

Grade Level Summary

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Module 1: Expressions, Equations, and Inequalities

Module Title	Message	Assignment / Call to Action (200 Character Max)	Content Directions	Resource / URL	Alternative to IOS or Notes
Module 1: Expressions, Equations, and Inequalities	<p>In this module, you will investigate the complex number system, operations with expressions, and solving equations and inequalities for a variety of functions. These functions include absolute value, quadratic, polynomial, rational, radical, exponential, and logarithmic. You will explore real-world applications for these function families.</p> <p>Focus Standards Addressed in this Module CC.2.1.HS.F.2 - Apply properties of rational and irrational numbers to solve real world or mathematical problems. CC.2.1.HS.F.6 - Extend the knowledge of arithmetic operations and apply to complex numbers. CC.2.1.HS.F.7 - Apply concepts of complex numbers in polynomial identities and quadratic equations to solve problems. CC.2.2.HS.D.1 - Interpret the structure of expressions to represent a quantity in terms of its context. CC.2.2.HS.D.2 - Write expressions in equivalent forms to solve problems. CC.2.2.HS.D.3 - Extend the knowledge of arithmetic operations and apply to polynomials. CC.2.2.HS.D.4 - Understand the relationship between zeros and factors of polynomials to make generalizations about functions and their graphs. CC.2.2.HS.D.9 - Use reasoning to solve equations and justify the solution method.</p> <p>SUGGESTED APPS FOR CAPTURING NOTES: Notability (\$2.99) OR PaperPort (FREE).</p> <p>SUGGESTED APPS FOR CREATING PRESENTATIONS: ShowMe (FREE).</p>				
Exploring Absolute Value Equations	In this lesson, students will explore absolute value equations.	DISCOVER how to solve an absolute value equation.		http://www.mathwarehouse.com/absolute-value/how-to-solve-absolute-value-equation.php	
		INVESTIGATE solving equations with two absolute value expressions and SUMMARIZE the process in your notes.		http://patrickjmt.com/solving-absolute-value-equations-ex-2/	
		SOLVE absolute value equations.	Complete IXL Activities Algebra 1 L.1 and L.2	https://itunes.apple.com/us/app/ixl-math-and-english/id693689912?mt=8	https://www.ixl.com/math/algebra-1/solve-absolute-value-equations
					https://www.ixl.com/math/algebra-1/graph-solutions-to-absolute-value-equations
		CHECK your understanding of solving simple absolute value equations.		https://brainie.ck12.org/skills/106659	Teacher can create a class with students in order to view data about student performance
		SOLVE complicated absolute value equations.		https://brainie.ck12.org/skills/106660	Teacher can create a class with students in order to view data about student performance
Exploring Absolute Value Inequalities	In this lesson, students will explore absolute value inequalities.	INVESTIGATE how to solve an example of an absolute value inequality and SUMMARIZE the process in your notes. (1 of 3)		http://patrickjmt.com/solving-absolute-value-inequalities-ex-1/	
		INVESTIGATE how to solve an example of an absolute value inequality and SUMMARIZE the process in your notes. (2 of 3)		http://patrickjmt.com/solving-absolute-value-inequalities-ex-2/	
		INVESTIGATE how to solve an example of an absolute value inequality and SUMMARIZE the process in your notes. (3 of 3)		http://patrickjmt.com/solving-absolute-value-inequalities-ex-3/	
		SOLVE absolute value inequalities.	Complete IXL Activities Algebra 1 L.3	https://itunes.apple.com/us/app/ixl-math-and-english/id693689912?mt=8	https://www.ixl.com/math/algebra-1/solve-absolute-value-inequalities

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		GRAPH absolute value inequalities.	Complete IXL Activities Algebra 1 L.4	https://itunes.apple.com/us/app/ixl-math-and-english/id693689912?mt=8	https://www.ixl.com/math/algebra-1/graph-solutions-to-absolute-value-inequalities
		CHECK your understanding of solving absolute value inequalities. (1 of 2)		https://brain genie.ck12.org/skills/106662	Teacher can create a class with students in order to view data about student performance
		CHECK your understanding of solving absolute value inequalities. (2 of 2)		https://brain genie.ck12.org/skills/106664	
Extending Knowledge of Absolute Value Equations	In this lesson, students will extend their knowledge of absolute value equations.	INVESTIGATE how to solve an equation with two absolute values and SUMMARIZE the process in your notes. (1 to 3)		http://patrickjmt.com/solving-absolute-value-equations-containing-two-absolute-value-expressions-ex-1/	
		INVESTIGATE how to solve an equation with two absolute values and SUMMARIZE the process in your notes. (2 to 3)		http://patrickjmt.com/solving-absolute-value-equations-containing-two-absolute-value-expressions-ex-2/	
		INVESTIGATE how to solve an equation with two absolute values and SUMMARIZE the process in your notes. (3 to 3)		http://patrickjmt.com/solving-absolute-value-equations-containing-two-absolute-value-expressions-ex-3/	
		DEMONSTRATE your understanding of how to solve equations with two absolute values.		http://www.purplemath.com/modules/solveabs2.htm	
Exploring Complex Number Operations	In this lesson, students will explore complex number operations.	USE the following iBook as a resource to help you complete the following lessons.		https://itunes.apple.com/us/podcast/complex-numbers/id418804912?i=91070575&mt=2	
		INVESTIGATE complex numbers and operations and summarize what you learned in your notes.		http://www.mathsisfun.com/numbers/complex-numbers.html	
		INVESTIGATE finding powers of i and CREATE an example on the ShowMe app to share.		http://www.virtualnerd.com/tutorials/?id=Alg2_05_01_0008	
		REINFORCE your understanding of writing complex numbers.	Complete IXL Activities Algebra 2 H.1	https://itunes.apple.com/us/app/ixl-math-and-english/id693689912?mt=8	https://www.ixl.com/math/algebra-2/introduction-to-complex-numbers
		REINFORCE your understanding of operations with complex numbers.	Complete IXL Activities Algebra 2 H.6	https://itunes.apple.com/us/app/ixl-math-and-english/id693689912?mt=8	https://www.ixl.com/math/algebra-2/add-subtract-multiply-and-divide-complex-numbers
		REINFORCE your understanding of absolute value of complex numbers.	Complete IXL Activities Algebra 2 H.7	https://itunes.apple.com/us/app/ixl-math-and-english/id693689912?mt=8	https://www.ixl.com/math/algebra-2/absolute-values-of-complex-numbers
		REINFORCE your understanding of finding powers of i .	Complete IXL Activities Algebra 2 H.8	https://itunes.apple.com/us/app/ixl-math-and-english/id693689912?mt=8	https://www.ixl.com/math/algebra-2/powers-of-i
		ASSESS your understanding complex numbers.		https://brain genie.ck12.org/units/1648/unit_quizzes	Teacher can create a class with students in order to view data about student performance.
Solving Quadratic Equations	In this lesson, students will solve quadratic equations.	READ about strategies for determining the best strategy for solving a quadratic equation.		https://learnzillion.com/lesson_plans/792	Teacher Resource with posted student tasks
		REVIEW how to solve quadratic equations by factoring.		http://www.virtualnerd.com/tutorials/?id=Alg1_12_01_0006	
		APPLY your understanding of solving quadratic equations by factoring.	Complete IXL Activities Algebra 1 BB.6	https://itunes.apple.com/us/app/ixl-math-and-english/id693689912?mt=8	https://www.ixl.com/math/algebra-1/solve-a-quadratic-equation-using-the-zero-product-property
		EXPLORE completing the square with algebra tiles.		http://www.classzone.com/eservices/home/pdf/student/LA205EAD.pdf	

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		SOLVE the remaining problems from the previous table using algebra tiles.		https://itunes.apple.com/us/app/algebra-tiles/id568896224?mt=8	http://technology.cpm.org/general/tiles/
		INVESTIGATE solving by completing the square and SUMMARIZE the process in your notes.		https://www.khanacademy.org/math/algebra/quadratics/solving-quadratics-by-completing-the-square/v/solving-quadratic-equations-by-completing-the-square	
		DEMONSTRATE your skills for completing the square ($a=1$).		https://brainiac.ck12.org/skills/106839	Teacher can create a class with students in order to view data about student performance.
		DEMONSTRATE your skills for completing the square ($a>1$).		https://brainiac.ck12.org/skills/106840	Teacher can create a class with students in order to view data about student performance.
		EXPLORE the quadratic formula and its origins.		https://www.khanacademy.org/math/algebra/quadratics/solving-quadratics-using-the-quadratic-formula/a/quadratic-formula-explained-article	
		CREATE a summary of the quadratic formula using the Explain Everything app.		https://itunes.apple.com/us/app/explain-everything-interactive/id431493086?mt=8	
		APPLY your understanding of the quadratic formula.		https://www.khanacademy.org/math/algebra/quadratics/solving-quadratics-using-the-quadratic-formula/e/quadratic-equation	
		INVESTIGATE the discriminant and SUMMARIZE what you have learned in your notes.		http://www.purplemath.com/modules/quadform2.htm	
		DESCRIBE the solutions to quadratic equations using the discriminant.		https://brainiac.ck12.org/skills/106843	Teacher can create a class with students in order to view data about student performance
Solving Quadratic Inequalities	In this lesson, student will solve quadratic inequalities.	EXPLORE solving quadratic inequalities.		http://www.mathsisfun.com/algebra/inequality-quadratic-solving.html	
		CREATE and solve a quadratic inequality using the Explain Everything app.		https://itunes.apple.com/us/app/explain-everything-interactive/id431493086?mt=8	
		ASSESS your understanding of quadratic inequalities.		https://brainiac.ck12.org/skills/106853	Teacher can create a class with students in order to view data about student performance
		APPLY your understanding of quadratic inequalities to real-world situations.		https://brainiac.ck12.org/skills/106856	Teacher can create a class with students in order to view data about student performance
Exploring Polynomial Operations and Vocabulary	In this lesson, students will explore polynomial operations and vocabulary.	DISCOVER how polynomials are used in the real-world. (video)		https://www.youtube.com/watch?v=fnSkN61cxQM	
		REVIEW what you know about the parts of a polynomial.		http://www.purplemath.com/modules/polydefs.htm	
		INVESTIGATE the distributive property and SUMMARIZE in your notes.		http://www.virtualnerd.com/algebra-2/polynomials/operations/multiply/trinomial-multiplication	
		ASSESS your mastery of polynomial operations.		http://brainiac.ck12.org/skills/106882	Teacher can create a class with students in order to view data about student performance
		APPLY your knowledge of polynomial operations to complete the Floor Plan Project.		Polynomial Project document located in course posted in <i>Pennsylvania Learns on iTunes U</i> .	

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		INVESTIGATE polynomial long division and SUMMARIZE in your notes.		http://www.virtualnerd.com/algebra-2/polynomials/dividing/long-division/polynomial-long-division-example	
		DEMONSTRATE your understanding of polynomial long division.	Complete IXL Activities Algebra 2 K.4	https://itunes.apple.com/us/app/ixl-math-and-english/id693689912?mt=8	https://www.ixl.com/math/algebra-2/divide-polynomials-using-long-division
		ASSESS your knowledge of polynomial long division.		https://brainie.ck12.org/skills/106897	Teacher can create a class with students in order to view data about student performance
		EXPLORE why synthetic division "works."		https://www.khanacademy.org/math/algebra2/polynomial_and_rational/synthetic-division/v/why-synthetic-division-works	
		INVESTIGATE synthetic division and SUMMARIZE in your notes.		http://patrickmt.com/synthetic-division-example-2/	
		CHECK your understanding of synthetic division.	Complete IXL Activities Algebra 2 K.5 and K.6	https://itunes.apple.com/us/app/ixl-math-and-english/id693689912?mt=8	https://www.ixl.com/math/algebra-2/divide-polynomials-using-synthetic-division
					https://www.ixl.com/math/algebra-2/evaluate-polynomials-using-synthetic-division
		INVESTIGATE the Remainder Theorem and DESCRIBE in your notes how it is related to the factor theorem and synthetic division.		http://www.mathsisfun.com/algebra/polynomials-remainder-factor.html	
		DEMONSTRATE your understanding of simplifying using synthetic division.		https://brainie.ck12.org/skills/106025	Teacher can create a class with students in order to view data about student performance
Finding Roots and Solving Polynomial Equations	In this lesson, students will find roots and solve polynomial equations.	INVESTIGATE and SUMMARIZE the Fundamental Theorem of Algebra in your notes.		https://www.khanacademy.org/math/algebra2/polynomial_and_rational/fundamental-theorem-of-algebra/v/fundamental-theorem-of-algebra-intro	
		REVIEW factoring strategies for polynomials.		http://www.virtualnerd.com/tutorials/?id=Alg1_7_3_1	
		CHECK your understanding of factoring polynomials.	Complete IXL activities Algebra.2.1.1 through I.6	https://itunes.apple.com/us/app/ixl-math-and-english/id693689912?mt=8	https://www.ixl.com/math/algebra-2/factor-out-a-monomial
					https://www.ixl.com/math/algebra-2/factor-quadratics-using-algebra-tiles
					https://www.ixl.com/math/algebra-2/factor-quadratics
					https://www.ixl.com/math/algebra-2/factor-using-a-quadratic-pattern
					https://www.ixl.com/math/algebra-2/factor-by-grouping
					https://www.ixl.com/math/algebra-2/factor-sums-and-differences-of-cubes
		INVESTIGATE and SUMMARIZE in your notes the process for finding the roots of a factored polynomial.		https://www.youtube.com/watch?v=hJCHhWylws	
		INVESTIGATE and SUMMARIZE in your notes the process for finding the roots of a factored polynomial.		http://www.virtualnerd.com/tutorials/?id=Alg2_06_01_0020	

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		DEMONSTRATE your understanding of how to find the roots of a polynomial by factoring.	Complete IXL activities Algebra.2.K.9 and K.10	https://itunes.apple.com/us/app/ixl-math-and-english/id693689912?mt=8	https://www.ixl.com/math/algebra-2/write-a-polynomial-from-its-roots
					https://www.ixl.com/math/algebra-2/rational-root-theorem
		ASSESS your mastery of the rational root theorem.		http://teachers.henrico.k12.va.us/math/hcpsalgebra2/Documents/8-5/rationalzerotheorem.htm	
		INVESTIGATE how to find all roots of polynomial function and SUMMARIZE what you learned in your notes.		http://www.themathpage.com/aprecalc/factor-theorem.htm	
		DISCOVER the rule of signs and SUMMARIZE your learning in your notes.		http://www.mathsisfun.com/algebra/polynomials-rule-signs.html	
		ASSESS your knowledge of how to find roots of a polynomial from its factored form. (1 of 3)		http://brainienie.ck12.org/skills/106905	Teacher can create a class with students in order to view data about student performance
		INVESTIGATE solving polynomial equations and SUMMARIZE your results in your notes.		http://www.mathsisfun.com/algebra/polynomials-solving.html	
		INVESTIGATE solving polynomial equations and SUMMARIZE your results in your notes.		http://www.purplemath.com/modules/solvpoly.htm	
		SOLVE polynomial equations by factoring sum and difference of cubes.		https://www.youtube.com/watch?v=3X2ikOD9Olg	
		DEMONSTRATE your understanding of solving polynomial equations.	Complete IXL activity Algebra.2.K.7	https://itunes.apple.com/us/app/ixl-math-and-english/id693689912?mt=8	https://www.ixl.com/math/algebra-2/solve-polynomial-equations
		ASSESS your knowledge of solving polynomial equations.		http://brainienie.ck12.org/skills/106041	Teacher can create a class with students in order to view data about student performance
Writing Equations for Polynomial Functions	In this lesson, students will write equations for polynomial functions.	INVESTIGATE how to write a polynomial equation from its roots.		http://www.phschool.com/atschool/academy123/english/academy123_content/wl-book-demo/ph-580s.html	
		CREATE your own problem in the Explain Everything app to share with others.		https://itunes.apple.com/us/app/explain-everything-interactive/id431493086?mt=8	
		ASSESS your knowledge of writing a polynomial equation from its roots.		http://brainienie.ck12.org/skills/106044	Teacher can create a class with students in order to view data about student performance
Exploring the Binomial Theorem	In this lesson, students will explore the binomial theorem.	INVESTIGATE Pascal's Triangle and SUMMARIZE your results in your notes.		http://www.mathsisfun.com/pascals-triangle.html	
		EXPLORE Pascal's Triangle.		http://www.shodor.org/interactivate/activities/ColoringMultiples/	
		INVESTIGATE the Binomial Theorem and SUMMARIZE in your notes.		http://www.mathsisfun.com/algebra/binomial-theorem.html	
		CHECK your understanding of the Binomial Theorem.	Complete IXL activities Algebra.2.K.16 through K.19	https://itunes.apple.com/us/app/ixl-math-and-english/id693689912?mt=8	https://www.ixl.com/math/algebra-2/pascals-triangle
					https://www.ixl.com/math/algebra-2/pascals-triangle
					https://www.ixl.com/math/algebra-2/binomial-theorem
					https://www.ixl.com/math/algebra-2/binomial-theorem-ii

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		DISCOVER the link between Pascal's Triangle and the Binomial Theorem.		https://www.khanacademy.org/math/algebra2/polynomial-functions/binomial-theorem/v/pascals-triangle-binomial-theorem	
Operating on Rational Expressions	In this lesson, students will operate on rational expressions.	DISCOVER why it is called a rational expression.		http://www.virtualnerd.com/algebra-1/rational-expressions-functions-expressions/simplify/definition	
		EXPLORE rational expressions and use the Explain Everything app to create and explain an example of a rational expression.		http://www.mathsisfun.com/algebra/rational-expression.html	
		REVIEW operating with rational expressions and PRACTICE those skills.		https://www.mathsisfun.com/algebra/rational-expression-operations.html	
		REFRESH and DEMONSTRATE your understanding of operations with rational expressions.		http://www.algebralab.org/lessons/lesson.aspx?file=Algebra_rational_operations.xml	
		DEMONSTRATE simplifying, multiplication, division, addition, and subtraction rational expressions.	Complete IXL activities Algebra 2 N.4, N.5, N.6	https://itunes.apple.com/us/app/ixl-math-and-english/id693689912?mt=8	https://www.ixl.com/math/algebra-2/simplify-rational-expressions
					https://www.ixl.com/math/algebra-2/simplify-rational-expressions
					https://www.ixl.com/math/algebra-2/add-and-subtract-rational-expressions
Solving Rational Equations	In this lesson, students will solve rational equations.	EXPLORE the collection of video examples about solving rational equations and CREATE your own example on the Explain Everything app to share with a partner.		https://www.khanacademy.org/math/algebra2/rational-expressions/solving-rational-equations/v/ex-1-multi-step-equation	
		INVESTIGATE real world problems using rational equations and create your own problem for a friend to solve.		https://learnzillion.com/lessons/2952-solve-real-world-problems-using-rational-equations	
		SOLVE rational equations in proportion form only.	Complete IXL activity Algebra 2 N.7	https://itunes.apple.com/us/app/ixl-math-and-english/id693689912?mt=8	https://www.ixl.com/math/algebra-2/add-and-subtract-rational-expressions
		SOLVE rational equations not in proportion form.		https://www.khanacademy.org/math/algebra2/rational-expressions/solving-rational-equations/e/solving_rational_equations_2	
		ASSESS your ability to solve rational equations in proportion form.		https://brainie.ck12.org/skills/106406	
		ASSESS your ability to solve rational equations with problem solving.		https://brainie.ck12.org/skills/106407	
		ASSESS your ability to solve rational equations with one solution using the Lowest Common Denominator (LCD).		https://brainie.ck12.org/skills/106408	
		ASSESS your ability to solve rational equations with two solutions using LCD.		https://brainie.ck12.org/skills/106409	

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		ASSESS your ability to solve rational equations with extraneous solutions using LCD.		https://brain genie.ck12.org/skills/106410	
		APPLY rational equations to the real world by completing this Light It Up activity.		http://illuminations.nctm.org/Lesson.aspx?id=1968	
Solving Rational Inequalities	In this lesson, students will solve rational inequalities.	DISCOVER and SUMMARIZE your understanding of rational inequalities.		http://www.purplemath.com/modules/ineqrtnl.htm	
		CHECK your understanding of rational inequalities.		http://tutorial.math.lamar.edu/Classes/Alg/SolveRationalInequalities.aspx	
				http://tutorial.math.lamar.edu/Problems/Alg/SolveRationalInequalities.aspx	
Operating on Radical Expressions	In this lesson, students will operate on radical expressions.	INVESTIGATE parts of radicals and SUMMARIZE your learning in your notes.		https://www.khanacademy.org/math/algebra-home/alg-exp-and-log/miscellaneous-radicals/v/adding-and-simplifying-radicals	
				https://www.khanacademy.org/math/algebra-home/alg-exp-and-log/miscellaneous-radicals/v/subtracting-and-simplifying-radicals	
		SOLVE problems involving radical expressions.		https://brain genie.ck12.org/skills/107177	
		PRACTICE simplifying radicals.	Complete IXL activity Algebra 2 L.4	https://itunes.apple.com/us/app/ixl-math-and-english/id693689912?mt=8	https://www.ixl.com/math/algebra-2/simplify-radical-expressions-with-variables
		SIMPLIFY radicals other than square roots.	Complete IXL activity Algebra 2 L.5	https://itunes.apple.com/us/app/ixl-math-and-english/id693689912?mt=8	https://www.ixl.com/math/algebra-2/simplify-radical-expressions-with-variables-ii
		PRACTICE simplifying nth roots.	Complete IXL activity Algebra2.L.6	https://itunes.apple.com/us/app/ixl-math-and-english/id693689912?mt=8	https://www.ixl.com/math/algebra-2/nth-roots
		DISCOVER how to simplify radical expressions with variables.		http://patrickjmt.com/radicals-simplifying-radical-expressions-involving-variables-ex-1/	
		INVESTIGATE how to multiply and divide radical expressions.		http://www.virtualnerd.com/algebra-1/radical-expressions-equations/simplify/multiply-divide/multiplication-example	
				https://www.khanacademy.org/math/algebra-home/alg-exp-and-log/miscellaneous-radicals/v/multiply-and-simplify-a-radical-expression-2	
		EXPLORE how to rationalize a denominator containing a radical expression and use the Explain Everything app to create a problem to share with a friend.		http://www.mathsisfun.com/algebra/rationalize-denominator.html	
		CHECK your understanding of operations with radical expressions.	Complete IXL activities Algebra 2. L.7 through L.11	https://itunes.apple.com/us/app/ixl-math-and-english/id693689912?mt=8	https://www.ixl.com/math/algebra-2/multiply-radical-expressions
					https://www.ixl.com/math/algebra-2/multiply-radical-expressions

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					https://www.ixl.com/math/algebra-2/add-and-subtract-radical-expressions
					https://www.ixl.com/math/algebra-2/simplify-radical-expressions-using-the-distributive-property
					https://www.ixl.com/math/algebra-2/simplify-radical-expressions-using-conjugates
Exploring Rational Exponents	In this lesson, students will explore rational exponents.	DISCOVER the connection between rational exponents and radicals and SUMMARIZE your findings in your notes.		http://www.purplemath.com/modules/exponent5.htm	
		INVESTIGATE rational exponents and SUMMARIZE your learning in your notes.		http://www.themathpage.com/alg/rational-exponents.htm#fractional	
		CHECK your understanding of simplifying expressions with rational exponents.	Complete IXL Activities Algebra.2.M.1 through M.6	https://itunes.apple.com/us/app/ixl-math-and-english/id693689912?mt=8	https://www.ixl.com/math/algebra-2/evaluate-rational-exponents
					https://www.ixl.com/math/algebra-2/multiplication-with-rational-exponents
					https://www.ixl.com/math/algebra-2/division-with-rational-exponents
					https://www.ixl.com/math/algebra-2/power-rule
					https://www.ixl.com/math/algebra-2/simplify-expressions-involving-rational-exponents
					https://www.ixl.com/math/algebra-2/simplify-expressions-involving-rational-exponents-ii
Solving Radical Equations	In this lesson, students will solve radical equations.	DISCOVER how to solve equations involving rational exponents		http://patrickjmt.com/solving-equations-involving-rational-exponents/	
		CREATE a rational equation for a friend to solve.		https://itunes.apple.com/us/app/explain-everything-interactive/id431493086?mt=8	
		INVESTIGATE how to solve radical equations and SUMMARIZE the process in your notes.		http://www.purplemath.com/modules/solverad.htm	
		REINFORCE your understanding of solving radical equations by watching the solution process and use the Explain Everything app to CREATE a presentation to DEMONSTRATE what you learned.		http://www.virtualnerd.com/algebra-2/radical-functions/expressions-examples/solve-equations/solving-example	
		PRACTICE solving equations with radical expressions on one side.		https://brainiac.ck12.org/skills/107178	
		PRACTICE solving equations with radical expressions on both sides.		https://brainiac.ck12.org/skills/107179	
		APPLY radical equations to the real world.		http://solvingradicalequations.weebly.com/real-world-examples.html	
		SOLVE radical equations in context.		https://brainiac.ck12.org/skills/107181	
		ASSESS your ability to solve radical equations.		https://brainiac.ck12.org/skills/107180	

Module Title	Message	Assignment / Call to Action (200 Character Max)	Content Directions	Resource / URL	Alternative to IOS or Notes
Solving Radical Inequalities	In this lesson, students will solve radical inequalities.	INVESTIGATE how to solve radical inequalities & SUMMARIZE your learning in your notes.		https://www.youtube.com/watch?v=joPJVCS5pH4	
Applying Knowledge of Radical Equations	In this lesson, students will apply knowledge of radical equations.	LEARN about radical equations in tsunamis.		http://www.ck12.org/algebra/Radical-Equations/rwa/Riding-the-Wave/?referrer=concept_details	
		LEARN about radical equations in hydroplaning.		http://www.ck12.org/algebra/Radical-Equations/rwa/Driving-on-Water/?referrer=concept_details	
		APPLY your understanding of radical equations to SOLVE real world problems using pages 10.1.3 in NASA's Algebra 2 with Space Science Applications.		https://www.nasa.gov/pdf/714670main_Algebra2.pdf	
Exploring Exponential Expressions and Equations	In this lesson, students will explore exponential expressions and equations.	INVESTIGATE how to solve exponential equations with a common base and SUMMARIZE the process in your notes.		http://www.purplemath.com/modules/solvexpo.htm	
		EXPLORE how to solve exponential equations without a common base and SUMMARIZE the process in your notes.		http://www.purplemath.com/modules/solvexpo2.htm	
		PRACTICE solving exponential equations.	Complete the practice problems.	http://www.mathwarehouse.com/algebra/exponents/solve-exponential-equations-how-to.php	
		CHECK your understanding of solving exponential equations.	Complete IXL activities Algebra.2.S.4 and S.5	https://itunes.apple.com/us/app/ixl-math-and-english/id693689912?mt=8	https://www.ixl.com/math/algebra-2/solve-exponential-equations-using-factoring
					https://www.ixl.com/math/algebra-2/solve-exponential-equations-using-factoring
Converting Between Exponential and Logarithmic Forms	In this lesson, students will convert between exponential and logarithmic forms.	WATCH and SUMMARIZE a video of how to convert from exponential to logarithmic form.		http://www.virtualnerd.com/algebra-2/exponential-logarithmic-functions/logarithms-logarithmic-functions/logarithms-introduction/convert-exponential-to-log	
		WATCH the video and SUMMARIZE of how to convert from logarithmic to exponential form.		http://www.virtualnerd.com/algebra-2/exponential-logarithmic-functions/logarithms-logarithmic-functions/logarithms-introduction/convert-log-to-exponential	
		PRACTICE converting between exponential and logarithmic form.	Complete IXL activity Algebra2.R.1	https://itunes.apple.com/us/app/ixl-math-and-english/id693689912?mt=8	https://www.ixl.com/math/algebra-2/convert-between-exponential-and-logarithmic-form-rational-bases
		ASSESS your ability to convert from exponential to logarithmic form.		http://brainie.ck12.org/skills/106345	
		ASSESS your ability to convert from logarithmic to exponential form.		http://brainie.ck12.org/skills/106344	
Evaluating Logarithms	In this lesson, students will evaluate logarithms.	LEARN how to evaluate logarithms.		http://www.virtualnerd.com/algebra-2/exponential-logarithmic-functions/logarithms-logarithmic-functions/logarithms-introduction/evaluate-log-example	

Module Title	Message	Assignment / Call to Action (200 Character Max)	Content Directions	Resource / URL	Alternative to IOS or Notes
		EVALUATE logarithms.	Complete IXL Activity Algebra2.R.4	https://itunes.apple.com/us/app/ixl-math-and-english/id693689912?mt=8	https://www.ixl.com/math/algebra-2/evaluate-logarithms
		EVALUATE natural logarithms.	Complete IXL Activity Algebra 2.R.5	https://itunes.apple.com/us/app/ixl-math-and-english/id693689912?mt=8	https://www.ixl.com/math/algebra-2/evaluate-natural-logarithms
		ASSESS your ability to evaluate logarithms.		http://braingenie.ck12.org/skills/106346	
		ASSESS your ability to evaluate common and natural logarithms.		http://braingenie.ck12.org/skills/106347	
		EXPLORE the change of base formula.		http://www.virtualnerd.com/algebra-2/exponential-logarithmic-functions/logarithm-properties/logarithm-properties-definitions/log-change-base-formula	
		EVALUATE logarithms using the change of base formula.	Complete IXL Activity Algebra 2.R.6	https://itunes.apple.com/us/app/ixl-math-and-english/id693689912?mt=8	https://www.ixl.com/math/algebra-2/change-of-base-formula
		ASSESS your ability to evaluate logarithms using the change of base formula.		http://braingenie.ck12.org/skills/106359	
Exploring Properties of Logarithms	In this lesson, students will explore properties of logarithms.	EXPLORE the properties/rules of logarithms (video).		http://www.purplemath.com/modules/logrules.htm	
		IDENTIFY properties of logarithms.	Complete IXL Activity Algebra2.R.7	https://itunes.apple.com/us/app/ixl-math-and-english/id693689912?mt=8	https://www.ixl.com/math/algebra-2/identify-properties-of-logarithms
		ASSESS your ability to expand logarithms using the properties.		http://braingenie.ck12.org/skills/106357	
		ASSESS your ability to condense logarithms using the properties.		http://braingenie.ck12.org/skills/106358	
Solving Logarithmic Equations	In this lesson, students will solve logarithmic equations.	WATCH the video on how to solve logarithmic equations using properties of logarithms.		https://www.youtube.com/watch?v=ZUREfaCqWzY	
		WATCH a video on how to solve logarithmic equations using exponents.		http://www.virtualnerd.com/algebra-2/exponential-logarithmic-functions/solving-equations-inequalities/solving-logarithmic-equations/solve-by-exponentiating	
		PRACTICE solving logarithmic equations.		http://tutorial.math.lamar.edu/Problems/Alg/SolveLogEqns.aspx	
		ASSESS your ability to SOLVE logarithmic equations using exponents.		http://braingenie.ck12.org/skills/106364	
		ASSESS your ability to SOLVE logarithmic equations while accounting for extraneous solutions.		http://braingenie.ck12.org/skills/106365	
		APPLY your understanding of using logarithms to solve real world problems using pages 8.6.1 and 8.6.2 in NASA's Algebra 2 with Space Science Applications.		https://www.nasa.gov/pdf/714670main_Algebra2.pdf	

Module 2: Trigonometric Functions

Module Title	Message	Assignment / Call to Action (200 Character Max)	Content Directions	Resource / URL	Alternative to IOS or Notes
Module 2: Trigonometric Functions	<p>In this module, you will build on your previous work with functions and on your work with trigonometric ratios and circles in geometry. You will now use the coordinate plane to extend trigonometry to model periodic phenomena, as well as use the unit circle to determine domain and range and trigonometric identities.</p> <p>Focus Standards Addressed in this Module: CC.2.2.HS.C.7 - Apply radian measure of an angle and the unit circle to analyze the trigonometric functions. CC.2.2.HS.C.8 - Choose trigonometric functions to model periodic phenomena and describe the properties of the graphs.</p> <p>SUGGESTED APPS FOR CAPTURING NOTES: Notability (\$2.99) OR PaperPort (FREE).</p> <p>SUGGESTED APPS FOR CREATING PRESENTATIONS: Explain Everything</p>				
Understanding the Unit Circle	In this lesson, students will explore the unit circle.	DISCOVER the origins of the unit circle.		Unit Circle 1-2 PDF (1)	
		INVESTIGATE real-world uses for the unit circle.		http://unitcircle.weebly.com/essay.html	
		REVEAL the origins of the unit circle (video).		https://www.khanacademy.org/math/trigonometry/unit-circle-trig-func/Trig-unit-circle/v/unit-circle-definition-of-trig-functions-1	
		CONSTRUCT a unit circle using right triangles.	Step1: Students should click on the 30, 150, 210, and 330 buttons. Students should describe what patterns they see. Describe the connection between these 4 ordered pairs. Repeat for the 45 degree reference triangles and the 60 degree reference triangles.	https://www.desmos.com/calculator/evltrytg3v	
		ANALYZE the unit circle using a graphing calculator.	Having students graph the Unit Circle on the graphing calculator using the parametric would be helpful first. Then after completing the NCTM illuminations activity for graphing (which is below) revisit this site and graph the parametric form and the function form of sine and cosine to make the connection to the circle.	http://mathbits.com/MathBits/TISection/Trig/unitcircle.htm	
		INTERACT with the unit circle.		http://www.mathwarehouse.com/unit-circle/unit-circle-game.php	
		PRACTICE finding trigonometric ratios using the unit circle.	Complete IXL Activity Algebra 2 Y.6	https://itunes.apple.com/us/app/ixl-math-and-english/id693689912?mt=8	https://www.ixl.com/math/algebra-2/find-trigonometric-ratios-using-the-unit-circle
Applying the Periodic Functions	In this lesson, students will apply the periodic functions.	LEARN about how ocean tides can be represented by a periodic function.		https://www.youtube.com/watch?v=51aivZiP9vA	
		EXPLORE real world examples of periodic functions.		https://prezi.com/btjzvyf89spd/real-world-examples-of-periodic-functions/ https://itunes.apple.com/us/app/prezi/id407759942?mt=8	
		DISCOVER characteristics of graphs of periodic functions. (PART A)	Part A: Geometer's Sketchpad file "Exploring Sine Transformations" in course in Pennsylvania Learns on iTunes U.	Opens file in Sketchpad Explorer app https://itunes.apple.com/us/app/sketchpad-explorer/id452811793?mt=8	https://www.desmos.com/calculator/4jrsmtuqsk
		UNDERSTAND the properties of periodic functions (video).		http://www.virtualnerd.com/algebra-2/trigonometric-identities-equations/graphing-functions/periodic-functions/periodic-function-definition	

Module Title	Message	Assignment / Call to Action (200 Character Max)	Content Directions	Resource / URL	Alternative to IOS or Notes
		WATCH and SUMMARIZE an example of how to graph a sine function (video).		http://www.virtualnerd.com/algebra-2/trigonometric-identities-equations/graphing-functions/graphing-sine-cosine/graph-sine-example	
		EXPLORE the attributes of a sine function. (PART B)	Part B: Geometer's Sketchpad file "Exploring Sine Transformations" in course in Pennsylvania Learns on iTunes U.	Opens file in Sketchpad Explorer app https://itunes.apple.com/us/app/sketchpad-explorer/id452811793?mt=8	https://www.desmos.com/calculator/4jrsmtuqsk
		REFLECT on the differences between Part A and Part B		https://itunes.apple.com/us/app/explain-everything-interactive/id431493086?mt=8	
		PRACTICE identifying properties of graphs of sine functions.	Complete IXL Activity Algebra 2.Z.1	https://itunes.apple.com/us/app/ixl-math-and-english/id693689912?mt=8	https://www.ixl.com/math/algebra-2/find-properties-of-sine-functions
		DEMONSTRATE your ability to graph sine functions.	Complete IXL Activity Algebra 2.Z.4	https://itunes.apple.com/us/app/ixl-math-and-english/id693689912?mt=8	https://www.ixl.com/math/algebra-2/graph-sine-functions
		PRACTICE writing equations for sine functions from graphs.	Complete IXL Activity Algebra 2.Z.2	https://itunes.apple.com/us/app/ixl-math-and-english/id693689912?mt=8	https://www.ixl.com/math/algebra-2/graph-sine-functions
		WATCH and SUMMARIZE a video about how to graph a cosine function.		http://www.virtualnerd.com/algebra-2/trigonometric-identities-equations/graphing-functions/graphing-sine-cosine/cosine-graph	
		PRACTICE identifying properties of cosine functions.	Complete IXL Activity Algebra 2.Z.5	https://itunes.apple.com/us/app/ixl-math-and-english/id693689912?mt=8	https://www.ixl.com/math/algebra-2/find-properties-of-cosine-functions
		DEMONSTRATE your ability to graph cosine functions.	Complete IXL Activity Algebra 2.Z.8	https://itunes.apple.com/us/app/ixl-math-and-english/id693689912?mt=8	https://www.ixl.com/math/algebra-2/graph-cosine-functions
		PRACTICE writing equations for cosine functions from graphs.	Complete IXL Activity Algebra 2.Z.6	https://itunes.apple.com/us/app/ixl-math-and-english/id693689912?mt=8	https://www.ixl.com/math/algebra-2/write-equations-of-cosine-functions-from-graphs
		ASSESS your ability to graph sine and cosine functions.		http://braingenie.ck12.org/skills/106272	
		WATCH the video and PREDICT the red scrambler's position be at the end of the ride. (Scrambler Part 1)	Watch act one video only.	http://threeacts.mrmeyer.com/scrambler/	
		WATCH a video and ASSESS what new information you now know. (Scrambler Part 2)	Watch act two video only.	http://threeacts.mrmeyer.com/scrambler/	
		WATCH the entire video of the ride. (Scrambler Part 3)	Watch act three video only.	http://threeacts.mrmeyer.com/scrambler/	
		ASSESS the accuracy of your prediction. (Scrambler Reflection)	Check to see if you agree.	http://threeacts.mrmeyer.com/scrambler/act3/studentwork.pdf	
		APPLY a trigonometric function to model the Scrambler: For a ride of any length t , how many times will the scrambler pass through its starting position? (Scrambler Application)		https://itunes.apple.com/us/app/explain-everything-interactive/id431493086?mt=8	
		OBSERVE the movement of the Ferris wheel in the diagram.		Ferris Wheel Diagram.pdf in course in Pennsylvania Learns on iTunes U.	
		CREATE a table of values to represent the height of a seat on a Ferris wheel through one revolution. (Ferris Wheel Part 1)	Use the Explain Everything app throughout the Ferris Wheel problem to document your thinking	https://itunes.apple.com/us/app/explain-everything-interactive/id431493086?mt=8	
		GRAPH your table. What function could be used to represent this motion? (Ferris Wheel Part 2)		https://itunes.apple.com/us/app/desmos-graphing-calculator/id653517540?mt=8	https://www.desmos.com
		MODEL the height of a seat on a ferris wheel as a function of time. (Ferris Wheel Part 3)			
		ASSESS the validity of your equation by graphing your function against your table values (Ferris Wheel Part 4)		https://itunes.apple.com/us/app/desmos-graphing-calculator/id653517540?mt=8	https://www.desmos.com

Module Title	Message	Assignment / Call to Action (200 Character Max)	Content Directions	Resource / URL	Alternative to IOS or Notes
		CREATE a second equation using a different function to model the same motion. (Ferris Wheel Part 5)			
Applying Trigonometric Functions	In this lesson, students will apply trigonometric functions.	INVESTIGATE real-world applications for trigonometric identities (video).		https://www.youtube.com/watch?v=6u3acKlwh6Y	
		DISCOVER applications for trigonometric identities.		https://prezi.com/vysb1nqexnzd/trigonometric-identities-in-the-real-world/ https://itunes.apple.com/us/app/prezi/id407759942?mt=8	
		PROVE the Pythagorean trigonometric identities. (video)		https://www.youtube.com/watch?v=r382kfkqAF4	
		SIMPLIFY trigonometric expressions using Pythagorean identities. (video)		https://www.khanacademy.org/math/trigonometry/less-basic-trigonometry/pythagorean-identity/v/examples-using-pythagorean-identities-to-simplify-trigonometric-expressions	
		ASSESS your ability to simplify expressions with trigonometric identities.		https://brainenie.ck12.org/skills/106411	

Module 3: Modeling with Functions

Module Title	Message	Assignment / Call to Action (200 Character Max)	Content Directions	Resource / URL	Alternative to IOS or Notes
Module 3: Modeling with Functions	<p>In this module, you will synthesize and generalize what you have learned about a variety of function families. You will explore the effects of transformations and rewrite equations in equivalent forms. You will manipulate equations to solve for other variables and make comparisons of multiple functions based on graphs, tables, and equations. Functions of focus include linear, quadratic, radical, piecewise, step, absolute value, exponential, logarithmic, rational, and inverse. You will identify appropriate types of functions to model a situation, understand the constraints, adjust parameters of existing models, and then synthesize, by creating new equations.</p> <p>Focus Standards Addressed in this Module CC.2.2.HS.C.2 - Graph and analyze functions and use their properties to make connections between the different representations. CC.2.2.HS.C.4 - Interpret the effects transformations have on functions and find the inverses of functions. CC.2.2.HS.C.5 - Construct and compare linear, quadratic and exponential models to solve problems. CC.2.2.HS.C.6 - Interpret functions in terms of the situation they model. CC.2.2.HS.D.7 - Create and graph equations or inequalities to describe numbers or relationships.</p> <p>SUGGESTED APPS FOR CAPTURING NOTES: Notability (\$2.99) OR PaperPort (FREE).</p> <p>SUGGESTED APPS FOR CREATING PRESENTATIONS: ShowMe (FREE).</p> <p>SUGGESTED APPS FOR GRAPHING FUNCTIONS: Desmos (FREE)</p>				
Exploring Domain and Multiple Function Families	In this lesson, student will explore domain and multiple function families.	EXPLORE domain as it applies to multiple function families (linear, quadratic, cubic, radical) through multiple representations (graphs, tables, number lines, descriptive, symbolic).		http://illuminations.nctm.org/uploadedFiles/Content/Lessons/Resources/9-12/DomainReps-AS-Domains.pdf	
Applying Knowledge of Linear Functions	In this lesson, students will apply their knowledge of linear functions.	APPLY systems with tables, charts, and graphs.	Import into Explain Everything to solve.	http://www.utdanacenter.org/k12mathbenchmarks/tasks/10_cycling.php https://itunes.apple.com/us/app/explain-everything-interactive/id431493086?mt=8	
Exploring Absolute Value Functions	In this lesson, students will explore absolute value functions.	INVESTIGATE transformations of absolute value graphs. (Part 1 of 2)		https://www.desmos.com/calculator/rmhvvaofek	
		RECORD your thoughts using a note taking app on what effect changing the h, v, and a have on the absolute value graph. (Part 2 of 2)	Use the preferred notetaking app		
		WATCH a video on how to graph an absolute value function to see if your observations were correct.		https://www.youtube.com/watch?v=Uf91hc1Ubr0	
		LEARN how to graph an absolute value function (video).		https://www.khanacademy.org/math/algebra2/functions_and_graphs/piecewise-functions-tutorial/v/absolute-value-graphing-exercise-example	
		MATCH equations of absolute value functions with their graphs.		https://www.khanacademy.org/math/algebra2/functions_and_graphs/piecewise-functions-tutorial/e/graphs-of-absolute-value-functions	
		DEMONSTRATE your ability to graph absolute value functions.	Complete IXL activity: Algebra1.DD.3	https://itunes.apple.com/us/app/ixl-math-and-english/id693689912?mt=8	https://www.ixl.com/math/algebra-1/domain-and-range-of-absolute-value-functions-graphs
		ASSESS graphing absolute value functions.		http://braingenie.ck12.org/skills/106714	
		ASSESS writing an equation for an absolute value function given a graph.		http://braingenie.ck12.org/skills/106717	

Module Title	Message	Assignment / Call to Action (200 Character Max)	Content Directions	Resource / URL	Alternative to IOS or Notes
		LEARN how to solve real-world problems modeled by absolute value equations. (video)		https://www.youtube.com/watch?v=HTGgZ1mYIXo	
		WATCH and SUMMARIZE solving real-world problems modeled by absolute value inequalities. (video)		http://www.virtualnerd.com/algebra-2/equations-inequalities/solving-absolute-values/solve-absolute-value-inequalities/absolute-value-inequality-from-word-problem	
		ASSESS solving word problems modeled by absolute value inequalities.		http://braingenie.ck12.org/skills/106665	
Exploring Quadratic Functions	In this lesson, students will explore quadratic functions.	DEVELOP a basic understanding of quadratic function graphs by exploring shapes and asking questions of a partner.		https://teacher.desmos.com/polygraph-parabolas	
		CREATE a table of values to model a function (video).		http://www.virtualnerd.com/algebra-1/quadratic-equations-functions/graphing/graph-basics/table-example	
		LEARN about graphing quadratic functions. (video)		http://www.virtualnerd.com/algebra-1/quadratic-equations-functions/graphing/graph-basics/how-do-you-graph-a-quadratic-function	
		PRACTICE creating a quadratic function from zeros.	Complete IXL activity: Algebra2.J.3	https://itunes.apple.com/us/app/ixl-math-and-english/id693689912?mt=8	https://www.ixl.com/math/algebra-2/graph-a-quadratic-function
		MATCH graphs of quadratic functions to equations.	Complete IXL activity: Algebra 2.J.5	https://itunes.apple.com/us/app/ixl-math-and-english/id693689912?mt=8	https://www.ixl.com/math/algebra-2/solve-a-quadratic-equation-using-the-zero-product-property
		LEARN how to create and graph equations to model real-world quadratic functions. (video)		https://learnzillion.com/lessons/662-create-and-graph-quadratic-functions	
		EXAMINE transformations of quadratic functions.		http://hotmath.com/hotmath_help/topics/graphing-quadratic-equations-using-transformations.html	
		ANALYZE the following graph and develop the quadratic functions with domain restrictions that reproduce that image. (Part 1 of 2)		http://i0.wp.com/dailydesmos.com/wp-content/uploads/2014/05/2014-05-21_08h11_11.png	use Desmos app
		COMPARE your equations to this solution. (Part 2 of 2)		https://www.desmos.com/calculator/dvjxziyao	
		MODEL revenue using quadratic functions.	Import into Explain Everything to solve.	http://www.utdanacenter.org/k12mathbenchmarks/tasks/26_seasonpass.php	
		INVESTIGATE real-world applications for quadratic models.		http://www.mathsisfun.com/algebra/quadratic-equation-real-world.html	
		APPLY quadratic functions to model NASA's C-9 jet.		http://www.nasa.gov/audience/foreducators/mathandscience/exploration/Prob_WeightlessWonder_detail.html	
		ASSESS your ability to apply quadratic models to real-world situations.		http://braingenie.ck12.org/skills/106797	
Exploring Polynomial Functions	In this lesson, students will explore polynomial functions.	INVESTIGATE how to use polynomial functions and regressions to model real-world data.	Read through the lesson.	http://www.classzone.com/eservices/home/pdf/teacher/LA206IBD.pdf	
				https://www.desmos.com/calculator/dvjxziyao	
		EXPLORE the effect of changing coefficients in polynomial function equations on the graphs of polynomials (degrees 0-5).		https://tube.geogebra.org/student/m31790	

Module Title	Message	Assignment / Call to Action (200 Character Max)	Content Directions	Resource / URL	Alternative to IOS or Notes
		WATCH and SUMMARIZE how to describe x-intercepts and local maxima and minima. (video)		https://braingenie.ck12.org/skills/108284	
		DISCOVER properties and trends in end behavior through a discovery exercise.		*PDF "Exploring Polynomials Guided Discovery" located in Pennsylvania Learns in iTunes U.	Adapted from http://betterlesson.com/community/document/1754632/graphing-calculator-end-behavior-discovery-docx
		LEARN how to describe trends in end behavior. (video)		https://www.khanacademy.org/math/algebra2/polynomial_and_rational/polynomial-end-behavior/v/polynomial-end-behavior	
		LEARN about matching equations to graphs using end behavior.		https://www.khanacademy.org/math/algebra2/polynomial-functions/polynomial-end-behavior/v/recognizing-features-of-functions-example-1	
		MATCH graphs to equations.	Complete IXL activity: Algebra 2.K.14	https://itunes.apple.com/us/app/ixl-math-and-english/id693689912?mt=8	https://www.ixl.com/math/algebra-2/match-polynomials-and-graphs
		MATCH graphs to equations.		https://www.khanacademy.org/math/algebra2/polynomial_and_rational/polynomial-end-behavior/e/graphs-of-polynomials	
		PRACTICE matching graphs to equations using x-intercepts.		https://braingenie.ck12.org/skills/106915	
		FIND values of local maxima and minima from equations.		https://braingenie.ck12.org/skills/106916	
		ASSESS your knowledge of polynomial functions through the Birthday Polynomials Project. (Part 1 of 2)		http://jfmuller.faculty.noctr1.edu/toolbox/examples/engel14/project.pdf	
		SHARE your project analysis using Desmos and Explain Everything app. (Part 2 of 2)		https://www.desmos.com/calculator/dvjxziyao	
Exploring Rational Functions	In this lesson, students will explore rational functions.	LEARN how to create and graph simple rational functions.		https://learnzillion.com/lessons/1300-create-and-graph-relationships-using-rational-functions	
		DISCOVER what vertical and horizontal asymptotes are and how to find their equations. (video)		https://www.khanacademy.org/math/algebra2/rational-expressions/rational-function-graphing/v/horizontal-vertical-asymptotes	
		EXPLORE how to graph a rational function by using asymptotes. (video)		https://www.khanacademy.org/math/algebra2/rational-expressions/rational-function-graphing/v/another-rational-function-graph-example	
		PRACTICE finding equations for asymptotes and excluded values from the equation for a rational function.	Complete Algebra2.N.1	https://itunes.apple.com/us/app/ixl-math-and-english/id693689912?mt=8	https://www.ixl.com/math/algebra-2/rational-functions-asymptotes-and-excluded-values
		MATCH rational function equations to their graphs.		https://www.khanacademy.org/math/algebra2/rational-expressions/rational-function-graphing/e/graphs-of-rational-functions	
Exploring Inverse Functions	In this lesson, students will explore inverse functions.	LEARN how to find inverses of linear functions. (video)		http://braingenie.ck12.org/skills/108103	
		IDENTIFY inverse functions.	Complete IXL activity: Precalculus A.7	https://itunes.apple.com/us/app/ixl-math-and-english/id693689912?mt=8	https://www.ixl.com/math/prec calculus/graph-a-linear-function

Module Title	Message	Assignment / Call to Action (200 Character Max)	Content Directions	Resource / URL	Alternative to IOS or Notes
		FIND values of inverse functions from graphs.	Complete IXL activity: Precalculus A.9	https://itunes.apple.com/us/app/ixl-math-and-english/id693689912?mt=8	https://www.ixl.com/math/prec calculus/linear-functions-over-unit-intervals
		PRACTICE inverse of linear functions.		https://www.khanacademy.org/math/algebra2/functions_and_graphs/function_inverses_2/e/inverses_of_functions	
		ASSESS your ability to find inverses of linear functions graphically.		http://braingenie.ck12.org/skills/106308	
		FIND inverses algebraically.		https://www.khanacademy.org/math/algebra2/functions_and_graphs/function_inverses_2/e/algebraically-finding-inverses	
		PRACTICE higher ordered thinking with inverses.		https://www.khanacademy.org/math/algebra2/functions_and_graphs/function_inverses_2/e/understanding-inverse-functions	
		ASSESS your ability to find inverses of linear functions algebraically.		http://braingenie.ck12.org/skills/106309	
		ASSESS your ability to verify functions are inverses.		http://braingenie.ck12.org/skills/106311	
		FIND inverses of nonlinear functions. (video)		http://braingenie.ck12.org/skills/108104	
		ASSESS your ability to find inverses of nonlinear functions graphically.		http://braingenie.ck12.org/skills/106312	
		ASSESS your ability to find inverses of nonlinear functions algebraically.		http://braingenie.ck12.org/skills/106313	
		ASSESS your ability to model and solve inverses word problems.		http://braingenie.ck12.org/skills/106311	
Exploring Radical Functions	In this lesson, students will explore radical functions.	LEARN about graphs of radical functions. (video)		https://www.youtube.com/watch?v=CnH5cs_SpPM	
		PARTICIPATE in this domain of radical functions lesson.		https://learnzillion.com/lesson_plans/484-understand-the-domain-and-range-of-a-square-root-function-by-using-tables-and-graphs	
		MATCH radical (square root) functions with graphs.		http://www.khanacademy.org/math/algebra2/functions_and_graphs/shifting-reflecting-functions/e/graphs-of-radical-functions	
		ASSESS your ability to create a square root function given a table of values.		http://braingenie.ck12.org/skills/106316	
		ASSESS your ability to create a cube root function given a table of values.		http://braingenie.ck12.org/skills/106319	
		ASSESS your ability to graph a square root function.		http://braingenie.ck12.org/skills/107170	
		ASSESS your ability to graph a cube root function.		http://braingenie.ck12.org/skills/106320	
		EXPLORE radical function application problems. (video)		http://braingenie.ck12.org/skills/108375	
		ASSESS your ability to model and solve radical function application problems.		http://braingenie.ck12.org/skills/107171	
Exploring Piecewise and Step Functions	In this lesson, students will explore piecewise and step functions.	DISCOVER how to graph piecewise functions. (video)		http://www.virtualnerd.com/algebra-2/linear-equations-functions/absolute-value-piecewise-functions/piecewise/piecewise-function-graphing	
		EVALUATE function values from a graph.		http://braingenie.ck12.org/skills/105860	

Module Title	Message	Assignment / Call to Action (200 Character Max)	Content Directions	Resource / URL	Alternative to IOS or Notes
		CREATE graphs of piecewise functions.		https://www.khanacademy.org/math/algebra2/functions_and_graphs/piecewise-functions-tutorial/e/piecewise-graphs-linear	
		DETERMINE the equations that represent the graph of a piecewise function.		https://www.khanacademy.org/math/algebra2/functions_and_graphs/piecewise-functions-tutorial/e/graphing-piecewise-functions	
		APPLY function transformations to piecewise functions.		http://www.utdanacenter.org/k12mathbenchmarks/tasks/12_function.php	
Exploring Exponential Functions	In this lesson, students will explore exponential functions.	EXPLORE real-world applications for exponential functions. (video)		https://www.youtube.com/watch?v=xZn4f1ell3g	
		WATCH and SUMMARIZE in your notes how to create and graph exponential functions. (video)		https://learnzillion.com/lessons/1301-create-and-graph-exponentials-using-a-table-of-values	
		ASSESS your ability to graph exponential growth functions.		http://braingenie.ck12.org/skills/106329	
		ASSESS your ability to graph exponential decay functions.		http://braingenie.ck12.org/skills/106334	
		WATCH and SUMMARIZE in your notes properties of transformations of exponential functions. (video)		http://braingenie.ck12.org/skills/108112	
		MATCH exponential functions to graphs.	Complete IXL activity: Algebra2.S.3	https://itunes.apple.com/us/app/ixl-math-and-english/id693689912?mt=8	https://www.ixl.com/math/algebra-2/match-exponential-functions-and-graphs
		ASSESS your ability to identify and apply transformations of exponential functions.		http://braingenie.ck12.org/skills/106330	
		CREATE and GRAPH exponential functions from real-world examples (video).		https://learnzillion.com/lessons/663-create-and-graph-exponentials-using-functions	
		SOLVE exponential growth and decay word problems.	Complete IXL activity: Algebra 2.S.9	https://itunes.apple.com/us/app/ixl-math-and-english/id693689912?mt=8	https://www.ixl.com/math/algebra-2/exponential-functions-over-unit-intervals
		ASSESS your ability to model and solve exponential growth real-world problems.		http://braingenie.ck12.org/skills/106331	
		ASSESS your ability to model and solve exponential decay real-world problems.		http://braingenie.ck12.org/skills/106336	
		WATCH the video and SUMMARIZE compound interest in your notes.		http://braingenie.ck12.org/skills/108120	
		SOLVE problems involving compound interest.	Complete IXL activity: Algebra 2.S.10	https://itunes.apple.com/us/app/ixl-math-and-english/id693689912?mt=8	https://www.ixl.com/math/algebra-2/identify-linear-and-exponential-functions
		PRACTICE solving problems with continuously compounded interest.	Complete IXL activity: Algebra 2.S.11	https://itunes.apple.com/us/app/ixl-math-and-english/id693689912?mt=8	https://www.ixl.com/math/algebra-2/describe-linear-and-exponential-growth-and-decay
		ASSESS your ability to apply exponential functions to compound interest.		http://braingenie.ck12.org/skills/106343	
		MODEL the population of an endangered species using exponential functions.		http://www.utdanacenter.org/k12mathbenchmarks/tasks/3_bighornsheep.php	
		MODEL exponential growth of a bank account using exponential functions. (Part 1 of 3)	Watch the act 1 video	from: http://threeacts.mrmeyer.com/frybank/	fry_act1.mov
		COMPARE your solution. (Part 2 of 3)	Watch the act 3 video	from: http://threeacts.mrmeyer.com/frybank/	fry_act3.mov

Module Title	Message	Assignment / Call to Action (200 Character Max)	Content Directions	Resource / URL	Alternative to IOS or Notes
		EXTEND your learning. (Part 3 of 3)	Answer the following questions in the explain. everything app. How long will it take Fry to double his money? How long will it take him to get to a trillion dollars?	https://teacher.desmos.com/pennycircle	
Exploring Logarithmic Functions	In this lesson, students will explore logarithmic functions.	ANALYZE the following graph to DETERMINE the function that reproduces the graph.	Use the Demos app as your graphing utility.	http://i0.wp.com/dailydesmos.com/wp-content/uploads/2014/05/Screenshot-2014-05-29-at-8.52.31-AM.png	
		WATCH the video and SUMMARIZE your learning about graphs of logarithmic functions (video).		https://www.youtube.com/watch?v=d7g0GrQwJsY	
		ASSESS your ability to graph logarithmic functions.		http://braingenie.ck12.org/skills/106352	
		EXPLORE applications of logarithmic functions.		http://www.algebra.com/algebra/homework/logarithm/Using-logarithms-to-solve-real-world-problems.lesson	
		SOLVE word problems using logarithms (video).		http://braingenie.ck12.org/skills/108125	
		ASSESS your ability to solve word problems involving logarithms.		http://braingenie.ck12.org/skills/106353	
		READ about and APPLY logarithmic functions to real-world situations.		http://www.sosmath.com/algebra/logs/log5/log56/log56.html	
Exploring Geometric Series	In this lesson, students will explore geometric series.	DISCOVER the origins of a geometric series.		https://www.khanacademy.org/math/precalculus/seq_induction/geometric-sequence-series/v/geometric-series-introduction	
		LEARN how to derive the formula for finite geometric series.		https://www.khanacademy.org/math/algebra2/sequences-and-series/copy-of-geometric-sequence-series/v/example-finding-sum-of-finite-geometric-series	
		FIND sums of finite geometric series.		http://www.ck12.org/book/CK-12-Algebra-II-with-Trigonometry-Concepts/r3/section/11.10/	
		FIND the sum of a finite geometric series		https://www.khanacademy.org/math/precalculus/seq_induction/geometric-sequence-series/e/geometric-series--1	
		ASSESS your ability to find the sum of a finite geometric series.		http://braingenie.ck12.org/skills/106576	

Module 4: Inferences and Conclusions from Data

Module Title	Message	Assignment / Call to Action (200 Character Max)	Content Directions	Resource / URL	Alternative to IOS or Notes
Module 4: Inferences and Conclusions from Data	<p>In this module, you will see how the visual displays and summary statistics that you learned in earlier grades relate to different types of data and to probability distributions. You will identify different ways of collecting data including sample surveys, experiments, and simulations, as well as the role that randomness and careful design play in the conclusions that can be drawn.</p> <p>Focus Standards Addressed in this Module CC.2.4.HS.B.1 - Summarize, represent, and interpret data on a single count or measurement variable. CC.2.4.HS.B.4 - Recognize and evaluate random processes underlying statistical experiments. CC.2.4.HS.B.5 - Make inferences and justify conclusions based on sample surveys, experiments, and observational studies.</p> <p>SUGGESTED APPS FOR CAPTURING NOTES: Notability (\$2.99) OR PaperPort (FREE).</p> <p>SUGGESTED APPS FOR CREATING PRESENTATIONS: ShowMe (FREE).</p>				
Summarizing, Representing, and Interpreting Data	In this lesson, students will summarize, represent, and interpret data.	DISCOVER the difference between types of data.		https://www.youtube.com/watch?v=Coe0N2xb8kk	
		DISCOVER various shapes of distributions and the concept of symmetry by watching this video.		https://learnzillion.com/lessons/2402	
		REVIEW finding the mean, median, and mode of a given distribution.		http://brain genie.ck12.org/skills/106992	
		ASSESS your ability to find outliers of a given data set.		http://brain genie.ck12.org/skills/106994	
Understanding and Evaluating Random Processes Underlying Statistical Experiments	In this lesson, students will understand and evaluate random processes underlying statistical experiments.	EXPLORE types of statistical studies. (video)		https://www.khanacademy.org/math/probability/statistical-studies/types-of-studies/v/types-statistical-studies	
		DISCOVER how to create a random sample.		https://learnzillion.com/lessons/2716	
		PRACTICE identifying biased samples.	Complete IXL Activity Algebra 2.DD.1	https://itunes.apple.com/us/app/ixl-math-and-english/id693689912?mt=8	https://www.ixl.com/math/algebra-2/identify-biased-samples
		EXPLORE variance and standard deviation.	Complete IXL Activity Algebra 2.DD.2	https://itunes.apple.com/us/app/ixl-math-and-english/id693689912?mt=8	https://www.ixl.com/math/algebra-2/variance-and-standard-deviation
Making Inferences and Justifying Conclusions	In this lesson, students will make inferences and justify conclusions.	LEARN how to use simulation to solve a problem.		http://www.virtualnerd.com/common-core/hss-statistics-probability/HSS-IC-inferences-conclusions/A/2/simulations-solve-problem-example	
		LEARN about surveys, experiments, and observational studies.		https://www.youtube.com/watch?v=_RCtdmlPmqw	
		EXPLORE the difference between correlation and causality.		https://www.khanacademy.org/math/probability/statistical-studies/types-of-studies/v/correlation-and-causality	
		APPLY your knowledge to analyze data about seat belt use.		"Click It Data Analysis" PDF in Pennsylvania Learns on iTunes U.	from http://www.utdanacenter.org/k12mathbenchmarks/downloads/5_clickit.pdf
		INVESTIGATE the definition with examples of "Regression."		https://www.youtube.com/watch?v=TU2t1HDwVuA	
		EXPLORE how to make inferences from data.		http://www.scholastic.com/data-sampling/	
		FIND z-scores given data.		http://brain genie.ck12.org/skills/106997	
		DETERMINE the margin of error in samples.		http://brain genie.ck12.org/skills/107001	
		FIND sample size given the margin of error.		http://brain genie.ck12.org/skills/107002	

Module Title	Message	Assignment / Call to Action (200 Character Max)	Content Directions	Resource / URL	Alternative to IOS or Notes
		CALCULATE probability under the normal curve.		http://braingenie.ck12.org/skills/106995	
		INTERPRET normally distributed data.		http://braingenie.ck12.org/skills/106996	
		APPLY your knowledge of normal distributions to analyze PSAT scores.		"PSAT Normal Distribution" in <i>Pennsylvania Learns</i> on iTunes U.	from http://www.utdanacenter.org/k12mathbenchmarks/downloads/15_isyourscorenormal.pdf
		APPLY properties of inference to estimate a population mean.		https://www.illustrativemathematics.org/content-standards/HSS/IC/B/4/tasks/1411	
Using Probability to Evaluate Outcomes of Decisions	In this lesson, students will use probability to evaluate outcomes of decisions.	LEARN about basic probability concepts.		https://www.youtube.com/watch?v=otH_MOCdvo	
		LEARN about calculating probability through counting outcomes.		https://www.khanacademy.org/math/prec calculus/prob_comb/prob_combinatorics_precalc/v/events-and-outcomes-3	
		INVESTIGATE and PERFORM exercises of probability calculations.		http://www.mathgoodies.com/lessons/vol6/intro_probability.html	
		CALCULATE probabilities of outcomes.		http://www.mathplanet.com/education/algebra-2/discrete-mathematics-and-probability/probabilities	
		PRACTICE finding probabilities of compound events.		https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=9&cad=rja&uact=8&ved=0CFIQFjAl&url=http%3A%2F%2Fwww.ixl.com%2Fmath%2Fgrade-6%2Fprobability-of-dependent-and-independent-events&ei=vjD_VMTNKjWXNvSqqegC&usq=AFQjCNGTUMHQ8wUJbSRxERv1tc5NhGUVA	
		INVESTIGATE the relationship between probability and odds.		PDF "Odds vs. Probability" in <i>Pennsylvania Learns</i> on iTunes U.	from http://www.utdanacenter.org/k12mathbenchmarks/tasks/14_howodd.php
		APPLY your knowledge of probability. (Part 1): Watch the first half of video (from 0 - 3:26 time period) to review probability calculation strategies.		https://www.youtube.com/watch?v=w4hi0OvXZul	
		APPLY your knowledge of probability. (Part 2): Perform probability calculations on this video from 3:27 - 3:38 time frame.		https://www.youtube.com/watch?v=w4hi0OvXZul	
		CALCULATE probabilities of events.	Complete IXL Activity Algebra 2.CC.2	https://itunes.apple.com/us/app/ixl-math-and-english/id693689912?mt=8	https://www.ixl.com/math/algebra-2/calculate-probabilities-of-events
		WATCH the money duck video. (Prologue and Act I)		Prologue http://www.101qs.com/2985-money-duck	
		ANALYZE different distributions for the Money Duck. (Act II).		"Money Duck Handout" in <i>Pennsylvania Learns</i> on iTunes U.	Downloaded from http://www.101qs.com/2985-money-duck as Act II
		CHECK your answers. (Act III).		Act III: http://www.101qs.com/2985-money-duck	
		PRACTICE with combinations and permutations.	Complete IXL Activity Algebra 2.CC.4	https://itunes.apple.com/us/app/ixl-math-and-english/id693689912?mt=8	https://www.ixl.com/math/algebra-2/combinations-and-permutations
		USE combinations and permutations to find probability.	Complete IXL Activity Algebra 2.CC.5	https://itunes.apple.com/us/app/ixl-math-and-english/id693689912?mt=8	https://www.ixl.com/math/algebra-2/find-probabilities-using-combinations-and-permutations
		FIND conditional probabilities.	Complete IXL Activity Algebra 2.CC.9	https://itunes.apple.com/us/app/ixl-math-and-english/id693689912?mt=8	https://www.ixl.com/math/algebra-2/find-conditional-probabilities
		APPLY the addition rule to find probabilities.	Complete IXL Activity Algebra 2.CC.12	https://itunes.apple.com/us/app/ixl-math-and-english/id693689912?mt=8	https://www.ixl.com/math/algebra-2/find-probabilities-using-the-addition-rule
		APPLY decision making to situations involving compound probabilities.		"Compound Probabilities Activity" in <i>Pennsylvania Learns</i> on iTunes U.	from http://www.utdanacenter.org/k12mathbenchmarks/downloads/23_rolling.pdf

Module Title	Message	Assignment / Call to Action (200 Character Max)	Content Directions	Resource / URL	Alternative to IOS or Notes
		USE the binomial distribution to find probabilities.	Complete IXL Activity Algebra 2.CC.20	https://itunes.apple.com/us/app/ixl-math-and-english/id693689912?mt=8	https://www.ixl.com/math/algebra-2/find-probabilities-using-the-binomial-distribution
		PRACTICE finding probabilities using the normal distribution.	Complete IXL Activity Algebra 2.CC.21	https://itunes.apple.com/us/app/ixl-math-and-english/id693689912?mt=8	https://www.ixl.com/math/algebra-2/find-probabilities-using-the-normal-distribution
		ASSESS your ability to find probabilities of compound events.		https://www.khanacademy.org/math/precalculus/prob_comb/independent_events_precalc/e/compound-events	
		ASSESS your ability to use probability to make predictions.		https://www.khanacademy.org/math/cc-seventh-grade-math/cc-7th-probability-statistics/cc-7th-theoretical-and-experimental-probability/e/using-probability-to-make-predictions	
		APPLY rules of probability to analyze decisions and strategies.		Fred's Fun Factory task in <i>Pennsylvania Learns</i> on iTunes U.	https://www.illustrativemathematics.org/content-standards/HSS/MD/B/7/tasks/1197
		ANALYZE the game "Rock Paper Scissors" to determine its "fairness" and make observations about possible outcomes.		PDF "Rock Paper Scissors" in <i>Pennsylvania Learns</i> on iTunes U.	from http://www.utdanacenter.org/k12mathbenchmarks/downloads/22_rockpaper.pdf
		APPLY assigning probabilities to payoff values and FIND expected values.		"Sounds Really Good" task in <i>Pennsylvania Learns</i> on iTunes U.	https://www.illustrativemathematics.org/content-standards/HSS/MD/B/5/tasks/1217

TEACHER RESOURCES

Module Title	Message	Call To Action	URL	Notes
Module 1	In this lesson, you will explore complex number operations.	APPLY what you have learned about complex numbers to real-world situations.	http://community.lesonplanet.com/t/real-world-applications-to-imaginary-and-complex-numbers/976	Teacher Resource to design an application project.
	In this lesson, you will extend and apply your knowledge of quadratic equations.	APPLY and ASSESS your understanding of quadratic equations through the "Cutting Corners" investigation activity.	http://map.mathshell.org/materials/lessons.php?taskid=432&subpage=problem	Teacher Resources to assign the "Cutting Corners" Project
	In this lesson, you will explore polynomial operations and vocabulary.	INVESTIGATE rules for polynomial operations through the Golden Ticket Activity.	http://www.cpalms.org/Public/PreviewResource/Preview/47832	Teacher Resource for the activity with handouts and teacher directions.
Module 2	In this lesson, you will explore the unit circle.	APPLY the unit circle to the formation of the sine and cosine curves.	http://illuminations.nctm.org/Lesson.aspx?id=2870	
Module 3	In this lesson, you will explore absolute value functions.	APPLY your understanding of absolute value to a "Guess the Number of Jelly Beans" activity.	https://growingexponentially.wordpress.com/2013/03/18/absolute-value-project/	Teacher Resource Teacher can get a sample project from website
	In this lesson, you will explore rational functions.	EXPLORE what a rational function is and some of its applications.	http://illuminations.nctm.org/Lesson.aspx?id=1968	
	In this lesson, you will explore exponential functions.	APPLY your knowledge of linear, quadratic, and exponential functions to model the rate of cooling.	http://illuminations.nctm.org/Lesson.aspx?id=3180	

Module Title	Message	Call To Action	URL	Notes
	In this lesson, students will explore quadratic functions.	DEVELOP a basic understanding of quadratic function graphs by exploring shapes and asking questions of a partner.	https://teacher.desmos.com/polygraph-parabolas	

Module Title	
Module 1	
Module 2	
Module 3	

Module Title	