

1 st Cycle	29 Days Aug. 22 – Sept. 30, 2016	The recommended number of class periods is less than the number of days in the grading cycle to accommodate differentiated instruction, extended learning time, and assessment days. Complete instructional planning information and support are in the HISD Curriculum documents.
Unit	# Class Periods	Texas Essential Knowledge and Skills/Student Expectations (TEKS/SEs) The student will:
		<p>The Mathematical Process Standards are integrated throughout the course in all activities and lessons. Teachers should refer to these standards for instructional strategies and depth of rigor. Specific process standards have been highlighted for each unit, but these process standards should not be the only process standards associated with the daily lessons.</p> <p>Mathematical Process Standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:</p> <ul style="list-style-type: none"> PS ALGII.1A Apply mathematics to problems arising in everyday life, society, and the workplace. PS ALGII.1B Use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution. PS ALGII.1C Select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems. PS ALGII.1D Communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate. PS ALGII.1E Create and use representations to organize, record, and communicate mathematical ideas. PS ALGII.1F Analyze mathematical relationships to connect and communicate mathematical ideas. PS ALGII.1G Display, explain, or justify mathematical ideas and arguments using precise mathematical language in written or oral communication.
<p>Unit 1: Family of Functions While surveying piecewise functions and all functions studied in this course, students apply the properties of functions to their graphs and transformations.</p>	<p>4 class periods (90 minutes each) or 8 class periods (45 minutes each)</p>	<p>Mathematical Process Standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:</p> <ul style="list-style-type: none"> PS ALGII.1C Select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems. PS ALGII.1D Communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate. PS ALGII.1E Create and use representations to organize, record, and communicate mathematical ideas. <p>Attributes of Functions and Their Inverses. The student applies mathematical processes to understand that functions have distinct key attributes and to understand the relationship between a function and its inverse. The student is expected to:</p> <p>R ALGII.2A Graph the functions, $f(x) = \sqrt{x}$, $f(x) = \frac{1}{x}$, $f(x)=x^3$, $f(x) = \sqrt[3]{x}$, $f(x)=b^x$, $f(x) = x$, and $f(x)=\log_b x$ where b is 2, 10, and e and when applicable</p>

1 st Cycle	29 Days	The recommended number of class periods is less than the number of days in the grading cycle to accommodate differentiated instruction, extended learning time, and assessment days. Complete instructional planning information and support are in the HISD Curriculum documents.
Unit	# Class Periods	Texas Essential Knowledge and Skills/Student Expectations (TEKS/SEs) The student will:
		<p>analyze the key attributes such as domain, range, intercepts, symmetries, asymptotic behavior, and maximum and minimum.</p> <p>Ⓢ ALGII.2B Graph and write the inverse of a function using notation such as $f^{-1}(x)$.</p> <p>Quadratic and Square Root Functions, Equations, and Inequalities. The student applies mathematical processes to understand that quadratic and square root functions, equations, and quadratic inequalities can be used to model situations, solve problems, and make predictions. The student is expected to:</p> <p>Ⓢ ALGII.4C Determine the effect on the graph of $f(x) = \sqrt{x}$ when $f(x)$ is replaced by $a f(x)$, $f(x) + d$, $f(bx)$, and $f(x - c)$ for specific positive and negative values of a, b, c, and d.</p> <p>Ⓢ ALGII.4D Transform a quadratic function $f(x) = ax^2 + bx + c$ to [analyze] the form $f(x) = a(x - h)^2 + k$ to identify the different attributes of $f(x)$.</p> <p>Exponential and Logarithmic Functions and Equations. The student applies mathematical processes to understand that exponential and logarithmic functions can be used to model situations and solve problems. The student is expected to:</p> <p>Ⓢ ALGII.5A Determine the effects on the key attributes on the graphs of $f(x) = b^x$ and $f(x) = \log_b(x)$, where b is 2, 10 and e when $f(x)$ is replaced by $a f(x)$, $f(x) + d$, and $f(x - c)$ for specific positive and negative real values of a, c, and d.</p> <p>Cubic, Cube Root, Absolute Value and Rational Functions, Equations, and Inequalities. The student applies mathematical processes to understand that cubic, cube root, rational, and absolute value functions and inequalities can be used to model situations, solve problems, and make predictions. The student is expected to:</p> <p>Ⓢ ALGII.6A Analyze the effect on the graphs of $f(x) = x^3$ and $f(x) = \sqrt[3]{x}$ when $f(x)$ is replaced by $a \cdot f(x)$, $f(bx)$, $f(x - c)$, and $f(x) + d$ for specific positive and negative real values of a, b, c, and d.</p> <p>Ⓢ ALGII.6G Analyze the effect on the graphs of $f(x) = \frac{1}{x}$, when $f(x)$ is replaced by $a \cdot f(x)$, $f(bx)$, $f(x - c)$, and $f(x) + d$ for specific positive and negative real values of a, b, c, and d.</p> <p>Number and Algebraic Methods. The student applies mathematical processes to simplify and perform operations on expressions and to solve equations. The student is expected to:</p> <p>Ⓢ ALGII.7I Write the domain and range of a function in interval notation, inequalities and set notation.</p>

1 st Cycle	29 Days	The recommended number of class periods is less than the number of days in the grading cycle to accommodate differentiated instruction, extended learning time, and assessment days. Complete instructional planning information and support are in the HISD Curriculum documents.
	Aug. 22 – Sept. 30, 2016	
Unit	# Class Periods	Texas Essential Knowledge and Skills/Student Expectations (TEKS/SEs) The student will:
Unit 2: Data and Regressions Students analyze data using regression methods and predict and critical judgments from the data of real-world situations.	3 class periods (90 minutes each) or 6 class periods (45 minutes each)	<p>Mathematical Process Standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:</p> <ul style="list-style-type: none"> Ⓟ ALGII.1D Communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate. Ⓟ ALGII.1E Create and use representations to organize, record, and communicate mathematical ideas. Ⓟ ALGII.1G Display, explain, or justify mathematical ideas and arguments using precise mathematical language in written or oral communication. <p>Data. The student applies mathematical processes to analyze data, select appropriate models, write corresponding functions, and make predictions. The student is expected to:</p> <ul style="list-style-type: none"> Ⓢ ALGII.8A Analyze data to select the appropriate model from among linear, quadratic, and exponential models. Ⓢ ALGII.8B Use regression methods available through technology to write a linear function, a quadratic function, and an exponential function from a given set of data. Ⓡ ALGII.8C Predict and make decisions and critical judgments from a given set of data using linear, quadratic, and exponential models. <p>Number and Algebraic Methods. The student applies mathematical processes to simplify and perform operations on expressions and to solve equations. The student is expected to:</p> <ul style="list-style-type: none"> Ⓢ ALGII.7I Write the domain and range of a function in interval notation, inequalities and set notation.
Unit 3: Absolute Value Functions Students solve absolute value equations and inequalities and apply attributes of transformations to absolute value functions.	4 class periods (90 minutes each) or 8 class periods (45 minutes each)	<p>Mathematical Process Standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:</p> <ul style="list-style-type: none"> Ⓟ ALGII.1B Use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution. Ⓟ ALGII.1D Communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate. <p>Attributes of Functions and Their Inverses. The student applies mathematical processes to understand that functions have distinct key attributes and to understand the relationship between a function and its inverse. The student is expected to:</p> <ul style="list-style-type: none"> Ⓡ ALGII.2A Graph the functions, $f(x) = \sqrt{x}$, $f(x) = \frac{1}{x}$, $f(x) = x^3$, $f(x) = \sqrt[3]{x}$, $f(x) = b^x$, $f(x) = x$, and $f(x) = \log_b x$ where b is 2, 10, and e and when applicable analyze the

1 st Cycle	29 Days	The recommended number of class periods is less than the number of days in the grading cycle to accommodate differentiated instruction, extended learning time, and assessment days. Complete instructional planning information and support are in the HISD Curriculum documents.
	Aug. 22 – Sept. 30, 2016	
Unit	# Class Periods	Texas Essential Knowledge and Skills/Student Expectations (TEKS/SEs)
		<p>The student will:</p> <p>key attributes such as domain, range, intercepts, symmetries, asymptotic behavior, and maximum and minimum.</p> <p>Cubic, Cube Root, Absolute Value and Rational Functions, Equations, and Inequalities. The student applies mathematical processes to understand that cubic, cube root, rational, and absolute value functions and inequalities can be used to model situations, solve problems, and make predictions. The student is expected to:</p> <ul style="list-style-type: none"> Ⓢ ALGII.6C Analyze the effect on the graphs of $f(x) = x$ when $f(x)$ is replaced by $a \cdot f(x)$, $f(bx)$, $f(x - c)$, and $f(x) + d$ for specific positive and negative real values of a, b, c and d. Ⓢ ALGII.6D Formulate absolute value linear equations. Ⓡ ALGII.6E Solve absolute value linear equations. Ⓢ ALGII.6F Solve absolute value linear inequalities. <p>Number and Algebraic Methods The student applies mathematical processes to simplify and perform operations on expressions and to solve equations. The student is expected to:</p> <ul style="list-style-type: none"> Ⓢ ALGII.7I Write the domain and range of a function in interval notation, inequalities and set notation.

2 nd Cycle	24 Days Oct. 3 – Nov. 4, 2016	<i>The recommended number of class periods is less than the number of days in the grading cycle to accommodate differentiated instruction, extended learning time, and assessment days. Complete instructional planning information and support are in the HISD Curriculum documents.</i>
Unit	# Class Periods	Texas Essential Knowledge and Skills/Student Expectations (TEKS/SEs) The student will:
<p>Unit 4: Introduction of Matrices and Matrix Equations Students explore basic operations with matrices and matrix equations with and without technology.</p>	<p>2 class periods (90 minutes each) or 4 class periods (45 minutes each)</p>	<p>Mathematical Process Standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:</p> <ul style="list-style-type: none"> Ⓟ ALGII.1B Use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution. Ⓟ ALGII.1C Select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems. <p>Systems of Equations and Inequalities. The student applies mathematical processes to formulate systems of equations and inequalities, to use a variety of methods to solve, and to analyze reasonableness of solutions. The student is expected to:</p> <ul style="list-style-type: none"> Ⓡ ALGII.3B Solve systems of three linear equations in three variables by using Gaussian elimination, technology with matrices, and substitution.
<p>Unit 5: Systems of Equations and Inequalities In real-world situations, students solve and analyze system of linear equations with two, three, or more variables using graphs, tables, matrices, and algebraic methods.</p>	<p>5 class periods (90 minutes each) or 10 class periods (45 minutes each)</p>	<p>Mathematical Process Standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:</p> <ul style="list-style-type: none"> Ⓟ ALGII.1A Apply mathematics to problems arising in everyday life, society, and the workplace. Ⓟ ALGII.1B Use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution. Ⓟ ALGII.1C Select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems. <p>Systems of Equations and Inequalities. The student applies mathematical processes to formulate systems of equations and inequalities, to use a variety of methods to solve, and to analyze reasonableness of solutions. The student is expected to:</p> <ul style="list-style-type: none"> Ⓡ ALGII.3A Formulate systems of equations, including systems consisting of three linear equations in three variables and systems consisting of two equations, the first linear and the second quadratic. Ⓡ ALGII.3B Solve systems of three linear equations in three variables by using Gaussian elimination, technology with matrices, and substitution (including inverse matrices). Ⓢ ALGII.3E Formulate systems of at least two linear inequalities in two variables. Ⓢ ALGII.3F Solve systems of two or more linear inequalities in two variables. Ⓢ ALGII.3G Determine possible solutions in the solution set of systems of two or more linear inequalities in two variables.

2 nd Cycle	24 Days Oct. 3 – Nov. 4, 2016	<i>The recommended number of class periods is less than the number of days in the grading cycle to accommodate differentiated instruction, extended learning time, and assessment days. Complete instructional planning information and support are in the HISD Curriculum documents.</i>
Unit	# Class Periods	Texas Essential Knowledge and Skills/Student Expectations (TEKS/SEs)
<p>Unit 6: Transformations and Attributes of Quadratic Functions Students analyze the transformation of a quadratic function in $f(x) = ax^2 + bx + c$ and $f(x) = a(x - h)^2 + k$ forms through multiple representations.</p>	<p>3 class periods (90 minutes each) or 6 class periods (45 minutes each)</p>	<p>The student will:</p> <p>Mathematical Process Standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:</p> <ul style="list-style-type: none"> Ⓟ ALGII.1A Apply mathematics to problems arising in everyday life, society, and the workplace. Ⓟ ALGII.1D Communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate. Ⓟ ALGII.1G Display, explain, or justify mathematical ideas and arguments using precise mathematical language in written or oral communication. <p>Attributes of Functions and Their Inverses. The student applies mathematical processes to understand that functions have distinct key attributes and to understand the relationship between a function and its inverse. The student is expected to:</p> <ul style="list-style-type: none"> Ⓡ ALGII.2A Graph the functions, $f(x) = \sqrt{x}$, $f(x) = \frac{1}{x}$, $f(x) = x^3$, $f(x) = \sqrt[3]{x}$, $f(x) = b^x$, $f(x) = x$, and $f(x) = \log_b x$ where b is 2, 10, and e and when applicable analyze the key attributes such as domain, range, intercepts, symmetries, asymptotic behavior, and maximum and minimum. <p>Quadratic and Square Root Functions, Equations, and Inequalities. The student applies mathematical processes to understand that quadratic and square root functions, equations, and quadratic inequalities can be used to model situations, solve problems, and make predictions. The student is expected to:</p> <ul style="list-style-type: none"> Ⓢ ALGII.4D Transform a quadratic function $f(x) = ax^2 + bx + c$ to the form $f(x) = a(x - h)^2 + k$ to identify the different attributes of $f(x)$. <p>Number and Algebraic Methods. The student applies mathematical processes to simplify and perform operations on expressions and to solve equations. The student is expected to:</p> <ul style="list-style-type: none"> Ⓢ ALGII.7I Write the domain and range of a function in interval notation, inequalities and set notation.

3 rd Cycle	27 Days	The recommended number of class periods is less than the number of days in the grading cycle to accommodate differentiated instruction, extended learning time, and assessment days. Complete instructional planning information and support are in the HISD Curriculum documents.
	Nov. 7 – Dec. 16, 2016	
Unit	# Class Periods	Texas Essential Knowledge and Skills/Student Expectations (TEKS/SEs) The student will:
Unit 7: Quadratic Equations and Inequalities Students analyze quadratic equations and inequalities for solutions using multiple representations and real-world situations.	5 class periods (90 minutes each) or 10 class periods (45 minutes each)	<p>Mathematical Process Standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:</p> <ul style="list-style-type: none"> Ⓟ ALGII.1B Use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution. Ⓟ ALGII.1D Communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate. Ⓟ ALGII.1G Display, explain, or justify mathematical ideas and arguments using precise mathematical language in written or oral communication. <p>Quadratic and Square Root Functions, Equations, and Inequalities. The student applies mathematical processes to understand that quadratic and square root functions, equations, and quadratic inequalities can be used to model situations, solve problems, and make predictions. The student is expected to:</p> <ul style="list-style-type: none"> Ⓢ ALGII.4A Write the quadratic function given three specified points in the plane. Ⓢ ALGII.4E Formulate quadratic and square root equations using technology given a table of data. Ⓡ ALGII.4F Solve quadratic and square root equations. Ⓢ ALGII.4H Solve quadratic inequalities. <p>Number and Algebraic Methods. The student applies mathematical processes to simplify and perform operations on expressions and to solve equations. The student is expected to:</p> <ul style="list-style-type: none"> Ⓢ ALGII.7A Add, subtract, and multiply complex numbers.

3 rd Cycle	27 Days	The recommended number of class periods is less than the number of days in the grading cycle to accommodate differentiated instruction, extended learning time, and assessment days. Complete instructional planning information and support are in the HISD Curriculum documents.
	Nov. 7 – Dec. 16, 2016	
Unit	# Class Periods	Texas Essential Knowledge and Skills/Student Expectations (TEKS/SEs) The student will:
Unit 8: Quadratic Functions Students analyze quadratic functions in real-world situations.	3 class periods (90-minutes each) or 6 class periods (45 minutes each)	<p>Mathematical Process Standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:</p> <ul style="list-style-type: none"> Ⓟ ALGII.1A Apply mathematics to problems arising in everyday life, society, and the workplace. Ⓟ ALGII.1B Use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution. Ⓟ ALGII.1G Display, explain, or justify mathematical ideas and arguments using precise mathematical language in written or oral communication. <p>Quadratic and Square Root Functions, Equations, and Inequalities. The student applies mathematical processes to understand that quadratic and square root functions, equations, and quadratic inequalities can be used to model situations, solve problems, and make predictions. The student is expected to:</p> <ul style="list-style-type: none"> Ⓢ ALGII.4A Write the quadratic function given three specified points in the plane. Ⓡ ALGII.4B Write the equation of a parabola using given attributes, including vertex, focus, directrix, axis of symmetry, and direction of opening. Ⓢ ALGII.4E Formulate quadratic and square root equations using technology given a table of data. <p>Number and Algebraic Methods. The student applies mathematical processes to simplify and perform operations on expressions and to solve equations. The student is expected to:</p> <ul style="list-style-type: none"> Ⓢ ALGII.7A Add, subtract, and multiply complex numbers. Ⓢ ALGII.7I Write the domain and range of a function in interval notation, inequalities and set notation. <p>Data. The student applies mathematical processes to analyze data, select appropriate models, write corresponding functions, and make predictions. The student is expected to:</p> <ul style="list-style-type: none"> Ⓢ ALGII.8A Analyze data to select the appropriate model from among linear, quadratic, and exponential models. Ⓢ ALGII.8B Use regression methods available through technology to write a linear function, a quadratic function, and an exponential function from a given set of data. Ⓡ ALGII.8C Predict and make decisions and critical judgments from a given set of data using linear, quadratic, and exponential models.

4 th Cycle	27 Days	The recommended number of class periods is less than the number of days in the grading cycle to accommodate differentiated instruction, extended learning time, and assessment days. Complete instructional planning information and support are in the HISD Curriculum documents.
	Jan. 4 – Feb. 10, 2017	
Unit	# Class Periods	Texas Essential Knowledge and Skills/Student Expectations (TEKS/SEs) The bold face words in the TEKS SEs indicate concepts addressed specifically in that unit; the unbolded concepts are addressed in other units of this course.
Unit 9: Systems of Linear and Quadratic Equations Students analyze a system of equation in two variables consisting of a linear equation and a quadratic equation.	3 class periods (90 minutes each) or 6 class periods (45 minutes each)	<p>Mathematical Process Standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:</p> <ul style="list-style-type: none"> Ⓟ ALGII.1A Apply mathematics to problems arising in everyday life, society, and the workplace. Ⓟ ALGII.1C Select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems. Ⓟ ALGII.1F Analyze mathematical relationships to connect and communicate mathematical ideas. <p>Systems of Equations and Inequalities. The student applies mathematical processes to formulate systems of equations and inequalities, to use a variety of methods to solve, and to analyze reasonableness of solutions. The student is expected to:</p> <ul style="list-style-type: none"> Ⓢ ALGII.3A Formulate systems of equations, including systems consisting of three linear equations in three variables and systems consisting of two equations, the first linear and the second quadratic. Ⓢ ALGII.3C Solve, algebraically, systems of two equations in two variables consisting of a linear equation and a quadratic equation. Ⓢ ALGII.3D Determine the reasonableness of solutions to systems of a linear equation and a quadratic equation in two variables.
Unit 10: Radicals and Rational Exponents Students simplify and explore radical expressions and rational exponents' relationship to law of exponents.	4 class periods (90 minutes each) or 8 class periods (45 minutes each)	<p>Mathematical Process Standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:</p> <ul style="list-style-type: none"> Ⓟ ALGII.1C Select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems. Ⓟ ALGII.1F Analyze mathematical relationships to connect and communicate mathematical ideas. <p>Number and Algebraic Methods. The student applies mathematical processes to simplify and perform operations on expressions and to solve equations. The student is expected to:</p> <ul style="list-style-type: none"> Ⓢ ALGII.7G Rewrite radical expressions that contain variables to equivalent forms. Ⓡ ALGII.7H Solve equations involving rational exponents.
Unit 11: Root Functions Students explore square root and cube root equations, and square root functions,	4 class periods (90 minutes each) or 8 class periods (45 minutes each)	<p>Mathematical Process Standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:</p> <ul style="list-style-type: none"> Ⓟ ALGII.1B Use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution.

4 th Cycle	27 Days Jan. 4 – Feb. 10, 2017	The recommended number of class periods is less than the number of days in the grading cycle to accommodate differentiated instruction, extended learning time, and assessment days. Complete instructional planning information and support are in the HISD Curriculum documents.
Unit	# Class Periods	Texas Essential Knowledge and Skills/Student Expectations (TEKS/SEs) The bold face words in the TEKS SEs indicate concepts addressed specifically in that unit; the unbolded concepts are addressed in other units of this course.
connecting the function's attributes to graphs and tables.		<p>Ⓟ ALGII.1C Select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems.</p> <p>Ⓟ ALGII.1D Communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate.</p> <p>Attributes of Functions and Their Inverses. The student applies mathematical processes to understand that functions have distinct key attributes and to understand the relationship between a function and its inverse. The student will be expected to:</p> <p>Ⓟ ALGII.2A Graph the functions, $f(x) = \sqrt{x}$, $f(x) = \frac{1}{x}$, $f(x) = x^3$, $f(x) = \sqrt[3]{x}$, $f(x) = b^x$, $f(x) = x$, and $f(x) = \log_b x$ where b is 2, 10, and e and when applicable analyze the key attributes such as domain, range, intercepts, symmetries, asymptotic behavior, and maximum and minimum.</p> <p>Ⓟ ALGII.2B Graph and write the inverse of a function using notation such as $f^{-1}(x)$.</p> <p>Ⓟ ALGII.2C Describe and analyze the relationship between a function and its inverse (quadratic and square root, logarithmic and exponential), including the restriction(s) on domain and which will restrict its range.</p> <p>Ⓟ ALGII.2D Use the composition of two functions, including the necessary restrictions on the domain, to determine if the functions are inverses of each other.</p> <p>Quadratic and Square Root Functions, Equations, and Inequalities. The student applies mathematical processes to understand that quadratic and square root functions, equations, and quadratic inequalities can be used to model situations, solve problems, and make predictions. The student is expected to:</p> <p>Ⓟ ALGII.4C Determine the effect on the graph of $f(x) = \sqrt{x}$ when $f(x)$ is replaced by $a f(x)$, $f(x) + d$, $f(bx)$, and $f(x - c)$ for specific positive and negative values of a, b, c, and d.</p> <p>Ⓟ ALGII.4E Formulate quadratic and square root equations using technology given a table of data.</p> <p>Ⓟ ALGII.4F Solve quadratic and square root equations.</p> <p>Ⓟ ALGII.4G Identify extraneous solutions of square root equations.</p> <p>Cubic, Cube Root, Absolute Value and Rational Functions, Equations, and Inequalities. The student applies mathematical processes to understand that cubic, cube root, rational, and absolute value functions and inequalities can be used to model situations, solve problems, and make predictions.</p> <p>Ⓟ ALGII.6B Solve cube root equations that have real roots.</p>

5 th Cycle	30 Days	The recommended number of class periods is less than the number of days in the grading cycle to accommodate differentiated instruction, extended learning time, and assessment days. Complete instructional planning information and support are in the HISD Curriculum documents.
	Feb. 13 – Mar. 31, 2017	
Unit	# Class Periods	Texas Essential Knowledge and Skills/Student Expectations (TEKS/SEs)
Unit 12: Transformations of Polynomial Functions Students analyze the graphs and tables of polynomial functions of third degree and greater within the context of real-world situations.	2 class periods (90 minutes each) or 4 class periods (45 minutes each)	<p>The student will:</p> <p>Mathematical Process Standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:</p> <ul style="list-style-type: none"> Ⓟ ALGII.1D Communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate. Ⓟ ALGII.1E Create and use representations to organize, record, and communicate mathematical ideas. Ⓟ ALGII.1G Display, explain, or justify mathematical ideas and arguments using precise mathematical language in written or oral communication. <p>Attributes of Functions and Their Inverses. The student applies mathematical processes to understand that functions have distinct key attributes and to understand the relationship between a function and its inverse. The student is expected to:</p> <p>Ⓟ ALGII.2A Graph the functions, $f(x) = \sqrt{x}$, $f(x) = \frac{1}{x}$, $f(x) = x^3$, $f(x) = \sqrt[3]{x}$, $f(x) = b^x$, $f(x) = x$, and $f(x) = \log_b x$ where b is 2, 10, and e and when applicable analyze the key attributes such as domain, range, intercepts, symmetries, asymptotic behavior, and maximum and minimum.</p> <p>Cubic, Cube Root, Absolute Value and Rational Functions, Equations, and Inequalities. The student applies mathematical processes to understand that cubic, cube root, rational, and absolute value functions and inequalities can be used to model situations, solve problems, and make predictions. The student will be expected to:</p> <p>Ⓟ ALGII.6A Analyze the effect on the graphs of $f(x) = x^3$ and $f(x) = \sqrt[3]{x}$ when $f(x)$ is replaced by $a \cdot f(x)$, $f(bx)$, $f(x - c)$, and $f(x) + d$ for specific positive and negative real values of a, b, c, and d.</p> <p>Number and Algebraic Methods. The student applies mathematical processes to simplify and perform operations on expressions and to solve equations. The student is expected to:</p> <p>Ⓟ ALGII.7I Write the domain and range of a function in interval notation, inequalities and set notation.</p>

5 th Cycle	30 Days Feb. 13 – Mar. 31, 2017	<i>The recommended number of class periods is less than the number of days in the grading cycle to accommodate differentiated instruction, extended learning time, and assessment days. Complete instructional planning information and support are in the HISD Curriculum documents.</i>
Unit	# Class Periods	Texas Essential Knowledge and Skills/Student Expectations (TEKS/SEs) The student will:
<p>Unit 13: Analysis of Polynomial Functions Students analyze the graphs and tables of polynomial functions of third degree and greater within the context of real-world situations.</p>	<p>6 class periods (90 minutes each) or 12 class periods (45 minutes each)</p>	<p>Mathematical Process Standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:</p> <ul style="list-style-type: none"> Ⓟ ALGII.1A Apply mathematics to problems arising in everyday life, society, and the workplace. Ⓟ ALGII.1C Select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems. Ⓟ ALGII.1G Display, explain, or justify mathematical ideas and arguments using precise mathematical language in written or oral communication. <p>Number and Algebraic Methods. The student applies mathematical processes to simplify and perform operations on expressions and to solve equations. The student is expected to:</p> <ul style="list-style-type: none"> Ⓢ ALGII.7B Add, subtract, and multiply polynomials. Ⓢ ALGII.7C Determine the quotient of a polynomial of degree three and of degree four when divided by a polynomial of degree one and of degree two. Ⓢ ALGII.7D Determine the linear factors of a polynomial function of degree three and of degree four using algebraic methods. Ⓡ ALGII.7E Determine linear and quadratic factors of a polynomial expression of degree three and of degree four, including factoring the sum and difference of two cubes and factoring by grouping. Ⓢ ALGII.7I Write the domain and range of a function in interval notation, inequalities and set notation.

5 th Cycle	30 Days Feb. 13 – Mar. 31, 2017	<i>The recommended number of class periods is less than the number of days in the grading cycle to accommodate differentiated instruction, extended learning time, and assessment days. Complete instructional planning information and support are in the HISD Curriculum documents.</i>
Unit	# Class Periods	Texas Essential Knowledge and Skills/Student Expectations (TEKS/SEs) The student will:
<p>Unit 14: Inverse Variation and Transformations of Rational Functions Students analyze inverse variation and rational functions' transformations through graphs, tables, and algebraic methods.</p>	<p>3 class periods (90 minutes each) or 6 class periods (45 minutes each)</p>	<p>Mathematical Process Standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:</p> <ul style="list-style-type: none"> Ⓟ ALGII.1B Use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution. Ⓟ ALGII.1C Select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems. Ⓟ ALGII.1D Communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate. Ⓟ ALGII.1G Display, explain, or justify mathematical ideas and arguments using precise mathematical language in written or oral communication. <p>Attributes of Functions and Their Inverses. The student applies mathematical processes to understand that functions have distinct key attributes and to understand the relationship between a function and its inverse. The student is expected to:</p> <ul style="list-style-type: none"> Ⓡ ALGII.2A Graph the functions, $f(x) = \sqrt{x}$, $f(x) = \frac{1}{x}$, $f(x) = x^3$, $f(x) = \sqrt[3]{x}$, $f(x) = b^x$, $f(x) = x$, and $f(x) = \log_b x$ where b is 2, 10, and e and when applicable analyze the key attributes such as domain, range, intercepts, symmetries, asymptotic behavior, and maximum and minimum. <p>Cubic, Cube Root, Absolute Value and Rational Functions, Equations, and Inequalities. The student applies mathematical processes to understand that cubic, cube root, rational, and absolute value functions and inequalities can be used to model situations, solve problems, and make predictions. The student is expected to:</p> <ul style="list-style-type: none"> Ⓢ ALGII.6G Analyze the effect on the graphs of $f(x) = 1/x$, when $f(x)$ is replaced by $a \cdot f(x)$, $f(bx)$, $f(x - c)$, and $f(x) + d$ for specific positive and negative real values of a, b, c, and d. Ⓢ ALGII.6K Determine the asymptotic restrictions on the domain of a rational function and represent domain and range using interval notation, inequalities, and set notation. Ⓡ ALGII.6L Formulate and solve equations involving inverse variation. <p>Number and Algebraic Methods. The student applies mathematical processes to simplify and perform operations on expressions and to solve equations. The student is expected to:</p> <ul style="list-style-type: none"> Ⓢ ALGII.7I Write the domain and range of a function in interval notation, inequalities and set notation.

6 th Cycle	38 Days Apr. 3 – May 25, 2017	The recommended number of class periods is less than the number of days in the grading cycle to accommodate differentiated instruction, extended learning time, and assessment days. Complete instructional planning information and support are in the HISD Curriculum documents.
Unit	# Class Periods	Texas Essential Knowledge and Skills/Student Expectations (TEKS/SEs) The student will:
<p>Unit 15: Rational Equations & Functions Students analyze rational equations and functions through graphs, tables, and algebraic methods.</p>	<p>5 class periods (90 minutes each) or 10 class periods (45 minutes each)</p>	<p>Mathematical Process Standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:</p> <ul style="list-style-type: none"> Ⓟ ALGII.1A Apply mathematics to problems arising in everyday life, society, and the workplace. Ⓟ ALGII.1B Use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution. Ⓟ ALGII.1C Select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems. Ⓟ ALGII.1D Communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate. Ⓟ ALGII.1G Display, explain, or justify mathematical ideas and arguments using precise mathematical language in written or oral communication. <p>Cubic, Cube Root, Absolute Value and Rational Functions, Equations, and Inequalities. The student applies mathematical processes to understand that cubic, cube root, rational, and absolute value functions and inequalities can be used to model situations, solve problems, and make predictions. The student is expected to:</p> <ul style="list-style-type: none"> Ⓢ ALGII.6H Formulate rational equations that model real-world situations. Ⓡ ALGII.6I Solve rational equations that have real solutions. Ⓢ ALGII.6J Determine the reasonableness of a solution to a rational equation. <p>Number and Algebraic Methods. The student applies mathematical processes to simplify and perform operations on expressions and to solve equations.</p> <ul style="list-style-type: none"> Ⓢ ALGII.7C Determine the quotient of a polynomial of degree three and of degree four when divided by a polynomial of degree one and of degree two. Ⓡ ALGII.7F determine the sum, difference, product, and quotient of rational expressions with integral exponents of degree one and degree two. Ⓢ ALGII.7I Write the domain and range of a function in interval notation, inequalities and set notation. <p>Attributes of Functions and Their Inverses. The student applies mathematical processes to understand that functions have distinct key attributes and to understand the relationship between a function and its inverse. The student is expected to:</p> <ul style="list-style-type: none"> Ⓡ ALGII.2A Graph the functions, $f(x) = \sqrt{x}$, $f(x) = \frac{1}{x}$, $f(x)=x^3$, $f(x) = \sqrt[3]{x}$, $f(x)=b^x$, $f(x) = x$, and $f(x) = \log_b x$ where b is 2, 10, and e and when applicable analyze the key attributes such as domain, range, intercepts, symmetries, asymptotic behavior, and maximum and minimum.

6 th Cycle	38 Days Apr. 3 – May 25, 2017	The recommended number of class periods is less than the number of days in the grading cycle to accommodate differentiated instruction, extended learning time, and assessment days. Complete instructional planning information and support are in the HISD Curriculum documents.
Unit	# Class Periods	Texas Essential Knowledge and Skills/Student Expectations (TEKS/SEs)
		<p>The student will:</p> <p>Cubic, Cube Root, Absolute Value and Rational Functions, Equations, and Inequalities. The student applies mathematical processes to understand that cubic, cube root, rational, and absolute value functions and inequalities can be used to model situations, solve problems, and make predictions. The student is expected to:</p> <p>Ⓢ ALGII.6K Determine the asymptotic restrictions on the domain of a rational function and represent domain and range using interval notation, inequalities, and set notation.</p>
<p>Unit 16: Graphs of Exponential and Logarithmic Functions Student analyze the transformation and the inverse of the exponential function.</p>	<p>3 class periods (90 minutes each) or 6 class periods (45 minutes each)</p>	<p>Mathematical Process Standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:</p> <p>Ⓢ ALGII.1A Apply mathematics to problems arising in everyday life, society, and the workplace.</p> <p>Ⓢ ALGII.1D Communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate.</p> <p>Ⓢ ALGII.1E Create and use representations to organize, record, and communicate mathematical ideas.</p> <p>Exponential and Logarithmic Functions and Equations. The student applies mathematical processes to understand that exponential and logarithmic functions can be used to model situations and solve problems. The student is expected to:</p> <p>Ⓢ ALGII.5A Determine the effects on the key attributes on the graphs of $f(x) = b^x$ and $f(x) = \log_b(x)$, where b is 2, 10 and e when $f(x)$ is replaced by $a f(x)$, $f(x) + d$, and $f(x - c)$ for specific positive and negative real values of a, c, and d.</p> <p>Attributes of Functions and Their Inverses. The student applies mathematical processes to understand that functions have distinct key attributes and to understand the relationship between a function and its inverse. The student is expected to:</p> <p>Ⓢ ALGII.2A Graph the functions, $f(x) = \sqrt{x}$, $f(x) = \frac{1}{x}$, $f(x) = x^3$, $f(x) = \sqrt[3]{x}$, $f(x) = b^x$, $f(x) = x$, and $f(x) = \log_b x$ where b is 2, 10, and e and when applicable analyze the key attributes such as domain, range, intercepts, symmetries, asymptotic behavior, and maximum and minimum.</p> <p>Ⓢ ALGII.2C Describe and analyze the relationship between a function and its inverse (quadratic and square root, logarithmic and exponential), including the restriction(s) on domain and which will restrict its range.</p> <p>Number and Algebraic Methods. The student applies mathematical processes to simplify and perform operations on expressions and to solve equations. The student is expected to:</p> <p>Ⓢ ALGII.7I Write the domain and range of a function in interval notation, inequalities and set notation.</p>

6 th Cycle	38 Days	The recommended number of class periods is less than the number of days in the grading cycle to accommodate differentiated instruction, extended learning time, and assessment days. Complete instructional planning information and support are in the HISD Curriculum documents.
	Apr. 3 – May 25, 2017	
Unit	# Class Periods	Texas Essential Knowledge and Skills/Student Expectations (TEKS/SEs)
Unit 17: Exponential and Logarithmic Equations & Functions Students study exponential and logarithmic equations and functions, applying laws of exponents and logarithms to real-world applications.	6 class periods (90 minutes each) or 12 class periods (45 minutes each)	<p>The student will:</p> <p>Mathematical Process Standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:</p> <ul style="list-style-type: none"> PS ALGII.1A Apply mathematics to problems arising in everyday life, society, and the workplace. PS ALGII.1B Use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution. PS ALGII.1C Select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems. PS ALGII.1D Communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate. PS ALGII.1E Create and use representations to organize, record, and communicate mathematical ideas. PS ALGII.1F Analyze mathematical relationships to connect and communicate mathematical ideas. PS ALGII.1G Display, explain, or justify mathematical ideas and arguments using precise mathematical language in written or oral communication. <p>Attributes of Functions and Their Inverses. The student applies mathematical processes to understand that functions have distinct key attributes and to understand the relationship between a function and its inverse. The student is expected to:</p> <ul style="list-style-type: none"> R ALGII.2C Describe and analyze the relationship between a function and its inverse (quadratic and square root, logarithmic and exponential), including the restriction(s) on domain and which will restrict its range. <p>Exponential and Logarithmic Functions and Equations. The student applies mathematical processes to understand that exponential and logarithmic functions can be used to model situations and solve problems. The student is expected to:</p> <ul style="list-style-type: none"> S ALGII.5B Formulate exponential and logarithmic equations that model real-world situations including exponential relationships written in recursive notation. S ALGII.5C Rewrite exponential equations as their corresponding logarithmic equations and logarithmic equations as their corresponding exponential equations. R ALGII.5D Solve exponential equations of the form $y = a \cdot b^x$ where a is a nonzero real number and b is greater than zero and not equal to one and single logarithmic equations having real solutions. S ALGII.5E Determine the reasonableness of a solution to a logarithmic equation. <p>Number and Algebraic Methods. The student applies mathematical processes to simplify and perform operations on expressions and to solve equations. The student is expected to:</p>

6 th Cycle	38 Days Apr. 3 – May 25, 2017	<i>The recommended number of class periods is less than the number of days in the grading cycle to accommodate differentiated instruction, extended learning time, and assessment days. Complete instructional planning information and support are in the HISD Curriculum documents.</i>
Unit	# Class Periods	Texas Essential Knowledge and Skills/Student Expectations (TEKS/SEs)
		<p>The student will:</p> <p>Ⓒ ALGII.7I Write the domain and range of a function in interval notation, inequalities and set notation.</p> <p>Data. The student applies mathematical processes to analyze data, select appropriate models, write corresponding functions, and make predictions. The student is expected to:</p> <p>Ⓒ ALGII.8A Analyze data to select the appropriate model from among linear, quadratic, and exponential models.</p> <p>Ⓒ ALGII.8B Use regression methods available through technology to write a linear function, a quadratic function, and an exponential function from a given set of data.</p> <p>Ⓔ ALGII.8C Predict and make decisions and critical judgments from a given set of data using linear, quadratic, and exponential models.</p>