

**CANON CITY HIGH SCHOOL
COURSE GUIDE**

Department: Mathematics

Course Title: Algebra 1-A

Date: Fall 2003

Grade Level: 9-12

Prerequisite/Requirements: C or better in Intro-to-Algebra and Orleans Hanna ≥ 70

Costs to Students: 3-ring binder, paper, graph paper, ruler, protractor, and pencils

Course Description: This course permits the student to master the following basic topics of Algebra: signed numbers, absolute value, translation of phrases to mathematical expressions, order of operations, solve equations, linear equations, slope, x/y graphing, functions, direct variation, mathematical properties, practical applications, and communication of mathematical reasoning.

General Course Outcomes:

Upon completion of this course the proficient student will know and be able to: (core concepts/essential skills).

1. use order of operations to evaluate expressions, equations, and inequalities
2. apply properties of real numbers
3. solve linear equations
4. graph linear equations and functions
5. write linear equations
6. solve and graph linear inequalities

Standards:

List State Standards addressed in this course. (Identify the course outcomes that support those standards.)

COLORADO MODEL CONTENT STANDARDS FOR MATHEMATICS

STANDARD 1:

Students develop number sense and use numbers and number relationships in problem-solving situations and communicate the reasoning used in solving these problems.

Addressed by general course outcomes 1, 2, 5

STANDARD 2:

Students use algebraic methods to explore, model, and describe patterns and functions involving numbers, shapes, data, and graphs in problem-solving situations and communicate the reasoning used in solving these problems.

Addressed by general course outcomes 1, 2, 3, 4, 5, 6

STANDARD 3:

Students use data collection and analysis, statistics, and probability in problem-solving situations and communicate the reasoning used in solving these problems.

Addressed by general course outcomes 1, 2, 4, 5, 6

STANDARD 4:

Students use geometric concepts, properties, and relationships in problem-solving situations and communicate the reasoning used in solving these problems.

Addressed by general course outcomes 1, 2, 4, 5, 6

STANDARD 5:

Students use a variety of tools and techniques to measure, apply the results in problem-solving situations, and communicate the reasoning used in solving these problems.

Addressed by general course outcomes 4

STANDARD 6:

Students link concepts and procedures as they develop and use computational techniques, including estimation, mental arithmetic, paper-and-pencil, calculators, and computers, in problem-solving situations and communicate the reasoning used in solving these problems.

Addressed by general course outcomes 1, 2, 3, 4, 5, 6

Required Unit of Study:

Themes within the course/Specific concepts being targeted

1. Use order of operations to evaluate expressions, equations, and inequalities
 - variables in Algebra
 - exponents and powers
 - order of operations
 - equations and inequalities
 - a problem solving plan using models
 - tables and graphs
 - an introduction to functions

2. apply properties of real numbers
 - the real number line
 - addition of real numbers
 - subtraction of real numbers
 - adding and subtracting matrices
 - multiplication of real numbers
 - the distributive property
 - division of real numbers
 - probability and odds

3. solve linear equations
 - solving equations using addition and subtraction
 - solving equations using multiplication and division
 - solving multi-step equations
 - solving equations with variables on both sides
 - linear equations and problem solving
 - solving decimal equations
 - formulas and functions
 - rates, ratios, and percents

4. graph linear equations and functions
 - coordinates and scatter plots
 - graphing linear equations
 - quick graphs using intercepts
 - the slope of a line
 - direct variation
 - quick graph using slope-intercept form
 - solving linear equations using graphs
 - functions and relations

5. write linear equations
 - writing linear equations in slope-intercept form
 - writing linear equations given the slope and a point

- writing linear equations given two points
 - fitting a line to data
 - point-slope form of a linear equation
 - the standard form of a linear equation
 - predicting with linear models
6. solve and graph linear inequalities
- solving one-step linear inequalities
 - solving multi-step linear inequalities
 - solving compound inequalities
 - solving absolute-value equations and inequalities
 - graphing linear inequalities in two variables
 - stem and leaf plots and mean, median, and mode
 - box-and-whisker plots

Unit Modifications/Enrichments:

- **Assistance to students having difficulty and/or special needs**
 1. peer tutoring within the classroom environment
 2. teacher available office hours (before school, during lunch, and after school)
 3. guided notes and examples
 4. study guides
 5. Multiple English to Spanish guides including audio CD
 6. Basic Skills Workbook: Diagnosis and Remediation
 7. Reteaching worksheets in each chapter resource book
 8. “Student Tutor” CD-Rom
 9. www.mcdougallittel.com

- **Additional experiences for students capable of advanced work (cooperative learning, adaptive materials, re-teaching, second chance, etc.**
 1. individual and group learning projects
 2. cooperative learning and self discovery within the classroom setting
 3. challenge level questions
 4. “Explorations and projects” workbook
 5. Challenge problems embedded in text
 6. Web site (www.mcdougallittel.com) offers further challenge problems

Materials/Resources:

- **Textbook (CORE and Supplemental) (Publisher, Edition, Year Adopted)**
Algebra 1, McDougal Little, 1st ed, 2003

- **Media materials used**
CD-Rom, internet, and video

- **Technology needs**
Overhead, computers and TV/VCR
- **Other resources (guest speakers, field trips)**

- **Assessment Program**
Publisher Developed (list test)
Test and Practice Generator CD-Rom
Unit Resource Books
Warm-up/Daily Quiz Transparency

Teacher Developed
Individualized per teacher

- **Tests and Quizzes, Homework**
See Publisher Developed above for Tests and Quizzes
Homework from text.
Unit resource books have worksheets at three different levels for each section.
Within the unit resource books there are Challenge Skills worksheets, Interdisciplinary worksheets, and project ideas for higherlevel learning or alternate assessment.
- **Type: Essay, constructed response, criterion referred, oral presentation**
 - **Notebook**
Students are required to keep an organized notebook with daily notes, assignments, and any assigned projects.
 - **Authentic production**
- **Proficiency Test Requirement**
70% or higher on the course advancement exam

Instructional time:

List units or interdisciplinary themes and approximate length of time (actual or percent, etc.)

1. use order of operations to evaluate expressions, equations, and inequalities
1-3 weeks
2. apply properties of real numbers 1-3 weeks
3. solve linear equations 1-3 weeks
4. graph linear equations and functions 1-3 weeks
5. write linear equations 1-3 weeks
6. solve and graph linear inequalities 1-3 weeks