

FOLSOM CORDOVA UNIFIED SCHOOL DISTRICT

**Final Course Outline
Math, Course 2**

Date: January 2002

Proposed Grade Level(s): 7

Grading: A-F

Prerequisites: Completion of 6th grade math standards or passing score on the District Challenge Test for Course 1

BRIEF COURSE DESCRIPTION:

According to the state mathematics framework, by the end of grade seven, students are adept at manipulating numbers and equations and understand the general principles at work. Students understand and use factoring of numerators and denominators and properties of exponents. They know the Pythagorean Theorem and use it to solve simple problems. Students know how to compute the surface area and volume of basic 3-D figures and understand how area and volume change with a change in scale. Students can make conversions between different units of measurement. Students are proficient at changing between fractions, decimals, and percents and know and use the different representations of numbers. They increase their facility with ratio, proportion, and percentages. They graph linear functions and understand the idea of slope and its relation to ratio.

GENERAL GOALS/PURPOSES:

The purpose of the new textbook adoptions in spring 2001 was to provide students with the opportunity to learn the concepts, skills, and reasoning strategies in the Mathematics Content Standards for grade 6 & 7, and prepare them for the variety of state assessments including the HSEE. Content strands addressed in the course include number sense, Algebra and functions, Measurement and Geometry, and Statistics, Data Analysis, and Probability.

STUDENT READING COMPONENT:

Students will receive instruction on the effective use of their textbook. Course 2 includes many 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 orally presenting work to the class. All written work will follow standard rules of English. Any research projects will follow MLA style format, which has been distributed at all secondary sites.

DISTRICT ASSESSMENT:

The district will send a trimester benchmark test to the school sites: 1st trimester Chapters 1-4; 2nd trimester Chapters 5-8; 3rd trimester Chapters 9-12.

DETAILED UNITS OF INSTRUCTION:

Note: Course 2 is taught from a district-adopted text in middle school: McDougal Littell Course 2, Concepts and Skills. The text is aligned to new state standards for grade seven.

Chapter 1 - Operations with Numbers

1. Tables and Graphs
2. Expressions and Variables
3. Powers and Exponents
4. Order of Operations
5. Using Formulas
6. Problem Solving
7. Commutative and associative properties
8. Distributive properties

Chapter 2 - Operations in Algebra

1. Translating English expressions and sentences into Algebra
2. Combining Like Terms
3. Solving one-step equations
4. Solving one-step inequalities
5. A problem solving plan

Chapter 3 - Operations with Integers

1. Integers and absolute value
2. Computations with integers
3. Solving one-step equations with integers
4. The coordinate Plane
5. Scatter Plots

Chapter 4 - Algebra and Solving Equations

1. Solving two-step and multi-step equations
2. Solving equations with negative coefficients
3. Solving equations with the distributive property
4. Solving equations with variables on both sides
5. Solving equations with decimals
6. Measures of Central Tendency

Chapter 5 - Rational Numbers and Percents

1. Factoring numbers and expressions
2. Greatest Common Factor
3. Least Common Multiple
4. Simplifying and Comparing Fractions
5. Rational numbers and decimals
6. Writing percents
7. Percents, Decimals, and Fractions
8. Stem-and-leaf plots

Chapter 6 - Operations with Rational Numbers

1. Computations with fractions
2. Multiplying with percents
3. Solving equations with rational numbers
4. Multiplying and dividing powers

5. Negative and zero exponents
6. Scientific notation

Chapter 7 - Proportional Reasoning

1. Ratios and Rates
2. Writing and solving proportions
3. Scale drawings and models
4. Probability
5. Solving percent problems
6. Markup and discount
7. Percent of Increase or decrease
8. Simple and compound interest

Chapter 8 - Geometry Concepts

1. Points, Lines, and planes
2. Naming, measuring and drawing angles
3. Parallel and perpendicular lines
4. Triangles and quadrilaterals
5. Polygons and congruence
6. Areas of polygons
7. Line reflections
8. Translations
9. Similarity

Chapter 9 - Real Numbers and Solving Inequalities

1. Square roots
2. The real number system
3. Pythagorean Theorem and its converse
4. Distance and midpoint formulas
5. Solving inequalities
6. Box and whisker plots (Might want to combine with central tendency in Ch. 4)

Chapter 10 - Geometry and Measurement

1. Circumference and area of a circle
2. 3-dimensional figures
3. Surface areas of prisms and cylinders
4. Volume of prisms, cylinders, pyramids, and cones
5. Volume of a spheres
6. Similar solids

Chapter 11 - Graphing Linear Equations and Inequalities

1. Functions
2. Linear equations and linear functions
3. Graphs of linear functions
4. Intercepts of a graphs
5. Slope of a line
6. Slope-intercept form
7. Problem solving with linear equations
8. Graphs of linear inequalities
9. Systems of equations and inequalities

Chapter 12 - Polynomials

1. Monomials and powers
2. Polynomials in one variable
3. Adding and subtracting polynomials
4. Multiplying polynomials
5. Graphing $y = ax^2$ and $y = ax^3$
6. Solving polynomial equations

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.