

FOLSOM CORDOVA UNIFIED SCHOOL DISTRICT

**Course Outline
Transition to Algebra**

Date: October 2004

Grade Level(s): 7 & 8

Grading: A - F

Prerequisites: Completion of Course 2

BRIEF COURSE DESCRIPTION:

This course prepares students for the traditional Algebra I course. Listed in the “Detailed Units of Instruction” are the specific state Algebra 1 standards to be covered in this course. In addition, a trimester pacing guide (appendix) denotes the skill sets to be learned in relation to the course and supplementary texts.

GENERAL GOALS/PURPOSES:

This course is designed to provide students with additional preparation to help them succeed in a full year Algebra I course. The pace of the course allows students to investigate topics in greater depth as well as spend significant time reviewing key 6th and 7th grade standards. Teachers will use discovery activities, technology, and extended projects to help students understand the concepts of Algebra 1.

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 presenting work orally 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 Year 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:

- The first quarter/trimester includes basic arithmetic skills review (fractions, decimals, integers, percents, ...)
- Year 1 needs to include in depth review of 6th & 7th grade standards covered on the HSEE.
- In addition to review of computational and pre-algebra skills, the following mathematics standards for Algebra 1 must be covered in this course.

Algebra 1: 1 – 5, 10, 11, 15 –18, 25.3

Please note: A chart of these standards and where they can be found in each school site's current Algebra 1 materials has been developed.

Note: Transition to 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.

Chapter 1 Connections to Algebra

1. Variables in Algebra
2. Exponents and Powers
3. Order of Operations
4. Equations and Inequalities
5. Translating Words into Mathematical Symbols/Introduction to problem solving
6. Tables and Graphs
7. Introduction to Functions

Chapter 2 Properties of Real Numbers

1. Real Number Line
2. Absolute Value
3. Computations with real numbers
4. Distributive Property
5. Combining Like Terms

Chapter 3 Solving Linear Equations

1. Solving one-step and multi-step equations
2. Solving equations with variables on both sides
3. Formulas
4. Ratios and Rates
5. Percents

Chapter 4 Graphing Linear Equations and Functions

1. The Coordinate Plane
2. Graphing horizontal and vertical lines
3. Graphing lines using intercepts
4. Slope
5. Graphing lines using slope intercept form
6. direct variation
7. Functions and Relations

Chapter 5 Writing Linear Equations

1. Slope intercept form
2. Point-slope form
3. Writing linear equations given two points
4. Standard form
5. Modeling with linear equations
6. Perpendicular lines

Chapter 6 Solving and Graphing Linear Inequalities

1. Solving one-step and multi-step linear inequalities

2. Solving compound inequalities involving “and” and “or”
3. Solving absolute value equations and inequalities
4. Graphing linear inequalities in two variables

6th and 7th grade standards review

1. 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 the figures down 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.

2. 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. Includes 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 that event not occurring.
- Understand the difference between independent and dependent events.

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

Preparation for the Math and Algebra I section of the CAHSEE. The District Transition to Algebra final is administered in June.

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:

- **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 who demonstrate their understanding of their role in the learning process.

APPENDIX A

8th grade: Transition to Algebra

This chart represents a *minimum* of content to be taught. Teachers are welcome and encouraged to add additional topics as time allows. The source materials are the McDougal Littell Algebra 1: Concepts and Skills textbook and the McDougal Littell Course 2 Resource Books.

	(McD/L) Algebra 1 text	Course 2 Resource Book (Ch, section)	Site resource
1st Trimester			
Integers: <ul style="list-style-type: none"> • computations • absolute value 	2.1 – 2.5, 2.8 2.2		
Decimals: <ul style="list-style-type: none"> • computations • review place value 	p. 759-760	5.7	
Factors and Multiples	p. 761-762		
Fractions	p. 763-766	5.7	
Percents	p. 767-769	5.6	
Decimal, Fraction, Percent Equivalents	p. 767-769		
Order of operations <ul style="list-style-type: none"> • review variables • evaluate expressions 	1.3 1.1 1.3		
Exponents: <ul style="list-style-type: none"> • positive • negative • rules of multiplying and dividing • simplifying ex. $\frac{8a^2b^3}{2ab^5}$ 	1.2 8.2 8.1, 8.4 8.5		
Scientific Notation	8.5	6.9	
Translating words into math symbols	1.5		
Problem solving strategies	p. 781-782, 1.6		
Word Problems: <ul style="list-style-type: none"> • applications of concepts from this trimester 	Supplementary activities		
Introduction of 1 and 2 step equations <ul style="list-style-type: none"> • Solve basic inequalities 	1.4 1.4, 6.1, 6.2		

APPENDIX A

	(McD/L) Algebra 1 text	Course 2 Resource Book (Ch, section)	Site resource
2nd Trimester			
Geometry Unit <ul style="list-style-type: none"> • Vocabulary: point, line, plane, ray, angle, parallel lines, perpendicular lines, skew lines, quadrilaterals, polygon, classification, prisms, cylinders, circles • Perimeter, circumference, area, volume, surface area formulas • 2 dimensional nets: recognize 3D model they represent • square roots • Pythagorean Theorem • Measurement-use of ruler (inches and centimeters) • Scale • Unit analysis 	p. 772-773, 775 9.1 supp. activity 3.8	8.1 – 8.5 10.2 7.3	
Distributive property	2.6		
Combining Like Terms	2.7		
Solve 2 and 3 step equations	3.1-2		
Solve multi-step equations <ul style="list-style-type: none"> • Multi-step inequalities 	3.3-6 6.3		
Rate, Ratio, and Proportion <ul style="list-style-type: none"> • Percent problems 	3.8, 11.1 3.9	7.6-8	
Introduce functions	1.8		
Coordinate Plane <ul style="list-style-type: none"> • Vocabulary: x and y axis, origin, quadrants, ordered pairs • Plot point • Use x/y tables to graph linear, quadratic, and cubic equations • Recognizing graphs of linear, quadratic, and cubic equations 	4.1 4.1 4.2-3	12.6	

APPENDIX A

	(McD/L) Algebra 1 text	Course 2 Resource Book (Ch, section)	Site resource
3rd Trimester			
Statistics: <ul style="list-style-type: none"> • Mean, median, mode • Data displays: bar graph, line graphs, circle graphs, histograms • Box and Whisker • Stem and Leaf plot Probability	p. 780 p. 777-779	4.8 9.9 5.8 7.4	
Slope <ul style="list-style-type: none"> • Rise/run • formula 	4.5 4.5 (p. 230)		
Slope intercept form: $y = mx + b$	4.7, 5.1		
Graphing using $y = mx + b$ <ul style="list-style-type: none"> • Write equation of a line from a graph 	4.7 5.1, 5.3		
Find x and y intercepts of an equation	4.4		
Graph using intercepts <ul style="list-style-type: none"> • Functions and relations 	4.4 4.8		
Scatter plots: Line of best fit	p. 205	3.9	