



OFFICE OF CURRICULUM, INSTRUCTION, & PROFESSIONAL DEVELOPMENT

**HIGH SCHOOL COURSE OUTLINE**

<b>Department</b>	Mathematics	<b>Course Title</b>	Intermediate Algebra 1-2 SDAIE		<b>Course Code</b>	3049	
<b>Abbreviation</b>	Int Alg SDA	<b>Grade Level</b>	9 - 12	<b>Grad Requirement</b>		No	
<b>Course Length</b>	2 semesters	<b>Credits/Semester</b>	5	<b>Required</b>	No	<b>Elective</b>	X
<b>Prerequisites</b>	C or better in Geometry 1-2						
<b>Co-requisites</b>		ELD English 3 or 4	<b>Teacher Certification</b>		CLAD, LDS, or SB1969		
<b>Articulated with LBCC</b>		No	<b>Articulated with CSULB</b>		No		
<b>Meets UC "a-g" Requirement</b>		Yes ( c )	<b>Meets NCAA Requirement</b>		Yes		

**COURSE DESCRIPTION:**

Intermediate Algebra SDAIE is designed for English Language Learners who are at the Beginning, Early Intermediate and Intermediate levels of oral, reading and writing in English. English Language Learners in this SDAIE course cover the same content and utilize the same basic textbook as their Fluent English Speaker counterparts. The course varies in the pacing, instructional methodology and supplemental materials used which are designed to provide depth vs. breadth of the content standards, more comprehensible input, primary language support, and literacy development through the content area.

The course reviews the applications and language of the first year with increased emphasis on number systems, functions, and graphs. Language and symbolism are expanded to encompass new concepts. The content includes such topics as relations and functions, quadratic equations, conic sections, matrices, logarithms, and sequences and series.

**GOALS: (Student needs the course is intended to meet)**

Students will learn all of the California State Standards for Intermediate Algebra. This discipline complements and expands the mathematical content and concepts of Algebra I and Geometry. Students who master Algebra II will gain experience with algebraic solutions of problems in various content areas, including the solution of systems of quadratic equations, logarithmic and exponential functions, the binomial theorem, and the complex number system.

Students communicate precisely about quantities, logical relationships, and unknown values through the use of signs, symbols, models, graphs, and mathematical vocabulary. Regular opportunities are provided for students to communicate through oral and written explanations of math concepts.

Students learn to apply mathematics to everyday life and develop an interest in pursuing advance studies in mathematics and in a wide array of mathematically related career choices.

**CONTENT STANDARDS****Algebra II**

- 1.0\* Students solve equations and inequalities involving absolute value. (CST)
- 2.0\* Students solve systems of linear equations and inequalities (in two or three variables) by substitution, with graphs, or with matrices. (CST) (PSAT)
- 3.0\* Students are adept at operations on polynomials, including long division. (CST)
- 4.0\* Students factor polynomials representing the difference of squares, perfect square trinomials, and the sum and difference of two cubes. (CST) (PSAT)
- 5.0\* Students demonstrate knowledge of how real and complex numbers are related both arithmetically and graphically. In particular, they can plot complex numbers as points in the plane. (CST)
- 6.0\* Students add, subtract, multiply, and divide complex numbers. (CST)
- 7.0\* Students add, subtract, multiply, divide, reduce, and evaluate rational expressions with monomial and polynomial denominators and simplify complicated rational expressions, including those with negative exponents in the denominator. (CST)
- 8.0\* Students solve and graph quadratic equations by factoring, completing the square, or using the quadratic formula. Students apply these techniques in solving word problems. They also solve quadratic equations in the complex number system. (CST)
- 9.0\* Students demonstrate and explain the effect that changing a coefficient has on the graph of quadratic functions; that is, students can determine how the graph of a parabola changes as  $a$ ,  $b$ , and  $c$  vary in the equation  $y = a(x - b)^2 + c$ . (CST)
- 10.0\* Students graph quadratic functions and determine the maxima, minima, and zeros of the function. (CST)
- 11.0\* Students prove simple laws of logarithms. (CST)
- 12.0\* Students know the laws of fractional exponents, understand exponential functions, and use these functions in problems involving exponential growth and decay. (CST)
- 13.0 Students use the definition of logarithms to translate between logarithms in any base. (CST)
- 14.0 Students understand and use the properties of logarithms to simplify logarithmic numeric expressions and to identify their approximate values. (CST)
- 15.0\* Students determine whether a specific algebraic statement involving rational expressions, radical expressions, or logarithmic or exponential functions is sometimes true, always true, or never true. (CST)
- 16.0 Students demonstrate and explain how the geometry of the graph of a conic section (e.g., asymptotes, foci, eccentricity) depends on the coefficients of the quadratic equation representing it. (CST)
- 17.0 Given a quadratic equation of the form  $ax^2 + by^2 + cx + dy + e = 0$ , students can use the method for completing the square to put the equation into standard form and can recognize whether the graph of the equation is a circle, ellipse, parabola, or hyperbola. Students can then graph the equation. (CST)
- 18.0\* Students use fundamental counting principles to compute combinations and permutations. (CST) (PSAT)
- 19.0\* Students use combinations and permutations to compute probabilities. (CST) (PSAT)
- 20.0\* Students know the binomial theorem and use it to expand binomial expressions that are raised to positive integer powers. (CST)
- 21.0 Students apply the method of mathematical induction to prove general statements about the positive integers. (CST)
- 22.0 Students find the general term and the sums of arithmetic series and of both finite and infinite geometric series. (CST) (PSAT)
- 23.0\* Students derive the summation formulas for the arithmetic series and for both finite and infinite geometric series. (NA\*\*)
- 24.0 Students solve problems involving functional concepts, such as composition, defining the inverse function and performing arithmetic operations on functions. (CST)
- 25.0 Students use properties from number systems to justify steps in combining and simplifying functions. (CST)

**Probability and Statistics**

- 1.0 Students know the definition of the notion of *independent events* and can use the rules for addition, multiplication, and complementation to solve for probabilities of particular events in finite sample spaces. (CST)
- 2.0 Students know the definition of *conditional probability* and use it to solve for probabilities in finite sample spaces. (CST)
- 7.0 Students compute the variance and the standard deviation of a distribution of data. (CST)
- \* Key standards (*Mathematics Framework for California Public Schools*) comprise a minimum of 70% of the California Standards Test
- CST Standard assessed on the California Standards Test
- NA\*\* Not assessable in a multiple-choice format
- PSAT Standard assessed on the Preliminary Scholastic Aptitude Test

**Academic Literacy in SDAIE Content-Area Classes for ELLs at Levels 3 and 4L**

The ELD Standards of reading, writing, listening and speaking describe the linguistic pathway that ELLs take to achieve academic literacy in English. SDAIE content area classes play an important role in developing and strengthening students' progress towards this goal. Students should be encouraged to expand their English skills, even though grammatical and vocabulary approximations will occur during this process.

When content-area information and materials have been made comprehensible through instruction in the SDAIE class, ELLs at each level will progress through the following phases of developing academic literacy in English. The students' degrees of literacy in their primary language will significantly affect the pace that students move through these levels.

**ELD Level 3**

Upon entering ELD Level 3, students are increasing their control of academic English proficiency about topics that have been explicitly taught to them and some topics that may be new to them. There will be wide gaps in vocabulary. ELLs progressing through this level will:

- participate in group/class projects, discussions and presentations with simple sentences and complex sentences (with increasing accuracy and fluency when given modeling and constructive feedback)
- use content area reading strategies (especially pre-reading, KWL, academic participation cards, anticipation guides, Reciprocal Teaching and Question/Answer Relationships) to analyze concepts from taught texts and other course reading materials. By the end of level 3, ELLs are able to comprehend most texts written at 4<sup>th</sup> grade level. Students continue to need extensive modeling and direct instruction, especially when encountering figurative language and sentences with numerous clauses.
- respond to Curriculum Embedded Assessment prompts (read to them and clarified for them as needed) orally and with simple and complex sentence structures
- use writing in a variety of ways such as, but not limited to, class note-taking, learning logs, interactive notebooks, response logs, and completing student handouts, homework, and class projects. Students continue to need extensive modeling and direct instruction, especially when writing at differing formality levels for a variety of audiences.
- understand the need for using test-taking strategies (using taught vocabulary) on the required district/state assessments, such as, End of Course Exams (with alternate presentation and response), STAR and Stanford-9.

**ELD Level 4L**

Upon entering ELD Level 4L, students demonstrate a significant gap between their oral English fluency (high) and their English literacy proficiency (low), even though they have had many years of instruction in English. ELLs progressing through this level will:

- participate in group/class projects, discussions and presentations with sentences that demonstrate conversational English proficiency
- need to be taught how to use content area reading strategies (especially pre-reading, KWL, academic participation cards, anticipation guides, Reciprocal Teaching and Question/Answer Relationships) to

analyze concepts from taught texts and other course reading materials. Students need extensive modeling, direct instruction, and oral discussions before, during and after reading.

- respond to Curriculum Embedded Assessment prompts (clarified orally to them as needed). Students need extensive modeling, direct instruction, and oral discussions to move them beyond writing sentences that reflect only conversational English.
- use writing in a variety of ways such as, but not limited to, class note-taking, learning logs, interactive notebooks, response logs, and completing student handouts, homework, and class projects. Students continue to need extensive modeling and direct instruction, especially when writing at differing formality levels for a variety of audiences.
- understand the need for using test-taking strategies on the required district/state assessments, such as, End of Course Exams STAR and Stanford-9.

### STATE PERFORMANCE STANDARDS

The California State Board of Education has identified the following performance levels for the California Content Standards Test in Intermediate Algebra. The objective of Long Beach Unified School District is to have all students achieve at or above the Proficient Performance Standard (Level). The table indicates the Scaled Score (SS) and estimated percent correct on the Content Standards Test.

Far Below Basic	Below Basic	Basic	Proficient	Advance Proficient
Less than 31%	31% - 44%	45% - 61%	62% - 79%	80% - 100%
SS $\leq$ 256	SS 257 – 299	SS 300 – 349	SS 350 – 415	SS $\geq$ 416

### DISTRICT PERFORMANCE STANDARDS

The Long Beach Unified School District has common assessments and assignments that are required for Intermediate Algebra. The Performance Standard Criteria is shown in the table below. The objective is to have all students achieve at or above the Proficient Level and receive a C or better in the course. Performance level is determined by the average of the Assessments or Assignments.

#### Mathematics Performance Standard Criteria

Assessment/ Assignments	Not Proficient 1	Partial Proficient 2	Proficient 3	Advanced Proficient 4
Graded Student Work	Average is a 1 or less than 60%	Average is a 2 or 60% - 69%	Average is a 3 or 70% - 84%	Average is a 4 or 85% - 100%
Standards Based Assessment	Less than 60%	60% - 69%	70% - 84%	85% - 100%
Written Response/OEM	1-2	3	4	5-6
End-of-Course Exam	Less than 45%	45% - 61%	62% - 79%	80% - 100%

#### Mathematics Standard Performance

Performance Level for each unit is determined by the average of the Graded Student Work, Standards Based Test and Open-Ended Math Score. Students record information in the Portfolio during the school year and at the end of the year complete the Overall Standards Performance Graph.

<b>Performance Level</b>	4				
	3.5				
	3				
	2.5				
	2				
	1.5				
	1				
	0.5				
	0				
		<b>Linear Equations and Inequalities, Systems, Matrices</b>	<b>Quadratics, Complex Numbers, Functions, Polynomials</b>	<b>Logarithms and Exponents, Rational Expressions and Equations</b>	<b>Conics, Sequences and Series</b>

**OUTLINE OF CONTENT AND RECOMMENDED TIME ALLOTMENT:**

Content sequencing and time allocations are only suggestions and may be adjusted to suit school site curriculum plans and student needs.

*Linear Equations and Inequalities, Systems, and Matrices*

Topics	Curriculum Objectives California Content Standards	Adopted Textbook Correlation (Prentice Hall)	Assessments <u>Intermediate Algebra Assessment Portfolio Workbook</u>	Key Vocabulary and Recommended Aids	Time
Solve linear equations and inequalities; write equations of lines using the properties of parallel and perpendicular lines; and use the distance formula.	Solve linear equations and inequalities	1-3, 1-4	Pgs. 34 - 36	<u>Key Vocabulary:</u> add/subt prop of equality add/subt prop of inequality algebraic expressions distance equations formula midpoint mult/div prop of equality mult/div prop of inequality open sentence order of operations parallel lines perpendicular lines point-slope form of a linear equation reflexive prop of equality slope slope intercept form of a linear equation solution substitution prop of equality symmetric prop of equality transitive prop of equality trichotomy prop  <u>Visuals &amp; Demos:</u> graph paper overhead projector overhead graph or board graph	3 weeks
	Slope-intercept, point-slope, and standard form of linear equations	2-2			
	Writing the equation of a line given various information	2-2			
	Parallel and perpendicular lines and their related equations	2-2			
	Literal equations and formulas	Skills Handbook p.846			
	Distance formula	Skills Handbook p.856			
Solve absolute value equations and inequalities.	Solve absolute value equations and inequalities <b>(1.0)</b>	1-5	Pgs. 37, 38	<u>Key Vocabulary:</u> absolute value compound inequality intersection union  <u>Visuals &amp; Demos:</u> number line	0.5 weeks

## Linear Equations and Inequalities, Systems and Matrices (cont.)

Solve systems of linear equations and inequalities.	Solve systems of equations and inequalities in 2 or 3 variables algebraically and graphically <b>(2.0)</b>	3-1, 3-2, 3-3, 3-6	Pgs. 39 - 41	<b>Key Vocabulary:</b> half plane horizontal line intersection linear inequality linear system solution vertex vertical line  <b>Visuals &amp; Demos:</b> graph paper overhead graph or board graph overhead graphing calculator	1.5 weeks
	Apply Cramer's Rule (optional)	4-8			
	Linear programming (optional)	3-4			
Use matrices including solving a system of equations.	Sum and product of matrices	4-2, 4-3	Pgs. 42, 43	<b>Key Vocabulary:</b> column determinants dimensions inverse matrix matrix matrix multiplication multiplicative identity row scalar square matrix system of equations  <b>Visuals &amp; Demos:</b> graph paper graphing calculator overhead graphing calculator	2 weeks
	Identification of matrices	4-1			
	Determinant and inverse of a 2 x 2 matrix	4-5			
	Solve a system of equations using matrices <b>(2.0)</b>	4-5, 4-6			

## Quadratics, Complex Numbers, Functions, and Polynomials

Topics	Curriculum Objectives California Content Standards	Adopted Textbook Correlation (Prentice Hall)	Assessments <u>Intermediate Algebra Assessment Portfolio</u> <u>Workbook</u>	Key Vocabulary and Recommend ed Aids	Time
Understand and use quadratic equations and relations.	Graph quadratic equations (including inequalities) <b>(9.0)</b>	5-2	Pgs. 49 - 52	<u>Key Vocabulary:</u> axis of symmetry completing the square completing the square constant term discriminant discriminant factoring linear term location principal parabola perfect square perfect square quadratic quadratic formula quadratic formula quadratic function quadratic term relative maximum relative minimum roots vertex zero product property zeros  <u>Visuals &amp; Demos:</u> graph paper overhead overhead graph or board graph	3 weeks
	Maxima, minima, and zeros <b>(10.0)</b>	5-2			
	Solve quadratic equations by factoring, completing the square, using the quadratic formulas, and graphing <b>(8.0)</b>	5-2, 5-4 to 5-8			
	Use of the discriminant	5-8			
Real and Complex Number Systems	Rational and irrational numbers <b>(5.0)</b>	5-6	Pgs. 48,49	<u>Key Vocabulary:</u> associative closure commutative complex #'s distributive field properties identity imaginary #'s imaginary axis inverse irrational #'s rational numbers real axis real numbers  <u>Visuals &amp; Demos:</u> graph paper overhead graph or board graph	2 weeks
	Real numbers and field properties <b>(5.0)</b>	1-1			
	Imaginary numbers <b>(5.0)</b>	5-6			
	Operations with complex numbers <b>(6.0)</b>	5-6			
	Graphs of complex numbers as points in the plane <b>(5.0)</b>	5-6			

## Quadratics, Complex Numbers, Functions, and Polynomials (cont.)

Functions	Functions and relations, function notation	2-1	Pgs. 16, 17, 53 - 55	<b>Key Vocabulary:</b> absolute value function composition of functions compound functions direct variation domain evaluate function function notation inputs inverse variation joint variation mapping diagram outputs range step function  <b>Visuals &amp; Demos:</b> graph paper overhead graphing calculator overhead graph or board graph	3 weeks
	Domain and range of functions	2-1			
	Direct, inverse and joint variation	2-3, 9-1			
	Composition and inverse of a function <b>(24.0)</b>	7-6, 7-7			
	Combination and simplification of functions <b>(25.0)</b>	7-6, 7-7			
	Special functions (step, absolute, square root, etc.)	p.71, 7-8			
Polynomials	Operations with polynomials (addition, subtraction, multiplication, long division) <b>(3.0)</b>	6-1 to 6-3	Pgs. 45 - 47	<b>Key Vocabulary:</b> binomial cube of a binomial foil monomial polynomial: degree, leading coefficient, standard form polynomial: linear, quadratic, cubic remainder theorem square of a binomial sum and difference sum/difference of cubes synthetic division trinomial zeros  <b>Visuals &amp; Demos:</b>	2 weeks
	Factoring using the difference of two perfect squares, trinomials, and the sum and difference of two cubes <b>(4.0)</b>	5-4, 6-4			

## Logarithms and Exponents, Rational Expressions and Equations

Topics	Curriculum Objectives California Content Standards	Adopted Textbook Correlation (Prentice Hall)	Assessments <u>Intermediate Algebra Assessment Portfolio Workbook</u>	Key Vocabulary and Recommended Aids	Time
Logarithms and Exponents	Proof of simple laws of logarithms <b>(11.0)</b>	8-3	Pgs. 57 - 59	<u>Key Vocabulary:</u> base common/natural logarithm compound interest exponential growth/decay extraneous horizontal asymptote initial logarithm logistics growth function principle quarterly radical radical equation rational exponents shift simple interest  <u>Visuals &amp; Demos:</u> number line graph paper overhead graphing calculator overhead graph or board graph overhead scientific calculator	3.5 weeks
	Simplification of expressions using the properties of exponents and logarithms <b>(11.0)</b>	8-4			
	Solution of equations with exponential and logarithmic expressions <b>(14.0)</b>	8-5			
	Graphs of exponential and logarithmic functions	8-1, 8-3, 8-6			
	Exponential growth and decay <b>(12.0)</b>	8-1			
	Solutions of problems involving logarithms and exponents <b>(12.0)</b>	Ch. 8			
	Natural logarithms and the number $e$	8-6			
	Radical expressions and equations <b>(14.0)</b>	7-1, 7-5			
Rational exponents <b>(12.0)</b>	7-4				
Rational Expressions and Equations	Simplifying, adding, subtracting, multiplying and dividing rational expressions <b>(7.0)</b>	9-4, 9-5	Pgs. 60 - 61	<u>Key Vocabulary:</u> rational expression fraction numerator denominator least common denominator least common multiple complex fraction  <u>Visuals &amp; Demos:</u>	2 weeks
	Fractional equations and applications	9-6			
	Simplifying complex fractions <b>(7.0)</b>	9-4			

## Conics, Sequences and Series, and Probability and Statistics

Topics	Curriculum Objectives California Content Standards	Adopted Textbook Correlation (Prentice Hall)	Assessments <u>Intermediate Algebra Assessment Portfolio Workbook</u>	Key Vocabulary and Recommended Aids	Time
Conic Sections	Identification of the conic section: circle, ellipse, parabola or hyperbola <b>(17.0)</b>	10-1, 10-6	Pgs. 18 – 23, 63 - 66	<u>Key Vocabulary:</u> asymptotes axis of symmetry center conic section conjugate axis directrix focus latus rectum major/minor axis radius tangent transverse axis vertex  <u>Visuals &amp; Demos:</u> visual showing def. of ellipse ppt on hyperbolas graph paper 3-D figures	2.5 weeks
	Relationship of the graph of a conic section to the coefficient of the quadratic equation representing it (e. g. asymptotes, foci, eccentric, etc.) <b>(16.0)</b>	10-2 to 10-5			
	Solution of quadratic systems	p.577			
Sequences and Series	Arithmetic and geometric sequences	11-2, 11-3	Pgs. 24 – 32, 67 - 68	<u>Key Vocabulary:</u> Arithmetic/geom sequences and series binomial expansion Binomial Theorem common difference/ratio Fibonacci sequence finite/infinite index/limits of summation Pascal's Triangle sequence series summation or Sigma notation terms/nth term  <u>Visuals &amp; Demos:</u> graphing calculator overhead scientific calculator	3 weeks
	Arithmetic and geometric series (finite and infinite) <b>(22.0)</b>	11-4, 11-5			
	Sigma notation <b>(23.0)</b>	11-4, 11-5			
	Pascal's triangle	6-8			
	Binomial Theorem <b>(20.0)</b>	6-8			

## Conics, Sequences and Series, and Probability and Statistics (cont.)

Probability and statistics	Computation of combinations and permutations using the fundamental counting principles <b>(18.0)</b>	6-7	Pgs. 69, 70	<b>Key Vocabulary:</b> combination dependent elements factorial Fundamental Counting Principle inclusive/exclusive independent intersection mutually permutation probability union  <b>Visuals &amp; Demos:</b> overhead scientific calculator	2 weeks
	Use of combinations and permutations to compute probabilities <b>(19.0)</b>	6-7			

### APPLICATION OF COURSE CONTENT

#### Career Connection:

**Related Major Skills & Characteristics** - Problem Solving , Organizational Skills, Numerical Computation, Ability to Analyze & Interpret Data, Critical Thinking, Computer Literacy, Logical Thinking, Team Skills Efficient, Systemizing Skills, Advanced Quantitative Skills, Testing Skills

**Related Career Titles** – Students who major in mathematics will be prepared for any of the following careers.

\*Accountant \*Contract Administrator \*Information Scientist \*Actuary \*Cost Estimator/Analyst \*Inventory Control Specialist \*Aerospace Engineer \*Cryptographer/Cryptologist \*Investment Banker \*Air Traffic Controller \*Data Control Administrator \*ISO 2000 Specialist \*Applications Programmer \*Data Processing Manager \*Market Research Analyst \*Applied Science Technologist \*Database Manager \*Mathematician  
 \*Artificial Intelligence Programmer \*Demographer \*Media Buyer \*Astronomer \*Econometrician \*Meteorologist \*Banking/Credit/Investment Mgr \*Economist \*Mortgage Researcher  
 \*Biometrician/ Biostatistician \*EDP Auditor \*Network Programmer \*Commodity Manager \*Employee Relations Specialist \*Numerical Analyst \*Compensation/Benefits Administrator \*Engineer \*Operations Research Analyst \*Computer Consultant \*Engineering Lab Technician \*Physicist \*Computer Engineer \*Environmental Technologist \*Pollution Meteorologist \*Computer Facilities Mgr \*Estate Planner \*Production Manager \*Computer Installation \*External Auditor \*Production Support Specialist \*Computer Marketing/Sales Rep \*Financial Auditor \*Psychometrician  
 \*Computer Programmer \*Financial Consultant \*Public Health Statistician \*Computer Scientist \*Financial Manager \*Purchasing/Contract Agent \*Computer-Aided Design Tech. \*Hydro Geologist \*Quality Assurance Analyst \*Consumer Loan/Credit Officer \*Hydrologist \*Rate Analyst \*Cartographer \*Software Engineer \*Teacher: Science/Math/Computers \*Research Analyst \*Software Support Specialist \*Technical Support Rep.  
 \*Risk & Insurance Specialist \*Statistician \*Technical Writer \*Risk Analyst \*Systems Analyst \*Transportation Planner \*Robotics Programmer \*Systems Engineer \*Treasury Management Specialist \*Satellite Communications Specialist \*Systems Programmer \*Underwriter  
 \*Software Development Specialist \*Urban Planner \*Value Engineer \*Weight Analyst

**SERVICE LEARNING** – Students who are Advanced Proficient on the Content Standards Tests or those who are earning an A in the course, can participate in after school tutoring programs to assist other students in learning mathematics. All hours can be credited towards the Service Learning requirement.

**METHODS:**

**Lesson Design & Delivery:** Teachers will incorporate these components of lesson design during direct instruction and inquiry activities. The order of components is flexible, depending on the teacher's vision for the individual lesson. For instance, the objective and purpose, while present in the teacher's lesson plan, are not made known to the students at the beginning of an inquiry lesson.

<p><b>Essential Elements of Effective Instruction Model for Lesson Design Using Task Analysis</b></p>	<p>Anticipatory Set Objective Standard Reference Purpose Input Modeling Check for Understanding Guided Practice Closure Independent Practice</p>
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Some components may occur once in a lesson, but others will recur many times. Checking for understanding occurs continually; input, modeling, guided practice and closure may occur several times. There may even be more than one anticipatory set when more than one content piece is introduced.

**Active Participation:** Teachers will incorporate the principles of active participation and specific strategies to ensure consistent, simultaneous involvement of the minds of all learners in the classroom. Teachers should include both covert and overt active participation strategies, incorporating cooperative learning structures and brain research. Some of the possible active participation strategies include:

<b>COVERT</b>	<b>OVERT (Oral)</b>	<b>OVERT (Written)</b>	<b>OVERT (Gestures)</b>
• Recall	• Pair/Share	• Restate in Journals / Notes	• Hand Signals
• Imagine	• Idea Wave	• Response Boards	• Model with Manipulatives
• Observe	• Choral Response	• Graphic Organizers	• Stand up/ Sit down
• Consider	• Give One, Get One	• Folded Paper	• Point to Examples
	• "Foggiest" point	• Ticket Out of Class	
	• Socratic Seminar		
	• Cooperative Discussion Groups (i.e. Talking Chips, Gambit Chips)		

**Literacy and Differentiation Strategies**

Learning styles and learning challenges of your students may be addressed by implementing combinations of the following:

<p><b><u>Reading Strategies in Mathematics</u></b></p> <ul style="list-style-type: none"> <li>▪ Learning Logs</li> <li>▪ Pre-teaching</li> <li>▪ Vocabulary</li> <li>▪ Pre-reading</li> <li>▪ Text Structures</li> <li>▪ Trail Markers</li> <li>▪ Reciprocal Teaching</li> <li>▪ Functional Text</li> <li>▪ Anticipation Guide</li> </ul>	<p><b><u>SDAIE Strategies for English Learners</u></b></p> <ul style="list-style-type: none"> <li>▪ Tapping/Building Prior Knowledge (Graphic Organizers, Schema)</li> <li>▪ Grouping Strategies</li> <li>▪ Multiple Intelligences</li> <li>▪ Adapt the Text</li> <li>▪ Interactive Learning (Manipulatives, Visuals)</li> <li>▪ Acquisition Levels</li> <li>▪ Language Sensitivity</li> <li>▪ Lower the Affective Filter (including Processing Time)</li> <li>▪ Home/School Connection (including Cultural Aspects)</li> </ul>	<p><b><u>Differentiation for Advanced Learners</u></b></p> <ul style="list-style-type: none"> <li>▪ Curriculum Compacting</li> <li>▪ Tiered Assignments</li> <li>▪ Flexible Grouping</li> <li>▪ Acceleration</li> <li>▪ Depth and Complexity</li> <li>▪ Independent Study</li> </ul>
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**MATERIALS USED IN TEACHING THE COURSE:** In addition to the basic text, a variety of instructional tools will be used to meet the needs of all students.

**Basic Text:** Bellman, Allan, et al. Algebra 2. New Jersey: Pearson Prentice Hall, 2004.

**Supplementary materials:**

Bellman, Allan, et al. Spanish Practice Workbook. New Jersey: Pearson Prentice Hall, 2004.

Bellman, Allan, et al. Spanish Reading and Math Literacy Masters. New Jersey: Pearson Prentice Hall, 2004.

Bellman, Allan, et al. Spanish Assessment Resources. New Jersey: Pearson Prentice Hall, 2004.

**Related Career Resources**

There are many web sites that will help with career selection such as Eguidance.com, BRIDGES.com, and icouldbe.org. The software package COIN JR also has career information. Video tapes such as the Futures with Jamie Escalante - School to Career shows how math is used in various careers (FASE productions 800-404-FASE). Other videos are Career Futures. Call the Career/Tech Ed Office (562-989-7872 x 291) for more information on careers.

**EVALUATION:** Student achievement in this course will be measured using multiple assessment tools including but not limited to chapter tests, cumulative tests (End-of-Course Exam), quizzes, homework, classwork, notebooks, portfolios, projects, and open ended questions.

<b>Textbook</b>	<b>Diagnosis</b>	<b>Monitor</b>	<b>Evaluate</b>
District Developed Assessments	Practice Exam 1 and 2	Standards Based Assessments Open-Ended Math	Quarter Exams 1 <sup>st</sup> Semester Exam End-of-Course
Prentice Hall	Check Skills You'll Need Lesson Quiz	Standardized Test Prep Mixed Review Lesson Quiz Mid-Chapter Quizzes Chapter Review	Chapter Test Cumulative Review Cumulative Chapter Test

**Scoring Guide for Written Response/Open-Ended Mathematics**

<b>Score</b>	<b>Description</b>
<b>4</b>	The student response thoroughly accomplishes the task. <ul style="list-style-type: none"> <li>Shows thorough understanding and use of the central mathematical ideas(s)</li> <li>Includes appropriate and accurate mathematical computations</li> <li>Presents mathematical knowledge and ideas clearly and skillfully, using combinations of mathematical symbols and/or visual means as supporting evidence</li> </ul>
<b>3</b>	The student response substantially accomplishes the task. <ul style="list-style-type: none"> <li>Shows an essential grasp of the central mathematical idea(s)</li> <li>Includes appropriate and generally correct mathematical computations</li> <li>Presents mathematical knowledge and ideas clearly with supporting evidence</li> </ul>
<b>2</b>	The student response partially accomplishes the task. <ul style="list-style-type: none"> <li>Shows a limited grasp of the central mathematical ideas(s)</li> <li>May include incomplete and/or misdirected mathematical computations</li> <li>Presents mathematical knowledge and ideas in an unclear manner or without supporting evidence</li> </ul>
<b>1</b>	The student response makes little or no progress toward accomplishing the task. <ul style="list-style-type: none"> <li>Shows little or no grasp of the central mathematical idea(s)</li> <li>Includes mathematical computations that are incorrect or inappropriate</li> <li>Presents mathematical knowledge and ideas in a barely (if at all) comprehensible manner</li> </ul>

### Portfolio Components

Component	Description	Purpose
<b>Cornell Notes</b>	This is a student-created study guide of organized notes which can be used to study for the End-of-Course Exam. Math vocabulary for new concepts and processes is correctly defined, illustrated, and written in students' own words.	Students must learn to develop communication skills which include creating and using notes for reference during the year. The notes should also be used to study for comprehensive exams.
<b>Grade Student Work</b>	Select examples of individual student work such as tests, quizzes and projects. Calculate the mean of the samples and convert to a four point or percent scoring system.	Student work examples demonstrate growth toward understanding of mathematics standards.
<b>Standards Based Assessment</b>	The Standards Based Assessments are located in the Assessment Portfolio Student Workbook. These tests should be completed before the End-of-Course Exam.	Students take common summative tests to assess proficiency level on individual Math Standards. These tests are indicators of students' depth of understanding in each standard
<b>Written Response/ Open-Ended Math</b>	There are three written response per standard which students should complete. The best score on the written response for each standard is recorded in the portfolio. The written response questions should be completed individually by the student.	Students who are able to write about their thinking and understanding of math concepts have a deeper understanding of math that will enable them to do well on tests like the Golden State and Advanced Placement Exams.
<b>End- of-Course Exam</b>	A comprehensive exam will be given at the end of the year. The test is not timed and calculators are allowed.	Students must learn the rigors of taking comprehensive exams in preparation for the California High School Exit Exam and other college entrance exams.

## Intermediate Algebra 1-2 Portfolio Performance Standards

The assessment portfolio is a communication tool for students to take ownership for their own learning. It allows parents and teacher to follow the development of students' progress towards reaching the standards. It provides students with multiple opportunities to show growth. It is important that all work for the portfolio is completed independently by the student. Students record their own information in the portfolio including the averaging of performance levels and graphing progress towards meeting standards. Students should create a bar graph indicating the level of achievement of each assessment or assignment.

Units	Not Proficient 1	Partial Proficient 2	Proficient 3	Advanced Proficient 4
Cornell Notes				
Linear Equations and Inequalities, Systems, Matrices				
• Graded Student Work				
• Standards Based Assessment				
Quadratics, Complex Numbers, Functions, Polynomials				
• Graded Student Work				
• Standards Based Assessment				
Logarithms and Exponents, Rational Expressions and Equations				
• Graded Student Work				
• Standards Based Assessment				
Conics, Sequences and Series				
• Grade Student Work				
• Standards Based Assessment				
Probability and Statistics				
• Graded Student Work				
• Standards Based Assessment				
End-of-Course Exam				

**GRADING POLICY:** A common grading policy ensures consistency between schools and classrooms across the district.

### **Suggested Percent of Grade**

Classwork/Homework (10%)	15% - 20%
Notes/Projects	5%
Chapter Tests	35% - 40%
Quizzes	25% - 30%
Cumulative Tests/End-of-Course Exam	10% - 15%

### **Suggested Grading Scale**

<b>A</b>	90% - 100%
<b>B</b>	80% - 89%
<b>C</b>	70% - 79%
<b>D</b>	60% - 69%
<b>F</b>	Below 60%

Submitted by: \_\_\_\_\_ Dixie Dawson  
 School: \_\_\_\_\_ Math Office  
 Revised: \_\_\_\_\_ 8/04  
 Board Approval Date: \_\_\_\_\_ 1/5/99