Honors Algebra II

Quadratic Functions & Equations
Honors Algebra II Curriculum

Power Objectives	**P.O. #2: Graph and Interpret Quadratic Functions (P.O. #2 Proficiency Rubric)** **P.O. #3: Solve and analyze quadratic functions algebraically in context including Complex Numbers (P.O. #3 Proficiency Rubric)**
Academic Vocabulary	❏ quadratic function ❏ parabola ❏ quadratic regression ❏ axis of symmetry ❏ quadratic formula ❏ reasonable domain and range ❏ complex number ❏ standard form ❏ discriminant ❏ vertex form ❏ average rate of change ❏ greatest common factor ❏ zero of a function ❏ completing the square ❏ imaginary number ❏ roots of a function ❏ factoring
Enduring Understandings *Students understand that...*	● The vertex of a parabola will represent the maximum point of the function, which will help to understand maximum and minimum values in real-life situations. ● No matter how you choose to solve a quadratic function for real solutions, you are always looking for where the function crosses the x-axis. These points on the graph are significant in many real-world applications. ● Solutions that exist can exist beyond the real number system. All quadratic functions are a transformation on the parent function f(x)=x2. ● The domain and range of quadratic functions can be relative to a situation.
Essential Questions	● How does understanding how to find the vertex of a quadratic function help in making decisions in real-life applications? ● What are the advantages of a quadratic function in vertex form? In standard form? ● How is any quadratic function related to the parent quadratic function f(x)=x2 ? ● How does solving for x in quadratic functions compare to solving for x in linear

functions? Why do we analyze quadratic functions?

- How can quadratic functions maximize profits or minimize cost?
- Why does the degree of an equation reveal the number of solutions to the equation?
- To what extent are solutions to quadratic equations real?
- How are the real solutions of a quadratic equation related to the graph of the related quadratic function?