

Course Description

A. COVER PAGE

<p>1. Course Title Algebra 1 CP-S</p> <p>2. Transcript Title / Abbreviation Algebra 1 CP-S</p> <p>3. Transcript Course Code / Number ALG1CP-S</p> <p>4. School Bay Area School of Independent Study (BASIS)</p> <p>5. District</p>	<p>9. Subject Area</p> <p><input type="checkbox"/> History/Social Science</p> <p><input type="checkbox"/> English</p> <p><input checked="" type="checkbox"/> Mathematics</p> <p><input type="checkbox"/> Laboratory Science</p> <p><input type="checkbox"/> Language other than English</p> <p><input type="checkbox"/> Visual & Performing Arts</p> <p><input type="checkbox"/> College Prep Elective</p>
<p>6. City Newark</p>	<p>10. Grade Level(s) 9th</p>
<p>7. School / District Web Site www.basischarter.org</p>	<p>11. Seeking "Honors" Distinction?</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
<p>8. School Course List Contact</p> <p>Name: Leslie Nilson</p> <p>Title/Position: High School Counselor</p> <p>Phone: 925-932-9853</p> <p>E-mail: lnilson4basis@aol.com</p>	<p>12. Unit Value</p> <p><input type="checkbox"/> 0.5 (half year or semester equivalent)</p> <p><input checked="" type="checkbox"/> 1.0 (one year equivalent)</p> <p><input type="checkbox"/> 2.0 (two year equivalent)</p> <p><input type="checkbox"/> Other: _____</p>
<p>13. Was this course previously approved by UC? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>If yes, check all that apply:</p> <p><input type="checkbox"/> Course reinstated after removal within 3 years. Year removed from list? _____ Same course title? <input type="checkbox"/> Yes <input type="checkbox"/> No If no, previous course title? _____</p> <p><input type="checkbox"/> Identical course approved at another school in same district. Which school? _____ Same course title? <input type="checkbox"/> Yes <input type="checkbox"/> No If no, course title at other school? _____</p> <p><input type="checkbox"/> Alternative course title for course with identical content at this school Title of previously-approved identical course: _____</p> <p><input type="checkbox"/> Advanced Placement (AP) or International Baccalaureate (IB) course</p> <p><input type="checkbox"/> Approved UC College Prep (UCCP) Initiative course</p> <p><input type="checkbox"/> Approved P.A.S.S. course</p> <p><input type="checkbox"/> Approved ROP/C course. Name of ROP/C? _____</p> <p><input type="checkbox"/> Other. Explain: _____</p>	
<p>14. Is this course modeled after an UC-approved course from another school <u>outside</u> your district? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>If so, which school(s)?</p>	

15. Pre-Requisites

A grade of C or better in PreAlgebra.

16. Co-Requisites

None

17. Brief Course Description

This course is the first in the series of Saxon textbook courses. The three courses are Algebra 1 CP-S, Algebra 2-S, and Geometry w/ Advanced Algebra and are to be taken consecutively.

The course is an integrated course based on the standards set by the State of California.

Symbolic reasoning and calculations with symbols are central in algebra. Through the study of algebra, a student develops an understanding of the symbolic language of mathematics and the sciences. In addition, algebraic skills and concepts are developed and used in a wide variety of problem-solving situations.

B. COURSE CONTENT

Please refer to instructions

18. Course Goals and/or Major Student Outcomes

- 1.0 Students identify and use the arithmetic properties of subsets of integers and rational, irrational, and real numbers, including closure properties for the four basic arithmetic operations where applicable.
- 2.0 Students understand and use such operations as taking the opposite, finding the reciprocal, taking a root, and raising to a fractional power. They understand and use the rules of exponents.
- 3.0 Students solve equations and inequalities involving absolute values.
- 4.0 Students simplify expressions before solving linear equations and inequalities in one variable, such as $3(2x-5) + 4(x-2) = 12$.
- 5.0 Students solve multistep problems, including word problems, involving linear equations and linear inequalities in one variable and provide justification for each step.
- 6.0 Students graph a linear equation and compute the x- and y- intercepts (e.g., graph $2x + 6y = 4$). They are also able to sketch the region defined by linear inequality (e.g., they sketch the region defined by $2x + 6y < 4$).
- 7.0 Students verify that a point lies on a line, given an equation of the line. Students are able to derive linear equations by using the point-slope formula.
- 8.0 Students understand the concepts of parallel lines the relation to slope.
- 9.0 Students are able to find the equation of a line perpendicular to a given line that passes through a given point.
- 9.0 Students solve a system of two linear equations in two variables algebraically and are able to interpret the answer graphically. Students are able to solve a system of two linear inequalities in two variables and to sketch the solution sets.
- 10.0 Students add, subtract, multiply, and divide monomials and polynomials. Students solve multistep problems, including word problems, by using these techniques.
- 11.0 Students apply basic factoring techniques to second degree polynomials. These techniques include finding a common factor for all terms in a polynomial, recognizing the difference of two squares, and recognizing perfect squares of binomials.
- 12.0 Students simplify fractions with polynomials in the numerator and denominator by factoring both and reducing them to the lowest terms.
- 13.0 Students add, subtract, multiply, and divide rational expressions and functions. Students solve both computationally and conceptually challenging problems by using these techniques.
- 14.0 Students solve a quadratic equation by factoring or completing the square.
- 15.0 Students apply algebraic techniques to solve rate problems, consecutive integer problems, coin problems, and percent problems.
- 16.0 Students understand the concepts of a relation and a function, determine whether a given relation defines a function, and give pertinent information about given relations and functions.
- 17.0 Students determine the domain of independent variables and the range of dependent variables defined by a graph, a set of ordered pairs, or a symbolic expression.
- 18.0 Students determine whether a relation defined by a graph, a set of ordered pairs, or a symbolic expression is a function and justify the conclusion.
- 19.0 Students know the quadratic formula and are familiar with its proof by completing the square.
- 20.0 Students use the quadratic formula to find the roots of a second-degree polynomial and to solve quadratic equations.
- 21.0 Students graph quadratic functions and know that their roots are the x- intercepts.
- 22.0 Students use the quadratic formula or factoring techniques or both to determine whether the graph of a quadratic function will intersect the x-axis in zero, one, or two points.
- 23.0 Students apply quadratic equations to physical problems, such as the motion of an object under the force of gravity.

19. Course Objectives

Students completing this course will be able to do the following:

- Write, solve, and graph linear and quadratic equations.
- Solve quadratic equations by factoring, completing the square, and graphically.
- Understand monomial and polynomial expressions, inequalities, exponents, functions, rational expressions, ratio, and proportion.
- Understand the practical applications and real-world uses of algebra.

20. Course Outline

Coursework will include a thorough understanding and application of the following topics:

- Operations
 - Four basic arithmetic operations
 - Absolute value
 - Reciprocals
 - Roots
 - Exponents
 - Raising to a fractional power

- Linear Equations and Inequalities:
 - Simplify and solve
 - Graph and compute x and y intercepts
 - Point-slope formula
 - Relationship of slopes of parallel lines and their graphs
 - Two linear equations in two variables

- Polynomials
 - Factoring second degree polynomials
 - Simplify fractions with polynomials in numerator and denominator

- Quadratic Equations
 - Solve by factoring or completing the square
 - Quadratic formula

- Relations, Functions:
 - Domain, range
 - Graphing

- Word Problems:
 - Linear equations and inequalities in one variable
 - Two linear equations in two variables
 - Rate problems, consecutive integer problems, coin mixture problems, percent problems
 - Quadratic equations

- Geometry:
 - Lines and Segments
 - Polygons
 - Perimeter
 - Circumference Area
 - Surface Area
 - Conversions of Area
 - Volume
 - Angles and Triangles
 - Pythagorean Theorem

- Probability:
 - Basic Probability and Probability Without Replacement

- Statistics
 - Stem and Leaf and Box and Whisker Plots
 - Histograms
 - Range, Mean, Median and Mode

21. Texts & Supplemental Instructional Materials

Algebra 1, 3rd Edition

Saxon, co. 2001

Algebra 1 Practice Workbook*

Prentice Hall, co. 2004

ISBN 0130633798

*The supplementary Prentice Hall workbook is required. The chapter that must be covered is Chapter 10 to be supplemented with Saxon text lessons 118 and 119.

22. Key Assignments

- Unit by Unit problem sets
- End of Chapter tests
- Finals required at mid-term and end of year

23. Instructional Methods and/or Strategies

Instruction may include the following:

- Lecture/Demonstration
- Discussion
- Text Reading and Practices
- Personal Tutoring
- CD Rom
- Internet Research

24. Assessment Methods and/or Tools

Assessment tools include the following, but are not limited to:

- Monthly review of student work by the Independent Study Teacher.
- Chapter and Unit tests and examinations.
- Student grades on text practices and standardized tests
- Written state examinations
- Oral communication with Independent Study Teacher.
- Final Examination

C. HONORS COURSES ONLY

Please refer to instructions

25. Indicate how this honors course is different from the standard course.

D. OPTIONAL BACKGROUND INFORMATION

Please refer to instructions

26. Context for Course (optional)

27. History of Course Development (optional)