

## **a-g Algebra 2**

### **Course Description:**

This is a course that expands on the basic algebraic concepts involved in solving equations and inequalities, factoring polynomials, graphs, exponents, and solving quadratic equations. In addition, it examines quadratic, logarithmic, and exponential functions, the application of functions to real world problems, conic sections, probability, trigonometric functions, complex numbers.

**Prerequisite(s):** Algebra 1

**Length of Course:** One year required for graduation

**Year in School Taken:** 10, 11, or 12

### **Course Objectives/Details:**

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

#### **Linear Equations and Inequalities:**

- Absolute value

- Two or three variables, solved by substitution, with graphs, or with matrices

#### **Polynomials:**

- All operations, including long division

- Difference of squares, perfect square trinomials

- Sum and difference of two cubes

- Polynomial denominators, including those with negative exponents

#### **Quadratic Equations:**

- Solve by factoring, completing the square, or using the quadratic formula

- Quadratic equations in the complex number system

- Graphing: determining the maxima, minima, and zeros of the function

- Effects of changing coefficients in a quadratic equation

- Recognize and graph equations of circle, ellipse, parabola, or hyperbola

#### **Complex Numbers:**

- Relationship between real and complex numbers, arithmetically & graphically

- Plotting as points in a plane

#### **Logarithms:**

- Prove simple laws of logarithms

- Simplify logarithmic numeric expressions and identify their approx. values

#### **Conic Functions:**

**Probability:**

Combinations and permutations  
Finite and infinite geometric series

**Word Problems:**

Linear equations and inequalities in two and three variables  
Two linear equations in two variables  
Rate problems, work problems, percent mixture problems  
Quadratic equations

**Methods for Evaluating Student Performance:**

Evaluation of student performance is based on individual abilities, interests, and talents. Methods by which student progress is assessed will be through a variety and/or combination of methods. The methods available include but are not limited to the following:

Monthly review of work by education specialist (credentialed teacher),  
Parent facilitator and education specialist observation  
Student demonstrations,  
Student grades,  
Student work samples  
Written examination  
Research projects

**Texts:**

Title: Algebra 2, Applications, Equations and Graphs

Publisher: McDougal Littell

Author: Larson, Boswell, Kanold, Stiff

Date Published: 2004

ISBN: 0-618-25020-4

Correlation map to California State Standards:

[http://www.mcdougallittell.com/state/ca/pdf/CA\\_Algebra2\\_StdnsMap.pdf](http://www.mcdougallittell.com/state/ca/pdf/CA_Algebra2_StdnsMap.pdf)

Algebra 2, 2<sup>nd</sup> ed., Larson and Hostetler, 2001

Houghton Mifflin

ISBN:039597660X

Text used with Chalkdust Curriculum, each lesson is presented by an instructor on DVD

Website: [www.chalkdust.com](http://www.chalkdust.com)

Standards aligned, but 8 and 15 are not explicitly taught: these concepts could be integrated throughout the program.

Contact Mary Halter at [mhalter@connectingwaters.org](mailto:mhalter@connectingwaters.org) for California State Standard Correlations

Algebra 2, 2ND Edition

Saxon

ISBN: 1565771257

Algebra 2 Solutions Manual

Saxon

ISBN: 0939798999

**\*\*Student must complete all 129 lessons and all tests to be given a-g credit**

**\*\*NOTE\*\***The typical sequence course sequence for Saxon Math is:

Saxon Alg 1 8th grade (or 9th)

Saxon Alg 2 = a-g Alg 2 9th (or 10th)

Saxon Adv Math, year 1 of 2 = a-g Geom 10th (or 11th)

Saxon Adv Math/Calculus year 2 of 2 = a-g Trig/PreCal 11th (or 12th)

Saxon Calculus = a-g Calculus 12th

Algebra 2: Integration, Applications, Connections

by Collins, Cuevas, Foster, Holliday, Moore-Harris, Rath, Swart, and Winters

Glencoe McGraw-Hill, 1998 ISBN: 0028251784

Preview copy available at Modesto/Ceres Learning Center (must be viewed in center, no check out)

Merrill Algebra 2 with Trigonometry: Applications and Connections

Glencoe McGraw-Hill, 1995

ISBN: 0028242270

Preview copy available at Modesto/Ceres Learning Center (must be viewed in center, no check out)

Algebra 2: An Integrated Approach

South Western Mathematics, 1998

ISBN: 0538680512

Essentials of Trigonometry 3E

South Western Mathematics, 1998

ISBN: 0534348068

Algebra and Trigonometry

South Western Mathematics, 1998

ISBN: 0314069224

Algebra and Trigonometry

Scott Foresman, Addison Wesley - Math, 1984

ISBN: 0201203391