**Trinity Area School District**
**Curriculum Map 2017 - 2018**

| **Course: Algebra 1 Part B**<br>**Grade(s): 10-11** | **Overview of Course** (Briefly describe what students should understand and be able to do as a result of engaging in this course)**:**<br>**This course is designed to introduce the introductory elements of algebra: variables, functions (basic, exponential), equations (single-step, multi-step, linear, quadratic), inequalities, graphs, and systems of equations, systems of inequalities, exponents, polynomials, and factoring. In addition, basic probability and statistics will be introduced. Students will spend considerable time evaluating, simplifying, and solving various types of equations using the order of operations. Students will evaluate and graph simple and more complex functions by hand, create scatterplots, compare and contrast parallel and perpendicular lines, use tables to examine data closely, and compare and contrast direct and inverse variation. Students develop a firm grasp of the underlying mathematical concepts while using algebra and concepts of geometry. Consistent problem–solving strategies will be introduced and utilized to assist in developing strong mathematical skills.** |
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**Overarching Big Ideas, Enduring Understandings, and Essential Questions**
(These "spiral" throughout the entire curriculum.)

| **Big Idea**<br>(A Big Idea is typically a noun and always transferable within and among content areas.) | **Standard(s) Addressed**<br>(What Common Core Standard(s) and/or PA Standard(s) addresses this Big Idea?) | **Enduring Understanding(s)**<br>(SAS refers to Enduring Understandings as "Big Ideas." EUs are the understandings we want students to carry with them after they graduate. EUs will link Big Ideas together. Consider having only one or two EUs per Big Idea.) | **Essential Question(s)**<br>(Essential Questions are broad and open ended. Sometimes, EQs can be debated. A student's answer to an EQ will help teachers determine if he/she truly understands. Consider having only one or two EQs per Enduring Understanding.) |
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| **Distributive Property** | **CC.2.1.HS.F.1 Apply and extend the properties of exponents to solve problems with rational exponents.**<br><br>**CC.2.2.HS.D.2 Write expressions in equivalent forms to solve problems.**<br><br>**CC.2.1.HS.C.3 Write functions or sequences that model relationships between two quantities.** | **The distributive property is to be used when solving and simplifying all styles and types of equations. It will be used throughout all algebra classes and beyond.**<br><br>**Multiplying using the distributive property is a fast and simple method to simplify an expression.** | **What truly defines a "like" term?**<br><br>**When are all like terms completely combined?**<br><br>**When is it logical to use the distributive property?**<br><br>**Can the distributive property be used in a reverse method to solve problems?** |

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| **One-Step and Multi-Step Equations** | **CC.2.1.HS.F.2 Apply properties of rational and irrational to solve real world or mathematical problems.**<br><br>**CC.2.1.HS.F.4 Use units as a way to understand problems and to guide the solution of multi-step problems.**<br><br>**CC.2.2.HS.D.1 Interpret the structure of expressions to represent a quantity in terms of its context.**<br><br>**CC.2.2.HS.D.2 Write expressions in equivalent forms to solve problems.**<br><br>**CC.2.2.HS.D.3 Extend the knowledge of arithmetic operations and apply to polynomials.**<br><br>**CC.2.2.HS.D.6 Extend the knowledge of rational functions to rewrite in equivalent forms.** | **Solving multi-step equations requires the ability to understand which terms or parts of an expression can be combined and which cannot.**<br><br>**Solving multi-step equations is combining many one-step equation steps together.**<br><br>**Multi-step equations are used as a stepping stone to solving more complex equations.**<br><br>**Multi-step equations utilize the distributive property and all of the other mathematical properties necessary to solve equations.** | **Are there "rules" on how to solve multi-step equations?**<br>**What are the rules? (Do the rules apply to all types of multi-step equations or just a select few?)**<br><br>**How can understanding the concept of "like terms" help us simplify algebraic expressions?**<br><br>**Are multi-step equations just a combination of many one-step equations or are the approaches handled differently?** |
| **Solving Inequalities** | **CC.2.1.HS.F.2 Apply properties of rational and irrational to solve real world or mathematical problems.**<br><br>**CC.2.1.HS.F.4 Use units as a way to understand problems and to guide the solution of multi-step problems.**<br><br>**CC.2.2.HS.D.1 Interpret the structure of expressions to represent a quantity in terms of its context.** | **Inequalities are terms that are not equal.**<br><br>**When solving an inequality, the student must take into consideration the sign of the inequality.**<br><br>**The concept is similar when solving inequalities compared to solving equalities.**<br><br>**Solving inequalities are similar to multi-step equations, except for a sign change.** | **How is solving an inequality similar to solving an equation?**<br><br>**How does solving an inequality differ from solving an equation?** |

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| | **CC.2.2.HS.D.2 Write expressions in equivalent forms to solve problems.**<br><br>**CC.2.2.HS.D.3 Extend the knowledge of arithmetic operations and apply to polynomials.**<br><br>**CC.2.2.HS.D.6 Extend the knowledge of rational functions to rewrite in equivalent forms.** | | |
| **Rate of Change** | **CC.2.1.HS.F.1 Apply and extend the properties of exponents to solve problems with rational exponents.**<br><br>**CC.2.1.HS.F.2 Apply properties of rational and irrational to solve real world or mathematical problems.**<br><br>**CC.2.1.HS.F.3 Apply quantitative reasoning to choose and interpret units and scales in formulas, graphs, and data displays.**<br><br>**CC.2.2.HS.D.4 Understand the relationship between zeros and factors of polynomials to make generalizations about functions and their graphs.**<br><br>**CC.2.2.HS.D.7 Create and graph equations or inequalities to describe numbers or relationships**<br><br>**CC.2.2.HS.D.10 Represent, solve, and interpret equations/inequalities and systems of equations/inequalities algebraically and graphically.** | **The slope of a linear function represents a constant rate of change for f(x) when x changes by a fixed amount. (The steepness of a line determines how quickly or how slowly the data changes.)**<br><br>**The equation of a line defines the relationship between two variables.**<br><br>**The rate of change is used in all aspects of life -- from the math classroom to correctly building a new roof on a home.** | **What information is given in the different forms of a linear equation: slope-intercept form, point-slope form, and standard form?**<br><br>**How can you justify that slopes are undefined or zero?**<br><br>**How and when do we use slope in our daily lives?** |

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**Big Ideas, Enduring Understandings, and Essential Questions Per Unit of Study**
(These do NOT "spiral" throughout the entire curriculum, but are specific to each unit.)

| **Month of Instruction** (In what month(s) will you teach this unit?) | **Title of Unit** | **Big Idea(s)** (A Big Idea is typically a noun and always transferable within and among content areas.) | **Standard(s) Addressed** (What Common Core Standard(s) and/or PA Standard(s) addresses this Big Idea?) | **Enduring Understanding(s)** (SAS refers to Enduring Understandings as "Big Ideas." EUs are the understandings we want students to carry with them after they graduate. EUs will link Big Ideas together. Consider having only one or two EUs per Big Idea.) | **Essential Question(s)** (Essential Questions are broad and open ended. Sometimes, EQs can be debated. A student's answer to an EQ will help teachers determine if he/she truly understands. Consider having only one or two EQs per Enduring Understanding.) | **Common Assessment(s)*** (What assessments will all teachers of this unit use to determine if students have answered the Essential Questions?) | **Common Resource(s)* Used** (What resources will all teachers of this unit use to help students understand the Big Ideas?) |
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| **August** | **Variables** | **Order of Operations utilizing numbers and variables** | **CC.2.1.HS.F.1 Apply and extend the properties of exponents to solve problems with rational exponents.**<br><br>**CC.2.2.HS.D.1 Interpret the structure of expressions to represent a quantity in terms of its context.** | **Equations have to be solved in the appropriate order, following the order of operations (using the Please Excuse My Dear Aunt Sally method).**<br><br>**Numbers and variables given in the problem need to be accounted for and solved correctly to obtain the correct answer (If any step in solving a problem is** | **Does it matter which factors in an equation are ordered first, as long as the correct end-answer is achieved? (Are there any mathematical operations that can be done out of order and the correct answer still be obtained?)** | **Participation**<br>**Homework**<br>**Quizzes/Tests**<br>**In-Class Work**<br>**Projects (possible)**<br>**Study Island** (where applicable) | **Textbook**<br>**On-Line Resources**<br>**Study Island** (where applicable)<br><br>**<u>Vocabulary:</u>**<br>• Variable<br>• Algebraic Expression<br>• Equation<br>• Open Sentence<br>• Simplify<br>• Exponent<br>Base<br>• Power<br>• Evaluate |

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| | | | **CC.2.2.HS.D.3 Extend the knowledge of arithmetic operations and apply to polynomials.** | **done in error, then the final answer will be wrong).** | | | • Natural Numbers<br>• Whole Numbers<br>• Integers<br>• Rational Numbers<br>• Irrational Numbers<br>• Real Numbers<br>• Counterexample<br>• Inequality<br>• Opposites<br>• Absolute Value |
| **August** | **Rational Numbers** | **Distributive Property** | **CC.2.1.HS.F.1 Apply and extend the properties of exponents to solve problems with rational exponents.**<br><br>**CC.2.2.HS.D.2 Write expressions in equivalent forms to solve problems.**<br><br>**CC.2.1.HS.C.3 Write functions or sequences that model relationships between two quantities.** | **Multiplying using the distributive property is a fast and simple method to simplify an expression.** | **What truly defines a "like" term?**<br><br>**When are all like terms completely combined?**<br><br>**When is it logical to use the distributive property?** | **Participation**<br>**Homework**<br>**Quizzes/Tests**<br>**In-Class Work**<br>**Projects (possible)**<br>**Study Island** (where applicable) | **Textbook**<br>**On-Line Resources**<br>**Study Island** (where applicable)<br><br>**<u>Vocabulary:</u>**<br>• Distributive Property<br>• Term<br>• Constant<br>• Coefficient<br>• Like Terms<br>• Deductive Reasoning |
| **September** | **Solving Equations** | **Multi-Step Equations** | **CC.2.1.HS.F.2 Apply properties of rational and irrational to solve real world or** | **Solving multi-step equations requires the ability to understand which terms or parts of an expression can** | **Are there "rules" on how to solve multi-step equations? What are the rules? (Do the rules apply** | **Participation**<br>**Homework**<br>**Quizzes/Tests**<br>**In-Class Work**<br>**Projects (possible)** | **Textbook**<br>**On-Line Resources**<br>**Study Island** (where applicable) |

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| | | | **mathematical problems.**<br><br>**CC.2.1.HS.F.4 Use units as a way to understand problems and to guide the solution of multi-step problems.**<br><br>**CC.2.2.HS.D.1 Interpret the structure of expressions to represent a quantity in terms of its context.**<br><br>**CC.2.2.HS.D.2 Write expressions in equivalent forms to solve problems.**<br><br>**CC.2.2.HS.D.3 Extend the knowledge of arithmetic operations and apply to polynomials.**<br><br>**CC.2.2.HS.D.6 Extend the knowledge of rational functions to rewrite in equivalent forms.** | **be combined and which cannot.**<br><br>**Solving multi-step equations is combining many one-step equation steps together.** | **to all types of multi-step equations or just a select few?)**<br><br>**How can understanding the concept of "like terms" help us simplify algebraic expressions?** | **Study Island** (where applicable) | **<u>Vocabulary:</u>**<br>• Solution of an equation<br>• Equivalent Equations<br>• Inverse Operations<br>• Identity<br>• No Solution |

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| | | | **CC.2.2.HS.D.10 Represent, solve, and interpret equations/inequalities and systems of equations/inequalities algebraically and graphically.** | | | | |
| **September** | **Solving Equations** | **Ratio and Proportion** | **CC.2.1.HS.F.2 Apply properties of rational and irrational to solve real world or mathematical problems.**<br><br>**CC.2.2.HS.D.9 Use reasoning to solve equations and justify the solution method.**<br><br>**CC.2.2.HS.D.10 Represent, solve, and interpret equations/inequalities and systems of equations/inequalities algebraically and graphically.**<br><br>**CC.2.1.HS.C.3 Write functions or sequences that model relationships between two quantities.** | **Ratios and proportions deal with fractions and their comparisons.**<br><br>**Applying ratio and proportion to real-life situations.**<br><br>**Solving ratio and proportion problems means setting two fractions equal to one another and cross-multiplying to get an answer.** | **How can problems involving ratios and rates be solved without using a proportion?**<br><br>**What is the relationship between a ratio and a proportion? (How are ratios and proportions similar?)**<br><br>**How does a proportion compare two equivalent ratios?** | **Participation**<br>**Homework**<br>**Quizzes/Tests**<br>**In-Class Work**<br>**Projects (possible)**<br>**Study Island** (where applicable) | **Textbook**<br>**On-Line Resources**<br>**Study Island** (where applicable)<br><br>**<u>Vocabulary:</u>**<br>• Ratio<br>• Rate<br>• Unit Rate<br>• Unit Analysis (Dimensional Analysis)<br>• Proportion<br>• Extremes of the proportion<br>• Means of the proportions<br>• Cross Product |

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| **October - November** | **Graphs and Functions** | **Relations and Functions** | **CC.2.2.HS.D.2 Write expressions in equivalent forms to solve problems.**<br><br>**CC.2.1.HS.C.1 Use the concept and notation of functions to interpret and apply them in terms of their context.**<br><br>**CC.2.1.HS.C.2 Graph and analyze functions and use their properties to make connections between the different representations.**<br><br>**CC.2.1.HS.C.6 Interpret functions in terms of the situations they model.** | **Relations and functions can be represented numerically, graphically, algebraically, and/or verbally. (Relations and functions can be thought of as equations to help the students comprehend the concepts better.)**<br><br>**The properties of functions and function operations are used to model and analyze real-world applications and quantitative relationships frequently through graphical approaches. (Graphs are a great way to model and show how data works together.)** | **When and why are relations and functions represented in multiple ways?**<br><br>**How are the properties of functions and functional operations useful?** | **Participation**<br>**Homework**<br>**Quizzes/Tests**<br>**In-Class Work**<br>**Projects (possible)**<br>**Study Island** (where applicable) | **Textbook**<br>**On-Line Resources**<br>**Study Island** (where applicable)<br><br>**Vocabulary:**<br>• Function<br>• Function Rule<br>• Dependent Variable<br>• Independent Variable<br>• Domain<br>• Range<br>• Relation<br>• Vertical-Line Test<br>• Function Notation<br>• Discrete Data<br>• Continuous Data<br><br>**Graphic Calculator Resource Activity**<br>http://www.phschool.com/webcodes10/index.cfm?wcprefix=ate&wcsuffix=2104&area=view&x=10&y=11 |

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| **December** | **Linear Equations and their Graphs** | **Rate of Change (Slope)** | **CC.2.1.HS.F.1 Apply and extend the properties of exponents to solve problems with rational exponents.**<br><br>**CC.2.1.HS.F.2 Apply properties of rational and irrational to solve real world or mathematical problems.**<br><br>**CC.2.1.HS.F.3 Apply quantitative reasoning to choose and interpret units and scales in formulas, graphs, and data displays.**<br><br>**CC.2.2.HS.D.4 Understand the relationship between zeros and factors of polynomials to make generalizations about functions and their graphs.**<br><br>**CC.2.2.HS.D.7 Create and graph equations** | **The slope of a linear function represents a constant rate of change for f(x) when x changes by a fixed amount. (The steepness of a line determines how quickly or how slowly the data changes.)**<br><br>**The equation of a line defines the relationship between two variables.** | **What information is given in the different forms of a linear equation: slope-intercept form, point-slope form, and standard form?**<br><br>**How can you justify that slopes are undefined or zero?**<br><br>**How and when do we use slope in our daily lives?** | **Participation**<br>**Homework**<br>**Quizzes/Tests**<br>**In-Class Work**<br>**Projects (possible)**<br>**Netbooks(where applicable)**<br>**Study Island (where applicable)** | **Textbook**<br>**On-Line Resources**<br>**Netbooks(where applicable)**<br>**Study Island (where applicable)**<br><br>**<u>Vocabulary</u>**<br>• Rate of change<br>• Slope<br>• Parent function<br>• Linear parent function<br>• Y intercept<br>• Slope intercept form<br>• Standard form<br>• X intercept<br>• Point slope form<br><br>**ON-Line Activity**<br>**Point Slope Form Module**<br>**http://www.pearsonsuccessnet.com/snpapp/iText/products/0-13-250445-6/data/media/Ch06/06-05/PH_Alg1_ch06-05_Gizmo.html** |

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| | | | **or inequalities to describe numbers or relationships.**<br><br>**CC.2.2.HS.D.10 Represent, solve, and interpret equations/inequalities and systems of equations/inequalities algebraically and graphically.** | | | | **ON LINE ACTIVITY**<br>**Exploring Coloration**<br>http://www.pearsonsuccessnet.com/snpapp/iText/products/0-13-250445-6/data/media/Ch06/06-07/PH_Alg1_ch06-07_Gizmo.html |
| **December** | **Linear Equations and their Graphs** | **Parallel and Perpendicular Lines** | **CC.2.3.HS.A.3 Verify and apply geometric theorems as they relate to geometric figures.**<br><br>**CC.2.3.HS.A.11 Apply coordinate geometry to prove simple geometric theorems algebraically.**<br><br>**CC.2.3.HS.A.14 Apply geometric concepts to model and solve real world problems.** | **The slopes of parallel lines are equal.**<br><br>**The slopes of perpendicular lines are negative reciprocals of each other. (Negative reciprocals are a change in the sign and a flipping of the fraction.)** | **How can the relationships between parallel and perpendicular lines be proven?**<br><br>**How can you determine whether lines are parallel, perpendicular, or neither?**<br><br>**What is the relationship between horizontal and vertical lines and can this relationship be proven?** | **Participation**<br>**Homework**<br>**Quizzes/Tests**<br>**In-Class Work**<br>**Projects (possible)**<br>**Netbooks(where applicable)**<br>**Study Island (where applicable)** | **Textbook**<br>**On-Line Resources**<br>**Netbooks(where applicable)**<br>**Study Island (where applicable)**<br><br>**<u>Vocabulary</u>**<br>• Parallel lines<br>• Perpendicular lines<br>• Negative reciprocal |

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| **December - January** | **Systems of Equations** | **Solving Systems of Equations Graphically** | **CC.2.2.HS.D.4 Understand the relationship between zeros and factors of polynomials to make generalizations about functions and their graphs.**<br><br>**CC.2.2.HS.D.6 Extend the knowledge of rational functions to rewrite in equivalent forms.**<br><br>**CC.2.2.HS.D.7 Create and graph equations or inequalities to describe numbers or relationships.**<br><br>**CC.2.2.HS.D.10 Represent, solve, and interpret equations/inequalities and systems of equations/inequalities algebraically and graphically.** | **Solving systems of equations graphically requires knowledge of slope and graphical intercepts. (When solving multiple equations on a graph, you must be able to graph a line in the proper steepness and the proper x and y intercepts.)**<br><br>**Graphing systems of equations is nothing more than solving and graphing two equations then calculating their intersection.** | **What information can be gained, if any, when solving a linear inequality graphically? (How is solving a straight-line inequality on a graph beneficial in gaining insight and knowledge of the problem?)** | **Participation**<br>**Homework**<br>**Quizzes/Tests**<br>**In-Class Work**<br>**Projects (possible)**<br>**Netbooks(where applicable)**<br>**Study Island (where applicable)** | **Textbook**<br>**On-Line Resources**<br>**Netbooks(where applicable)**<br>**Study Island (where applicable)**<br><br>**<u>Vocabulary</u>**<br>• Systems of linear equations<br>• Solutions of systems of linear equations<br>• No solution<br>• Infinitely many solutions<br>• Systems of linear inequalities<br>• Solutions of systems of linear inequalities<br>• Linear inequalities<br><br>**ONLINE ACTIVITY**<br>**Graphing Systems**<br>http://www.pearsonsuccessnet.com/snpapp/iText/products/0-13-250445-6/data/media/Ch07/07- |

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| **December - Jamuary** | **Systems of Equations** | **Solving Systems of Equations Algebraically** | **CC.2.2.HS.D.4 Understand the relationship between zeros and factors of polynomials to make generalizations about functions and their graphs.**<br><br>**CC.2.2.HS.D.6 Extend the knowledge of rational functions to rewrite in equivalent forms.**<br><br>**CC.2.2.HS.D.7 Create and graph equations** | **It is possible to solve systems of equations utilizing algebraic approaches such as the substitution method, the elimination method, or matrices.**<br><br>**A variety of representations of linear systems of equations are used to model and solve real-world problems. (Many different methods are utilized** | **What are the benefits of having different types of strategies to solve systems of equations related to real-world situations?**<br><br>**When do you use a particular method? (Which method of solving equations algebraically is beneficial at what time?)** | **Participation<br>Homework<br>Quizzes/Tests<br>In-Class Work<br>Projects (possible)<br>Netbooks(where applicable)<br>Study Island (where applicable)** | **Textbook<br>On-Line Resources<br>Netbooks(where applicable)<br>Study Island (where applicable)**<br><br>**<u>Vocabulary</u>**<br>• Substitution method<br>• Elimination method |

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| | | | **or inequalities to describe numbers or relationships.**<br><br>**CC.2.2.HS.D.10 Represent, solve, and interpret equations/inequalities and systems of equations/inequalities algebraically and graphically.** | **to solve systems of equations problems.)** | **What is the best method to solve a system of equations and inequalities in problem solving?** | | **Modeling linear systems online Activity Cat and Mouse** http://www.pearsonsuccessnet.com/snpapp/iText/products/0-13-250445-6/data/media/Ch07/07-04/PH_Alg1_ch07-04_Gizmo.html |
| **February** | **Exponents** | **Scientific Notation** | **CC.2.1.HS.C.1 Use the concept and notation of functions to interpret and apply them in terms of their context.**<br><br>**CC.2.1.HS.F.1 Apply and extend the properties of exponents to solve problems with rational exponents.**<br><br>**CC.2.2.HS.D.2 Write expressions in** | **Represent large and small numbers using scientific notation.**<br><br>**When the exponent in scientific notation is negative, the number is less than 1.**<br><br>**When the exponent in scientific notation is positive, the number is greater than 1.** | **How does multiplying by a power of 10 affect the decimal? (What happens to the number, does it get larger or smaller?)**<br><br>**How does scientific notation differ from standard notation?**<br><br>**When is it beneficial to write a number in** | **Participation Homework Quizzes/Tests In-Class Work Projects (possible) Netbooks(where applicable) Study Island (where applicable)** | **Textbook On-Line Resources Netbooks(where applicable) Study Island (where applicable)**<br><br>**<u>Vocabulary</u>**<br>• Scientific notation<br><br>**On-Line Tutorial** http://www.pearsonsuccessnet.com/snpapp/iText/products/0-13- |

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| | | | **equivalent forms to solve problems.** | | **scientific notation? (Should you always use scientific notation when dealing with science or should we use it other times as well?)** | | 250445-6/data/media/Ch08/academy123_content/wl-book-demo/ph-243.html |
| **February** | **Exponents** | **Multiplication and Division of Exponents** | **CC.2.1.HS.F.1 Apply and extend the properties of exponents to solve problems with rational exponents.**<br><br>**CC.2.2.HS.D.2 Write expressions in equivalent forms to solve problems.**<br><br>**CC.2.1.HS.C.6 Interpret functions in terms of the situations they model.** | **Simplify and evaluate expressions involving multiplying with exponents, powers of powers, and powers of products. (The exponents, and the approaches taken to solve and simplify exponents, will vary based on how the exponents are arranged in the problem.)** | **How do parentheses affect the outcome of multiplied exponents?**<br><br>**How are multiplication and division of exponents different, yet similar?** | **Participation**<br>**Homework**<br>**Quizzes/Tests**<br>**In-Class Work**<br>**Projects (possible)**<br>**Netbooks(where applicable)**<br>**Study Island (where applicable)** | **Textbook**<br>**On-Line Resources**<br>**Netbooks(where applicable)**<br>**Study Island (where applicable)**<br><br>**<u>Vocabulary</u>**<br>• Base<br>• Power<br>• Exponent<br>• Exponential function<br><br>**Multiplying Exponents Tutorial**<br><br>http://www.pearsonsuccessnet.com/snpapp/iText/products/0-13-250445-6/data/media/Ch08/academy123_content/wl-book- |

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| **March** | **Polynomials and Factoring** | **Performing Mathematical Functions on Polynomials** | **CC.2.1.HS.F.3 Apply quantitative reasoning to choose and interpret units and scales in formulas, graphs, and data displays.**<br><br>**CC.2.2.HS.D.3 Extend the knowledge of arithmetic operations and apply to polynomials.**<br><br>**CC.2.2.HS.D.4 Understand the relationship between zeros and factors of polynomials to make generalizations about functions and their graphs.**<br><br>**CC.2.2.HS.D.6 Extend the knowledge of rational functions to rewrite in equivalent forms.** | **Polynomials are combinations of both numbers and letters with an addition or subtraction sign between them.**<br><br>**Like integers, polynomials can be added, subtracted, and multiplied.**<br><br>**Recognize, evaluate polynomials.**<br><br>**Add, subtract, multiply, and divide polynomials.** | **How do polynomials form a system similar to integers? (How are polynomials and integers alike?)**<br><br>**How would we perform the basic mathematical operations on polynomials and polynomial equations?** | **Participation**<br>**Homework**<br>**Quizzes/Tests**<br>**In-Class Work**<br>**Projects (possible)**<br>**Netbooks(where applicable)**<br>**Study Island (where applicable)** | **Textbook**<br>**On-Line Resources**<br>**Netbooks(where applicable)**<br>**Study Island (where applicable)**<br><br>**<u>Vocabulary</u>**<br>• Monomial<br>• Degree of monomial<br>• Polynomial<br>• Standard form of a polynomial<br>• Degree of a polynomial<br>• Binomial<br>• Trinomial<br>• Quadratic<br>• Cubic<br>• Difference of a square<br>• FOIL<br><br>**Online Activity – Adding and Subtracting Polynomials:** http://www.pearsonsuccessnet.com/snpapp/iText/products/0-13- |

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| **April - May** | **Polynomials and Factoring** | **Factoring Polynomials** | **CC.2.2.HS.D.4 Understand the relationship between zeros and factors of polynomials to make generalizations about functions and their graphs.**<br><br>**CC.2.2.HS.D.6 Extend the knowledge of rational functions to rewrite in equivalent forms.** | **Factor polynomials. (Factoring is simply rewriting an equation in another format.)** | **Can polynomials be factored various ways to achieve the same end result?** | **Participation<br>Homework<br>Quizzes/Tests<br>In-Class Work<br>Projects (possible)<br>Netbooks(where applicable)<br>Study Island (where applicable)** | **Textbook<br>On-Line Resources<br>Netbooks(where applicable)<br>Study Island (where applicable)**<br><br>**Vocabulary**<br>• Perfect square<br>• Factoring by grouping<br>**Online Activity<br>Factoring**<br>http://www.pearsonsuccessnet.com/snpapp/iText/ |

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| **End of May if time allows** | **Quadratic Equations and Functions** | **Quadratic Functions and Graphs** | **CC.2.1.HS.F.6 Extend the knowledge of arithmetic operations and apply to complex numbers.**<br><br>**CC.2.1.HS.F.7 Apply concepts of complex numbers in polynomial identities and quadratic expressions to solve problems.** | **Quadratic equations are in the form $ax^2 + bx + c$.**<br><br>**How and why quadratic equations are used.**<br><br>**Determining which method of solving quadratic equations is best to use given the situation.** | **How are quadratic equations used in the "real" world?**<br><br>**What are the different ways to solve quadratic equations and when is each method appropriate?** | **Participation<br>Homework<br>Quizzes/Tests<br>In-Class Work<br>Projects (possible)<br>Netbooks(where applicable)<br>Study Island (where applicable)** | **Textbook<br>On-Line Resources<br>Netbooks(where applicable)<br>Study Island (where applicable)**<br><br>**<u>Vocabulary</u>**<br>• Quadratic function<br>• Standard form of a quadratic function<br>• Parabola<br>• Axis of symmetry<br>• Vertex<br>• Minimum<br>• Maximum<br>• Quadratic parent function |
| **After Keystone if time allows** | **Quadratic Equations and Functions** | **Quadratic Formula** | **CC.2.1.HS.F.6 Extend the knowledge of arithmetic operations and apply to complex numbers.**<br><br>**CC.2.1.HS.F.7 Apply** | **Solve polynomials that can't be factored using the quadratic formula.** | **Will the quadratic formula provide the same solution as factoring if a polynomial can be factored?** | **Participation<br>Homework<br>Quizzes/Tests<br>In-Class Work<br>Projects (possible)** | **Textbook<br>On-Line Resources<br>Netbooks(where applicable)<br>Study Island (where applicable)** |

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| | | | **concepts of complex numbers in polynomial identities and quadratic expressions to solve problems.** | | **When is it better to use the quadratic formula than to use factoring?** | **Netbooks(where applicable)**<br>**Study Island (where applicable)** | **<u>Vocabulary</u>**<br>• Quadratic equation<br>• Standard form of a quadratic equation<br>• Roots of the equation<br>• Zeros of the function<br>• Zero product property<br>• Completing the square<br>• Quadratic formula |

***** Some teachers may need to think about the assessments and resources used in order to determine the Big Ideas, Enduring Understandings, and Essential Questions embedded in their courses. At this point in your curriculum mapping, you might want to ignore the "Common Assessments" and "Common Resources Used" columns. However, you may use them if you wish.