

**FOLSOM CORDOVA UNIFIED SCHOOL DISTRICT**

**Course Outline  
2-Year Algebra, Year 2**

**Date: January 2002**

**Proposed Grade Level(s): 9-12**

**Grading: A-F**

**Prerequisites: 'C' or better in Year 1, or 70% or better on district Year 1 final**

**Subject Area: Mathematics**

**Course Length: 1 Year**

**Number of Credits: 5/semester**

**BRIEF COURSE DESCRIPTION:**

This is the second of a two-year sequence of coursework. Together, the two years of the course will be equivalent to traditional one-year Algebra 1 in course content. At the end of the second year of the course, students will take the district's Common Algebra 1 Final. Listed in the "Detailed Units of Instruction" are the specific state Algebra 1 standards to be covered in the second year of the two-year sequence. At the end of the two-year course sequence, students will have completed all of the Algebra 1 state standards.

**GENERAL GOALS/PURPOSES:**

This two-year sequence of courses is designed to provide students with an alternative to the traditional one-year Algebra 1 course. The pace of the course allows students to investigate topics in greater depth. Teachers will use discovery activities, technology, and extended projects to help students understand the concepts of Algebra. The 2-year Algebra course will also prepare students for the HSEE by reviewing key 6<sup>th</sup> and 7<sup>th</sup> grade topics on the exam.

**STUDENT READING COMPONENT:**

Students will receive instruction on the effective use of their textbook. Algebra 1 includes many applications where effective reading and analysis are taught as part of the course. Also, projects will emphasize reading across the curriculum.

**STUDENT WRITING/ORAL COMPONENT:**

Students will have opportunities to express their understanding of concepts in writing as well as orally presenting work to the class. All written work will follow standard rules of English. Any research projects will follow MLA format, which has been distributed at all secondary sites.

**FINAL ASSESSMENT:**

District Algebra 1 Final sent to the school sites from Granite Center in June. It is also recommended, but not required, that each school site generate a common trimester 1 & 2 or semester 1 final for that site.

## **DETAILED UNITS OF INSTRUCTION:**

*Note: 2-year Algebra is taught from a district-adopted text in middle school: McDougal Littell Algebra 1, Concepts and Skills. The high schools use a complementary version of the text for continuity.*

Topics likely to be taught in addition to the Algebra content of chapters 7 – 12 include

- Additional review of computational skills
- Review as needed topics from the first year of the course: Algebra standards: 1 – 5, 10, 11, 15 –18, 25.3
- Brief review of 6<sup>th</sup> & 7<sup>th</sup> grade standards covered on the HSEE

The following mathematics standards for Algebra 1 will be covered in this course: 6-9, 12-14, and 19 – 23

### **Chapter 7 - Systems of Linear Equations and Inequalities**

1. Graphing linear systems
2. Solving linear systems by Substitution and Linear Combinations
3. Applications of linear systems
4. Have a physical interpretation of the number and type of solutions to a system of linear equations
5. Graph solutions to systems of linear inequalities

### **Chapter 8 - Exponents and Exponential Functions**

1. Properties of Exponents
2. Zero and negative exponents
3. Graphs of exponential functions
4. Scientific notation
5. Exponential growth and decay functions

### **Chapter 9 - Quadratic Equations and Functions**

1. Definition of square root
2. Simplify radicals
3. Graph quadratic functions and be able to find solutions to the related equation
4. Solving quadratic equations using the quadratic formula
5. Understand the role of the discriminant and its connection to the graph of a quadratic function
6. Graphing quadratic inequalities

### **Chapter 10 - Polynomials and Factoring**

1. Adding, Subtracting and Multiplying polynomials
2. Special products
3. Solving quadratics in factored form
4. Develop a sequence of steps for factoring all trinomials and some polynomials, which factor by grouping. Know how to factor binomials in the form  $a^3 + b^3$  and  $a^3 - b^3$ .

### **Chapter 11 - Rational Expressions and Equations**

1. Proportions
2. Direct and inverse variation
3. Simplifying rational expressions
4. Adding, Subtracting, and Multiplying Rational Equations
5. Dividing rational expressions (include long division of the polynomials)
6. Solving rational equations, be able to find undefined values

## **Chapter 12 - Radicals and More connections to Geometry**

1. Functions involving square roots
2. Operations with radical equations
3. Solving radical equations
4. Rational exponents
5. Completing the Square, expose students to the proof of the quadratic formula
6. Pythagorean Theorem and its Converse
7. Distance and Midpoint formulas
8. Logical Reasoning: Proof

### **THIS COURSE WILL PREPARE STUDENTS FOR THE HSEE AND/OR FCUSD EXIT EXAM IN:**

Math

**LAB FEE, IF REQUIRED:** None

### **SUBJECT AREA CONTENT STANDARDS TO BE ADDRESSED:**

See “Detailed Units of Instruction”.

### **DISTRICT ESLRs TO BE ADDRESSED:**

When students exit a secondary mathematics course, they will be:

1. **Self-directed Learners** who will be able to use notes and a textbook to assist them in continuing their learning outside of the classroom setting.
2. **Efficient Communicators** who can explain mathematical concepts to others and use mathematics to organize and explain data.
3. **Quality Producers** who understand the importance of neat, organized work that demonstrates their thinking and understanding of the solution they’ve formed to solve a problem.
4. **Constructive Thinkers** who are able to attack problems with organization, logic, and mathematical skills they’ve developed in a systematic fashion.
5. **Collaborative Workers** who can work in a variety of settings in culturally diverse groups. They will be able to form and use study groups to strengthen their own understanding in addition to providing the same service for classmates.
6. **Responsible Citizens** who accept the consequences of their actions and who demonstrate their understanding of their role in the learning process.