Moon Area School District Curriculum Map

Course: Algebra 2B
Grade Level: 11-12
Content Area: Math
Frequency: Full-Year Course

Primary Resource(s) & Technology:
McDougal Littell Algebra 2, IXL online software,
Microsoft Teams, Promethean Boards, Student Laptops/iPads

Pennsylvania and/or focus standards referenced at:
www.pdesas.org
www.education.pa.gov

Big Ideas/EQs	Focus Standard(s)	Assessed Competencies (Key content and skills)	Timeline
How are the values of a, b and c in a quadratic equation related to the graph of a quadratic function? How can you use a quadratic function in real life? What must be true about a quadratic function before you solve it? To graph a quadratic function, what are the advantages in having it written in vertex form or intercept form? How can factoring be used to solve quadratic equation when a=1 and a is not equal to 1? How can you use	2.1.11.A (Introduced) 2.5.11.A (Introduced) 2.5.11.C (Introduced) 2.5.11.D (Introduced) 2.8.11.G (Introduced) 2.8.11.J (Introduced) 2.8.11.N (Introduced) 2.8.11.Q (Introduced) 2.8.11.S (Introduced)	• **Quadratic Functions and Factoring - Chapter 4** Graphing quadratic functions in standard form Present mathematical procedures and results clearly, correctly. Graphing quadratic functions in vertex or intercept form Solving a quadratic equation by factoring Demonstrate the connection between algebraic equat Solving a quadratic equation by finding square roots Operations with complex numbers Analyze properties and relationships of functions (e.g trigonometric, exponential, logarithmic) Completing the square Quadratic formula and the discriminant	September/ October/ November ropriate mathematical concepts an ly them to solving non-routine a rocess with a summary of result tained represent an acceptable response reasoning is valid. ystems of equations, systems of ns in the coordinate plane. quadratic and exponential equations bot ional relationships in tables, charts an

square roots to solve a quadratic equation? What is the procedure for each of the four basic operations on complex numbers? How can completing the square be used to find the maximum values of a function? How are the discriminant and the graph of a quadratic equation related?			
How do you simplify algebraic expressions with exponents? Which occupations benefit from the ability to use scientific notation in computations? Which term in polynomial function is the most important in determining the end behavior of the function and why? What are the special product patterns? How can you solve a higher-degree polynomial equation? When would you factor a polynomial by grouping?	2.1.11.A (Introduced) 2.5.11.A (Introduced) 2.5.11.B (Introduced) 2.5.11.C (Introduced) 2.8.11.J (Introduced)	• **Polynomials and Polynomial Functions - Chapter 5** Using properties of exponents. Evaluating and graphing polynomial functions. Adding, subtracting, and multiplying polynomials. Factoring and solving polynomial equations. Applying the Remainder and Factor Theorems.	g., opposite, reciprocal, absolute va November/ December/ Januar ropriate mathematical concepts an cs and apply them to solving non-routine a al terminology, standard not athematical representations to c concepts, procedures, generalizations, ideas and resu rocedures and results clearly, nection between algebraic equat geometry of relations in the coordinate plane.

If you know one zero of a polynomial, how can you determine another zero?			
What is the relationship between nth roots and rational exponents? How are the properties of rational exponents related to the properties of integer exponents? What operations can be performed on a pair of functions to obtain a third function? How do you find the inverse of a relation? How do you determine whether the inverse of a function is also a function? What do graphs of square root and cube root functions look like? Why is it important to check for an extraneous solution?	2.1.11.A (Introduced) 2.5.11.A (Introduced) 2.5.11.C (Introduced) 2.8.11.J (Introduced) 2.8.11.N (Introduced) 2.8.11.Q (Introduced)	• **Rational Exponents and Radical Functions – Chapter 6** (e.g., opposite, reciprocal, absolute va thms). use appropriate mathematical concepts an nth roots and rational ly them to solving non-routine a exponents. Present mathematical procedures and results clearly, Properties of rational exponents. Demonstrate the connection between algebraic equat Power functions and s in the coordinate plane. function operations. Solve linear, quadratic and exponential equations both Inverse functions. Represent functional relationships in tables, charts an Graphing square root and cube root functions. Solving radical equations.	February/ March/ April
What are the differences between direct, inverse, and joint variation?	2.5.11.A (Introduced) 2.5.11.C (Introduced)	• **Rational Functions - Chapter 8** iate mathematical concepts an s and apply them to solving non-routine a Inverse and joint variation. nathematical procedures and results clearly, correctly. Graphing simple rational	April/May/ June

How can knowing what type of variation model you are working with help you determine the constant of variation? What is the significance of a horizontal and vertical asymptote? How do you determine an asymptote? What is the procedure for multiplying rational expressions involving polynomials? How is adding rational expressions like adding numerical fractions? What are the steps for solving rational equations?	2.6.11.D (Introduced) 2.8.11.D (Introduced) 2.8.11.J (Introduced) 2.8.11.Q (Introduced) 2.8.11.R (Introduced)	functions. Graphing general rational functions. Multiplying and dividing rational expressions. Addition, subtraction, and complex fractions. Solving rational equations.	dictions using interpolation, extrapolation, re technology to verify them. sions, equations, inequalities, systen inequalities and matrices to model routine and non-ro nnection between algebraic equat geometry of relations in the coordinate plane. elationships in tables, charts an rpret functional models.