Algebra 2 Unit 6: Quadratic Functions

Lesson	Learning Targets
6.1 Forms of Quadratic Equations	• Write and graph quadratic functions in vertex, intercept and general forms. • Find the vertex and axis of symmetry from the equation of a quadratic. • Identify the *x*-intercepts of a quadratic written in intercept form. • Rewrite an equation from vertex or intercept form to general form.
6.2 Writing Equations for Quadratic Functions	• Write an equation for a quadratic from a graph, table or description. • Use the symmetry of a quadratic to find values of the function.
6.3 Factoring Quadratics. Part 1.	• Multiply polynomial factors using distribution or rectangle diagrams. • Factor quadratic equations in the form of $ax^2 + bx + c$ when $a = 1$.
6.3 Factoring Quadratics. Part 2.	• Factor quadratic equations in the form of $ax^2 + bx + c$ when $a > 1$.
6.4 Solving using the Zero Product Property	• Understand why setting a quadratic equal to 0 allows solving because of the Zero Product Property. • Solve quadratic equations written in factored form. • Connect solving quadratics in factored form with graphing a quadratic and finding the *x*-intercepts.
6.5 Completing the Square	• Rewrite quadratic equations as perfect squares. • Solve quadratic equations by completing the square.
6.6 Completing the Square for Circles	• Given an expanded equation of a circle, rewrite the equation to find the center and radius of a circle.

6.7 Quadratic Formula	• Solve quadratic equations with real solutions using the quadratic formula.
6.8 Complex Numbers	• Understand what the imaginary number is, why it is needed, and how to simplify expressions using it. • Simplify square roots of negative numbers using *i*. • Solve quadratic equations with imaginary solutions and identify conjugate pairs.
6.9 The Discriminant and Types of Solutions	• Solve quadratic equations with nonreal solutions using the quadratic formula. • Use the discriminant to determine the type and number of solutions an equation will have. • Use the graph of a quadratic to determine the number and type of solutions.