EL DORADO UNION HIGH SCHOOL DISTRICT
Educational Services

Course of Study Information Page

Course Title: Algebra Concepts #233	
Rationale: The State of California has mandated that Districts will have remediation for students who need further help in passing the math portion of the CAHSEE. Topics will provide in depth work and opportunities to understand concepts necessary to pass the exam.	
Course Description: This course will consist of thirteen units which will cover all 98 items (math) on the CAHSEE. The course will be an integration of arithmetic, algebra and geometry.	
Length of Course:	One year
Grade Level:	10-12
Credit: 　　Number of units: 5 credits 　　☒ Meets graduation requirements 　　❏ Request for UC "a-f" requirements 　　❏ College Prep 　　❏ Elective 　　❏ Vocational	
Prerequisites:	Students must have passed or be concurrently enrolled in Algebra I to be eligible for this course. The course is designed for students who have not passed the CAHSEE in math.
Department(s):	Mathematics
District Sites:	All sites
Board of Trustees Adoption Date:	January 22, 2002
Textbook(s)/Instructional Materials:	Mathematics Connections
Date Adopted by the Board of Trustees:	

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UNIT #1:   Connecting Numbers and Graphs

GOAL: The students will review the use of the number line in regard to integers. The students will work with the coordinate plane.

OBJECTIVES The student will:	SUGGESTED ACTIVITIES
Review the number line and its use in regard to integers	Work in groups to create and use the number lines
Review the use of the coordinate plan and work with graphing points	Work in groups to create a floor size plane using wide ribbon, and then plot points to correspond with ordered pairs.

Content Area Standards
The students will demonstrate content proficiency by:
1.   Completing 1 or 2 projects, working in groups and by performance on 1-3 brief assessments. Ultimately, proficiency will be determined if a student passes the CAHSEE in mathematics.

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UNIT #2:   Arithmetic and Algebra

GOAL: The students will work with variables and the basic properties of equality and with the comparison property

OBJECTIVES The student will:	SUGGESTED ACTIVITIES
Learn to evaluate expressions and use the properties of equality	Work in groups and alone to practice evaluating expressions and do an art project to demonstrate properties of equality
Work with the idea of comparison and with inequality symbols in math	Group work will include practice and will include students making up problems for others to solve

Content Area Standards
The students will demonstrate content proficiency by:
1.   Pre-assessment and cooperative work. They will do one or more art projects. There will be two quizzes and one major assessment.

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UNIT #3:   Algebra Beginnings

GOAL: The students will review the ideas of exponents and multiplication. They will work on estimation and patterns.

OBJECTIVES The student will:	SUGGESTED ACTIVITIES
Review powers, factoring, and products of powers; the distributive property will be discussed	Practice and group discussions will prepare students for future work; students will produce their own examples of distributive property
Combine similar terms and will work with patterns and estimation	Students will work with sets and with many different pattern types, including geometric patterns and Escher prints

Content Area Standards
The students will demonstrate content proficiency by:
1.   Presenting work on powers and examples of word problems with the distributive property. They will do an art project on patterns and will take a brief exam on the total unit.

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UNIT #4:   Equations for Algebra

GOAL: The students will review the use of algebra equations in solving problems

OBJECTIVES The student will:	SUGGESTED ACTIVITIES
Use tiles and scales to write expressions; they will estimate solutions	Students will work on word problems. They will use tiles and then write corresponding expressions. They will make charts to solve the word problems.
Use the four basic operations in solving equations; do two-step equations	Students will write own word problems and share with a partner. Students will relate equations to work with formulas.

Content Area Standards
The students will demonstrate content proficiency by:
1.   Writing and sharing their own equations; using tiles and a balance scale to demonstrate the basic operations; and by making tables and charts to solve equations. Cooperative groups, quizzes and several observable assessments will take place for Unit 4.

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UNIT #5: The Importance of Factoring

GOAL: The students will discuss factors, prime numbers and composite numbers. Prime numbers and exponents, as well as greatest common factors and least common multiples will be covered.

OBJECTIVES The student will:	SUGGESTED ACTIVITIES
Practice factoring and will work on prime numbers. They will refine their understanding of powers.	Students will work in groups to practice multiplying and factoring. Students will use a 100 square grid to visualize the factoring.
Review least common multiple and greatest common factor	Students will write their own word problems and share with a partner. Students will use technology as a tool for practice.

Content Area Standards
The students will demonstrate content proficiency by:
1. Completing one project to demonstrate understanding of multiplying and factoring. The students will take a standard assessment test on ability to do multiplication in a fast and accurate way.

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UNIT #6:   Keeping Fractions in Perspective

GOAL: The students will discuss the ideas of fractions, reciprocals, and algebraic
               fractions

OBJECTIVES The student will:	SUGGESTED ACTIVITIES
Learn terms, practice simplifying and comparing fractions, talk about equivalent fractions and use the four basic operations with fractions	Students will play games, use the available technology, use fraction bars and pie charts to work together and to present to one another the ideas of fractions.
Learn to add and subtract fractions with like and unlike denominators. They will work with reciprocals and algebraic fractions.	Students will use the computer for extra practice. Students will work in groups to share their understanding of fractions. They will have one project and one major assessment.

Content Area Standards
The students will demonstrate content proficiency by:
1.   Completing one project to demonstrate their understanding of fractions. They will perform on one to three brief assessments. Ultimately, proficiency will be determined if student passes the CAHSEE in mathematics.

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UNIT #7:   Ratio and Proportion

GOAL: The students will discuss the ideas of ratio and proportion and their use in the real world is seen

OBJECTIVES The student will:	SUGGESTED ACTIVITIES
Learn terms, practice working with cross products, and scale drawings	Students will play games, use the available technology, use scale models and drawings and work with a 10 x 10 grid to understand percents
Learn to solve algebraic problems that use proportions	Students will use the computer for extra practice. Students will work in groups to share their understanding of ratio and percents and will write their own algebraic problems.

Content Area Standards
The students will demonstrate content proficiency by:
1.   Completing one project to demonstrate their understanding of ratio and proportions. They will perform on one to three brief assessments. Ultimately, proficiency will be determined if a student passes the CAHSEE in mathematics.

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UNIT #8:   The Decimal Connection

GOAL: The students will discuss the ideas of decimals and place value. They will connect fractions to decimals and will apply the rules for the four basic operations to decimals. Percents will be discussed.

OBJECTIVES The student will:	SUGGESTED ACTIVITIES
Learn terms and practice working with decimals and place value. They will use the four basic operations for decimals.	Students will play games, use the available technology, use practice work and work with a 10 x 10 grid to understand place value, decimals, percents and fractions.
Learn to work with percents in terms of percent of a number and percent of increase or decrease	Students will use the computer for extra practice. Students will work in groups to share their understanding of decimals and percents and will write their own problems

Content Area Standards
The students will demonstrate content proficiency by:
1.   Completing one project to demonstrate their understanding of decimals and percents. They will perform on one to three brief assessments. Ultimately, proficiency will be determined if a student passes the CAHSEE in mathematics.

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UNIT #9:   Graphing for the Real World and Checking Data

GOAL: Students will search for graphs and learn how to read them. They will learn to recognize which graph is "best." They will work with mean, median and mode.

OBJECTIVES The student will:	SUGGESTED ACTIVITIES
Learn terms, collect graphs and analyze them. The students will discuss data collection and use of graphs.	Students will discover which graph to use when. They will collect data and make graphs on posters. They will differentiate between different kinds of graphs.
Learn to work with mean, median and mode. They will learn terms that are relative to working with mean, median and mode.	Students will use the computer for extra practice. Students will work in groups to share their understanding of mean, median and mode. They will work together to present various problems relating to the above

Content Area Standards
The students will demonstrate content proficiency by:
1.   Completing several projects to demonstrate their understanding of graphs and data collection. They will demonstrate proficiency by making and describing graphs. Ultimately, proficiency will be determined if a student passes the CAHSEE in mathematics.

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UNIT #10:   The Geometry Connection

GOAL: Students will learn terminology, use protractors, classify angles, do
                   constructions, work with polygons, and use symmetry and do tessellations.

OBJECTIVES The student will:	SUGGESTED ACTIVITIES
Learn correct geometric terminology. They will work on all aspects of angles, including use of the protractor. They will do constructions.	Students will play games to help learn the terminology. They will use the protractor, compass and straightedge to do constructions. They will work in groups and complete an art project
Learn about polygons (triangles and quadrilaterals, in particular). They will learn about symmetry and tessellations.	Students will practice, draw, and do constructions. They will complete a project, an art project and take a written assignment.

Content Area Standards
The students will demonstrate content proficiency by:
1.   Completing several projects to demonstrate their understanding of geometry. They will learn to use the tools of geometry. Ultimately, proficiency will be determined if a student passes the CAHSEE in mathematics.

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UNIT #11: Perimeter and Area

GOAL: Students will learn terminology both for perimeter and area of polygons and for circumference of circles. They will learn the formulae. Ideas of congruence, similarity and square roots will be discussed.

OBJECTIVES The student will:	SUGGESTED ACTIVITIES
Learn correct terminology for area and perimeter of polygons and circles. They will learn to formulate.	Students will play games to help learn the terminology. They will use graph paper to discover the formulae. They will work in groups and complete an art project.
Learn about congruence and similarity. Learn about square roots and the Pythagorean Theorem.	Students will practice, draw, and work with scale models. They will complete a project, an art project and take a written assessment.

Content Area Standards
The students will demonstrate content proficiency by:
1.　Completing several projects to demonstrate their understanding of area and perimeter, as well as circumference. They will discover formulae. They will relate the Pythagorean Theorem to use of square roots, thus demonstrating an understanding of the mathematics. Ultimately, proficiency will be determined if a student passes the CAHSEE in mathematics.

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UNIT #12:   Fun with Statistics

GOAL: Students will learn terminology and how to work with frequency tables, stem and leaf plots, histograms, scatter grams, box and whiskers and circle graphs

OBJECTIVES The student will:	SUGGESTED ACTIVITIES
Learn correct terminology for the different graphs and tables. They will learn how to read and interpret the graphs. They will learn how to create the graphs from data.	Students will play games to help learn the terminology. They will use any available technology. They will make several projects relating to the graphs.
Learn about when and how to best use each of the tables or graphs	Students will practice, make, and work with all of the tables and graphs. They will complete several projects, an art project and take a written assessment

Content Area Standards
The students will demonstrate content proficiency by:
1.   Completing several projects to demonstrate their understanding of statistics, data, graphing, and tables. They will take a written assessment of this on when and how each table or graph should be used, thus demonstrating an understanding of the mathematics. Ultimately, proficiency will be determined if a student passes the CAHSEE in mathematics.

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UNIT #13:   Probability

GOAL: Students will learn terminology and how to connect probability to the real world.
              Probability and odds will be discussed. Dice (random sample selectors) games
              will take place. Students will work with tree diagrams

OBJECTIVES The student will:	SUGGESTED ACTIVITIES
Learn correct terminology for probability. They will learn the difference between probability and odds.	Students will play games to help learn the terminology. They will use any available technology. They will make several projects relating to probability.
Learn about the importance of probability in different career areas (genetics, sports and polls).	Students will practice with games of probability. They will do a research paper on a career that would require the use of probability. They will complete several projects, an art project and take a written assessment.

Content Area Standards
The students will demonstrate content proficiency by:
1.   Completing several projects to demonstrate their understanding of probability. They will take a written assessment of this. They will do a research paper and present it to the class, thus demonstrating a use and understanding of probability. Ultimately, proficiency will be determined if a student passes the CAHSEE in mathematics.