Course Title:	Prepared By:
Algebra 2 Common Core	Jolie Rose
Time Frame:	Unit/Theme
7 days	Ch 1 Algebraic Essentials Review

Essential Questions:

Do I have the foundation necessary to do many algebraic manipulations?
Am I fluent in my skills from previous algebra coursework?

NYS Standards:	Vocabulary:
A-CED.1	Variable
N-RN.2	Term
A-SSE.2	Expression
	Equation
	Exponent
	Polynomial

Student Objectives (The student will…):
- Refresh their algebra skills
- Learn to do some mental manipulations on the simpler algebra steps
- Learn to use tables on their calculator
- Become less dependent on their calculator

Assessments:	
Ch 1 Test	
Castle Learning and Daily Homework	

Recommended Texts:	Resources:
eMathinstruction lessons	Kirk Weiler – eMathinstruction
	NK Infinity

Course Title: Algebra 2 Common Core	Prepared By: Jolie Rose
Time Frame: 8 days	Unit/Theme Ch 2 Functions as the Cornerstone of Algebra

Essential Questions: Do I understand the concepts related to simple functions so that I can apply them later in my coursework for more complicated functions?	

NYS Standards: F-BF.4 F-IF.9 F-IF.4	Vocabulary: Function Function Composition Domain Range One to One Function Inverse Vertical/Horizontal Line Test

Student Objectives (The student will…):
- Learn to do some mental manipulations on the simpler algebra steps
- Become less dependent on their calculator
- Be proficient in function composition so that the process can be applied to more challenging functions later in the curriculum
- Understand the concepts of domain and range of a function so when more challenging functions are introduced, the learner can still find the domain and range

Assessments: Ch 2 Quiz Ch 2 Test Castle Learning and Daily Homework	
Recommended Texts: eMathinstruction lessons	Resources: Kirk Weiler – eMathinstruction NK Infinity

Course Title:	Prepared By:
Algebra 2 Common Core	Jolie Rose
Time Frame:	Unit/Theme
8 days	Ch 3 Linear Functions

Essential Questions:
Can I apply my knowledge of linear functions from earlier coursework to word problems and real life situations?

NYS Standards:	Vocabulary:
F-IF.6	Direct Variation
F-LE.2	Average Rate of Change
F-LE.5	Slope
F-BF.4	Y-intercept
	Piecewise

Student Objectives (The student will…):
• Learn to do some mental manipulations on the simpler algebra steps
• Become less dependent on their calculator
• Apply my knowledge of linear functions to real life situations
• Know the difference between slope and average rate of change

Assessments:	
Ch 3 Quiz	
Ch 3 Test	
Castle Learning and Daily Homework	

Recommended Texts:	Resources:
eMathinstruction lessons	Kirk Weiler – eMathinstruction
	NK Infinity

Course Title: Algebra 2 Common Core	Prepared By: Jolie Rose
Time Frame: 18 days	Unit/Theme Ch 4 Exponential and Logarithmic Functions

| Essential Questions:

Do I understand the inverse relationship between exponentials and logarithmic functions?
Do I know how to apply exponentials and logs to growth and decay (scientific and economic) situations?
Can I understand how these models help in the banking industry? ||

NYS Standards: N-RN.2 N-RN.1 F-LE.5 F-LE.2 A-CED.2 A-CED.1 A-SSE.E F-IF.4 F-IF.7(e) F-LE.4 F-IF.8 F-BF.1(a,b) F-BF.5(a)	Vocabulary: Rational Logarithm Common Log Natural Log e Simple Interest Compound Interest

Student Objectives (The student will…):	
- Learn to do some mental manipulations on the simpler algebra steps - Become less dependent on their calculator - Use laws of exponents and logs fluently - Understand which interest formula to use based on a given situation - Solve for any variable in a growth/decay/interest problem - Understand when to use the number e and when to use ln - Understand that any log can be used when solving for a variable in the exponent, but it is often easier to use the log with the coordinating base - Solve exponential and logarithmic equations fluently	

Assessments: Ch 4 Quiz - 2 Ch 4 Test Castle Learning and Daily Homework	

Recommended Texts: eMathinstruction lessons	Resources: Kirk Weiler – eMathinstruction NK Infinity

Course Title: Algebra 2 Common Core	Prepared By: Jolie Rose
Time Frame: 8 days	Unit/Theme Ch 5 Sequences

Essential Questions: Do I see the benefit of using formulas to solve sequence and series problems? Do I understand the real life situations that are made easier by sequences? (Mortgages)	

NYS Standards: F-IF.3 F-BF.2 F-LE.2 F-BF.6 F.BF.7	Vocabulary: Sequence Series Geometric Sequence/Series Arithmetic Sequence/Series Summation Mortgage

Student Objectives (The student will…):
- Learn to do some mental manipulations on the simpler algebra steps
- Become less dependent on their calculator
- Memorize the necessary formulas
- Understand that 'rainbow addition' can replace a formula
- Solve for any variable within the formulas
- Write a summation formula for a given sequence or series
- Know the difference between geometric and arithmetic sequences and series

Assessments: Ch 5 Quiz Ch 5 Test Castle Learning and Daily Homework	

Recommended Texts: eMathinstruction lessons	Resources: Kirk Weiler – eMathinstruction NK Infinity

Course Title: Algebra 2 Common Core	Prepared By: Jolie Rose
Time Frame: 13 days	Unit/Theme Ch 6 Quadratic Functions and their Algebra

Essential Questions:

Do I understand that I have many methods to solve a quadratic equation?
Do I see how the quadratic roots relate to the graph and the x-intercepts?
Do I see the importance of factoring?
Do I see the relationship between the roots and infinite solutions for an inequality?

NYS Standards: F-IF.4 A-SSE.2 A-APR.3 A-REI.4 A-CED.1 F-BF.3 A-CED.1 A-REI.7 A-SSE.3(a)	Vocabulary: Quadratic Parabola Critical Numbers Inequality Trinomial Binomial Greatest Common Factor

Student Objectives (The student will…):
- Learn to do some mental manipulations on the simpler algebra steps
- Become less dependent on their calculator
- Factor a trinomial with a=1 or a≠1
- Factor a binomial using difference of 2 perfect squares
- Factor using GCF
- Factor by grouping

Assessments: Ch 6 Quiz Ch 6 Test Castle Learning and Daily Homework	

Recommended Texts: eMathinstruction lessons	Resources: Kirk Weiler – eMathinstruction NK Infinity

Course Title:	Prepared By:
Algebra 2 Common Core	Jolie Rose
Time Frame:	Unit/Theme
6 days	Ch 7 Transformations of Functions

Essential Questions:

Can I see the relationship between the transformations I learned in previous course work and apply it to a generic function?
Can I see how these transformations affect the domain and range of the function?

NYS Standards:	Vocabulary:
F-BF.3	Even Function
	Odd Function

Student Objectives (The student will…):
- Learn to do some mental manipulations on the simpler algebra steps
- Become less dependent on their calculator
- Apply transformations to linear, quadratic, absolute value and generic functions
- Determine the domain and range of the function both with and without a graph
- Determine the new function equation based on given information

Assessments:	
Ch 7 Test	
Castle Learning and Daily Homework	

Recommended Texts:	Resources:
eMathinstruction lessons	Kirk Weiler – eMathinstruction
	NK Infinity

Course Title: Algebra 2 Common Core	Prepared By: Jolie Rose
Time Frame: 9 days	Unit/Theme Ch 8 Radicals and the Quadratic Formula

Essential Questions:

Do I see that the quadratic formula gives the same results as factoring and completing the square?
Do I understand that simplifying a radical is essential to putting my answer in simplest form?

NYS Standards: F-IF.4 A-REI.2 N-RN.2 N-RN.1 A-REI.4(b)	Vocabulary:

Student Objectives (The student will…):
- Learn to do some mental manipulations on the simpler algebra steps
- Become less dependent on their calculator
- Simplify all radicals
- Preform operations on radicals
- Simplify the roots within the quadratic formula

Assessments: Ch 8 Quiz Ch 8 Test Castle Learning and Daily Homework	
Recommended Texts: eMathinstruction lessons	Resources: Kirk Weiler – eMathinstruction NK Infinity

Course Title:	Prepared By:
Algebra 2 Common Core	Jolie Rose
Time Frame:	Unit/Theme
5 days	Ch 9 Complex Numbers

Essential Questions:

Do I understand that there the Real Number System is within the Complex Number System?
Do I understand that i is an imaginary number contained in the Complex Number System?
Do I see how imaginary roots affect the graph? The discriminant?

NYS Standards:	Vocabulary:
N-CN.1	Complex Numbers
N-CN.2	i
A-REI.4	Imaginary numbers
N.-CN.7	Conjugate
	Complex Plane

Student Objectives (The student will…):
- Learn to do some mental manipulations on the simpler algebra steps
- Become less dependent on their calculator
- Understand that complex numbers include real numbers
- Simplify radicals with a negative radicand
- Understand all 4 scenarios of the discriminant

Assessments:	
Ch 9 Test	
Castle Learning and Daily Homework	

Recommended Texts:	Resources:
eMathinstruction lessons	Kirk Weiler – eMathinstruction
	NK Infinity

Course Title: Algebra 2 Common Core	Prepared By: Jolie Rose
Time Frame: 18 days	Unit/Theme Ch 10 Polynomial and Rational Functions

Essential Questions:

Can I apply all my previous coursework on functions to cubic and quartic functions?
Do I see the similarities with all odd functions? Even functions?
DO I see that dividing a rational function and doing polynomial long division will give the same result?

NYS Standards: F-IF.4 A-CED.1 F-BF.3 A-REI.1 A-APR.3 F-IF.4 F-IF.7 A-APR.6 A-APR.2 A-REI.2	Vocabulary: Complex Fractions Rational Function Polynomial Long Division Remainder Theorem

Student Objectives (The student will…):
- Learn to do some mental manipulations on the simpler algebra steps
- Become less dependent on their calculator
- Understand when a common denominator is needed
- Determine common denominators
- Determine the end behavior of a function
- Determine the highest power of a function
- Determine the type of roots a function has
- Find the roots of a cubic, quartic or 5th degree function

Assessments: Ch 10 Quiz - 2 Ch 10 Test Castle Learning and Daily Homework	
Recommended Texts: eMathinstruction lessons	Resources: Kirk Weiler – eMathinstruction NK Infinity

Course Title: Algebra 2 Common Core	Prepared By: Jolie Rose
Time Frame: 15 days	Unit/Theme Ch 11 The Circular Functions (Trig)

Essential Questions: Do I see the value of the Unit Circle as the basis of all Trigonometry? Do I understand the Unit Circle? Can I apply all my previous coursework to trig functions?	

NYS Standards: F-TF.1 F-TF.2 F-TF.8 F-TF.5 F-TF.7(e) F-TF.4	Vocabulary: Sine Amplitude Cosine Coterminal Tangent Reference Angle Secant Unit Circle Cosecant Reciprocal Trig Cotangent Radian Period Frequency

Student Objectives (The student will…): - Learn to do some mental manipulations on the simpler algebra steps - Become less dependent on their calculator - Be fluent with the unit circle and NO calculator - Graph trig functions and their transformations - Apply real world situations to trig graphs(the tides)	

Assessments: Ch 11 Quiz Ch 11 Test Castle Learning and Daily Homework	

Recommended Texts: eMathinstruction lessons	Resources: Kirk Weiler – eMathinstruction NK Infinity

Course Title:	Prepared By:
Algebra 2 Common Core	Jolie Rose
Time Frame:	Unit/Theme
5 days	Ch 12 Probability

Essential Questions:
Can I determine if a situation is Mutually Exclusive, Independent or Dependent? Do I recall my previous coursework in Probability and can I apply it?

NYS Standards:	Vocabulary:
S-CP.1 S-CP.7 S-CP.4	Conditional Probability Mutually Exclusive Independent Dependent

Student Objectives (The student will…):
• Learn to do some mental manipulations on the simpler algebra steps • Become less dependent on their calculator • Memorize the formulas and tests for independence

Assessments:	
Ch 12 Test Castle Learning and Daily Homework	

Recommended Texts:	Resources:
eMathinstruction lessons	Kirk Weiler – eMathinstruction NK Infinity

Course Title:	Prepared By:
Algebra 2 Common Core	Jolie Rose
Time Frame:	Unit/Theme
8 days	Ch 13 Statistics

Essential Questions:

Can I see that statistics can be manipulated to suit a certain outcome?
Can I make concluding statements after analysis of statistical simulations?
Can I see when measures of center can be used to mislead?

NYS Standards:	Vocabulary:	
S-IC.3	Sample	Voluntary Response
S-ID.4	Variability	Bias
S-IC.2	Population	Census
S-IC.4	Parameters	Margin of error
S-ID.6(a)	Regression	
	Distributions	
	Measures of Center	
	Mean, Median	
	Outlier	

Student Objectives (The student will…):
- Learn to do some mental manipulations on the simpler algebra steps
- Become less dependent on their calculator
- Be proficient in the vocabulary for this unit
- Determine margin of error, mean, median
- Make concluding statements based on simulations
- Understand the 99-95-68 rule for normal distributions

Assessments:	
Ch 13 Quiz	
Ch 13 Test	
Castle Learning and Daily Homework	

Recommended Texts:	Resources:
eMathinstruction lessons	Kirk Weiler – eMathinstruction
	NK Infinity