

FOLSOM CORDOVA UNIFIED SCHOOL DISTRICT

**Course Outline
Algebra Support**

Date: October 2005

Subject Area: Mathematics

Proposed Grade Level(s): 8

Course Length: 1 Year

Grading: Pass/Fail

Number of Credits: N/A

Prerequisites: Teacher Recommendation and Standardized Test Scores

COURSE DESCRIPTION:

This course is intended to assist students who are struggling with Algebra 1 material during their previous course work. The course will offer tutorial support, basic pre-algebra skills review and development, and pre-teaching of new algebra concepts. The course is intended to increase students' understanding and comfort level with key algebraic concepts. Algebra Support will be taught in partnership with an Algebra 1 course.

GENERAL GOALS/PURPOSES:

Algebra Support will focus on three areas: 1) Re-teaching: Reviewing and enriching key concepts to improve understanding of algebraic standards. Re-teaching will also include review of 6th and 7th grade standards. 2) Tutorial support: Review of basic arithmetic skills, Algebra, Geometry, and Statistics concepts, particularly those needed in Algebra 1 or covered on the CAHSEE. Instructional materials include re-teaching of worksheets, intervention materials, math tutorial software, and other resources. 3) Pre-teaching concepts: Students will often be given a head start on the Algebra concept to be taught in the subsequent Algebra 1 lesson. A list of units covered in Algebra 1 can be found in the course outline on the FCUSD website.

STUDENT READING COMPONENT:

Students will receive instruction on the effective use of their textbook. The support class (and Algebra 1) will include applications where effective reading and analysis are taught as part of the course.

STUDENT WRITING/ORAL COMPONENT:

Students will have opportunities to express their understanding of concepts in writing as well as present work orally to the class.

Final Assessment:

Student grades in the support class will be determined by attendance and participation. The purpose of this course is to provide students with the support they need to perform to the best of their abilities in their Algebra 1 course, which includes a district Algebra 1 final.

DETAILED UNITS OF INSTRUCTION:

The three areas discussed under general goals/purposes are delineated so that students in the Algebra Support course will receive instruction in the basic Algebra 1 curriculum, as well as enrichment activities to reinforce concepts emphasized in the 6th and 7th grade standards.

1. **Re-teach/Enrichment Materials:** These materials should improve student understanding of how algebra concepts are actually used, provide motivation for the learning of algebra, and if needed, present key algebraic concepts in a different fashion than the Algebra 1 course so as to support all learners with different learning styles/needs.

Key areas to address:

- Solving linear equations and inequalities in the first degree
- Graphing and writing linear equations and inequalities
- Polynomials and factoring
- Simplifying rational expressions and solving rational equations
- Solving and graphing quadratic equations
- Systems of equations
- Simplifying radical expressions and solving radical equations

6th and 7th grade standards to review:

A. Geometry Unit

- Use formulas routinely for finding perimeter and area of basic 2-dimensional figures and surface area and volume of basic 3-dimensional figures, including rectangles, parallelograms, trapezoids, squares, triangles, circles, prisms and cylinders.
- Estimate and compute the area of more complex or irregular 2- and 3-dimensional figures by breaking down the figures into more basic figures.
- Compute the length of the perimeter, surface area of the faces, and the volume of a 3-dimensional object build from rectangular solids. Understand that when the lengths of all dimensions are multiplied by a scale factor, the surface area is multiplied by the square of the scale factor and the volume is multiplied by the cube of the scale factor.
- Relate the changes in measurement with a change of scale to the units used and to conversions between units.
- Understand and use coordinate graphs to plot simple figures, determine lengths and areas related to them and determine their image under translations and reflections
- Demonstrate an understanding of conditions that indicate two geometrical figures are congruent and what congruence means about the relationships between the sides and angles of the two figures.

B. Statistics and Probability

- Compute the range, mean, median, and mode of data sets
- Understand the meaning of, and be able to compute the minimum, the lower quartile, the median, the upper quartile, and the maximum of a data set.
- Know various ways to represent a data set including stem-and-leaf plots for two data sets.
- Identify claims based on statistical data and in simple cases, evaluate the validity of the claims.
- Represent all possible outcomes for events in an organized way and express the theoretical probability of each outcome including compound events
- Represent probabilities as ratios, proportions, decimals between 0 and 1, and percentages between 0 and 100 and verify that the probabilities computed are reasonable; know that if P is the probability of an event, $1 - P$ is the probability of that event not occurring.
- Understand the difference between independent and dependent events

2. Tutorial Support: Basic Pre-Algebra Skills Review:

- Basic arithmetic skills review (i.e. fractions, decimals, integers, percents, ratios)
- Review of algebra, geometry, and statistics concepts from the 6th and 7th grade standards, particularly those needed in Algebra 1 or covered on the CAHSEE.

3. Pre-Teach: Presenting Algebra as a Headstart:

- Basic algebraic skills preview of new content matter
- Working partnership with the Algebra 1 teacher to give students the organizational and academic skills needed to succeed in Algebra 1.

THIS COURSE WILL PREPARE STUDENTS FOR THE CAHSEE AND/OR THE FCUSD EXIT EXAMS IN:

Preparation for the District Common Algebra Final (Final taken in the Algebra 1 class that this class is designed to support) as well as the California High School Exit Exam, which satisfies district competency test requirements.

LAB FEE, IF REQUIRED:

None

SUBJECT AREA CONTENT STANDARDS TO BE ADDRESSED:

Listed in the Algebra 1 course outline and on the FCUSD website.

DISTRICT ESLRs TO BE ADDRESSED:

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

- **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
- **Efficient Communicators:** who can explain mathematical concepts to others and use mathematics to organize and explain data
- **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.
- **Constructive Thinkers:** who are able to attack problems with organization, logic, and mathematical skills they've developed in a systematic fashion.
- **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.
- **Responsible Citizens:** who accept the consequences of their actions and demonstrate understanding of their role in the learning process