

TUSD Scope & Sequence: Algebra Academy

1 st Quarter	2 nd Quarter
Unifying Concept: Linear, Quadratic and Exponential Equations and Functions (Identifying and Describing Variation)	Unifying Concept: Linear, Quadratic and Exponential Equations and Functions (Organizing and Representing Real World Data)
Constant Standards A1.F-IF.C.9 Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). Focus on linear, quadratic, exponential and piecewise-defined functions (limited to absolute value and step). A1.N-Q.A.2 Define appropriate quantities for the purpose of descriptive modeling. Include problem-solving opportunities utilizing real-world context. A1.A-CED.A.1 Create equations and inequalities in one variable and use them to solve problems. Include problem-solving opportunities utilizing real-world context. Focus on linear, quadratic, exponential and piecewise-defined functions (limited to absolute value and step).	Constant Standards A1.F-IF.C.9 Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). Focus on linear, quadratic, exponential and piecewise-defined functions (limited to absolute value and step). A1.N-Q.A.2 Define appropriate quantities for the purpose of descriptive modeling. Include problem-solving opportunities utilizing real-world context. A1.A-CED.A.1 Create equations and inequalities in one variable and use them to solve problems. Include problem-solving opportunities utilizing real-world context. Focus on linear, quadratic, exponential and piecewise-defined functions (limited to absolute value and step).
Target standards A1.A-SSE.A.1 Interpret expressions that represent a quantity in terms of its context. a. Interpret parts of an expression, such as terms, factors, and coefficients. b. Interpret expressions by viewing one or more of their parts as a single entity. A1.A-CED.A.2 Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales. HSScience S1.C1.PO2 Develop questions from observations that transition into testable hypotheses.	Target standards A1.F-IF.B.4 For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Include problem-solving opportunities utilizing real-world context. Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums. Focus on linear, quadratic, exponential and piecewise-defined functions (limited to absolute value and step). A1.F-LE.A.3 Observe, using graphs and tables, that a quantity increasing exponentially eventually exceeds a quantity increasing linearly or quadratically.

Complementary Standards A1.F-IF.C.7 Graph functions expressed symbolically and show key features of the graph, by hand in simple cases, using technology for more complicated cases. Focus on linear, quadratic, exponential and piecewise-defined functions (limited to absolute value and step).
Math Practice Emphasis A1.MP.1 A1.MP.3 A1.MP.6 A1.MP.8

A1.F-IF.A.2 Evaluate a function for inputs in the domain, and interpret statements that use function notation in terms of a context. HS Science S1.C2.PO5 Record observations, notes, sketches, questions, and ideas using tools such as journals, charts, graphs, and computers HS Science S1.C4.PO2 Produce graphs that communicate data.
Complementary Standards A1.F-IF.C.7 Graph functions expressed symbolically and show key features of the graph, by hand in simple cases, using technology for more complicated cases. Focus on linear, quadratic, exponential and piecewise-defined functions (limited to absolute value and step).
Math Practice Emphasis A1.MP.1 A1.MP.3 A1.MP.5 A1.MP.7

3 rd Quarter
Unifying Concept: Linear, Quadratic and Exponential Equations and Functions (Designing and Performing Experiments)

4 th Quarter
Unifying Concept: Linear, Quadratic and Exponential Equations and Functions (Making and Testing Predictions Based on Multiple Data Sources)

Constant Standards A1.F-IF.C.9 Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). Focus on linear, quadratic, exponential and piecewise-defined functions (limited to absolute value and step). A1.N-Q.A.2 Define appropriate quantities for the purpose of descriptive modeling. Include problem-solving opportunities utilizing real-world context. A1.A-CED.A.1 Create equations and inequalities in one variable and use them to solve problems. Include problem-solving opportunities utilizing real-world context. Focus on linear, quadratic, exponential and piecewise-defined functions (limited to absolute value and step).

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	Focus on linear, quadratic, exponential and piecewise-defined functions (limited to absolute value and step).
Target standards A1.F-LE.A.1 Distinguish between situations that can be modeled with linear functions and with exponential functions. a. Prove that linear functions grow by equal differences over equal intervals, and that exponential functions grow by equal factors over equal intervals. b. Recognize situations in which one quantity changes at a constant rate per unit interval relative to another. c. Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another. A1.F-LE.A.2 Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or input/output pairs. A1.F-LE.A.3 Observe, using graphs and tables, that a quantity increasing exponentially eventually exceeds a quantity increasing linearly or quadratically HS Science S1.C2.PO3 Design an appropriate protocol (written plan of action) for testing a hypothesis: • Identify dependent and independent variables in a controlled investigation. • Determine an appropriate method for data collection (e.g., using balances, thermometers, microscopes, spectrophotometer, using qualitative changes). • Determine an appropriate method for recording data (e.g., notes, sketches, photographs, videos, journals (logs), charts, computers/calculators). HS Science S1.C2.PO4 Conduct a scientific investigation that is based on a research design.	Target standards A1.S-ID.C.7 Interpret the slope as a rate of change and the constant term of a linear model in the context of the data. A1.S-ID.C.8 Compute and interpret the correlation coefficient of a linear relationship. A1.S-ID.C.9 Distinguish between correlation and causation. HS Science S1.C3.PO1 <i>Interpret data that show a variety of possible relationships between variables, including:</i> • <i>positive relationship</i> • <i>negative relationship</i> • <i>no relationship</i> HS Science S1.C3.PO2 Evaluate whether investigational data support or do not support the proposed hypothesis HS Science S1.C4.PO3 Communicate results clearly and logically.
Complementary Standards A1.F-IF.C.7 Graph functions expressed symbolically and show key features of the graph, by hand in simple cases, using technology for more complicated cases. Focus on linear, quadratic, exponential and piecewise-defined functions (limited to absolute value and step).	Complementary Standards A1.F-IF.C.7 Graph functions expressed symbolically and show key features of the graph, by hand in simple cases, using technology for more complicated cases. Focus on linear, quadratic, exponential and piecewise-defined functions (limited to absolute value and step).

Math Practice Emphasis**A1.MP.1****A1.MP.3****A1.MP.4****Math Practice Emphasis****A1.MP.1****A1.MP.3****A1.MP.5****A1.MP.8**