Revised: 06/17/2024
Board Approved: July 2016

JC Schools 8th Grade Algebra I Yearly Standards

Overarching Standards

A1.NQ.B.3
Use units of measure as a way to understand and solve problems involving quantities.
a. Identify, label, and use appropriate units of measure within a problem.
b. Convert units and rates.
c. Use units within problems.
d. Choose and interpret the scale and the origin in graphs and data displays.

A1.NQ.B.4
Define and use appropriate quantities for representing a given context or problem.

A1.NQ.B.5
Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.

A1.CED.A.3
Represent constraints by equations or inequalities and by systems of equations or inequalities and interpret the data points as a solution or non-solution in a modeling context.

Units	DESE Priority Standards	District Priority Standards	Supporting Standards
Unit 1 Equations & Inequalities 15 Days	**A1.CED.A.1** Create equations and inequalities in one variable and use them to model and/or solve problems.	**A1.CED.A.4** Solve literal equations and formulas for a specified variable that highlights a quantity of interest **A1.REI.A.1** Explain how each step taken when solving an equation or inequality in one	

		variable creates an equivalent equation or inequality that has the same solution(s) as the original.	
Unit 2 Polynomial Operations 16 Days	**A1.SSE.A.1** Interpret the contextual meaning of individual terms or factors from a given problem that utilizes formulas or expressions. **A1.SSE.A.2** Analyze the structure of polynomials to create equivalent expressions or equations.	**A1.NQ.A.1** Explain how the meaning of rational exponents extends from the properties of integer exponents **A1.NQ.A.2** Rewrite expressions involving radicals and rational exponents using the properties of exponents. *Limit to rational exponents with a numerator of 1.* **A1.APR.A.1** Add, subtract, and multiply polynomials, and understand that polynomials follow the same general rules of arithmetic and are closed under these operations. **A1.APR.A.2** Divide polynomials by monomials.	
Unit 3 Introduction to Functions 16 Days	**A1.LQE.B.4** Write arithmetic and geometric sequences in recursive and explicit forms and use them to model situations and translate between the two forms.	**A1.IF.A.2** Use function notation to evaluate functions for inputs in their domains and interpret statements that use function notation in terms of a context. **A1.LQE.A.1** Distinguish between situations that can be modeled with linear or exponential functions. a. Determine that linear functions change by equal differences over equal intervals.	**A1.IF.A.1.a-b** Understand that a function from one set (domain) to another set (range) assigns to each domain element exactly one element of the range. a. Represent a function using function notation. b. Understand that the graph of a function labeled f is the set of all ordered pairs (x, y) that satisfy the equation $y=f(x)$. **A1.IF.C.9**

		b. Recognize exponential situations in which a quantity grows or decays by a constant percent rate per unit interval.	Compare the properties of two functions given different representations. **A1.LQE.A.2** Describe, using graphs and tables, that a quantity increasing exponentially eventually exceeds a quantity increasing linearly or quadratically. **A1.LQE.B.5** Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the set of integers. **A1.LQE.B.6** Find the terms of sequences given an explicit or recursive formula.
Unit 4 Writing & Graphing Linear Functions 16 Days	**A1.REI.C.6** Explain that the graph of an equation in two variables is the set of all its solutions plotted in the Cartesian coordinate plane. **A1.BF.A.1** Analyze the effect of translations and scale changes on functions. **A1.IF.B.3** Using tables, graphs, and verbal descriptions, interpret key characteristics of a function that models the relationship between two quantities. **A1.IF.C.7**	**A1.CED.A.2** Create and graph linear, quadratic, and exponential equations in two variables. **A1.REI.C.7** Graph the solution to a linear inequality in two variables. **A1.IF.C.8** Translate between different but equivalent forms of a function to reveal and explain properties of the function and interpret these in terms of a context.	**A1.IF.A.1** Understand that a function from one set (domain) to another set (range) assigns to each domain element exactly one element of the range. a. Represent a function using function notation. b. Understand that the graph of a function labeled f is the set of all ordered pairs (x, y) that satisfy the equation $y=f(x)$. **A1.IF.B.4** Relate the domain and range of a function to its graph and, where applicable, to the quantitative relationship it describes.

	Graph functions expressed symbolically and identify and interpret key features of the graph. **A1.LQE.A.3** Construct linear, quadratic and exponential equations given graphs, verbal descriptions or tables.		**A1.IF.B.5** Determine the average rate of change of a function over a specified interval and interpret the meaning. **A1.IF.B.6** Interpret the parameters of a linear or exponential function in terms of the context.
Unit 5 Writing & Graphing Quadratic Functions 15 Days	**A1.BF.A.1** Analyze the effect of translations and scale changes on functions. **A1.REI.C.6** Explain that the graph of an equation in two variables is the set of all its solutions plotted in the Cartesian coordinate plane. **A1.IF.B.3** Using tables, graphs, and verbal descriptions interpret key characteristics of a function that models the relationship between two quantities. **A1.IF.C.7** Graph functions expressed symbolically and identify and interpret key features of the graph. **A1.LQE.A.3** Construct linear, quadratic and exponential equations given graphs, verbal descriptions or tables.	**A1.CED.A.2** Create and graph linear, quadratic, and exponential equations in two variables. **A1.IF.C.8** Translate between different but equivalent forms of a function to reveal and explain properties of the function and interpret these in terms of a context.	**A1.IF.A.1** Understand that a function from one set (domain) to another set (range) assigns to each domain element exactly one element of the range. a. Represent a function using function notation. b. Understand that the graph of a function labeled f is the set of all ordered pairs (x, y) that satisfy the equation $y=f(x)$. **A1.IF.B.4** Relate the domain and range of a function to its graph and, where applicable, to the quantitative relationship it describes. **A1.IF.C.9** Compare the properties of two functions given different representations.

Unit 6 Factoring & Solving Quadratic Functions 25 Days	**A1.SSE.A.1** Interpret the contextual meaning of individual terms or factors from a given problem that utilizes formulas or expressions. **A1.SSE.A.2** Analyze the structure of polynomials to create equivalent expressions or equations. **A1.REI.A.2c** Solve problems involving quadratic equations c. Analyze different methods of solving quadratic equations. **A1.CED.A.1** Create equations and inequalities in one variable and use them to model and/or solve problems.	**A1.SSE.A.3.a** Choose and produce equivalent forms of a quadratic expression or equations to reveal and explain properties. a. Find the zeros of a quadratic function by rewriting it in factored form. **A1.REI.A.2.a** Solve problems involving quadratic equations. a. Use the method of completing the square to create an equivalent quadratic equation.	**A1.SSE.A.3.b** Choose and produce equivalent forms of a quadratic expression or equations to reveal and explain properties. b. Find the maximum or minimum value of a quadratic function by completing the square. **A1.REI.A.2.b** Solve problems involving quadratic equations. b. Derive the quadratic formula.
Unit 7 Exponential Functions 16 Days	**A1.REI.C.6** Explain that the graph of an equation in two variables is the set of all its solutions plotted in the Cartesian coordinate plane. **A1.BF.A.1** Analyze the effect of translations and scale changes on functions. **A1.IF.B.3** Using tables, graphs, and verbal descriptions interpret key characteristics of a function that models the relationship between two quantities	**A1.CED.A.2** Create and graph linear, quadratic, and exponential equations in two variables. **A1.IF.C.8** Translate between different but equivalent forms of a function to reveal and explain properties of the function and interpret these in terms of a context. **A1.LQE.A.1** Distinguish between situations that can be modeled with linear or exponential functions.	**A1.IF.A.1** Understand that a function from one set (domain) to another set (range) assigns to each element of the domain exactly one element of the range. a. Represent a function using function notation. b. Understand that the graph of a function labeled f is the set of all ordered pairs (x, y) that satisfy the equation $y=f(x)$. **A1.IF.B.4** Relate the domain and range of a function to its graph and, where

	.**A1.IF.C.7** Graph functions expressed symbolically and identify and interpret key features of the graph. **A1.LQE.A.3** Construct linear, quadratic and exponential equations given graphs, verbal descriptions or tables.	a. Determine that linear functions change by equal differences over equal intervals. b. Recognize exponential situations in which a quantity grows or decays by a constant percent rate per unit interval.	applicable to the quantitative relationship it describes. **A1.IF.B.5** Determine the average rate of change of a function over a specified interval and interpret the meaning. **A1.IF.B.6** Interpret the parameters of a linear or exponential function in terms of the context. **A1.IF.C.9** Compare the properties of two functions given different representations. **A1.LQE.A.2** Describe, using graphs and tables, that a quantity increasing exponentially eventually exceeds a quantity increasing linearly or quadratically.
Unit 8 Systems 20 Days	**A1.REI.C.8** Solve problems involving a system of linear inequalities.	**A1.REI.B.3** Solve a system of linear equations algebraically and/or graphically. **A1.REI.B.4** Solve a system consisting of a linear equation and a quadratic equation algebraically and/or graphically. **A1.CED.A.3** Represent constraints by equations or inequalities and by systems of equations or inequalities and interpret the data	**A1.REI.B.5** Justify that the technique of linear combination produces an equivalent system of equations.

		points as a solution or non-solution in a modeling context.	
Unit 9 Statistics 20 Days	**A1.DS.A.1** Analyze and interpret graphical displays of data.	**A1.DS.A.4** Summarize data in two-way frequency tables. Interpret relative frequencies in the context of the data, and recognize possible associations and trends in the data. **A1.DS.A.5** Construct a scatter plot of bivariate quantitative data describing how the variables are related; determine and use a function that models the relationship. a. Construct a linear function to model bivariate data represented on a scatter plot that minimizes residuals. b. Construct an exponential function to model bivariate data represented on a scatter plot that minimizes residuals. **A1.DS.A.8** Distinguish between correlation and causation.	**A1.DS.A.2** Use statistics appropriate to the shape of the data distribution to compare the center and spread of two or more different data sets. **A1.DS.A.3** Interpret differences in shape, center, and spreads in the context of the data sets, accounting for possible effects of outliers. **A1.DS.A.6** Interpret the slope (rate of change) and the y-intercept (constant term) of a linear model in the context of the data. **A1.DS.A.7** Determine and interpret the correlation coefficient for a linear association.