

# **Algebra 2**

## **Curriculum Map**

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## Purpose of a Curriculum Map

The purpose of a curriculum map is to document the intended relationship between components of the curriculum. Used as an analysis tool, a curriculum map allows instructors to review the curriculum to check for unnecessary redundancies, inconsistencies, misalignments, weaknesses and gaps. Ultimately, a curriculum map will be the bridge between the state standards and state-mandated curriculum and the taught and learned curriculum.

## Unit 1: Basic Concepts of Algebra

Approximate Duration of Study: 2 weeks

When to Study: Aug/Sept

CCS	Essential Question	Concept	Skills	Assessments	Helpful Strategies and Resources
A.SSE.1.a A.SSE.1.b	Why are “the order of operations” and other properties of mathematics important?	Variables and Expressions	Write verbal expressions for algebraic expressions		<ul style="list-style-type: none"> <li>• McDougal Littell/ Houghton Mifflin – “Algebra: Structure and Method Book2” – <b>Chapter 1</b> and accompanying resources</li> <li>• <a href="#">Algebraic and Numeric Expressions (pdf)</a></li> <li>• <a href="#">Evaluating Expressions(pdf)</a></li> <li>• <a href="#">Simplifying Algebraic Expressions (pdf)</a></li> </ul>
			Write algebraic expressions for verbal expressions		
		Order of Operations	Evaluate numerical and algebraic expressions by using the order of operations		
		Distributive Property	Use the Distributive Property to simplify and evaluate expressions		
		Equations	Solve equations with two variables given a domain		
A.CED.1	Why is advantageous to use and solve equations algebraically for real-world problems?	Writing Equations	Translate sentences into equations		
A.REI.1 A.REI.3		One-step equations	Solve equations by using addition or subtraction		

			Solve equations by using multiplication or division		
A.REI.1 A.REI.3		Multi-Step Equations	Solve equations involving more than one operation		
A.REI.1 A.REI.3		Equations with the variable on each side	Solve equations with the variable on each side		
			Solve equations involving grouping symbols		
A.REI.1	When would we want to use the absolute value of numbers?	Absolute Value Equations	Evaluate absolute value expressions		
			Solve absolute value equations		
A.CED.4	What are some careers that utilize literal equations on a very regular basis?	Literal Equations	Solve equations for given variables	<ul style="list-style-type: none"> <li>• <a href="#">Chapter 1 Test</a> <ul style="list-style-type: none"> <li>○ <a href="#">Ch. 1 Test Page 2</a></li> </ul> </li> </ul>	
<b>Vocabulary: Domain, Absolute Value, Inequality, Opposite, Additive Inverse, Multiplicative Inverse, Root, Constant, Identity, Empty Set</b>					

## Unit 2: Inequalities

Approximate Duration of Study: 2 weeks

When to Study: Sept

CCS	Essential Question	Concept	Skills	Assessments	Helpful Strategies and Resources
A.REI.3	-How are inequalities and equations alike? How are they different?	Inequalities Involving Addition and Subtraction	Solving linear inequalities by using addition and subtraction		<ul style="list-style-type: none"> <li>• McDougal Littell/ Houghton Mifflin – “Algebra: Structure and Method Book2” – <b>Chapter 2</b> and accompanying resources</li> <li>• <a href="#">Absolute Value Inequalities(pdf)</a></li> <li>• <a href="#">Compound Inequalities(pdf)</a></li> <li>• <a href="#">Distance Rate Time Word Problems(pdf)</a></li> <li>• <a href="#">Mixture Word Problems(pdf)</a></li> <li>• <a href="#">Solving Absolute Value Equations(pdf)</a></li> <li>• <a href="#">Solving Inequalities(pdf)</a></li> <li>• <a href="#">Solving Multi-Step Equations(pdf)</a></li> <li>• <a href="#">Work Word Problems(pdf)</a></li> </ul>
		Inequalities Involving Multiplication and Division	Solving linear inequalities by using multiplication and division		
		Solving Multi-Step Inequalities	Solve linear inequalities involving more than one operation		
Solve inequalities involving the Distributive Property					
	How do the words “and” and “or” affect the outcome of an inequality?	Solving Compound Inequalities	Solve compound inequalities containing the word “and” and graph their solution set		
			Solve compound inequalities containing the word “or” and graph their solution set		
		Inequalities involving Absolute Value	Solve and graph absolute value inequalities (both $<$ and $>$ )		
A.REI.12		Inequalities in Two Variables	Graph linear inequalities on the coordinate plane	<ul style="list-style-type: none"> <li>• <a href="#">Chapter 2 Test</a> <ul style="list-style-type: none"> <li>○ <a href="#">Ch 2 Test Page 2</a></li> </ul> </li> </ul>	
			Solve inequalities by graphing		
<b>Vocabulary: Inequality, Compound Inequality, Linear Inequality, Conjunction, Disjunction</b>					

## Unit 3: Linear Equations and Functions

Approximate Duration of Study: 3 – 4 weeks

When to Study: Sept/Oct

CCS	Essential Question	Concept	Skills	Assessments	Helpful Strategies and Resources
A.REI.10		Graphing Linear Equations	Identify linear equations, intercepts, and zeros		<ul style="list-style-type: none"> <li>• McDougal Littell/ Houghton Mifflin – “Algebra: Structure and Method Book2” – <b>Chapter 3</b> and accompanying resources</li> <li>• <a href="#">Graphing Absolute Value Equations(pdf)</a></li> <li>• <a href="#">Graphing Linear Inequalities(pdf)</a></li> <li>• <a href="#">Review Linear Equations(pdf)</a></li> </ul>
			Graph linear equations		
A.REI.10		Solving linear equations by graphing	Solve equations by graphing and identifying the root		
			Estimate solutions to an equation by graphing		
		Rate of Change and Slope	Use rate of change to solve problems		
			Find the slope of a line		
		Direct Variation	Write and graph direct variation equations		
			Solve problems involving direct variation		
A.REI.10		Graphing Equations in Slope-Intercept Form	Write and graph linear equations in slope-intercept form		
			Model real-world data with equations in slope-intercept form		
A.CED.2		Writing equations in slope-intercept form	Write an equation of a line in slope-intercept form given the slope and one point		
			Write an equation of a line in slope-intercept form given two points		
		Equations in different forms	Write equations of lines in standard form		
			Write equations of lines in point-slope form		

			Write linear equations in different forms	
		Parallel and Perpendicular Lines	Write equations of lines passing through a given point and either parallel or perpendicular to a given line	
A.CED.2 A.REI.10		Lines of Fit	Investigate relationships between quantities by using points on scatter plots	
			Use lines of fit to make and evaluate predictions	
A.REI.6 A.REI.11	How might one determine the most efficient method for solving a system of equations?	Graphing Systems of Equations	Determine the number of solutions a system of equations has, if any	
				Solve systems of linear equations by graphing
A.REI.5 A.REI.6		Substitution	Solve systems of equations by using substitution	
A.REI.5 A.REI.6		Elimination	Solve systems of equations by using elimination with addition	
			Solve systems of equations by using elimination with subtraction	
			systems of equations by using elimination with multiplication	
A.REI.6		Applying Systems of Linear Equations	Determine the best method for solving systems of equations	

			Apply systems of equations to solve real-world problems		
A.REI.8	Why would using a matrix to solve a system of equations be useful?	Matrix equations	Represent and solve systems of equations in reduced-row echelon form	<ul style="list-style-type: none"> <li>• <a href="#">Chapter 3 Test</a> <ul style="list-style-type: none"> <li>○ <a href="#">Ch 3 Test Page 2</a></li> </ul> </li> </ul>	
<b>Vocabulary: Consistent, Inconsistent, Dependent, Simultaneous Solution, Range, Relation, Constant Function</b>					

## Unit 4: Polynomials

Approximate Duration of Study: 3-4 weeks

When to Study: Oct

CCS	Essential Question	Concept	Skills	Assessments	Helpful Strategies and Resources	
A.APR.1	How might we classify polynomials?	Multiplying Monomials	Base and Exponent		<ul style="list-style-type: none"> <li>• McDougal Littell/ Houghton Mifflin – “Algebra: Structure and Method Book2” – <b>Chapter 4</b> and accompanying resources</li> <li>• <a href="#">Analyzing and Solving Polynomial Equations(pdf)</a></li> <li>• <a href="#">Descartes Rule of Signs(pdf)</a></li> <li>• <a href="#">Factoring All Techniques(pdf)</a></li> <li>• <a href="#">Factoring A Sum+Difference of Cubes(pdf)</a></li> <li>• <a href="#">Factoring By Grouping(pdf)</a></li> <li>• <a href="#">Factoring Quadratic Form(pdf)</a></li> <li>• <a href="#">Factors and Zeros(pdf)</a></li> <li>• <a href="#">Graphing Polynomial Functions(pdf)</a></li> <li>• <a href="#">Graphing Polynomial Functions Basic Shape(pdf)</a></li> <li>• <a href="#">Irrational and Imaginary Root Theorems(pdf)</a></li> <li>• <a href="#">More on Factors, Zeros, and Dividing(pdf)</a></li> <li>• <a href="#">Polynomial Basics(pdf)</a></li> <li>• <a href="#">Rational Root Theorem(pdf)</a></li> <li>• <a href="#">The Binomial Theorem(pdf)</a></li> <li>• <a href="#">The Remainder Theorem(pdf)</a></li> </ul>	
A.APR.1			Dividing Monomials			Find the quotient of two monomials
						Simplify expressions containing negative and zero exponents
		Polynomial Identification	Find the degree of a polynomial			
	Write polynomials in standard form					
A.APR.1	How can we use the polynomial operations of addition, subtraction, and multiplication in real life?	Adding/ Subtracting Polynomials	Identify “like terms”			
			Add/ subtract polynomials			
A.APR.1		Multiplying a Polynomial by a Monomial	Use the Distributive Property to multiply a monomial by a polynomial			
A.APR.1			Multiplying Polynomials			Use the Distributive Property to multiply a polynomial by another polynomial

		Special Products	Find the squares of sums and differences	
			Find the product of a sum and difference	
	How does finding greatest common factors in <i>factoring</i> polynomials?	Factoring Monomials	Write a monomial in factored form	
			Find the Greatest Common Factors (GCF) of monomials	
		Monomial Factors of Polynomials	Divide out the GCF of the terms	
			Factor a polynomial by grouping	
		Zero Product Property	Solve a quadratic equation using the zero product property	
A.REI.2 A.REI.4b A.SSE.3a	Why do we factor polynomials?	Factoring Quadratic Equations	Factor quadratic equations of the form: $x^2 + bx + c = 0$	
			Factor quadratic equations of the form: $ax^2 + bx + c = 0$	
A-REI.4b A-REI.2	How can we identify a difference of squares?	Special Products	Factor quadratic equations that are the differences of squares	<ul style="list-style-type: none"> <li>• <a href="#">Chapter 4 Test</a> <ul style="list-style-type: none"> <li>○ <a href="#">Ch 4 Test Page 2</a></li> </ul> </li> </ul>
			Factor quadratic equations that are perfect squares	

**Vocabulary: Sum of Cubes, Quadratic Polynomial, Quadratic Term, Irreducible Polynomial, Zero of a Function, Double Root, Double Zero, Multiple Root, Multiple Zero, Polynomial Inequality**

## Unit 5: Rational Expressions

Approximate Duration of Study: 3 – 4 weeks

When to Study: February

CCS	Essential Question	Concept	Skills	Assessments	Helpful Strategies and Resources
A.CED.3	How is factoring used to simplify a rational expression?	Simplifying Rational Expression	Simplify rational expressions using common factors to reduce		<ul style="list-style-type: none"> <li>• McDougal Littell/ Houghton Mifflin – “Algebra: Structure and Method Book2” – <b>Chapter 5</b> and accompanying resources</li> <li>• <a href="#">Adding+Subtracting Rational Expressions(pdf)</a></li> <li>• <a href="#">Complex Fractions(pdf)</a></li> <li>• <a href="#">Graphing Rational Functions(pdf)</a></li> <li>• <a href="#">Graphing Simple Rational Functions(pdf)</a></li> <li>• <a href="#">Multiplying+Dividing Rational Expressions(pdf)</a></li> <li>• <a href="#">Rational Expressions(pdf)</a></li> <li>• <a href="#">Solving Rational Equations(pdf)</a></li> </ul>
			Identify excluded values that would make the expression impossible (i.e. the denominator equal to 0)		
A.APR.6 A.APR.7	How are reciprocals used to divide rational expressions?	Multiplying and Dividing Rational Expressions	Multiply rational expressions, as we would common fractions, and reduce by common factors		
			Divide rational expressions and reduce by common factors		
			Divide rational expressions using polynomial long division		
A.APR.7	How do we add/subtract fractions?	Adding and Subtracting Rational Expressions	Determine the Least Common Denominator of two or more fractions		
			Add/ subtract rational expression with and without common denominators		
A.APR.7		Mixed Expressions	Simplify mixed expressions	<ul style="list-style-type: none"> <li>• <a href="#">Chapter 5 Test</a> <ul style="list-style-type: none"> <li>○ <a href="#">Ch 5 Test Page 2</a></li> </ul> </li> </ul>	
			Simplify and use complex fractions to solve problems		

**Vocabulary: Scientific Notation, Significant Figures, Extraneous Root**

## Unit 6: Radical Functions

Approximate Duration of Study: 3 weeks

When to Study: April/May

CCS	Essential Question	Concept	Skills	Assessments	Helpful Strategies and Resources
	What makes a number a rational number?	Properties of Rational Numbers	Identify a rational number Convert a number in fractional form to decimal form and vice versa		<ul style="list-style-type: none"> <li>• McDougal Littell/ Houghton Mifflin – “Algebra: Structure and Method Book2” – <b>Chapter 6</b> and accompanying resources</li> <li>• <a href="#">Adding Subtracting Multiplying Radicals(pdf)</a></li> <li>• <a href="#">Dividing Radicals(pdf)</a></li> <li>• <a href="#">Graphing Radicals(pdf)</a></li> <li>• <a href="#">Radicals and Rational Exponents(pdf)</a></li> <li>• <a href="#">Rational Exponent Equations(pdf)</a></li> <li>• <a href="#">Simplifying Radicals(pdf)</a></li> <li>• <a href="#">Simplifying Rational Exponents(pdf)</a></li> <li>• <a href="#">Square Root Equations(pdf)</a></li> </ul>
A.SSE.3C	What are your essential rules when performing basic operations and simplification of square roots?	Rational and Irrational Square Roots	Find the value of a rational square root		
			Simplify an irrational square root expression		
			Simplify a square root expression involving variables		
A.SSE.2		Operations on Square Roots	Multiply and divide square root expression Use conjugates to rationalize the denominator Add and subtract square root expressions		
A.REI.2		Radical Equations	Use the Power Property of Equality to solve equations Checking for extraneous solutions	<ul style="list-style-type: none"> <li>• <a href="#">Chapter 6 Test</a> <ul style="list-style-type: none"> <li>○ <a href="#">Ch 6 Test Page 2</a></li> </ul> </li> </ul>	
<b>Vocabulary: Cube Root, Radicand, Radical, Radical Sign, Index of a Radical, Rationalizing the Denominator, Conjugates, Complex Number, Real Part, Imaginary Part, Complex Conjugate, Imaginary Number</b>					

## Unit 7: Solving Quadratic Equations

Approximate Duration of Study:

When to Study:

CCS	Essential Question	Concept	Skills	Assessments	Helpful Strategies and Resources
A-REI.4b A-REI.4a A-SSE.3b		Completing the Square	Solve quadratic equations by completing the square		<ul style="list-style-type: none"> <li>• McDougal Littell/ Houghton Mifflin – “Algebra: Structure and Method Book2” – <b>Chapter 7</b> and accompanying resources</li> <li>• <a href="#">Completing the Square(pdf)</a></li> <li>• <a href="#">Factoring Quadratic Expressions(pdf)</a></li> <li>• <a href="#">Properties of Parabolas(pdf)</a></li> <li>• <a href="#">Quadratic Equations By Completing the Square(pdf)</a></li> <li>• <a href="#">Quadratic Equations By Factoring(pdf)</a></li> <li>• <a href="#">Quadratic Equations Square Roots(pdf)</a></li> <li>• <a href="#">Quadratic Formula(pdf)</a></li> <li>• <a href="#">Quadratic Inequalities(pdf)</a></li> <li>• <a href="#">The Discriminant(pdf)</a></li> <li>• <a href="#">Vertex Form of Parabolas(pdf)</a></li> </ul>
			Finding the Maximum or Minimum value by Completing the Square		
A-REI.4b	When is using the Quadratic Formula an effective means of solving quadratic equations?	Quadratic Formula	Use the Discriminant to determine the number of solutions to a quadratic equations		
			Solve quadratic equations by using the Quadratic Formula	<ul style="list-style-type: none"> <li>• <a href="#">Chapter 7 Test</a> <ul style="list-style-type: none"> <li>○ <a href="#">Ch 7 Test Page 2</a></li> </ul> </li> </ul>	
<b>Vocabulary: Axis of Symmetry, Parabola, Minimum Value, Maximum Value, Discriminant, Quadratic Formula</b>					

## Unit 8: Variation and Proportion

Approximate Duration of Study: 3 weeks

When to Study:

CCS	Essential Question	Concept	Skills	Assessments	Helpful Strategies and Resources
A.REI.10		Direct Variation	Write and graph direct variation equations		<ul style="list-style-type: none"> <li>• McDougal Littell/ Houghton Mifflin – “Algebra: Structure and Method Book2” – <b>Chapter 8</b> and accompanying resources</li> <li>• <a href="#">Evaluating Functions(pdf)</a></li> <li>• <a href="#">Function Inverses(pdf)</a></li> <li>• <a href="#">Function Operations(pdf)</a></li> </ul>
			Solve problems involving direct variation		
		Joint and Inverse Variation	Solve problems involving joint variation		
			Solve problems involving inverse variation		
		Dividing Polynomials	Divide polynomials by using polynomial long division		
			Divide polynomials by synthetic division		
A.APR.2		Theorems About Polynomials	Know and apply the Remainder Theorem		
			Know and apply the Factor Theorem		
			Know and apply the Conjugate Root Theorem		
			Know and apply Descartes’ Rule of Signs		

		Solving Polynomial Equations	Know and apply the Rational Root Theorem	<ul style="list-style-type: none"><li>• <a href="#">Chapter 8 Test</a><ul style="list-style-type: none"><li>○ <a href="#">Ch 8 Test Page 2</a></li></ul></li></ul>	
<b>Vocabulary: Constant of Variation, Direct Variation, Joint Variation, Inverse Variation, Synthetic Variation, Remainder Theorem, Factor Theorem, Conjugate Root, Descartes' Rule of Signs, Rational Root Theorem</b>					

## Unit 9: Analytic Geometry

Approximate Duration of Study: 3 – 4 weeks

When to Study:

CCS	Essential Question	Concept	Skills	Assessments	Helpful Strategies and Resources
		Distance and Midpoints	Find the distance between two points		<ul style="list-style-type: none"> <li>• McDougal Littell/ Houghton Mifflin – “Algebra: Structure and Method Book2” – <b>Chapter 9</b> and accompanying resources</li> <li>• <a href="#">Classifying Conic Sections(pdf)</a></li> <li>• <a href="#">Eccentricity(pdf)</a></li> <li>• <a href="#">Equations of Circles(pdf)</a></li> <li>• <a href="#">Equations of Ellipses(pdf)</a></li> <li>• <a href="#">Equations of Hyperbolas(pdf)</a></li> <li>• <a href="#">Equations of Parabolas(pdf)</a></li> <li>• <a href="#">Graphing and Properties of Circles(pdf)</a></li> <li>• <a href="#">Graphing and Properties of Ellipses(pdf)</a></li> <li>• <a href="#">Graphing and Properties of Hyperbolas(pdf)</a></li> <li>• <a href="#">Graphing and Properties of Parabolas(pdf)</a></li> <li>• <a href="#">Systems of Quadratic Equations(pdf)</a></li> </ul>
			Find the midpoint between two points		
G.GPE.1	What information is needed to create the equation of a circle?	Circles	Write the equation of a circle		
			Graph the equation of a circle		
G.GPE.2		Parabolas	Identify the vertex, focus, and/or directrix of a parabola		
			Write the equation of a parabola		
			Graph the equation of a parabola		
G.GPE.3	How are the equation of ellipses and hyperbolas alike? How are they different?	Ellipses	Identify the focus, center, major axis, and/or minor axis of an ellipse		
			Write the equation of an ellipse		
			Graph the equation of an ellipse		
G.GPE.3		Hyperbolas	Write the equation of a hyperbola		
			Graph the equation of a hyperbola		

A.REI.7		Systems of Linear and Nonlinear Equations	Solve systems of quadratic equations Solve systems of linear equations in three variables	<ul style="list-style-type: none"> <li>• <a href="#">Chapter 9 Test</a> <ul style="list-style-type: none"> <li>○ <a href="#">Ch 9 Test Page 2</a></li> </ul> </li> </ul>	
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**Vocabulary: Distance Formula, Midpoint Formula, Circle, Parabola, Vertex, Directrix, Ellipse, Focus, Hyperbola**

## Unit 10: Exponential and Logarithmic Functions

Approximate Duration of Study: 3 weeks

When to Study: March/April

CCS	Essential Question	Concept	Skills	Assessments	Helpful Strategies and Resources
	Why might using rational exponents be more efficient?	Real Number Exponents	Simplify an expression written with fractional exponents Simplify an expression with irrational exponents		<ul style="list-style-type: none"> <li>• McDougal Littell/ Houghton Mifflin – “Algebra: Structure and Method Book2” – <b>Chapter 10</b> and accompanying resources</li> <li>• <a href="#">Change of Base Formula(pdf)</a></li> <li>• <a href="#">Exponential Equations Not Requiring Logarithms(pdf)</a></li> <li>• <a href="#">Graphing Exponential Functions(pdf)</a></li> <li>• <a href="#">Graphing Logarithms(pdf)</a></li> <li>• <a href="#">Inverses of Logarithms(pdf)</a></li> <li>• <a href="#">Logarithmic Equations(pdf)</a></li> <li>• <a href="#">Meaning of Logarithms(pdf)</a></li> <li>• <a href="#">Properties of Logarithms(pdf)</a></li> <li>• <a href="#">Solving Exponential Equations with Logarithms(pdf)</a></li> <li>• <a href="#">Writing Logs in Terms of Others(pdf)</a></li> </ul>
A.REI.10 F.BF.4a F.BF.4b	What are inverse functions and what do they do?	Composition and Inverses of Functions	Find the composite of two given functions Find the inverse of a given function Use the horizontal-line test to determine if a function has an inverse		
F.BF.5 F.LE.4		Logarithmic Functions	Write and simplify logarithmic equations and expressions Know and use the Laws of Logarithms Know and use the Change-of-Base Formula		

	Where does the natural logarithm get used?	The Natural Logarithmic Function	Know and use the natural logarithm	<ul style="list-style-type: none"><li>• <a href="#">Chapter 10 Test</a><ul style="list-style-type: none"><li>○ <a href="#">Ch 10 Test Page 2</a></li></ul></li></ul>	
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**Vocabulary: Composition of Functions, Inverse, Horizontal-Line Test, Logarithm, Exponential Function, Natural Logarithm**

## Unit 11: Sequences and Series

Approximate Duration of Study: 3 weeks

When to Study: April

CCS	Essential Question	Concept	Skills	Assessments	Helpful Strategies and Resources
	What is the difference between an arithmetic sequence and a geometric sequence?	Arithmetic Sequences	Find the $n^{\text{th}}$ term in an arithmetic sequence		<ul style="list-style-type: none"> <li>• McDougal Littell/ Houghton Mifflin – “Algebra: Structure and Method Book2” – <b>Chapter 11</b> and accompanying resources</li> <li>• <a href="#">Arithmetic and Geometric Means(pdf)</a></li> <li>• <a href="#">Arithmetic Sequences(pdf)</a></li> <li>• <a href="#">Arithmetic Series(pdf)</a></li> <li>• <a href="#">Comparing Arithmetic and Geometric Sequences(pdf)</a></li> <li>• <a href="#">Finite Geometric Series(pdf)</a></li> <li>• <a href="#">Geometric Sequences(pdf)</a></li> <li>• <a href="#">Infinite Geometric Series(pdf)</a></li> <li>• <a href="#">Introduction to Sequences(pdf)</a></li> <li>• <a href="#">Introduction to Series(pdf)</a></li> </ul>
Find the arithmetic means between two numbers					
Geometric Sequences		Find the $n^{\text{th}}$ term in a geometric sequence			
		Find the geometric means between two numbers			
A.SSE.4	When will a geometric series converge and when will it diverge?	Series	Write a series using sigma notation		
Find the sum of an arithmetic series					
Find the sum of a geometric series					
Find the sum of an infinite geometric series					

A.APR.5	How is Pascal's triangle produced?	Binomial Expansions	Use Pascal's Triangle to expand binomials	<ul style="list-style-type: none"> <li>• <a href="#">Chapter 11 Test</a> <ul style="list-style-type: none"> <li>○ <a href="#">Ch 11 Test Page 2</a></li> </ul> </li> </ul>	
			Use the Binomial Theorem to find a $n^{\text{th}}$ term of a binomial expansion		

**Vocabulary:** Sequence, Arithmetic Sequence, Geometric Sequence, Series, Arithmetic Series, Geometric Series, Convergence, Divergence, Binomial Expansion, Pascal's Triangle

## Unit 12: Matrices and Determinants

Approximate Duration of Study: 3 weeks

When to Study: April/May

CCS	Essential Question	Concept	Skills	Assessments	Helpful Strategies and Resources
	Why are matrices useful?	Matrices	Identify the different parts of a matrix (i.e. rows, column, elements, etc) Identify equal parts of a matrix		<ul style="list-style-type: none"> <li>• McDougal Littell/ Houghton Mifflin – “Algebra: Structure and Method Book2” – <b>Chapter 12</b> and accompanying resources</li> <li>• <a href="#">All Matrix Operations(pdf)</a></li> <li>• <a href="#">Basic Matrix Operations(pdf)</a></li> <li>• <a href="#">Determinants, 2x2(pdf)</a></li> <li>• <a href="#">Determinants, 3x3(pdf)</a></li> <li>• <a href="#">Inverse Matrices(pdf)</a></li> <li>• <a href="#">Matrix Equations 1(pdf)</a></li> <li>• <a href="#">Matrix Equations 2(pdf)</a></li> <li>• <a href="#">Matrix Multiplication(pdf)</a></li> <li>• <a href="#">Systems of Three Equations Cramers Rule(pdf)</a></li> <li>• <a href="#">Systems of Two Equations Cramers Rule(pdf)</a></li> <li>• <a href="#">Transformations Using Matrices(pdf)</a></li> </ul>
A.REI.8	What is the difference between multiplication of 2 numbers and multiplication of 2 matrices?	Arithmetic Operations on Matrices	Find the sum or difference of matrices Find the product of a scalar and a matrix Find the product of two matrices using the properties of matrix multiplication		
A.REI.9		Inverses of Matrices	Find the determinant of a 2x2 or a 3x3 matrix Find the inverse of a matrix Use matrices to solve a system of equations	<ul style="list-style-type: none"> <li>• <a href="#">Chapter 16 Test</a> <ul style="list-style-type: none"> <li>○ <a href="#">Ch 16 Test Page 2</a></li> </ul> </li> </ul>	
<b>Vocabulary: Matrix, Scalar, Determinant, Row, Column, Elements, Inverse, Reduced-Row Echelon Form, Cramer’s Rule</b>					