

Unit: Functions and Patterns

Grade or Subject: 10th Grade Math

Essential Questions	Concept/Content	Skills	District Benchmark Assessments	Standards
How can understanding mathematical patterns, relations, and functions help us explain real-life situations? What is the relationship between patterns of change and the behavior of functions?	<p>Concept: Algebraic representations can be used to generalize patterns and relationships.</p> <ul style="list-style-type: none">• Patterns• Families of functions• Linear function• Quadratic function• Absolute value function• Relationships• Equations• Inequalities• Linear relationship• Quadratic relationship• Absolute value relationship• Tables of ordered pairs• Graphs <p>Vocabulary: function, quadratic function, absolute value, linear functions, quadratic relationship, families of functions</p>	<ul style="list-style-type: none">• Identify the operation used to create a sequence of numbers in a linear, quadratic, or absolute value function and• Perform the operation to continue the sequence in a linear, quadratic, or absolute value function and• Formulate the rule (equations and inequalities) that describes the relationship of a function (linear, quadratic, absolute value)• Use a table of ordered pairs, a graph, or an equation• Apply quadratic equations<ul style="list-style-type: none">- by factoring- by solving quadratic equations in which a perfect square equals a constant- by solving quadratic equations by the quadratic formula- by graphing quadratic equations• Solve a system of linear equations by graphing• Solve a system of equations by substitution• Solve a system of equations by elimination (linear combination method)• Specify the number of solutions a system of linear equations has	<ul style="list-style-type: none">• Columbus Sailed the Ocean Blue – Performance Task• Self-Assessment using Rubric• A Rectangular Plot Task – work in pairs – Graphing Linear Equations (Algebra Project website)• TI-83 Graphing Task• Written analysis of approach to solving quadratic equations	<p>Functions and Relationships (F&R): Represent, analyze, and use patterns, relations, and functions</p> <ul style="list-style-type: none">• describing or extending patterns (families of functions: linear, quadratic, absolute value), up to the nth term, represented in tables, sequences, graphs, or in problem situations• generalizing equations and inequalities (linear, quadratic, absolute value) using a table of ordered pairs or a graph

