Corsica Stickney Curriculum Map

Subject: Algebra 1 Grade:9th Unit Module 21 Lesson 21.1,21.2,21.3 Module22Lesson22.1,22.2,22.3,22.4,22.5 Module 23 Lesson 23.1,23.2	Teacher: Mr. Jason Broughton Duration: April

Summary of unit:
  students will complete a Math in Careers task by modeling the heights of two divers with equations for projectile motion. Critical skills include modeling real-world situations and interpreting the graphs of quadratic functions

Stage 1 – Desired Results

Standards:	Essential Questions:
A-SSE.B.3a Factor a quadratic expression to reveal the zeros of the function it defines.	How can you use factoring to solve quadratic equations in standard form for which a = 1?
A-REI.B.4b Solve quadratic equations by ... factoring, as appropriate to the initial form of the equation	: How can you use factoring to solve quadratic equations in standard form for which a ≠ 1? How can you use special products to aid in solving quadratic equations by factoring?
A-SSE.B.3b Complete the square ... to reveal the maximum or minimum value of the function	How can you solve quadratic equations using square roots?
A-REI.B.4a Use ... completing the square to ... Derive the quadratic formula	How can you use completing the square to solve a quadratic equation?
A-REI.C.7 Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically	What is the quadratic formula, and how can you use it to solve quadratic equations? How can you choose a method for solving a given quadratic equation?
A-CED.A.2 Create equations in two... variables to represent relationships between quantities	How can you solve a system of equations when one equation is linear and the other is quadratic?
F-LE.A.1b Recognize ... changes at a constant rate per unit interval relative to another.	How can you use tables to recognize quadratic functions and use technology to create them? How can you determine whether a given data set is best modeled by a linear, quadratic, or exponential function?

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Language objective	Mathematical practices	Integrate mathematical practice
Explain to a partner how to solve x2 - 6x - 16 = 0 Explain to a partner how to factor a trinomial in the form a x 2 + bx + c. Explain to a partner what a perfect-square trinomial is and how you can recognize one. Explain to a partner how to solve a x 2 = c by taking square roots, and how to tell if there are one, two, or no real solutions Explain to a partner how to complete the square of a quadratic equation in the form ax2 + bx + c = 0 Explain to a partner how to solve an equation in the form a x2 + bx + c = 0 using the quadratic formula. Explain to a partner how you decide whether to use square roots, completing the square, or the quadratic formula to solve a quadratic equation Explain to a partner how to solve a system consisting of a quadratic equation and a linear equation by graphing.	MP.1 Problem Solving MP.3 Logic MP.8 Patterns MP.5 Using Tools	MP.1 with students how they can use the signs of b and c in x 2 + bx + c to determine whether to use positive or negative factors of c to factor the trinomial. MP.3 Ask students to describe the general form of solutions to a factored quadratic equation of the form (ax + b)(cx + d) = 0. Students should find that the solutions are x = - __b a and x = - __d c . Therefore, when the coefficients of x in the factored form are not 1, the solutions are likely to be proper or improper fractions. MP.8 When students factor a perfect-square trinomial, they should first look at the sign of the x-term, as this will tell them which pattern to use. If it is +, they should use (a + b) 2 ; if it is -, they should use (a - b) 2 MP.1, which calls for students to "make sense of problems and persevere in solving them." Students consider the meaning of a problem while planning how to find a solution. Students use graphs to determine the number of solutions for a system of equations. They solve systems by graphing manually or with a calculator, and they also solve systems algebraically. Finally, students interpret the solutions in the context of real-world situations. MP.5, which calls for students to "use tools." Students use paper and pencil to find the first differences and second differences in order to determine whether a quadratic function can fit given data. Students also use graphing

Explain to a partner how to create a quadratic function to fit data. Explain to a partner how to determine whether a data set is best modeled by a linear, quadratic, or exponential function.		calculators to find a quadratic function that fits a data set, and use that function to solve real-world problems.

Stage 2 – Assessment Evidence

Performance Tasks: Homework quizzes, worksheet, Tests.	Unit Pre-Assessment: Assign ready-made or customized practice tests to prepare students for high-stakes tests

Stage 3 – Learning Plan

Learning Activities: procedures/topics
Reading and discussing lesson with class.
Giving students examples to be completed in class.
Students taking notes and using notes to complete homework assignments.

Lesson Description
MODULE 21 Using Factors to Solve Quadratic Equations

Lesson 21.1 Solving Equations by Factoring $x^2 + bx + c$
Lesson 21.2 Solving Equations by Factoring $ax^2 + bx + c$
Lesson 21.3 Using Special Factors to Solve Equations

MODULE 22 Using Square Roots to Solve Quadratic Equations

Lesson 22.1 Solving Equations by Taking Square Roots
Lesson 22.2 Solving Equations by Completing the Square
Lesson 22.3 Using the Quadratic Formula to Solve Equations
Lesson 22.4 Choosing a Method for Solving Quadratic Equation
Lesson 22.5 Solving Nonlinear Systems

MODULE 23 Linear, Exponential, and Quadratic Models

Lesson 23.1 Modeling with Quadratic Functions
Lesson 23.2 Comparing Linear, Exponential, and Quadratic Models .

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