Algebra 2/11th Grade
Scope & Sequence

Spring ISD
CURRICULUM AND INSTRUCTION

1st Six Weeks (25 Days) 8/14/19 to 9/19/19	2nd Six Weeks (27 Days) 9/24/19 to 11/1/19

❖ **Unit 0: The First Five Days (5 Days: Aug 14 - Aug 20)**
  ➢ Big Ideas: "How can I feel safe, engaged and be comfortable while participating in meaningful learning?" "What are the SpringWay systems and routines?" "Who am I in this learning?"
  ➢ Important Concepts:
    · Create Social Contracts, Discuss Shared Voice,
    · Classroom Routines,
    · Calculator Management
    · Stations: procedures, roles and expectations.
  ➢ Process Standards: 2A.1(E), 2A.1(F), 2A.1(G)

❖ **Unit 1: Attributes of Functions and their Inverses (10 Days: Aug 21- Sep 5)**
  ➢ Big Ideas: "How do the attributes of inverse functions correlate?" "How can I use composite functions to determine if functions are inverses of each other?"
  ➢ Important Concepts:
    · Write the domain and range in interval notation, inequalities, and set notation.
    · Graphs and Analyze key features of parent functions to describe the relationship between a function and its inverse.
    · Graph and write the inverse of a function using inverse notation
    · Use the composition of two functions to determine if the functions are inverses of each other
    · Write and solve equations with inverse variation
  ➢ Readiness TEKS: 2A, 2C, 4C, 5A,
  ➢ Supporting TEKS: 2B, 2D, 6A, 6G, 7I

❖ **Unit 2: Absolute Value (10 Days: Sep 6 - Sep 19)**
  ➢ Big Ideas: "What are the key attributes of absolute value functions and how are they affected?" "How do you solve absolute value equations?"
  ➢ Important Concepts:

❖ **Unit 3: Systems of Linear Equations and Inequalities (15 Days: Sep 24 - Oct 16)**
  ➢ Big Ideas: "How do I recognize linear data and use that data and solutions to respond to real world situations?" "How do I write and solve linear systems and linear inequalities?" Important Concepts:
    · Write the domain and range of a function in interval notation, inequalities, and set notation
    · Use regression methods to write a linear function from a given set of data.
    · Predict and make decisions and critical judgments from a given set of data using linear models
    · Use substitution, elimination and matrices to write and solve linear systems in three variables.
    · Write and solve linear inequalities in two variables.
  ➢ Readiness TEKS: 2A, 3A, 3B, 8C
  ➢ Supporting TEKS: 3E, 3F, 3G, 7I, 8A, 8B,

❖ **Unit 4: Attributes and Transformations of Quadratics (12 Days: Oct 17 - Nov 1)**
  ➢ Big Ideas: "How do I transform quadratic functions, recognize quadratic data and use that data and solutions to respond to real world situations?" "How do I change from standard to vertex form?"
  ➢ Important Concepts:
    · Write the domain and range of a function in interval notation, inequality notation, and set notation
    · Use regression methods to write a quadratic function from a given set of data.
    · Predict and make decisions and critical judgments from a given set of data using quadratic models.
    · Manipulate the vertex form to and from standard and factored form, and analyzing the fit of data.
  ➢ Readiness TEKS: 2A, 4B

· Analyze the key attributes of absolute value functions · Analyze the effect on the graphs absolute value functions · Formulate absolute value equations · Solve absolute value linear equations and linear inequalities ➢ Readiness TEKS: 2A,2C, 6E, ➢ Supporting TEKS: 2B, 6C, 6D, 6F, 7I **Processing Standards: Taught Throughout**	➢ Supporting TEKS: 4D, 7I, 8A, 8B, 8C, **Processing Standards: Taught Throughout**

3ʳᵈ Six Weeks (26 Days) 11/6/19 to 12/19/19	**4ᵗʰ Six Weeks (31 Days) 1/7/19 to 2/21/19**
❖ **Unit 5: Quadratic Equations and Inequalities (15 Days: Nov 6 - Dec 4)** ➢ Big Ideas: "How do I solve quadratic equations and inequalities?" ➢ Important Concepts: · Analyze the attributes of quadratic equations and inequalities · Solve quadratic equations and inequalities using square roots. · Solve quadratic-linear systems graphically by solving for y. · Solve quadratic equations algebraically using substitution, quadratic formula and factoring. ➢ Readiness TEKS: 4B, 4F ➢ Supporting TEKS: 4H ❖ **Unit 6: Linear and Quadratic Systems (11 Days: Dec 5 - Dec 19)** ➢ Big Ideas: "How do I form systems of two equations where the first is linear and the second is quadratic?" ➢ Important Concepts: · Solve systems of two equations with linear equation and a quadratic equation. · Write systems of equations with three linear equations in three variables where the first is linear and the second is quadratic. · Justify solutions to systems. ➢ Readiness TEKS: 3A ➢ Supporting TEKS: 3C, 3D	❖ **Unit 0: The First Five Days (5 Days: Jan 7 - Jan 13)** ➢ Big Ideas: "How can I feel safe, engaged and be comfortable while participating in meaningful learning?" "What are the SpringWay systems and routines?" "Who am I in this learning?" ➢ Important Concepts: · Create Social Contracts, Discuss Shared Voice, · Classroom Routines, · Calculator Management · Stations: procedures, roles and expectations. ➢ Process Standards: 2A.1(A), 2A.1(B), 2A.1(C), 2A.1(D), 2A.1(E), 2A.1(F), 2A.1(G) ❖ **Unit 7: Root Functions (12 Days: Jan 14 - Jan 30)** ➢ Big Ideas: "How does replacing the values in a root equation translate the parent graph?". ➢ Important Concepts: · Graph the functions root functions · Analyze the key attributes of root functions · Analyze Cubic Functions · Determine the effect on the graph of a parent function ➢ Readiness TEKS: 2A, 2C, 4F ➢ Supporting TEKS: 2B, 2D, 4C, 4E, 4G, 6B

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Processing Standards: Taught Throughout	❖ **Unit 8: Higher Order Polynomials (14 Days: Jan 31 - Feb 21)**
	➢ Big Ideas: "How do I perform operations on higher order polynomials?"
	➢ Important Concepts:
	  · Add, subtract, and multiply polynomials
	  · Determine the quotient of a polynomial of degree three and of degree four
	  · Determine the linear factors of a polynomial function of degree three and of degree four
	  · Determine linear and quadratic factors of a polynomial expression of degree three and of degree four
	➢ Readiness TEKS: 7E
	➢ Supporting TEKS: 7B, 7C, 7D
	
	Processing Standards: Taught Throughout

5th Six Weeks (33 Days) 2/24/19 to 4/17/19	**6th Six Weeks (31 Days) 4/20/19 to 6/2/19**

❖ **Unit 9: Rational & Radical: Functions, Expressions and Equations (33 Days: Feb 24 - Apr 17)**
➢ Big Ideas: "How do I simplify radical expressions with rational exponents, to prove equivalence?" "How do I write a rational equation for a real-world situation?" "How do I solve rational equations?"
➢ Important Concepts:
  · Rewrite radical expressions that contain variables to equivalent forms
  · Simplify radical expressions
  · Solve equations involving rational exponents
  · Write rational equations that model real-world situations
  · Determine the reasonableness of a solution
  · Solve rational equations
➢ Readiness TEKS: 6I, 7F, 7H
➢ Supporting TEKS: 6H, 6J, 6K, 7G
 	
Processing Standards: 1(A thru G) Taught Throughout
	❖ **Unit 10: Exponential & Logarithmic Functions (15 Days: Apr 20 - May 8)**
	➢ Big Ideas: "How do I use data to write exponential and logarithmic functions?" "How do I find and justify solutions of exponential and logarithmic equations?"
	➢ Important Concepts:
	  · Graph Exponential and Logarithmic Functions
	  · Solve Exponential and Logarithmic Equations
	  · Model Exponential and Logarithmic Functions
	  · Convert between exponential equations and logarithmic equations
	  · Determine the reasonableness of a solution
	  · Use regression methods to write exponential and logarithmic functions from a given set of data.
	  · Write an exponential function from a given set of data
	  · Predict and make decisions and critical judgments from a given set of data using exponential models
	➢ Readiness TEKS: 5D, 8C
	➢ Supporting TEKS: 5B, 5C, 5E, 7I, 8A, 8B,

❖ **Unit 11: Extensions of Algebra 2/Gearing up for PreCal (16 Days: May 11 - Jun 1)**
➢ Big Ideas:"How can I extend my Algebra 2 skills to gear up for PreCalculus?"
➢ Important Concepts:
・ Write and solve equations involving inverse variation
・ Factoring and complex numbers
・ Graphs and Analyze key features of parent functions to describe the relationship between a function and its inverse.
・ Use the composition of two functions to determine if the functions are inverses of each other
・ Add, subtract, and multiply polynomials
➢ Readiness TEKS: 6I
➢ Supporting TEKS: 5B, 7I
Processing Standards: 1(A thru G) Taught Throughout