Department: Math
Course Title: Algebra 2
Creator: M. Burns
Date: 2025-2026 School Year

Unit Title	Unit Length (weeks)	Dates of Unit (Month - Month)	Essential Questions	Topics to be Covered Texts Used	Skills to be Assessed	Standard Alignment	Formative Assessments	Summative Assessments
Unit 2: Quadratic Functions	8	August - October	**How is any quadratic function related to the parent quadratic function y= x^2?** **What are the advantages of a quadratic function in vertex form verses standard form?** **How are the real or imaginary solutions of a quadratic equation related to the graph of the quadratic function?**	Savvas Learning Company. (2024). enVision Algebra 2 Savvas Learning Company.. ISBN-13: 9781418401832 Topic 2 Vertex Form of a Quadratic Function Standard Form of a Quadratic Function Factored Form of a Quadratic Function Complex Numbers and Operations Completing the Square The Quadratic Formula Linear-Quadratic Systems **This unit needs a lot of practice and expanding. Students did not see Quadratics in Algebra 1 and have not yet learned to factor.	**Big Ideas – Functions** **Students will graph transformations of the parent quadratic function y= x^2.** **Students will compare translations to the parent quadratic function.** **Students will represent functions in a variety of ways, such as graphs, tables, equations, or words.** **Big Ideas – Equivalence** **Students will identify the vertex, line of symmetry, maximum or minimum, domain, range, and translations of a quadratic function.** **Students will graph quadratic functions with an without technology.** **Students will use quadratic functions as models.** **Big Idea – Solving equations and Inequalities** **You can factor many quadratic trinomials into products of two binomials.** **Completing a perfect square trinomial allows you to factor the completed trinomials as a the square of a binomial.** **You can solve a quadratic equation in more than one way: graphing, factoring, completing the square, quadratic formula, technology, finding square roots. Students will know when to apply each technique.** **A basis for the complex numbers is a number whose square is -1. Every quadratic equation has complex number solutions that are sometimes real numbers.**	**Complex number system N-CN.A.1 and 2 Perform arithmetic operations with complex numbers.** **Complex number system N-CN.C.7 and 8 Use complex numbers in polynomial equations** **Building Functions F.BF.B.1 and 3 Build new functions from existing functions** **Algebra A-SSE.B.3a Write expressions in equivalent forms to solve problems.** **Arithmetic with Polynomials and Rational Expressions A-APR.B.3 – understand the relationship between zeros and factors of polynomials.** **Creating equations that describe numbers or relationships. A-CED. A.1-3.** **Reasoning with Equations and Inequalities A-REI.C.7 solving systems of equations.**	**Individual quizzes on each section in the chapter and two chapter tests.** **Chapter Test 4-1 thru 4-4** **4-1 Quadratic Functions and Transformations** **4.2 Standard form of a Quadratic Function** **4.3 Modeling with Quadratic Functions** **4.4 Factoring Quadratic Equations** **Chapter Test 4.5 thru 4.9** **4.5 Quadratic Equations** **4.6 Completing the Square** **4-7 The Quadratic Formula** **4-8 Complex Numbers** **4-9 Quadratic Systems**	**Two chapter tests** **Polynomial Puzzler Project**
Unit 2: Quadratic Equations	8	October - December	**How is any quadratic function related to the parent quadratic function y= x^2?** **What are the advantages of a quadratic function in vertex form verses standard form?** **How are the real or imaginary solutions of a quadratic equation related to the graph of the quadratic function?**	Savvas Learning Company. (2024). enVision Algebra 2 Savvas Learning Company.. ISBN-13: 9781418401832 Topic 2 Vertex Form of a Quadratic Function Standard Form of a Quadratic Function Factored Form of a Quadratic Function Complex Numbers and Operations Completing the Square The Quadratic Formula Linear-Quadratic Systems **This unit needs a lot of practice and expanding. Students did not see Quadratics in Algebra 1 and have not yet learned to factor.	**Big Ideas – Functions** **Students will graph transformations of the parent quadratic function y= x^2.** **Students will compare translations to the parent quadratic function.** **Students will represent functions in a variety of ways, such as graphs, tables, equations, or words.** **Big Ideas – Equivalence** **Students will identify the vertex, line of symmetry, maximum or minimum, domain, range, and translations of a quadratic function.** **Students will graph quadratic functions with an without technology.** **Students will use quadratic functions as models.** **Big Idea – Solving equations and Inequalities** **You can factor many quadratic trinomials into products of two binomials.** **Completing a perfect square trinomial allows you to factor the completed trinomials as a the square of a binomial.** **You can solve a quadratic equation in more than one way: graphing, factoring, completing the square, quadratic formula, technology, finding square roots. Students will know when to apply each technique.** **A basis for the complex numbers is a number whose square is -1. Every quadratic equation has complex number solutions that are sometimes real numbers.**	**Complex number system N-CN.A.1 and 2 Perform arithmetic operations with complex numbers.** **Complex number system N-CN.C.7 and 8 Use complex numbers in polynomial equations** **Building Functions F.BF.B.1 and 3 Build new functions from existing functions** **Algebra A-SSE.B.3a Write expressions in equivalent forms to solve problems.** **Arithmetic with Polynomials and Rational Expressions A-APR.B.3 – understand the relationship between zeros and factors of polynomials.** **Creating equations that describe numbers or relationships. A-CED. A.1-3.** **Reasoning with Equations and Inequalities A-REI.C.7 solving systems of equations.**	**Individual quizzes on each section in the chapter and two chapter tests.** **Chapter Test 4-1 thru 4-4** **4-1 Quadratic Functions and Transformations** **4.2 Standard form of a Quadratic Function** **4.3 Modeling with Quadratic Functions** **4.4 Factoring Quadratic Equations** **Chapter Test 4.5 thru 4.9** **4.5 Quadratic Equations** **4.6 Completing the Square** **4-7 The Quadratic Formula** **4-8 Complex Numbers** **4-9 Quadratic Systems**	**Two chapter tests** **Polynomial Puzzler Project**