Algebra 2
Overview
2022-2023

This document is designed provide parents/guardians/community an overview of the curriculum taught in the FBISD classroom. This document supports families in understanding the learning goals for the course, and how students will demonstrate what they know and are able to do. The overview offers suggestions or possibilities to reinforce learning at home.

Included at the end of this document, you will find:

- A glossary of curriculum components
- The content area instructional model
- Parent resources for this content area

To advance to a particular grading period, click on a link below.

- Grading Period 1
- Grading Period 2
- Grading Period 3
- Grading Period 4

At Home Connections

The following are suggestions for reinforcing number sense and mathematical reasoning at home. These ideas can be used throughout the school year. You will find additional ideas to reinforce learning at home within each unit below.

- Ask questions that require students to describe and elaborate on their thinking and reasoning. Topics can be about everyday things as well as mathematics.
- Engage students in situations that challenge them to inquire and persevere through questioning.
- Play card games with students
- Play games with students such as Mancala, Yahtzee, Blokus, Rack-O, Mastemind, etc.
- Work number puzzles such as Sudoku, KenKen, Kakuro, or Numbrix.

Process Standards

The process standards describe ways in which students are expected to engage in the content. The process standards weave the other knowledge and skills together so that students may be successful problem solvers and use knowledge learned efficiently and effectively in daily life.

2A.1A Apply mathematics to problems arising in everyday life, society, and the workplace
2A.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
2A.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
2A.1D Communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate
2A.1E Create and use representations to organize, record, and communicate mathematical ideas
2A.1F Analyze mathematical relationships to connect and communicate mathematical ideas
2A.1G Display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication

Grading Period 1

Unit 1: Absolute Value Functions

Estimated Date Range: 8/10 – 9/8
Estimated Time Frame: 21 days

Unit Overview: In this unit, students will solve, graph, and write absolute value equations from multiple representations for both mathematical and real-world situations. Students will also solve absolute value inequalities and graph their solution sets on a number line. Students will graph absolute value functions and analyze their key features. Students will use absolute value equations, functions and inequalities to model situations including production ranges, margin of error, and motion and use key features to draw conclusions. The concept of absolute value as "distance" should be extended from prior instruction in middle grades. Students should also make connections from the attributes of absolute value functions to the attributes of linear and quadratic functions they studied in Algebra 1.

At home connections:

- Discuss and research real-world applications of absolute value functions.

Concepts within Unit #1 **Link to TEKS**	**Success Criteria for this concept**
Establishing a Positive Mathematics Community TEKS: 2A.1A, 2A.1B, 2A.1C, 2A.1D, 2A.1E, 2A.1F, 2A.1G	• Demonstrate active listening skills while sharing in the community circle. • Make positive and supportive connections with my peers. • Engage in circle dialogues using the circle guidelines. • Share my math ideas and strategies when given a problem during the number sense routine. • Explain what a Respect Agreement is and why it is created. • Work in a group to solve a mathematical problem. • Describe strategies that I can use to solve math problems. • Provide feedback to by peers using guidelines and a protocol. •
Concept #1: Formulating and Solving Absolute Value Equations TEKS: 2A.6E, 2A.6D, 2A.6F, 2A.7I	• Model a mathematical and real-world situation using an absolute value linear equation. • Find the solution to an absolute value linear equation in multiple ways. • Interpret the solution to an absolute value equation in the context of a mathematical and real-world situation. • Determine which strategy to use to solve an absolute value linear equation, check the solution(s) and evaluate the reasonableness of the solution(s). • Write a compound inequality from a number line or absolute value inequality. • Solve the compound inequality that represents an absolute value inequality. • Graph the solution of an absolute value inequality on a number line. • Analyze problem situations to determine reasonable domain and range.

Concept #2: Graphing, Writing and Analyzing Absolute Value Functions
TEKS: 2A.2A, 2A.6E, 2A.6C, 2A.6D, 2A.7I
	• Graph the absolute value parent function.
	• Identify the transformations of an absolute value function from the function equation and the graph.
	• Interpret transformations by analyzing and comparing key features.
	• Use technology to solve absolute value linear equations graphically and with a table.
	• Identify the following key features:
	  ○ Domain
	  ○ Range
	  ○ x-intercept(s)

	○ y-intercept ○ Symmetry ○ Max or min on a given interval ○ Vertex ○ Zeros ○ Axis of symmetry • Identify key features of absolute value functions from ○ a graph ○ a table ○ a function equation ○ a verbal description • Analyze key features of absolute value functions across multiple representations. • Analyze key features of absolute value functions in context of real-world applications and describe the meaning of each key attribute in context of the situation. • Make connections between multiple representations of the absolute value function. • Make connections between different representations of absolute value graphs to analyze key features.

Unit 2: Systems of Equations and Inequalities

Estimated Date Range: 9/9 – 10/7
Estimated Time Frame: 20 days

Unit Overview: In this unit, students will write, graph, solve, and verify possible solutions for systems of at least two linear inequalities in two variables. Students will build on their prior knowledge from Algebra 1 of graphing linear inequalities and extend what they know to write and solve systems. Students will apply systems to determine solutions for mathematical and real world situations including maximizing problems and geometric applications. Students will also write and solve systems of three linear equations with three variables. Students will analyze systems to select effective tools and techniques to determine solutions both mathematically and in real world context. Students should build on their knowledge of the methods used to solve systems of equations in two variables in Algebra 1. Students will solve these systems both algebraically and with technology. The concepts in this unit are Write and Solve Systems of Inequalities and Write and Solve Systems of Equations in Three Variables.

At home connections:

- Discuss situations that you could use a system of equations to solve. Ex: Which gym membership is the best cost based on a certain attributes, such as initial fee, monthly fee, etc.
- Explain their reasoning and method to solve a non-mathematical problem.

Concepts within Unit # 2 Link to TEKS	**Success Criteria for this concept**
Concept #1: Write and Solve Systems of Inequalities TEKS: 2A.3E, 2A.3F, 2A.3G	• Write a system of linear inequalities from a table, graph or verbal description • Solve a system of linear inequalities using graphs, tables, and algebraic processes. • Identify solutions to linear inequalities from a table or a graph • Justify the reasonableness of a solution to a linear inequality
Concept #2: Write and Solve Systems of Equations in Three Variables TEKS: 2A.3B, 2A.3A	• Write systems of equations in three variables from multiple representations in mathematical and real-world contexts • Solve systems of three equations in three variables using: ○ Substitution ○ Gaussian Elimination ○ Matrices with Technology

	• Determine the best method for solving a system of three equations • Determine if solutions are reasonable in context of the situation • Analyze the reasonableness of solutions to systems of equation in three variables in mathematical and real world contexts

Grading Period 2

Unit 3: Quadratic Relations and Functions

Estimated Date Range: 10/11 – 11/8
Estimated Time Frame: 20 days

Unit Overview: In this unit, students will explore quadratic relations, functions, and inequalities expanding on their prior knowledge of quadratics from Algebra 1. Students will begin by writing equations of parabolas using given attributes, transformations, and given points. The attributes will include those from conic sections. Students will be introduced to complex numbers so that they will be able to solve quadratic equations with non-real solutions. Students will then solve quadratic equations and inequalities. Emphasis should be placed on selecting efficient methods for solving and making connections between the various forms of quadratic functions and the attributes of their graphs. Applications in this section should be used to introduce concepts, interpret the attributes of graphs, and relate algebraic solutions to models of real world situations. The unit concludes with solving systems of two equations in which one is quadratic and the other is linear.

At home connections:

- Research applications of quadratic functions.
- Use quadratic equations to solve a problem that they design, such as what could be the dimensions of a garden in the backyard.
- Use quadratics to solve problems such the maximum height of a ball thrown from one person to another.

Concepts within Unit # 3 **Link to TEKS**	**Success Criteria for this concept**
Concept #1: Complex Numbers TEKS: 2A.4F, 2A.7A	• Define the imaginary number, i as the square root of negative one • Simplify the square roots of negative numbers. • Analyze the effects of the powers of i • Write complex numbers in the form a + bi • Solve quadratics having imaginary square roots using the square root method. • Add and subtract complex numbers. • Multiply complex numbers. • Write the answer to a problem involving complex operations into the form a + bi
Concept #2: Writing Quadratic Equations TEKS: 2A.4A, 2A.4B, 2A.4D, 2A.4E, 2A.7I	• Define the parabola as a conic section using the focus/directrix definition. • Given a graph of a vertical and/or horizontal parabola, identify the key attributes and use the key attributes to write the corresponding quadratic equations. • Given three points, write a corresponding equation. • Given a graph of a parabola, use three points to write the quadratic equation. • Given a table, use three points to write a quadratic equation. • Use completing the square to rewrite a quadratic equation from standard form to vertex form in order to identify the key attributes. • Use technology and the regression feature to write a quadratic equation from a table of values or verbal description.

Concept #3: Solve Quadratic Equations and Inequalities
TEKS: 2A.4F, 2A.4A, 2A.4D, 2A.4E, 2A.4H
	• Solve quadratic equations in mathematical and real-world contexts with real and complex solutions by choosing the best method. Methods include:
	  ○ Factoring
	  ○ From a graph, with and without technology
	  ○ Taking square roots
	  ○ Completing the square
	  ○ Quadratic formula
	• Analyze types of solutions based on the discriminant and relate it to the graph of the quadratic.

	• Analyze the reasonableness of a solution to a quadratic situation in real world context. • Solve a quadratic inequality graphically. • Solve a quadratic inequality algebraically using zeros on a number line.

Concept #4: Solving Linear-Quadratic Systems
TEKS: 2A.3C, 2A.3A, 2A.3D, 2A.4B
	• Write a system of one quadratic and one linear equation from a combination of:
	  ○ Tables
	  ○ Graphs
	  ○ Verbal descriptions
	• Solve a system of one linear and one quadratic algebraically using substitution or elimination.
	• Analyze the reasonableness of solutions to linear-quadratic systems in mathematical and real-world contexts.

Unit 4: Quadratic and Square Root Functions

Estimated Date Range: 11/9 – 11/18 and 11/28 – 12/16
Estimated Time Frame: 23 days
Note: includes 7 days for review and exams

Unit Overview: In this unit, students will develop an understanding of inverse functions by focusing on quadratic and square root functions. They should make connections to vertical and horizontal parabolas from the previous unit. Students will graph square root functions using transformations, analyze key features, and solve square root equations. This unit provides opportunities to explore restricted domain and will connect to complex and real numbers discussed in the previous unit. This unit also provides students the opportunity to dig deeper into transformations as students explore the equations of inverse functions.

At home connections:

- Make connections between vertical and horizontal parabolas and between quadratic and square root functions.
- Discuss what the word inverse means (not just mathematically) and how to verify that quadratic functions and square root functions are inverses.

Concepts within Unit # 4 **Link to TEKS**	**Success Criteria for this concept**
Concept #1: Inverses of Quadratic and Square Root Functions TEKS: 2A.2C, 2A.2B, 2A.2D, 2A.7I	• When given a function graphically, graph the inverse of the function. • When given an equation of a function, determine and write the inverse of the function. • Write an inverse using the correct notation, such as $f^{-1}(x)$. • Determine if functions are inverses of each other graphically by verifying they are reflections of each across the line y = x. • Determine if functions are inverses of each other using composition. • Determine that quadratic functions and square root functions are inverses. • Explain that the restriction of the domain on a square root or quadratic function will restrict the range of the inverse of the function.
Concept #2: Solving Square Root Equations TEKS: 2A.4F, 2A.4G, 2A.7H	• Solve a square root equation with variables on both sides of the equation. • Solve a square root equation with variables on one side of the equation and only under the square root. • Solve a square root equation with variables on one side of the equation where there is a variable under the square root and outside the square root. • Determine and explain if and why solutions to square root equations are extraneous. • Solve square root equations by graphing with technology. • Solve equations with rational exponents where the rational exponent is a one-half. •

Concept #3: Writing and Graphing Square Root Functions
TEKS: 2A.2A, 2A.4F, 2A.4C, 2A.4E, 2A.7I
	• Graph square root parent function.
	• Graph square root functions using transformations from the parent function.
	• Graph square root functions using transformations from a general square root function.
	• Identify the key features of the square root function.
	• Analyze key features of square root functions including:
	  ○ Domain
	  ○ Range
	  ○ Intercepts
	  ○ Max or min on an interval
	• Describe changes in key features from the original function and the transformed function
	• Make connections between different representations of square root functions in relationship to the key features of the function.
	• Find the square root equation from a table using power regression.
	• Find the square root equation from a table by entering the inverse table into the calculator and then finding its inverse function using quadratic regression.

Grading Period 3

Unit 5: Cubic/Cube Root Functions

Estimated Date Range: 1/5 – 2/1
Estimated Time Frame: 19 days

Unit Overview: In this unit, students will begin with simplifying radical expressions. Students will write roots and powers as rational exponents and solve equations with rational exponents. Students will continue their study of inverse functions with cubic and cube root functions. Prior knowledge of linear and quadratic functions as well as knowledge from the previous unit of inverse functions should be applied in this unit to identify key attributes, including domain and range, and to perform transformations. Students will solve cubic and cube root equations and relate those solutions graphs and models of mathematical and real world situations.

At home connections:

- Discuss and research real-world applications of cubic and cube root functions.
- Discuss what the word inverse means (not just mathematically) and how to verify that cubic functions and cube root functions are inverses.

Concepts within Unit # 5 **Link to TEKS**	**Success Criteria for this concept**
Concept #1: Radical Expressions and Equations with Rational Exponents TEKS: 2A.7G, 2A.7H	• Change expressions written in exponential form to radical form. • Change expression written in radical form to exponential form • Simplify radical expressions with both variables and numbers • Solve equations with rational exponents algebraically using inverse operations • Solve equations with rational exponents with variables on both sides graphically using technology.
Concept #2: Solving Cubic and Cube Root Equations TEKS: 2A.6B, 2A.7H	• Solve cubic equations using inverse operations • Solve equations with rational exponents where the rational exponent is a one-third. • Solve cube root equations algebraically using inverse operations • Solve graphically equations with a cube root on one side and a variable on the other side

Concept #3: Graphing Cubic Functions
TEKS: 2A.2A, 2A.2C, 2A.6A, 2A.2B, 2A.2D, 2A.6B, 2A.7I
	• Graph cubic parent graph.
	• Identify the key features of the cubic parent function.
	• Graph cubic functions using transformations from a general cubic function and/or the parent function.
	• Analyze key features of cubic and cube root functions including:
	  ○ Domain
	  ○ Range
	  ○ Intercepts
	  ○ Symmetry
	  ○ Max or min on an interval
	• Describe changes in key features from the original function and the transformed function
	• Make connections between different representations of cubic functions in relationship to the key features of the function.
	• Determine that cubic functions and cube root functions are inverses.
	• Explain if there is a restriction of the domain on a cubic or cube root function, and if it will restrict the range of the inverse of the function.
	• Graph cube root parent graph.
	• Identify the key features of the cube root parent function.

	• Graph cube root functions using transformations from a general cube root function and/or the parent function. • Describe changes in key features from the original function and the transformed function • Make connections between different representations of cube root functions in relationship to the key features of the function.

Unit 6: Operations of Polynomial and Rational Functions

Estimated Date Range: 2/2 – 3/3
Estimated Time Frame: 20 days

Unit Overview: In this unit, students will extend their knowledge of polynomials and rational numbers to operations of polynomials and rational expressions. Students will add, subtract, multiply, divide, and factor polynomials with a focus on polynomials of degree three and four. While the focus is on third and fourth degree polynomials, students should have opportunities to practice quadratic factoring within the higher degree polynomials. Students should be allowed to explore factoring and encouraged to apply the types of factoring they previously learned to make meaning of factoring and division. Avoid presenting solutions procedurally without allowing students to explore and develop their own processes. While graphing and attributes of graphs of polynomials is not included in Algebra 2, students can use what they have learned from quadratic and cubic functions and their roots to help them see solutions graphically. Students will add, subtract, multiply and divide rational expressions. Be aware that the TEK specifically limits quotients of rational expressions to degree one and two.

At home connections:

- Discuss and research real-world applications of polynomial and rational functions.
- Discuss similarities and differences between polynomial and rational functions.

Concepts within Unit # 6 Link to TEKS	Success Criteria for this concept
Concept #1: Add, Subtract and Multiply Polynomials TEKS: 2A.7B	• Add and subtract polynomials of any degree • Multiply polynomials of any degree • Apply operations of polynomials to perimeter and area problems.
Concept #2: Divide and Factor Polynomials TEKS: 2A.7C, 2A.7D, 2A.7E	• Use long division to divide polynomials of degree three or four by polynomials of degree one or two • Use synthetic division to divide polynomials of degree three or four by polynomials of degree one • Factor polynomials of degree three or four using algebraic methods such as factor by grouping. • Explain how the graph of a polynomial can assist in finding zeros in order to factor the polynomial. • Factor the sum and difference of cubes.
Concept #3: Multiply and Divide Rational Expressions TEKS: 2A.7F, 2A.7I	• Describe the restriction(s) on the domain of rational expressions. • Multiply rational expressions in which the numerator and denominator is in factored form. • Divide rational expressions in which the numerator and denominator is in factored form or standard form. • Multiply rational expressions in which the numerator and denominator is in standard form.
Concept #4: Add and Subtract Rational Expressions TEKS: 2A.7F, 2A.7I	• Describe the restriction(s) on the domain of rational expressions. • Add rational expressions with like and/or unlinke denominators. • Subtract rational expressions with like and/or unlike denominators. • Simplify expressions that include a combination of all four operations.

Unit 7: Rational Functions

Estimated Date Range: 3/6 – 3/10 and 3/20 – 4/4
Estimated Time Frame: 17 days continues into Grading Period 4

Note: This unit is continued in Grading Period 4. Please refer to Grading Period 4 for the Unit Overview, At home connections, concepts, TEKS and Success Criteria for this unit.

Grading Period 4

Unit 7: Rational Functions (continued)

Estimated Date Range: 3/6 – 3/10 and 3/20 – 4/4
Estimated Time Frame: 17 days

Unit Overview: In this unit, students will extend their knowledge of functions and key attributes of functions to rational functions. Students will begin the unit by solving rational equations. In the previous unit, students performed operations of rational expressions; they will use this knowledge to solve rational equations. Students will also apply knowledge from 8th grade of solving linear equations with variable on both sides with rational coefficients. Students will then graph the rational parent function and use transformations to graph other rational functions. Students will analyze key features of the both the rational parent and the transformed graph. Special attention should be placed on the impact of asymptotes on domain and range and how domain and range can be represented in different ways. Students will finish the unit by solving rational applications including problems that involve inverse variation. Students should be able to contrast the inverse variations with direct variation problems from Algebra 1. Students will continue their study of rational functions, including graphing general rational functions in Pre-Calculus.

At home connections:

- Discuss and research real-world applications of rational functions.

Concepts within Unit # 7 Link to TEKS	Success Criteria for this concept
Concept #1: Solve Rational Equations TEKS: 2A.6I, 2A.6J, 2A.6K	• Determine the domain restrictions prior to solving a rational equation. • Solve rational equations with and without variables on both sides algebraically and graphically using technology. • Determine the reasonableness of the solution to a rational equations. • Verify the solution to a rational equation satisfies the domain restriction.

Concept #2: Graph and Transform Rational Functions
TEKS: 2A.2A, 2A.6G, 2A.6K
	• Graph rational parent graph.
	• Identify the key features of the rational parent function.
	• Graph rational functions using transformations from the parent function.
	• Analyze key features of rational functions including:
	  ○ Domain
	  ○ Range
	  ○ Intercepts
	  ○ Asymptotic behavior
	  ○ Symmetry
	  ○ Max or min on an interval
	• Describe changes in key features from the original function and the transformed function
	• Make connections between different representations of rational functions in relationship to the key features of the function.

Concept #3: Writing and Solving Rational Equations TEKS: 2A.6I, 2A.6H, 2A.6J, 2A.6K, 2A.6L	• Write rational equations from verbal descriptions, graphs and tables (all which have real world context) • Explain what it means to "vary inversely" • Compare inverse and direct variation. • Write and solve inverse variation problems. • Solve rational application problems, including problems involving work, rate and current problems.

	• Explain the meaning of the asymptotes in the context of the problem. • Justify the reasonableness of the solution to a rational application problems.

Unit 8: Exponential and Logarithmic Functions

Estimated Date Range: 4/5 – 5/1
Estimated Time Frame: 17 days

Unit Overview: In this unit, students will extend their knowledge of functions and key attributes of functions to exponential and logarithmic functions. Students will extend their study of exponential functions from Algebra 1 where the focus was on growth and decay functions, graphing from a table and using technology. In Algebra 2, students will graph from base 2, 10, and e and will apply transformations from these bases while analyzing the effect on key attributes. Students will be introduced to the graphs of logarithmic functions of the same bases as they continue their study of inverse functions. Students will write and solve exponential (in the form $y = ab^x$) and single logarithmic equations including both mathematical and real world situations. Applications from science, finance, and from our own number system should be used frequently during the unit to give students a context for what they are learning. Students will continue their study of logarithmic and exponential functions in Pre-Calculus, including properties of logarithms, which is not included in Algebra 2.

At home connections:

- Discuss and research real-world applications of exponential and logarithmic functions.
- Discuss similarities and differences between exponential and logarithmic functions.
- Discuss what the word inverse means (not just mathematically) and how to verify that exponential functions and logarithmic functions are inverses.

Concepts within Unit # 8 Link to TEKS	Success Criteria for this concept

Concept #1: Graph Exponential Functions
TEKS: 2A.2A, 2A.5A, 2A.7I
	• Graph the exponential parent graph.
	• Graph exponential functions using transformations from a general exponential function and the parent function.
	• Identify the key features of the exponential parent function.
	• Analyze key features of exponential functions including:
	  ○ Domain
	  ○ Range
	  ○ Intercepts
	  ○ Asymptotic behavior
	  ○ Symmetry
	  ○ Max or min on an interval
	• Describe changes in key features from the original function and the transformed function
	• Make connections between different representations of exponential functions in relationship to the key features of the function.

Concept #2: Exponential and Logarithmic Functions as Inverses TEKS: 2A.2C, 2A.2B, 2A.2D, 2A.5C, 2A.7I	• Determine the inverse of an exponential function graphically. • Define a logarithmic function as the inverse of an exponential function. • Simplify logarithms by rewriting in exponential form. • Simplify exponentials by rewriting in logarithmic form. • Define the natural logarithm. • Define the common logarithm. • Find the inverse of exponential and logarithmic functions algebraically.
Concept #3: Graph Logarithmic Functions TEKS: 2A.2A, 2A.5A, 2A.7I	• Graph the logarithmic parent graph. • Graph logarithmic functions using transformations from a general logarithmic function and the parent function. • Identify the key features of the logarithmic parent function. • Analyze key features of logarithmic functions including: ○ Domain

	○ Range ○ Intercepts ○ Asymptotic behavior ○ Symmetry ○ Max or min on an interval • Describe changes in key features from the original function and the transformed function • Make connections between different representations of logarithmic functions in relationship to the key features of the function.
Concept #4: Write and Solve Exponential and Logarithmic Equations TEKS: 2A.5D, 2A.5B, 2A.5C, 2A.5E	• Write an exponential equation from multiple representations. • Write an exponential equation using recursive processes from multiple representations. • Solve an exponential equation algebraically by rewriting the equation as its corresponding logarithmic equation and then solving. • Solve an exponential equation (with base 2, 10 or e) by graphing. • Solve any exponential equation by graphing using technology. • Determine the reasonableness of the solution to an exponential equation in context of the situation. • Write a logarithmic equation from multiple representations. • Determine the domain restrictions for a logarithmic equation. • Solve a logarithmic equation algebraically by rewriting the equation as its corresponding exponential equation and then solving. • Solve a logarithmic equation (with base 2, 10 or e) by graphing. • Solve any logarithmic equation by graphing using technology. • Verify that the solution to a logarithmic equation satisfies the domain restrictions of the equation. • Determine the reasonableness of the solution to a logarithmic equation in context of the situation.

Unit 9: Data Analysis

Estimated Date Range: 5/2– 5/25
Estimated Time Frame: 18 days
Note: Includes 7 days for review and exam

Unit Overview: In this unit, students will extend their knowledge of regression models. In Algebra 1, students determined regression models for linear, quadratic, and exponential data and used the regression model to make predictions in context of the situation. Students will also extend their knowledge of arithmetic and geometric sequences from Algebra 1 to help determine appropriate models. In Algebra 2, given a set of data, students will determine which model best represents the data, determine the regression model, and then use the model to make predictions. All data should represent real world situations for which models and predictions would be useful. Students will continue to use regression and the study of data in future math courses

At home connections:

- Collect data, graph the data, create a regression model and use the model to make predictions.

Concepts within Unit # 9 **Link to TEKS**	**Success Criteria for this concept**
Concept #1: Analyze Data TEKS: 2A.8A	• Create a scatterplot of the data • Examine the shape of a scatterplot to determine if a linear, quadratic or exponential model would be a best fit. • Examine the data for patterns including first and second differences and common ratios, to determine if a linear, quadratic or exponential model would be a best fit.

Concept #2: Regression Models TEKS: 2A.8C, 2A.8A, 2A.8B	• Use technology to determine the regression model for a given set of data. • Use the regression model I determined to make predictions about the data. • Determine the reasonableness of the predictions I made in the context of the data

Glossary of Curriculum Components

Overview– The content in this document provides an overview of the pacing and concepts covered in a subject for the year.
TEKS – Texas Essential Knowledge and Skills (TEKS) are the state standards for what students should know and be able to do.
Unit Overview – The unit overview provides a brief description of the concepts covered in each unit.
Concept – A subtopic of the main topic of the unit.
Success Criteria—a description of what it looks like to be successful in this concept.

Parent Resources

The following resources provide parents with ideas to support students' understanding. For sites that are password protected, your child will receive log-in information through their campus.

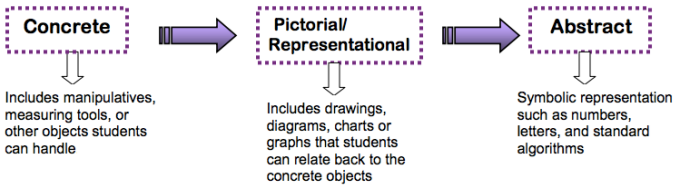
Resource	How it supports parent and students
Pearson-Texas Algebra 2	This is the state adopted textbook for Algebra 2. Click on the link for directions on accessing the textbook.
Didax Virtual Manipulatives Math Learning Center Math Apps Polypad: Mathigon – Virtual Manipulatives	These online resources provide access to virtual manipulatives.
Parent Resources from youcubed.org	This resource from youcubed.org includes articles for parents on ways to support their students in learning and understanding mathematics.
Student Resources from youcubed.org	This resource from youcubed.org includes videos concerning growth mindset in mathematics.
Math: Why Doesn't Yours Look Like Mine?	This resource provides an explanation of why math looks different now as opposed to how parents learned mathematics and how to support students in learning mathematics.

Supplemental Resource and Tool Designation:

- The TI Nspire CX calculator is a standardized technology integration tool used for Mathematics and Science in FBISD.

Instructional Model

The structures, guidelines or model in which students engage in a particular content that ensures understanding of that content.



The instructional model for mathematics is the Concrete-Representational-Abstract Model (CRA).

The CRA model allows students to access mathematics content first through a concrete approach ("doing" stage) then representational ("seeing" stage) and then finally abstract ("symbolic" stage). The CRA model allows students to conceptually develop concepts so they have a deeper understanding of the mathematics and are able to apply and transfer their understanding across concepts and contents. The CRA model is implemented in grades K-12 in FBISD.