Richmond Public Schools
Curriculum Framework
Algebra, Functions, and Data Analysis

Strand: Algebra Functions

AFDA.4   **The student will use multiple representations of functions for analysis, interpretation, and prediction.**

Suggested Pacing
8 Class Periods

Spiraling Standards	

A.7-The student will investigate and analyze linear and quadratic function families and their characteristics both algebraically and graphically, including
    a)determining whether a relation is a function;
    f)   connections between and among multiple representations of functions using verbal descriptions, tables, equations, and graphs.
 	
AII.8-The student will investigate and describe the relationships among solutions of an equation, zeros of a function, x-intercepts of a graph, and factors of a polynomial expression.
	MA.1-The student will investigate and identify the properties of polynomial, rational, piecewise, and step functions and sketch the graphs of the functions.

Essential Questions	Common Misconceptions
• What are the ways in which data can be represented? • What is the best representation for a data set? • What is the relationship between the different forms of data representation?	Students may identify relations as functions that are not functions. Students will mismatch graphs with tables or equations Students may not understand discrete or continuous

Understanding the Standard	Essential Knowledge and Skills
● The most appropriate representation of a function depends on the questions to be answered and/or the analysis to be done.	**The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to**

- Given data may be represented as discrete points or as a continuous graph with respect to the practical context. - Practical data may best be represented as a table, a graph, or a formula.	- Given an equation, graph a linear, quadratic, exponential or logarithmic function. - Make predictions given a table of values, a graph, or an algebraic formula. - Describe relationships between data represented in a table, in a scatterplot, and as elements of a function. - Determine the appropriate representation of data derived from real-world situations. - Analyze and interpret the data in context of the practical situation. - Use a graphing utility to graph, analyze, interpret, and make predictions.
Vocabulary	
function, discrete, continuous, equation, linear, quadratic, exponential, logarithmic, data, scatterplot, elements, derived, analyze, interpret, predict	**Textbook** Algebra 1, ©2012, Price, et al, McGraw-Hill School Education Group, page(s) 38-53 Algebra 2, ©2012, Price, et al, McGraw-Hill School Education Group, page(s) 69-73, 249-257, 475-482, 492-499, 525-531
Assessment	
Classroom Teacher Developed Assessments	**Notes** [Polynomial Function (Math Centre)](#) **Resources** Print

	Coach book Algebra 1, Virginia edition, Lesson(s) 21-22, 34-35 page(s) 134-146, 230-244 Coach book Algebra 2, Virginia edition, Lesson(s) 11-12, 35 page(s) 62-73, 237-241 ● Technology-based Finding zeros of Polynomials (Khan Academy) Zeros of Polynomials and Their Graphs (Khan Academy) **Station Activities** Match Card Activity (VDOE Lesson Plan)
Cross-Curricular Connections	Tiered Differentiations
Science/Engineering- Students can explore the uses of Polynomial functions in describing curves in roller coaster design. **Econ/Personal Finance**-students can explore cost analysis and the uses of polynomial functions in the stock market	**Tier 1**-Students can solve polynomial expressions for zero and graph the solution for real and complex solutions. **Tier 2**- Students can solve for and graph zeros of a polynomial function given the factors of a polynomial **Tier 3**- Students can identify zeros given the graph of a polynomial function and determine factors based on the zeros.