function to model given situations • Solve exponential equations by equating exponents • Write and exponential equation and solve by graphing • Fit a function to data • Plot and analyze residuals • Compare constant changes and constant percent changes • Compare linear and exponential functions

PART II: INSTRUCTIONAL STRATEGIES AND RESOURCES

DESCRIBE THE LEARNING TARGETS.

After each target, identify the New Jersey Student Learning Standards that are applicable

Learning Target	NJSLS:
1. Learn the relationship between rational exponents and radicals ***NJSLS.N.RN.A.1*** *[STANDARD] – Explain how the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those values, allowing for a notation for radicals in terms of rational exponents* **2. Apply rules of exponents for integers to rational exponents in radicals** ***NJSLS.N.RN.A.1*** *[STANDARD] - Explain how the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those values, allowing for a notation for radicals in terms of rational exponents* ***NJSLS.N.RN.A.2*** *[STANDARD]* - Rewrite expressions involving radicals and rational exponents using the properties of exponents. ***NJSLS.N.RN.B.3*** *[STANDARD]* - Explain why the sum or product of two rational numbers is rational; that the sum of a rational number and an irrational number is irrational; and that the product of a nonzero rational number and an irrational number is irrational. **3. Learn characteristics of basic growth and decay functions and use a graphing calculator to explore transformations of these exponential functions** ***NJSLS.F.BF.B.3*** *[STANDARD]* - Identify the effect on the graph of replacing f(x) by f(x) + k, k f(x), f(kx), and f(x + k) for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. ***NJSLS.F.IF.C.7e*** *[STANDARD]* - Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude. ***NJSLS.F.LE.A.2*** *[STANDARD]* - Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table). ***NJSLS.F.LE.A.1c*** *[STANDARD]* - Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another. **4. Use technology to find an exponential model for a set of data.** ***NJSLS.A.REI.A.1*** *[STANDARD]* - Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method. ***NJSLS.A.REI.D.11*** *[STANDARD]* - Explain why the x-coordinates of the points where the graphs of the equations y = f(x) and y = g(x) intersect are the solutions of the equation f(x) = g(x); find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where f(x) and/or g(x) are linear, polynomial, rational, absolute value, exponential, and logarithmic functions. ***NJSLS.S.ID.B.6a*** *[STANDARD]* - Fit a function to the data (including with the use of technology); use functions fitted to data to solve problems in the context of the data. ***NJSLS.S.ID.6b*** *[STANDARD]* - Informally assess the fit of a function by plotting and analyzing residuals, including with the use of technology.	**1.** ***NJSLS.N.RN.A.1*** **2.** ***NJSLS.N.RN.A.2*** **3.** ***NJSLS.N.RN.B.3*** **4.** ***NJSLS.F.BF.B.3*** **5.** ***NJSLS.F.IF.C.7e*** **6.** ***NJSLS.F.LE.A.2*** **7.** ***NJSLS.F.LE..A.1c*** **8.** ***NJSLS.A.REI.A.1*** **9.** ***NJSLS.A.REI.D.11*** **10.** ***NJSLS.S.ID.B.6a*** **11.** ***NJSLS.S.ID.B.6b*** **12.** ***NJSLS.F.LE.A.1c*** **13.** ***NJSLS.F.LE.A.3***

5. Compare the growth of linear and exponential functions ***NJSLS.F.LE.A.1c*** *[STANDARD]* - Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another. ***NJSLS.F.LE.A.3*** *[STANDARD]* - Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function.	

Inter-Disciplinary Connections:

Real-World problem solving examples:
Ball Bearing (p 325), Mu-chip dimensions (p 326), Weight of Northern Yellow Bats (p 326), Volume of a freshwater tank (p 326), Pendulum (p 336), Beaufort Scale to measure wind speed of tornados (p 336), Factory making cylindrical cans (p 336), Population growth (p 511, 512), Line of Credit (p 512), Fishing (p 512) , Depreciation of a car's value (p 516), Financial growth of houses, bank accounts, investments (p 518), Annual Sales for fast food restaurant (p 521), Real Estate values (p 522), Ticket sales (p 529), Comparing Salary plans (p 533), Comparing the spread of flu viruses (p 540)

Inter-Disciplinary problem solving examples:
Cooking (p325), Entomology - the study of insects (p 326), Biology – estimating the mass of an animal's brain (p 336), Manufacturing (p336), Economics (p 516), Business – stock values (p 517), Accounting (p 518), Science – half-lives of substances (p 522), Engineering – comparing reflector surfaces (p 539)

Students will engage with the following text:

Explorations in Core Math Algebra I, 2010 by Houghton Mifflin Harcourt Publishing Group

Students will write:

Students will define and compare/contrast given terms. Students will describe and write about a diagram using mathematical language. Students will relate and model real world situations using algebraic terminology and symbols. Students will explain their reasoning when problem solving. Students will provide examples and counterexamples to justify their reasoning. Students will perform error analysis where they will identify the error and explain how to correctly answer the problem.

PART III: TRANSFER OF KNOWLEDGE AND SKILLS

DESCRIBE THE LEARNING EXPERIENCE.

How will students uncover content and build skills.

Opportunities for developing students' understanding in this chapter include: explore and reflect activities, engagement of prior knowledge activities, problem solving techniques, test taking strategies, modeling examples, using real-life application and construction of models or other hands on activities such as projects. Technology such as Video tutor links, Smart Board, graphing calculators, and Desmos will also be explored through the learning experience. Other interests could include, but is not limited to alternative lesson openers, using note-taking strategies, math and history applications, and interdisciplinary applications.

Suggested warm-up activities, instructional strategies/activities, and assignments:

Section 6.2 Understanding Real Numbers and Their Properties

Warm-up/Starting Options	**Engage & Reflect 1 p.327-328**
Practice and Apply	**p. 328-329 Examples 2-3** **p. 333 Practice, #1-4**
Resources	**Venn Diagram of Real Number System** **Kuta Software for additional practice** **Online Dynamic Classroom for Algebra I** **PARCC Review Portfolio for MP 2 Unit 1** **PARCC Released Algebra I Problems**

Section 6.1 Integer Exponents:

Warm-up/Starting Options	**Explore & Reflect 1 & 2 p. 321-323**
Practice and Apply	**p. 323 Examples 3** **p. 324 Practice, #1-22** **Problem Solving p 326, #1-7**
Resources	**Additional Practice p. 325** **Kuta Software for additional practice** **Online Dynamic Classroom for Algebra I** **PARCC Review Portfolio for MP 2 Unit 1** **PARCC Released Algebra I Problems** **Video Tutor Link p321**

Section 6.2 Rational Exponents:

Warm-up/Starting Options	**Simplifying Radicals and Radical Operations** **Explore & Reflect 4 p. 330**
Practice and Apply	**p. 331-332 Examples 5-6** **p. 334 Practice, #5-27** **Problem Solving p. 336, #1-7**

Resources	**Additional Practice p. 335** **Kuta Software for additional practice** **Online Dynamic Classroom for Algebra I** **PARCC Review Portfolio for MP 2 Unit 1** **PARCC Released Algebra I Problems** **Video Tutor Link p 327**

Section 9.2 Exponential Functions:

Warm-up/Starting Options	**Explore & Reflect 1 & 2 p. 503-504**
Practice and Apply	**p. 505-507 Examples 3 -5** **p. 508-510 Practice, #1-29** **Problem Solving p 512, #1-6**
Resources	**Additional Practice p. 511** **Kuta Software for additional practice** **Online Dynamic Classroom for Algebra I** **PARCC Review Portfolio for MP 2 Unit 1** **PARCC Released Algebra I Problems** **Video Tutor Link p 503**

Section 9.3 Exponential Growth and Decay:

Warm-up/Starting Options	**Explore & Reflect 1 p. 513**
Practice and Apply	**p. 514-518 Examples 2-5** **p. 518-520 Practice, #1-12** **Problem Solving p522 , #1-9**
Resources	**Additional Practice p. 521** **Kuta Software for additional practice** **Online Dynamic Classroom for Algebra I** **PARCC Review Portfolio for MP 2 Unit 1** **PARCC Released Algebra I Problems** **Video Tutor Link p 513**

Section 9.4 Linear, Quadratic and Exponential Models:

Warm-up/Starting Options	**Identify linear, exponential and quadratic functions given a graph (can utilize Video Tutor Link p 523)**
Practice and Apply	**p.523-528 Examples 1-4** **p. 529-530 Practice, #1-18** **Problem Solving p 532, #1-8**
Resources	**Additional Practice p. 531** **Kuta Software for additional practice** **Online Dynamic Classroom for Algebra I** **PARCC Review Portfolio for MP 2 Unit 1** **PARCC Released Algebra I Problems** **Video Tutor Link p 523**

Section 9.5 Comparing Models:

Warm-up/Starting Options	**Engage & Reflect 1 p. 533-534**
Practice and Apply	**p.534-535 Examples 2** **p. 536-538 Practice, #1-12** **Problem Solving p 540, #1-4**
Resources	**Additional Practice p. 539** **Kuta Software for additional practice** **Online Dynamic Classroom for Algebra I** **PARCC Review Portfolio for MP 2 Unit 1** **PARCC Released Algebra I Problems** **Video Tutor Link p 533**

PART IV: EVIDENCE OF LEARNING

IDENTIFY THE METHODS BY WHICH STUDENTS WILL DEMONSTRATE THEIR UNDERSTANDING OF CONTENT AND THEIR ABILITY TO APPLY SKILLS.
IDENTIFY BLOOM'S LEVELS.

Formative Assessments:

The effectiveness of the instructional program will be based on numerous activities and strategies including the following: teacher observations, students collaborating with peers, questioning strategies, student record-keeping, quizzes (skill based assessments), exit/admit assignments, peer/self-assessments, learning/response logs, discussions and practice presentations.

Accommodations/Modifications:

As per IEP.

Summative Assessments:

The following assessments will be used to evaluate student learning, skill acquisition and academic achievement of the Standards of Mathematical Practice and the New Jersey Learning Standards for Mathematics listed under each chapter in the Geometry curriculum/syllabus at the conclusion of an instructional time period.

- Chapter Tests (application based assessments)

- Periodic Benchmark Tests
- PARCC review portfolio packets (for each unit)
- Standardized Tests

Accommodations/Modifications:

As per IEP.

Performance Assessments:

Performance Tasks, Display of Student Work

Accommodations/Modifications:

As per IEP.

Black Horse Pike Regional School District Curriculum Template

ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS

Course Name: Algebra I PARCC

Course Number:

PART I: UNIT RATIONALE

WHY ARE STUDENTS LEARNING THIS CONTENT AND THESE SKILLS?

Course/Unit Title: Algebra I PARCC/Polynomials **Grade Level(s):** 9 - 12	**Unit Summary**: In this unit students will be able to understand polynomials as well as perform operations of multiplication, addition and subtraction with polynomials. Students will also factor polynomials by using a variety of methods including greatest common factor, perfect square trinomials, difference of squares, grouping and guess and check.
Essential Question(s): • **What parts of a polynomial represent terms, factors and coefficients?** • **How do you add and subtract polynomials?** • **How do you multiply polynomials?** • **How can you find special products of binomials?** • **How can you find the GCF of monomials?** • **How can you factor polynomials completely by grouping?** • **How can you factor $x^2 + bx + c$?** • **How can you factor $ax^2 + bx + c$?** • **How can you represent factoring special products geometrically?** • **How can you factor polynomials with more than one variable?**	**Enduring Understanding(s):** Students will be able to: • Investigate parts of a polynomial and state the degree and number of terms • Write polynomials in standard form • Interpret polynomials • Add polynomials • Subtract polynomials • Model high school populations using polynomial operations of addition and subtraction • Multiply two binomials using Algebra Tiles • Multiply binomials using the distributive property • Multiply two binomials by using the FOIL method • Multiply special cases (binomial squared) • Justify and apply a special product rule (sum and difference, binomial cubed, binomial squared) • Find the greatest common factor of two monomials • Find the greatest common factor of three monomials • Find the greatest common factor of expressions with binomial factors • Factor out a greatest common factor and group • Factor with binomial opposites • Factor trinomials • Factor $ax^2 + bx + c$ • Represent the factors of a perfect square trinomial • Represent the factors of the difference of two squares • Factor polynomials with two variables • Factor a perfect square trinomial

PART II: INSTRUCTIONAL STRATEGIES AND RESOURCES

DESCRIBE THE LEARNING TARGETS.

After each target, identify the New Jersey Student Learning Standards that are applicable

Learning Target	**NJSLS:**
1. Understand polynomials ***NJSLS.A.SSE.A.1*** *– [STANDARD]* - Interpret expressions that represent a quantity in terms of its context. ***NJSLS.A.SSE.A.1a*** *– [STANDARD]* - Interpret parts of an expression, such as terms, factors, and coefficients. ***NJSLS.A.SSE.A.1b*** *– [STANDARD]* - Interpret complicated expressions by viewing one or more of their parts as a single entity. **2. Operations with polynomials** ***NJSLS.A.APR.A.1*** *– [STANDARD]* - Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials. ***NJSLS.F.BF.A.1a*** *– [STANDARD]* – Determine an explicit expression, a recursive process, or steps for calculation from a context. ***NJSLS.A.SSE.A.2*** *– [STANDARD]* - Use the structure of an expression to identify ways to rewrite it. For example, see $x^4 - y^4$ as $(x^2)^2 - (y^2)^2$, thus recognizing it as a difference of squares that can be factored as $(x^2 - y^2)(x^2 + y^2)$. **4. Factor polynomials** ***NJSLS.A.SSE.A.1a*** *– [STANDARD]* - - Interpret parts of an expression, such as terms, factors, and coefficients. ***NJSLS.A.SSE.A.1b*** *– [STANDARD]* - Interpret complicated expressions by viewing one or more of their parts as a single entity. ***NJSLS.A.SSE.A.2*** *– [STANDARD]* - Use the structure of an expression to identify ways to rewrite it. For example, see $x^4 - y^4$ as $(x^2)^2 - (y^2)^2$, thus recognizing it as a difference of squares that can be factored as $(x^2 - y^2)(x^2 + y^2)$.	**1.** *NJSLS.A.SSE.A.1* **2.** *NJSLS.A.SSE.A.1a* **3.** *NJSLS.A.SSE.A.1b* **4.** *NJSLS.A.APR.A.1* **5.** *NJSLS.F.BF.A.1a* **6.** *NJSLS.A.SSE.A.2* **7.** *NJSLS.A.APR.A.1*

Inter-Disciplinary Connections:

Real-World problem solving examples:

Fireworks height (p 342), Transportation stopping time of vehicle (p 342), US Census Bureau calculation (p 345), Perimeter of field (p 348), Width of a river (p 348), Buying a car (p 356), Area of a room (p 356), Income earned (p 362), Designing a fountain in a garden (p 362), Computer screen dimension (p 379), Dimensions for foundation of a new building (p 380), Plan for an addition on the back of a house (p386), Fencing in a backyard (p 392), Making an open top box (p 396), Carpeting of a daycare center (p 396), Japanese Rock Garden (p 402),

Inter-Disciplinary problem solving examples:

Science/Engineering - Launching a rocket (p 342), Business Profits (p 347), Fashion – Designing a banner (p 347), History – Interpret Election Results (p 348), History – Dimensions of Great Pyramid of Giza (p 356), Art – gallery exhibit space (p 362), Engineering – building a table (p362), Science – design of an herb garden (p 380), Art – dimensions of a painting (p 392), Physical education – exercise platform (p 392), Physical Education – height of a ball (p 392), Art – framing a picture (p 402)

Students will engage with the following text:

Explorations in Core Math Algebra I, 2010 by Houghton Mifflin Harcourt Publishing Group

Students will write:

Students will define and compare/contrast given terms. Students will describe and write about a diagram using mathematical language. Students will relate and model real world situations using algebraic terminology and symbols. Students will explain their reasoning when problem solving. Students will provide examples and counterexamples to justify their reasoning. Students will perform error analysis where they will identify the error and explain how to correctly answer the problem.

PART III: TRANSFER OF KNOWLEDGE AND SKILLS

DESCRIBE THE LEARNING EXPERIENCE.

How will students uncover content and build skills.

Opportunities for developing students' understanding in this chapter include: explore and reflect activities, engagement of prior knowledge activities, problem solving techniques, test taking strategies, modeling examples, using real-life application and construction of models or other hands on activities such as projects. Technology such as Video tutor links, Smart Board, graphing calculators, and Desmos will also be explored through the learning experience. Other interests could include, but is not limited to alternative lesson openers, using note-taking strategies, math and history applications, and interdisciplinary applications.

Suggested warm-up activities, instructional strategies/activities, and assignments:

Section 6.3 Polynomials

Warm-up/Starting Options	**Engage & Reflect 1 p.337**
Practice and Apply	**p. 338-339 Examples 2-3** **p. 340 Practice, #1-7** **Problem Solving p 342, #1-7**

Resources	**Additional Practice p. 341** **Venn Diagram of Real Number System** **Kuta Software for additional practice** **Online Dynamic Classroom for Algebra I** **PARCC Review Portfolio for MP 2 Unit 2** **PARCC Released Algebra I Problems** **Video Tutor Link p337**

Section 6.4 Adding and Subtracting Polynomials:

Warm-up/Starting Options	**Example & Reflect 1 - 2 p. 343-344**
Practice and Apply	**p. 345 Examples 3** **p. 346 Practice, #1-12** **Problem Solving p 348, #1-6**
Resources	**Additional Practice p. 347** **Kuta Software for additional practice** **Online Dynamic Classroom for Algebra I** **PARCC Review Portfolio for MP 2 Unit 2** **PARCC Released Algebra I Problems** **Video Tutor Link p 343**

Section 6.5-6.6 Multiplying Polynomials and Special Products of Binomials:

Warm-up/Starting Options	**Engage & Reflect 2 p. 350-351**
Practice and Apply	**p. 352-353 Examples 3-4** **p. 357-358 Examples 1-2** **p. 354 Practice, #1-12** **p. 359-360 Practice, #1-26** **Problem Solving p. 356, #1-6** **Problem Solving p. 362, #1-7**
Resources	**Additional Practice p. 355** **Additional Practice p. 361** **Kuta Software for additional practice** **Online Dynamic Classroom for Algebra I** **PARCC Review Portfolio for MP 2 Unit 2** **PARCC Released Algebra I Problems** **Video Tutor Link p 349** **Video Tutor Link p 357**

Section 7.1-7.2 Factors and GCF:

Warm-up/Starting Options	**Explore & Reflect 1 p. 371-372**
Practice and Apply	**p. 372-373 Examples 2-3** **p. 377-378 Examples 1-2** **p. 374 Practice, #1-20**

	p. 378 Practice, #1-4 **Problem Solving p. 376, #1-8** **Problem Solving p. 380, #1-9**
Resources	**Additional Practice p. 375** **Additional Practice p. 379** **Kuta Software for additional practice** **Online Dynamic Classroom for Algebra I** **PARCC Review Portfolio for MP 2 Unit 2** **PARCC Released Algebra I Problems** **Video Tutor Link p 371** **Video Tutor Link p 377**

Section 7.3-7.4 Factoring Trinomials:

Warm-up/Starting Options	**Engage & Reflect 1 p. 381-382**
Practice and Apply	**p. 382-383 Example 2** **p. 387-388 Examples 1-2** **p. 383-384 Practice, #1-24** **p. 389-390 Practice, #1-23** **Problem Solving p. 386, #1-6** **Problem Solving p. 392, #1-8**
Resources	**Additional Practice p. 385** **Additional Practice p. 391** **Kuta Software for additional practice** **Online Dynamic Classroom for Algebra I** **PARCC Review Portfolio for MP 2 Unit 2** **PARCC Released Algebra I Problems** **Video Tutor Link p 381** **Video Tutor Link p 387**

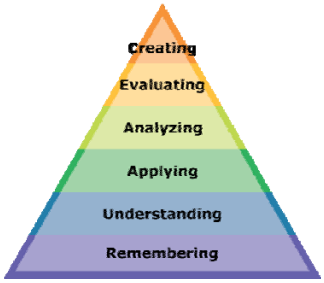
Section 7.5 Factoring Special Products:

Warm-up/Starting Options	**Explore & Reflect 1 -2 p. 393-394**
Practice and Apply	**p. 395 Additional Practice, #1-10** **Problem Solving p 396, #1-6**
Resources	**Kuta Software for additional practice** **Online Dynamic Classroom for Algebra I** **PARCC Review Portfolio for MP 2 Unit 2** **PARCC Released Algebra I Problems** **Video Tutor Link p 393**

Section 7.6 Choosing a Factoring Method:

Warm-up/Starting Options	**Explore & Reflect 1 p. 397**
Practice and Apply	**p. 397-399 Examples 2-4** **p. 399-400 Practice, #1-16**

	Problem Solving p 402, #1-8
Resources	**Additional Practice p. 401** **Kuta Software for additional practice** **Online Dynamic Classroom for Algebra I** **PARCC Review Portfolio for MP 2 Unit 2** **PARCC Released Algebra I Problems** **Video Tutor Link p 397**



PART IV: EVIDENCE OF LEARNING

IDENTIFY THE METHODS BY WHICH STUDENTS WILL DEMONSTRATE THEIR UNDERSTANDING OF CONTENT AND THEIR ABILITY TO APPLY SKILLS. IDENTIFY BLOOM'S LEVELS.

Formative Assessments:

The effectiveness of the instructional program will be based on numerous activities and strategies including the following: teacher observations, students collaborating with peers, questioning strategies, student record-keeping, quizzes (skill based assessments), exit/admit assignments, peer/self-assessments, learning/response logs, discussions and practice presentations.

Accommodations/Modifications:

As per IEP.

Summative Assessments:

The following assessments will be used to evaluate student learning, skill acquisition and academic achievement of the Standards of Mathematical Practice and the New Jersey Learning Standards for Mathematics listed under each chapter in the Geometry curriculum/syllabus at the conclusion of an instructional time period.

- Chapter Tests (application based assessments)
- Periodic Benchmark Tests
- PARCC review portfolio packets (for each unit)
- Standardized Tests

Accommodations/Modifications:

As per IEP.

Performance Assessments:

Performance Tasks, Display of Student Work

Accommodations/Modifications:

As per IEP.

Black Horse Pike Regional School District Curriculum Template

ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS

Course Name: Algebra I PARCC

Course Number:

PART I: UNIT RATIONALE

WHY ARE STUDENTS LEARNING THIS CONTENT AND THESE SKILLS?

Course/Unit Title: Algebra I PARCC/Quadratics **Grade Level(s):** 9 - 12	**Unit Summary**: In this unit students will be able to graph quadratics functions of the form f(x) = $ax^2 + bx + c$ and learn how to transform the graph of a quadratic function in the coordinate plane. Students will also explore several ways to solve quadratic equations of the form $ax^2 + bx + c = 0$.
Essential Question(s): • **What is the effect of the constant *a* on the graph of g(x)=ax^2?** • **What is the effect of the constants *h* and *k* on the graph of g(x)=(x - h)^2 + k ?** • **How can you obtain the graph of g(x)=(x - h)^2 + k from the graph f(x) = x^2 ?** • **Can you solve a quadratic equation by graphing?** • **How can you solve quadratic equations by factoring?** • **How can you solve a quadratic equation using square roots?** • **How can you solve quadratic equations without factoring?** • **How can you derive the quadratic formula and use it to solve quadratic equations?**	**Enduring Understanding(s):** Students will be able to: • Understand the parent quadratic function • Graph g(x)=ax^2 when $a > 0$ • Graph g(x)=ax^2 when $a < 0$ • Write the equation for a quadratic function • Graph functions of the form g(x) = x^2 + k • Graph functions of the form g(x) = (x - h)^2 • Graph f(x) = $x^2 + bx + c$ • Graph g(x)=a(x - h)^2 + k • Write a quadratic function from a graph • Find intersections of lines and parabolas • Solve quadratic equations graphically • Solve real world problems involving quadratics • Understand the zero-product property and recognize zeros of quadratic functions • Find the zeros of a quadratic function • Solve $ax^2 + bx + c = 0$ by factoring • Understand square roots • Solve quadratic equations algebraically • Complete the square • Solve quadratics by completing the square • Solve $ax^2 + bx = c$ when a is a perfect square • Solve $ax^2 + bx = c$ when a is not a perfect square • Graph a projectile motion model • Derive the quadratic formula • Use the quadratic formula • Solve quadratic equations using the quadratic formula

PART II: INSTRUCTIONAL STRATEGIES AND RESOURCES

DESCRIBE THE LEARNING TARGETS.

After each target, identify the New Jersey Student Learning Standards that are applicable

Learning Target	NJSLS:
1. Identify quadratics and understand their characteristics ***NJSLS.F.IF.B.4*** *– [STANDARD]* - For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. ***NJSLS.F.BF.A.1*** *– [STANDARD]* - Write a function that describes a relationship between two quantities. ***NJSLS.F.BF.B.3*** *– [STANDARD]* - Identify the effect on the graph of replacing f(x) by f(x) + k, k f(x), f(kx), and f(x + k) for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. **2. Graph quadratic equations** ***NJSLS.F.IF.C.7a*** *– [STANDARD]* - Graph linear and quadratic functions and show intercepts, maxima, and minima. ***NJSLS.F.BF.A.1*** *– [STANDARD]* - Write a function that describes a relationship between two quantities. ***NJSLS.F.BF.B.3*** *– [STANDARD]* - Identify the effect on the graph of replacing f(x) by f(x) + k, k f(x), f(kx), and f(x + k) for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. **3. Solve quadratic equations** ***NJSLS.A.CED.A.1*** *– [STANDARD]* - Create equations and inequalities in one variable and use them to solve problems. ***NJSLS.A.CED.A.2*** *– [STANDARD]* -Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales. ***NJSLS.A.REI.D.11*** *– [STANDARD]* -Explain why the x-coordinates of the points where the graphs of the equations y = f(x) and y = g(x) intersect are the solutions of the equation f(x) = g(x); find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where f(x) and/or g(x) are linear, polynomial, rational, absolute value, exponential, and logarithmic functions. ***NJSLS.A.REI.B.4a*** *– [STANDARD]* - Use the method of completing the square to transform any quadratic equation in x into an equation of the form $(x – p)^2 = q$ that has the same solutions. Derive the quadratic formula from this form. ***NJSLS.A.REI.B.4b*** *– [STANDARD]* - Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as a ± bi for real numbers a and b.	**1.** *NJSLS.F.IF.B.4* **2.** *NJSLS.F.BF.A.1* ***3.*** *NJSLS.F.BF.B.3* ***4.*** *NJSLS.F.IF.C.7a* ***5.*** *NJSLS.A.CED.A.1* ***6.*** *NJSLS.A.CED.A.2* ***7.*** *NJSLS.A.REI.D.11* ***8.*** *NJSLS.A.REI.B.4a* ***9.*** *NJSLS.A.REI.B.4b*

Inter-Disciplinary Connections:

Real-World problem solving examples:
Radio telescope disc (p 418), Superhero flying over a tall building (p 426), Suspension cables on a bridge (p 426), Olympic diving (p 430), dropping sandbags from a hot air balloon (p 435), Falling from a tightrope walk (p 439), Shooting water out of a water soaker toy (p 441), Timing of firework explosion (p 442), Cat jumping off a counter (p 450), Designing a new store and parking lot (p 452), Skydiving (p 456), Designing a bookcase (p 458), Wallpaper a living room (p 458), Dimensions of a pool (p 469), Tiling a floor (p 470), Launching a pumpkin from a cannon (p 470), Astrodome in Texas (p 477), Modeling number of students in a school over time (p 478), Picture frame boarder (p 478)

Inter-Disciplinary problem solving examples:
Engineering – designing an arch for a bridge (p 418), Carpentry – building a dome (p 426), Physical Education – kicking a soccer ball (p 429), Science/Engineering – launching a model rocket (p 430), Painting (p 433), Science - Rate of Gravity on an object on different planets (p 436), Engineering – designing a protective crate for an egg (p 440), Physical Education – height/time of a baseball or football (p 442), Hitting a gold ball out of a sand trap (p 452), Business - Calculating hourly wages (p 458), Fashion – pillow cases (p 458), Art – dimensions of a painting (p 469), Theater – set design (p 470),

Students will engage with the following text:

Explorations in Core Math Algebra I, 2010 by Houghton Mifflin Harcourt Publishing Group

Students will write:

Students will define and compare/contrast given terms. Students will describe and write about a diagram using mathematical language. Students will relate and model real world situations using algebraic terminology and symbols. Students will explain their reasoning when problem solving. Students will provide examples and counterexamples to justify their reasoning. Students will perform error analysis where they will identify the error and explain how to correctly answer the problem.

PART III: TRANSFER OF KNOWLEDGE AND SKILLS

DESCRIBE THE LEARNING EXPERIENCE.

How will students uncover content and build skills.

Opportunities for developing students' understanding in this chapter include: explore and reflect activities, engagement of prior knowledge activities, problem solving techniques, test taking strategies, modeling examples, using real-life application and construction of models or other hands on activities such as projects. Technology such as Video tutor links, Smart Board, graphing calculators, and Desmos will also be explored through the learning experience. Other interests could include, but is not limited to alternative lesson openers, using note-taking strategies, math and history applications, and interdisciplinary applications.

Suggested warm-up activities, instructional strategies/activities, and assignments:

Section 8.1-8.2 Identifying Quadratic Functions and Characteristics:

Warm-up/Starting Options	**Engage & Reflect 1 p.411**
Practice and Apply	**p. 412-415 Examples 2-4** **p. 419-422 Examples 1-3** **p. 416 Practice, #1-8** **p. 422-424 Practice, #1-19** **Problem Solving p. 418, #1-7** **Problem Solving p. 426, #1-7**
Resources	**Additional Practice p. 417** **Additional Practice p. 425** **Kuta Software for additional practice** **Online Dynamic Classroom for Algebra I** **PARCC Review Portfolio for MP 2 Unit 2** **PARCC Released Algebra I Problems** **Video Tutor Link p 411** **Video Tutor Link p 419**

Section 8.3 Graphing Quadratic Functions and Characteristics:

Warm-up/Starting Options	**Factoring Trinomials**
Practice and Apply	**p. 427 Example 1** **p. 428 Practice, #1-6** **Problem Solving p 430, #1-5**
Resources	**Additional Practice p. 429** **Kuta Software for additional practice** **Online Dynamic Classroom for Algebra I** **PARCC Review Portfolio for MP 2 Unit 3** **PARCC Released Algebra I Problems** **Video Tutor Link p. 427**

Section 8.4 Transforming Quadratic Functions:

Warm-up/Starting Options	**Engage & Reflect 1 p. 431**
Practice and Apply	**p. 432-433 Examples 2-3**

	p. 434 Practice, #1-5 **Problem Solving p. 436, #1-6**
Resources	**Additional Practice p. 435** **Kuta Software for additional practice** **Online Dynamic Classroom for Algebra I** **PARCC Review Portfolio for MP 2 Unit 3** **PARCC Released Algebra I Problems** **Video Tutor Link p 431**

Section 8.5 Solving Quadratics by Graphing:

Warm-up/Starting Options	**Explore & Reflect 1 p. 437**
Practice and Apply	**p. 438-439 Examples 2-3** **p. 440 Practice, #1-5** **Problem Solving p 442, #1-6**
Resources	**Additional Practice p. 441** **Kuta Software for additional practice** **Online Dynamic Classroom for Algebra I** **PARCC Review Portfolio for MP 2 Unit 3** **PARCC Released Algebra I Problems** **Video Tutor Link p 437**

Section 8.6 Solving Quadratics by Factoring:

Warm-up/Starting Options	**Engage & Reflect 1 p. 443**
Practice and Apply	**p. 444-448 Examples 2-6** **p. 449-450 Practice, #1-29** **Problem Solving p. 452 , #1-7**
Resources	**Additional Practice p. 451** **Kuta Software for additional practice** **Online Dynamic Classroom for Algebra I** **PARCC Review Portfolio for MP 2 Unit 3** **PARCC Released Algebra I Problems** **Video Tutor Link p 443**

Section 8.7 Solving Equations by Using Square Roots:

Warm-up/Starting Options	**Engage & Reflect 1 p. 453**
Practice and Apply	**p. 454-455Examples 2-3** **p. 456 Practice, #1-15** **Problem Solving p 458, #1-8**
Resources	**Additional Practice p. 457** **Kuta Software for additional practice** **Online Dynamic Classroom for Algebra I** **PARCC Review Portfolio for MP 2 Unit 3** **PARCC Released Algebra I Problems**

	Video Tutor Link p 453

Section 8.8 Completing the Square:

Warm-up/Starting Options	**Explore & Reflect 1 p. 459**
Practice and Apply	**p. 460-466 Examples 2-7** **p. 467-468 Practice, #1-23** **Problem Solving p 470, #1-7**
Resources	**Additional Practice p. 469** **Kuta Software for additional practice** **Online Dynamic Classroom for Algebra I** **PARCC Review Portfolio for MP 2 Unit 3** **PARCC Released Algebra I Problems** **Video Tutor Link p 459**

Section 8.9 The Quadratic Formula and the Discriminant:

Warm-up/Starting Options	**Explore & Reflect 1 p. 471-472** **Engage & Reflect 2 p. 473**
Practice and Apply	**p. 474-475 Example 3** **p. 476 Practice, #1-17** **Problem Solving p 478, #1-8**
Resources	**Additional Practice p. 477** **Kuta Software for additional practice** **Online Dynamic Classroom for Algebra I** **PARCC Review Portfolio for MP 2 Unit 3** **PARCC Released Algebra I Problems** **Video Tutor Link p 471**

PART IV: EVIDENCE OF LEARNING

IDENTIFY THE METHODS BY WHICH STUDENTS WILL DEMONSTRATE THEIR UNDERSTANDING OF CONTENT AND THEIR ABILITY TO APPLY SKILLS. IDENTIFY BLOOM'S LEVELS.

<u>Formative Assessments</u>:

The effectiveness of the instructional program will be based on numerous activities and strategies including the following: teacher observations, students collaborating with peers, questioning strategies, student record-keeping, quizzes (skill based assessments), exit/admit assignments, peer/self-assessments, learning/response logs, discussions and practice presentations.

Accommodations/Modifications:

As per IEP.

Summative Assessments:

The following assessments will be used to evaluate student learning, skill acquisition and academic achievement of the Standards of Mathematical Practice and the New Jersey Learning Standards for Mathematics listed under each chapter in the Geometry curriculum/syllabus at the conclusion of an instructional time period.

- Chapter Tests (application based assessments)
- Periodic Benchmark Tests
- PARCC review portfolio packets (for each unit)
- Standardized Tests

Accommodations/Modifications:

As per IEP.

Performance Assessments:

Performance Tasks, Display of Student Work

Accommodations/Modifications:

As per IEP.

Black Horse Pike Regional School District Curriculum Template

ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS

Course Name: Algebra I PARCC

Course Number:

PART I: UNIT RATIONALE

WHY ARE STUDENTS LEARNING THIS CONTENT AND THESE SKILLS?

Course/Unit Title: Algebra I PARCC/Quadratics **Grade Level(s):** 9 - 12	**Unit Summary**: In this unit students will be able to create scatter plots and use these graphs to interpret data by understanding correlations, determine lines of best fit and make predictions. Students will also learn about the differences between arithmetic and geometric sequences as well as how to write rules for these sequences. Students will learn how to organize and analyze categorical data by using relative frequencies. Students will analyze numerical data by calculating statistics that locate the center and measure the spread of the data. Then students will see how displaying numerical data in various ways helps make sense of it, especially when the amount of data is substantial.
Essential Question(s): • **How can you decide whether a correlation exists between paired numerical data and, if so, what is the line of fit for that data*?*** • **How can you use residuals and linear regression to fit a line to data**? • **Why is a sequence a function and how can you write a rule for an arithmetic sequence?** • **How can you write a rule for a geometric sequence?** • **How can categorical data be organized and analyzed?** • **How can you estimate statistics from data displayed?** • **How can you characterize and compare the center and spread of data sets?**	**Enduring Understanding(s):** Students will be able to: • Understand correlation • Estimate correlation coefficients • Distinguish causation from correlation • Fin a line of fit for data • Make predictions using a linear model • Create a residual plot and evaluate fit • Compare sums of squared residuals • Perform linear regression on a graphing calculator • Understanding sequences • Use an explicit rule to generate a sequence • Use a recursive rule to generate a sequence • Write rules for an arithmetic sequence • Write general rules for arithmetic sequences • Relate arithmetic sequences and functions • Write rules for a geometric sequence • Write general rules for geometric sequences • Relate geometric sequences and exponential functions • Write a geometric sequence given two terms • Create a relative frequency table • Create a two-way frequency table • Create a two-way relative frequency table • Calculate conditional relative frequencies • Find possible associations between variables • Create a histogram • Estimate statistics from a histogram • Find mean, median, range and interquartile range

• **Which statistics are most affected by outliers, and what shapes can data distributions have?**	• Calculate the standard deviation • Compare statistics for related data sets • Interpret a box plot • Compare data using box plots • Use line plots to display data • Investigate the effect of an outlier in a data set • Compare data distributions

PART II: INSTRUCTIONAL STRATEGIES AND RESOURCES

DESCRIBE THE LEARNING TARGETS.

After each target, identify the New Jersey Student Learning Standards that are applicable

Learning Target	NJSLS:
1. Create scatter plots, trend lines and lines of best fit ***NJSLS.S.ID.B.6a*** *– [STANDARD]* - Fit a function to the data (including with the use of technology); use functions fitted to data to solve problems in the context of the data. ***NJSLS.S.ID.B.6c*** *– [STANDARD]* - Fit a linear function for a scatter plot that suggests a linear association. ***NJSLS.S.ID.C.8*** *– [STANDARD]* - Compute (using technology) and interpret the correlation coefficient of a linear fit. ***NJSLS.S.ID.C.9*** *– [STANDARD]* – Distinguish between correlation and causation. ***NJSLS.S.ID.B.6b*** *– [STANDARD]* - Informally assess the fit of a function by plotting and analyzing residuals, including with the use of technology. **2. Arithmetic and Geometric Sequences** ***NJSLS.F.IF.A.3*** *– [STANDARD]* - Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers. ***NJSLS.F.BF.A.2*** *– [STANDARD]* - Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms. ***NJSLS.F.BF.A.1a*** *– [STANDARD]* - Determine an explicit expression, a recursive process, or steps for calculation from a context. ***NJSLS.F.LE.A.2*** *– [STANDARD]* - Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table). **3. Organize and analyze data** ***NJSLS.S.ID.B.5*** *– [STANDARD]* - Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data. ***NJSLS.S.ID.A.1*** *– [STANDARD]* - Represent data with plots on the real number line (dot plots, histograms, and box plots). ***NJSLS.S.ID.A.2*** *– [STANDARD]* - Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets. ***NJSLS.S.ID.A.3*** *– [STANDARD]* - Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).	1. ***NJSLS.S.ID.B.6a*** 2. ***NJSLS.S.ID.B.6c*** 3. ***NJSLS.S.ID.C.8*** 4. ***NJSLS.S.ID.C.9*** 5. ***NJSLS.S.ID.B.6b*** 6. ***NJSLS.F.IF.A.3*** 7. ***NJSLS.F.BF.A.2*** 8. ***NJSLS.F.BF.A.1a*** 9. ***NJSLS.F.LE.A.2*** 10. ***NJSLS.S.ID.B.5*** 11. ***NJSLS.S.ID.A.1*** 12. ***NJSLS.S.ID.A.2*** 13. ***NJSLS.S.ID.A.3***

Inter-Disciplinary Connections:

Real-World problem solving examples:
Latitude and average temperatures in Northern Hemisphere (p 148), Median age of females (p 150), Height/weights of wide receivers who played for New Orleans Saints 2010 (p 152), Walking speed to predict life span (p 152), Weights of newborns male vs female (p 154), Assembling sandwiches at a restaurant (p 155), Cost of a rafting trip (p 161), Grocery carts (p 164), Movie rental club cost (p 165), Carnival game (p 165), Saving for a car (p 166), Heights a ball bounces (p 497), Shutter speed settings on a camera (p 498), US Open Women's Singles (p 500), Video game leveling up (p 500), Housing trends (p 502), Pet preferences compared with gender (p 549), Ice cream favorite flavor compared with gender (p 555), Preferred phone communication compared with gender (p 556), Height of 2005 NBA All-Star Game players (p 562), Computer file sizes (p 562), Ages of NFL and MLB players (p 565), Home runs hit in MLB 2010 (p 567), MLB players' average 2010 salaries (p 572), Prices of shoes (p 574), Traffic citations given by police departments (p 574), Home values (p 579), Car sales at a dealership (p 581)

Inter-Disciplinary problem solving examples:
Science – Brain's Amygdala connection to social behavior (p 149), History – voting in presidential elections (p 155), Speed reading class progression (p 156), Business – repaying a loan (p 164), Science – size of an ant colony (p 166), Physical education – Olympic discus throwing to win the gold medal (p 235), Practicing basketball vs baskets made (p 240), Engineering – making of Japanese swords in 1400s (p 495), Economics – cost of food increase (p 500), Science – branches of plants (p 502), History – age of U.S. senators (p 557) and age of presidents on date of 1st inauguration (p 560), Science – height of plants over time (p 561), Physical Education – Height of Olympic swimmers 2008 (p 571), running times of one-mile races (p 573), Science – recycling cans (p 574), Business – employee salaries (p 575)

Students will engage with the following text:

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Students will write:

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Suggested warm-up activities, instructional strategies/activities, and assignments:

Section 3.5 Scatter Plots and Trend Lines:

Warm-up/Starting Options	**Engage & Reflect 1 p. 147-148**
Practice and Apply	**p. 148-152 Examples 2-5** **p. 156 Practice, #1-8**
Resources	**Additional Practice p. 155** **Kuta Software for additional practice** **Online Dynamic Classroom for Algebra I** **PARCC Review Portfolio for MP 2 Unit 4** **PARCC Released Algebra I Problems** **Video Tutor Link p 147**

Section 4.8 Line of Best Fit:

Warm-up/Starting Options	**Make a scatter plot & Draw line of best fit**
Practice and Apply	**p. 231-237 Examples 1-3** **p. 237-238 Practice, #1-4** **Problem Solving p 240, #1-5**
Resources	**Additional Practice p. 239** **Kuta Software for additional practice** **Online Dynamic Classroom for Algebra I** **PARCC Review Portfolio for MP 2 Unit 4** **PARCC Released Algebra I Problems** **Video Tutor Link p 231**

Section 3.6 Arithmetic Sequences:

Warm-up/Starting Options	**Engage & Reflect 1 p. 157**
Practice and Apply	**p. 158-162 Examples 2-6** **p. 162-164 Practice, #1-22**

	Problem Solving p. 166, #1-9
Resources	**Additional Practice p. 165** **Kuta Software for additional practice** **Online Dynamic Classroom for Algebra I** **PARCC Review Portfolio for MP 2 Unit 4** **PARCC Released Algebra I Problems** **Video Tutor Link p 157**

Section 9.1 Geometric Sequences:

Warm-up/Starting Options	**Example 1 p. 495** **Explore & Reflect 2 p. 496**
Practice and Apply	**p.497-499 Examples 3 -4** **p. 499-500 Practice, #1-11** **Problem Solving p 502, #1-7**
Resources	**Additional Practice p. 501** **Kuta Software for additional practice** **Online Dynamic Classroom for Algebra I** **PARCC Review Portfolio for MP 2 Unit 4** **PARCC Released Algebra I Problems** **Video Tutor Link p 495**

Section 10.1 Organizing and Displaying Data:

Warm-up/Starting Options	**Example & Reflect 1 p. 549**
Practice and Apply	**p. 550-453 Examples 2-5** **p. 554 Practice, #1-4** **Problem Solving p 556 , #1-5**
Resources	**Additional Practice p. 555** **Kuta Software for additional practice** **Online Dynamic Classroom for Algebra I** **PARCC Review Portfolio for MP 2 Unit 4** **PARCC Released Algebra I Problems** **Video Tutor Link p 549**

Section 10.2 Frequency and Histograms:

Warm-up/Starting Options	**Identify linear, exponential and quadratic functions given a graph (can utilize Video Tutor Link p 523)**
Practice and Apply	**p.523-528 Examples 1-4** **p. 529-530 Practice, #1-18** **Problem Solving p 532, #1-8**
Resources	**Additional Practice p. 531** **Kuta Software for additional practice** **Online Dynamic Classroom for Algebra I** **PARCC Review Portfolio for MP 2 Unit 4**

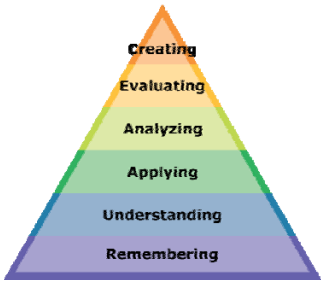
	PARCC Released Algebra I Problems **Video Tutor Link p 523**

Section 10.3 Data Distribution:

Warm-up/Starting Options	**Calculate the Mean, Median, Mode and Range of a Set of Data**
Practice and Apply	**p. 563-570 Examples 1-5** **p. 570-572 Practice, #1-8** **Problem Solving p 574, #1-7**
Resources	**Additional Practice p. 573** **Kuta Software for additional practice** **Online Dynamic Classroom for Algebra I** **PARCC Review Portfolio for MP 2 Unit 3** **PARCC Released Algebra I Problems** **Video Tutor Link p 563**

Section 10.4 Misleading Graphs and Statistics:

Warm-up/Starting Options	**Identify an outlier, Define outlier in your own words**
Practice and Apply	**p.575-579 Examples 1-3** **p. 579-580 Practice, #1-5** **Problem Solving p 582, #1-7**
Resources	**Additional Practice p. 581** **Kuta Software for additional practice** **Online Dynamic Classroom for Algebra I** **PARCC Review Portfolio for MP 2 Unit 4** **PARCC Released Algebra I Problems** **Video Tutor Link p 575**



PART IV: EVIDENCE OF LEARNING

IDENTIFY THE METHODS BY WHICH STUDENTS WILL DEMONSTRATE THEIR UNDERSTANDING OF CONTENT AND THEIR ABILITY TO APPLY SKILLS. IDENTIFY BLOOM'S LEVELS.

<u>Formative Assessments</u>:

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Accommodations/Modifications:

As per IEP.

Summative Assessments:

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Accommodations/Modifications:

As per IEP.

Performance Assessments:

Performance Tasks, Display of Student Work

Accommodations/Modifications:

As per IEP.