

**MT. DIABLO UNIFIED SCHOOL DISTRICT
COURSE OF STUDY**

COURSE TITLE: DYNAMIC ALGEBRA CONCEPTS & SKILLS
COURSE NUMBER: 701056
DEPARTMENT: Mathematics
GRADE LEVEL(S): 9-12
CREDITS PER SEMESTER: 5
LENGTH OF COURSE: One Year
REQUIRED OR ELECTIVE: (This course fulfills one year of the TWO year math requirement)
BOARD OF EDUCATION ADOPTION: April 2024

COURSE DESCRIPTION:

This course is designed for students with significant cognitive disabilities who are anticipated to earn an Alternative High School Diploma in accordance with California Education Code 51225.31.

The course will develop an understanding of function, algebra, geometry, statistics and probability, measurement, number, logic and language. The emphasis of this course is to provide the concepts and skills necessary to meet the district's rigorous academic standards in mathematics. (This course is aligned with the MDUSD adopted Math Content Standards.)

COURSE OUTLINE:

MAJOR GOALS

- To ensure the development of broad mathematical power.
- To ensure the development of technological competence.
- To cultivate students' ability to explore, conjecture and reason logically.
- To cultivate students' ability to formulate and solve problems, and communicate mathematically.
- To foster self-confidence and personal enjoyment of math.

PERFORMANCE OBJECTIVES

1. Collect, organize, compute and analyze statistical data.
 - a. Compute mean, median and mode.

Sample activity: Find the most common birth month of your classmates or find the most common answer to a class question.
Sample activity: Document items sold in the student store and compare which items are more or less popular.
 - b. Determine probability and predict events.

Sample activity: Use resources to predict weather or use resources to predict the probability that a class will purchase lunch given a particular menu item
Sample activity: Use data from prior sales in the student store to predict which items will sell in future weeks.

MT. DIABLO UNIFIED SCHOOL DISTRICT
COURSE OF STUDY

- c. Understand and utilize various forms of display for data sets.
 - Sample activity: Create a timeline counting the days to a particular activity.
 - Sample activity: Create a graph and a pie chart that demonstrate sales of items in the student store.

2. Compute with rational numbers.
 - a. Add, subtract, multiply and divide rational numbers.
 - Sample activity: Perform the basic mathematical operations with or without technology.
 - Sample activity: Calculate the number of tickets needed for a particular community event.

 - b. Write and solve proportions.
 - Sample activity: Determine the number of students in a group who are attending an event and represent as a proportion
 - Sample activity: Determine how many students are present across the class or site on a particular day.

 - c. Calculate percent of change.
 - Sample activity: Use visual representations to demonstrate growth or decline of a daily number such as attendance.
 - Sample activity: Graph the weather daily and track the changes across a year.

3. Solve problems that involve discounts, mark-ups, commissions, and profit.
 - a. Compute simple profit and loss
 - Sample activity: Determine profit of loss of an item in a theoretical or school based business.

 - b. Compute a bank balance given deposits and withdrawals.
 - Sample activity: Over time, maintain a log showing money available after the purchase of an item
 - Sample activity: Maintain financial record of sales and purchases for a theoretical or school based business.

4. Demonstrate knowledge of geometrical concepts and measurement
 - a. Compare weights, capacities, geometric measures, times and temperatures within and between measurement systems.
 - Sample activity: Compare sizes or weights of a variety of personal items such as shoes or athletic equipment.
 - Sample activity: Compare the sizes of different classrooms

 - b. Construct and read drawings and models to scale.
 - Sample activity: Construct models of shapes, objects
 - Sample activity: Read or create a map of the classroom, site or

**MT. DIABLO UNIFIED SCHOOL DISTRICT
COURSE OF STUDY**

community event.

- c. Use measures expressed as rates to solve problems.
Sample activity: Measure a variety of items in both small and large units of measurement.
 - d. Compute the perimeter, area and volume for geometric figures.
Sample activity: Use the basic mathematical operations to calculate the perimeter of a room.
Sample activity: Use displacement to identify the volume of different classroom items
5. Graph data, linear equations, inequalities and systems of equations.
- a. Represent relationships graphically and interpret the parts of the graph.
Sample activities include creating and interpreting graphs.
Sample activity: Create a graph detailing the cost of a variety of expenses in putting on a performance.
 - b. Identify inequalities within an equation
Sample activities include solving real life problems that involve inequalities such as time, age, money, items or other realia
Sample activity: Determine which classmate is taller or shorter, or determine which food item is larger or smaller.
 - c. Identify and understand concepts of parallel lines and perpendicular lines.
Sample activity: Walk parallel lines on the blacktop then walk perpendicular lines on the blacktop
Sample activity: Identify parallel and perpendicular lines in a given shape
6. Simplify, write and solve algebraic expressions, equations and inequalities.
- a. Use order of operations to simplify and evaluate algebraic expressions.
 - b. Understand positive and negative whole number exponents,
 - c. Add, subtract, multiply and divide monomials.
 - d. Solve linear equations and inequalities.
Sample activity: Solve for an unknown number in a real life scenario such as how many items you need for a recipe to serve double the number of people listed
Sample activity: Determine if an activity is a positive or negative number on a total such as adding a new clothing item to your closet results in more clothes but giving an item away results in fewer items.
7. Interpret, analyze and solve problems using mathematical reasoning.
- a. Analyze problems by identifying relationships, distinguishing relevant from irrelevant information, identifying missing information, sequencing and prioritizing information and observing patterns. Use appropriate

**MT. DIABLO UNIFIED SCHOOL DISTRICT
COURSE OF STUDY**

problem-solving strategies.

Sample activities- identify missing or irrelevant information in a
real life scenario involving time, distance or money

CONTENT OUTLINE and TIME ESTIMATES

- Statistics, data analysis and probability-15% of class time
- Number sense-15% of class time
- Profit and loss- 15% of class time
- Geometry and measurement- 25% of class time
- Graphs and functions- 10% of class time
- Algebra- 10% of class time
- Mathematical reasoning-10% of class time

INSTRUCTIONAL MATERIALS

- Textbook and supplemental materials
- Manipulatives
- Realia
- Computers, internet and software programs
- Videos

EVALUATION OF STUDENT PROGRESS

- Tests and quizzes
- Homework and classwork
- Class participation
- Projects
- Teacher observation