PLANNED INSTRUCTION

COURSE DESCRIPTION

Course Title:	Algebra II		
Course Number:	00239		
Course Prerequisites:	Algebra I – College Preparatory		
Course Description:	Algebra II is the continuation of Algebra concepts that are integral part of secondary mathematics courses. This course expands on the foundation of algebraic theory that was begun in Algebra I at a slower pace. It uses practical problems to connect algebra to the real world and apply the theory introduced in Algebra I, going from linear equations and inequalities to complex numbers. It includes the study and applications of quadratics including parabolas. This course is limited to teacher recommendation. A final exam is required.		
Suggested Grade Level	Grades 9-12		
Length of Course:	Two Semesters		
Units of Credit:	1		
PDE Certification and Staffing Policies and Guidelines (CSPG) Required Teacher Certifications:			
CSPG #50 Mathematics			
To find the CSPG information, go	to <u>CSPG</u>		
Certification verified by	the WCSD Human Resources Department: Xes DNo		

WCSD STUDENT DATA SYSTEM INFORMATION

Course Level:	Academic	
Mark Types:	Check all that apply. ⊠F – Final Average ⊠MP – Marking Period ⊠EXM – Final Exam	
GPA Type:	□ GPAEL-GPA Elementary □ GPAML-GPA for Middle Level ⊠ NHS-National Honor Societ ⊠ UGPA-Non-Weighted Grade Point Average □ GPA-Weighted Grade Point Average	ty

State Course Code: 02056

To find the State Course Code, go to <u>State Course Code</u>, download the Excel file for *SCED*, click on SCED 6.0 tab, and chose the correct code that corresponds with the course.

TEXTBOOKS AND SUPPLEMENTAL MATERIALS

Board Approved Textbooks, Software, and Materials:		
Title: envision Algebra 2		
Publisher:	Pearson	
ISBN #:	978-0-328-93156-9	
Copyright Date:	2018	
WCSD Board Approval Date:	6/29/2020	

Supplemental Materials: Kutasoftware.com

Curriculum Document

WCSD Board Approval:	
Date Finalized:	6/5/2020
Date Approved:	6/29/2020
Implementation Year:	2020-2021

SPECIAL EDUCATION, 504, and GIFTED REQUIREMENTS

The teacher shall make appropriate modifications to instruction and assessment based on a student's Individual Education Plan (IEP), Chapter 15 Section 504 Plan (504), and/or Gifted Individual Education Plan (GIEP).

PLANNED INSTRUCTION

SCOPE AND SEQUENCE OF CONTENT, CONCEPTS, AND SKILLS

Performance Indicator	PA Core Standard	Month
	and/or Eligible	Taught and
	Content	Assessed for Mastery
Solve linear equations.	A1.1.2.1.1,	September
	A1.1.2.1.2,	October
	A1.1.2.1.3	
Add and subtract polynomials	A1.1.1.5.1	September
		October
Multiply two polynomials.	A1.1.1.5.1	September
		October
Factor polynomials	A1.1.1.2.1,	September
	A1.1.1.5.2,	October
	A1.1.1.5.3	
Cranking linear functions	A11211	Santambar
Graphing inear functions	A1.1.2.1.1,	September
	A1.1.2.1.3,	October
	A1.2.2.1.1,	
	A1.2.2.1.2,	
	Δ1 2 2 1 Δ	
Identify a quadratic parent function	Δ22221.4	October
	A2 2 1 1 1	October
		000000
Understand the graph of $f(x) = ax^2$.	A2.2.2.1,	October
		October
Interpret quadratic functions from tables.	A2.2.2.1	October
		October
Apply quadratic functions.	A2.2.2.2.1	October
		October
Compare the rate of change	Δ22221	October
	//2.2.2.2.1	October
		0000001
Understand the graph of $g(x) = x^2 + k$.	A2.2.2.1	October
		October
Understand the graph of $g(x) = (x - h)^2$.	A2.2.2.1	October
		October
Understand the graph of $a(x - h)^2 + k$.	A2.2.2.1	October
		October

WARREN COUNTY SCHOOL DISTRICT PLANNED INSTRUCTION Graph using vertex form. A2.2.2.1 October October Use vertex form to solve problems. A2.2.2.1 October October Relate c to the graph of $f(x) = ax^2 + bx + c$. A2.2.2.1 October October Graph a quadratic function in standard form. A2.2.2.2.1 October October Compare properties of quadratic functions. A2.2.2.1 October October Analyze the structure of different forms of quadratic functions. A2.2.2.1 October October Understand domain and range. A2.2.1.1.1, November December A2.2.1.1.3 Find x- and y-intercepts. A2.2.1.1.1 November December Identify positive and negative intervals. November A2.2.2.1

		Describer
		December
Identify where a function increases or decreases.	A2.2.2.1	November
		December
Translate a function.	A2.2.2.1	November
		December
Reflect a function across the x- or y-axis.	A2.2.2.1	November
		December
Understand stretches and compressions.	A2.2.2.1	November
		December
Graph a combination of transformations.	A2.2.2.1	November
		December
Identify transformations from an equation.	A2.2.2.1	November
		December

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Write an equation from a graph.	A2.2.2.1	November
		December
		December
Solve a system of linear equations (elimination, substitution and Cramer's	A1.1.2.2.1,	November
Rule).	A1.1.2.2.2	December
Solve a system of linear inequalities.	A1.1.2.2.1,	November
	A1 1 2 2 2	December
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Transform a guadratic function	AD D 1 1 A	December
	AZ.Z.1.1.4,	December
	A2.2.2.1	January
Determine key features of a quadratic function.	A2.2.1.1.4,	December
	A2.2.2.1	January
Write an equation of a parabola	A22114	December
	A2221	January
	A2.2.2.1	January
Write an equation of a parabola given the graph.	A2.2.1.1.4,	December
	A2.2.2.1	January
Write an equation of a transformed function.	A2.2.1.1.4,	December
	A2.2.2.1	January
		,
Find the vertex of a quadratic function in standard form	A22114	December
	A2 2 2 1	January
	AZ.Z.Z.1	January
Graph a quadratic function in standard form.	A2.2.1.1.4,	December
	A2.2.2.1	January
Interpret the graph of a quadratic function.	A2.2.1.1.4.	December
	Δ2221	lanuary
	//2:2:2:1	January
Eactor a quadratic expression	AD 1 2 D D	December
	AZ.1.5.Z.Z	December
		January
Relate factors to zeros of a function.	A2.1.3.2.2,	December
	A2.2.1.1.4,	January
	A2.2.2.1.1,	
Solve guadratic equations by factoring.	A2.1.3.2.2.	December
· · · · · · · · · · · · · · · · · · ·	A2.2.1 1 4	January
	Δ22211	January
Find the zeros of a quadratic function	Λ Λ Λ Λ Λ Λ Λ Λ Λ Λ Λ Λ Λ Λ	Docombor
	AZ.1.3.2.2,	December
	A2.2.1.1.4,	January
	A2.2.2.1.1,	

Determine positive or negative intervals.A2.2.3.1.1 A2.2.3.1.2December JanuaryWrite the equation of a parabola in factored form.A1.3.2.2, A2.21.1.4December January A2.21.1.4January January A2.21.1.4Solve a quadratic equation using square roots.A1.1.1.1, A1.3.1.1December A2.1.1.2, January A2.1.1.2, A2.1.1.1, A2.3.3.1December A2.1.1.2, January A2.1.1.2, A2.1.3.11Add and subtract complex numbers.A2.1.1.1, A2.1.3.11December A2.1.1.2, A2.1.3.11December A2.1.1.2, January A2.1.3.11Multiply complex numbers.A2.1.1.1, A2.1.3.11December A2.1.1.2, January A2.1.2.1, A2.1.3.11December A2.1.1.2, January A2.1.2.1, A2.1.3.11Simplify a quotient with complex numbers.A2.1.1.1, A2.1.3.11December January A2.1.1.2, A2.1.1.1, A2.3.3.11Solve a quadratic equation with complex solutions.A2.1.1.1, A2.1.3.11December January A2.1.1.2, A2.1.1.2, A2.1.1.2, A2.1.1.1, A2.3.3.11Use square roots to solve quadratic equations.A2.1.3.11 A2.1.3.11December January A2.1.1.1, A2.1.3.11Use the quadratic formula to solve quadratic equations.A2.1.3.11 A2.1.3.11December January A2.3.11Use the discriminant to find a particular equation.A2.1.3.1.1 A2.2.1.1, 			
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Write the equation of a parabola in factored form.A21.3.2.2, A22.3.1.4, A22.2.1.4, A22.2.1.4, A22.2.1.1, A22.3.1.1December January A21.3.1.1Solve a quadratic equation using square roots.A21.1.1.1, A21.1.2.1, A21.1.2.1, A21.1.2.1, A21.1.2.1, A21.1.2.1, A21.1.2.1, A21.1.2.1, A21.1.1.1, A21.3.1.1December January A21.1.1.2, A21.1.2.1, A21.1.2.1, A21.1.2.1, A21.1.2.1, A21.1.1.2, A21.1.1.1, A21.3.1.1December January A21.1.1.2, A21.1.2.1, A21.1.2.1, A21.1.2.1, A21.1.1.2, A21.1.1.2, A21.1.1.2, A21.1.1.2, A21.1.1.2, A21.1.1.2, A21.1.1.2, A21.1.1.2, A21.1.1.2, A21.1.1.1, A21.1.1.2, A21.1.1.2, A21.1.1.1, A21.1.1.1, A21.3.1.1December January A21.1.1.2, A21.1.1.1, A21.3.1.1Solve a quadratic equation with complex solutions.A21.1.1.1, A21.3.1.1December January A21.3.1.1Use square roots to solve quadratic equations.A21.3.1.1December January A21.3.1.1Use the quadratic formula to solve quadratic equations.A21.3.1.1December JanuaryIdentify the number of real-number solutions.A21.3.1.1December JanuaryUse the discriminantA21.3.1.1December JanuaryInterpret the discriminant to find a particular equation.A21.3.1.1December JanuaryClassify polynomialsA22.1.1.4, A22.2.1.3, A22.2.1.4,February March A22.2.1.4, A22.2.1.4, A22.2.1.4, A22.2.1.4, A22.2.1.4, A22.2.1.4, A22.2.1.4, A22.2.1.4, A22.2.1.4, A22.2.1.4, A22.2.1.4, A22.2.1.4, A22.2.1.4, A22.2.1.4, A22.2.1.4, A22.2.1.4, A22.2.1.4, A22.2.1.4, <br< td=""><td></td><td>A2.2.3.1.2</td><td>January</td></br<>		A2.2.3.1.2	January
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A2.11.2.1, A2.13.11A2.11.2.1, A2.13.11Add and subtract complex numbers.A2.11.11, A2.11.12, A2.11.21, A2.11.21, A2.11.11, A2.13.11December January A2.11.11, A2.13.11Multiply complex numbers.A2.11.11, A2.13.11December A2.11.12, A2.13.11Simplify a quotient with complex numbers.A2.1.1.1, A2.13.11December A2.1.1.2, A2.1.1.2, A2.1.1.1, A2.1.3.11Solve a quadratic equation with complex solutions.A2.1.1.1, A2.1.3.11December January A2.1.3.11Solve a quadratic equation with complex solutions.A2.1.1.1, A2.1.3.11December January A2.1.3.11Use square roots to solve quadratic equations.A2.1.3.11December January JanuaryUse the quadratic formula to solve quadratic equations.A2.1.3.11December JanuaryIdentify the number of real-number solutions.A2.1.3.11December JanuaryInterpret the discriminantA2.1.3.11December JanuaryUse the discriminant to find a particular equation.A2.1.3.11December January A2.1.3.11Classify polynomialsA2.1.3.1.1December January A2.2.1.1, A2.		A2.1.1.1.2	January
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A2.2.2.1.4		A2.2.2.1.3,	
		A2.2.2.1.4	

Add, subtract, and multiply polynomials.	A1.1.1.5.1	February
		March
Use long division to divide polynomials.	A2.1.2.2	February
		March
Use synthetic division to divide by x – a.	A2.1.2.2	February
		March
Relate P(a) to the Remainder of P(x) \div (x – a).	A2.1.2.2	February
		March
Use the Remainder Theorem to evaluate polynomials.	A2.1.2.2	February
		March
Check whether $x - a$ is a factor of P(x).	A2.1.2.2	February
		March
Use zeros to graph a polynomial functions.	A2.2.1.1.4.	February
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	Δ22211.3,	
Inderstand how a multiple of zero can affect a graph	Δ22114	February
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	Δ2221.3,	
Find real and complex zeros	A2.2.2.1.4	February
	A2.2.1.1.4,	March
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	A2.2.2.1.3,	
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	A2.2.1.1.4,	March
	A2.2.2.1.1,	Iviai CII
	A2.2.2.1.3,	
Solvo a polynomial inequality by graphing	A2.2.2.1.4	February
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Identify possible rational solutions.	A2.2.1.1.4,	February
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Use the Rational Root Theorem.	A2.2.1.1.4,	February
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Find all Complex Roots.	A2.2.1.1.4,	February
	A2.2.2.1.1,	March
	A2.2.2.1.3,	
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Write equivalent rational expressions.	A2.1.2.2.2	March April
Simplify a rational expression.	A2.1.2.2.2	March April
Multiply rational expressions.	A2.1.2.2.2	March April
Multiply a rational expression by a polynomial.	A2.1.2.2.2	March April
Divide rational expressions.	A2.1.2.2.2	March April
Add rational expressions with like denominators.	A2.1.2.2.2	March April
Identify the least common multiple of polynomials.	A2.1.2.2.2	March April
Add rational expressions with unlike denominators.	A2.1.2.2.2	March April
Subtract rational expressions.	A2.1.2.2.2	March April
Find the rate.	A2.1.2.2.2	March April
Simplify a compound fraction.	A2.1.3.1.2	March April
Solve a rational equation.	A2.1.3.1.2	March April
Solve a work-rate problem.	A2.1.3.1.2	March April
Identify an extraneous solution.	A2.1.3.1.2	March April
Solve problems with extraneous solutions.	A2.1.3.1.2	March April
Solve a rate problem.	A2.1.2.1.1	April May
Find all Real nth roots.	A2.1.2.1.1	April May
Understand rational exponents.	A2.1.2.1.1	April May
Evaluate expressions with rational exponents.	A2.1.2.1.1	April May

Simplify nth roots.	A2.1.2.1.1	April
		May
Lise ath roots to solve equations	A21211	April
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Use hth roots to solve problems.	AZ.1.Z.1.1	April
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Use properties of exponents.	A2.1.2.1.1,	April
	A2.1.2.1.2,	May
	A2.1.2.1.3 S	
Use properties of exponents to rewrite radicals.	A2.1.2.1.1,	April
	A2.1.2.1.2,	May
	A2.1.2.1.3 S	
Rewrite the product or quotient of a radical.	A2.1.1.2, A2.1.2.1,	April
	A2.1.3.1, A2.1.3.1.2, A-	May
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Add and subtract radical expressions.	A2.1.2.1.1.	April
	A2 1 2 1 2	May
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Multiply hipomial radical expressions	A2.1.2.1.3.3	April
	A2.1.2.1.1,	April
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	AZ.1.2.1.3 5	
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Rationalize a binomial denominator.	AZ.1.2.1.1,	April
	A2.1.2.1.2,	May
	A2.1.2.1.3 S	
Graph square root and cube root functions.	A2.2.2.1.4	April
		May
Solve an equation with one radical	A2.1.3.1.2	April
		May
Identify an extraneous solution from a radical equation.	A2.1.3.1.2	April
		May
Solve an equation with rational exponents.	A2.1.3.1.2	April
		May
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Add and subtract functions.	A2.1.2.1.2.	April
	A2 1 2 1 3	May
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Multiply functions	A21212	April
	AZ.1.2.1.2,	May
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Divide functions	AD 1 D 1 D	Anaril
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	AZ.1.Z.1.3	iviay
Compose functions.	A2.1.2.1.2,	April
	A2.1.2.1.3	Мау

PLANNED INSTRUCTION

ASSESSMENTS

PSSA Academic Standards, Assessment Anchors, and Eligible Content: The teacher must be knowledgeable of the PDE Academic Standards, Assessment Anchors, and Eligible Content and incorporate them regularly into planned instruction.

Formative Assessments: The teacher will utilize a variety of assessment methods to conduct in-process evaluations of student learning.

Effective formative assessments for this course include: Suggested but not limited to: Bell Ringers, Exit Ticket, Cooperative Learning, Observations, Written work, Quizzes, Oral response, Self-evaluation, Homework

Summative Assessments: The teacher will utilize a variety of assessment methods to evaluate student learning at the end of an instructional task, lesson, and/or unit.

Effective summative assessments for this course include: Suggested but not limited to: Performance Assessment, Tests, and Projects