MT. DIABLO UNIFIED SCHOOL DISTRICT
COURSE OF STUDY
DRAFT

COURSE TITLE:	**English Language Development Math**
COURSE NUMBER:	**0248**
CALPADS NUMBER:	**2402**
CST:	**General Math for Ninth Graders Only**
DEPARTMENT:	**Mathematics**
NCLB CREDENTIAL REQUIREMENT:	**Math Credential with Subject Matter Proficiency**
LENGTH OF COURSE:	**One Year**
CREDITS PER SEMESTER:	**5**
GRADE LEVEL(S):	**9-12**
GRADUATION REQUIREMENT OR ELECTIVE:	**This course does not fulfill one year of the mathematics requirement**
PREREQUISITES:	**Administrative Recommendation**

BOARD OF EDUCATION ADOPTION:

COURSE DESCRIPTION

This is a sheltered math class designed for students who are new to the English Language who have also experienced interrupted learning. The interruptions were significant enough that the student lacks the basic arithmetic skills to succeed in Introduction to Algebra I. The course is designed to help the student build the arithmetic skills, academic vocabulary, school skills and number sense skills that will be needed to successfully enroll in Introduction to Algebra I, or Algebra I.

COURSE OUTLINE:

1. **MAJOR GOALS**

   1.1 To develop the necessary skills and understanding that each student needs for Introduction to Algebra I
   1.2 To develop academic vocabulary for communicating mathematically for confidence
   1.3 To build a foundation in the basic skills necessary for future success on CAHSEE
   1.4 To develop skills in solving word problems
   1.5 To develop study skills for success in future math courses

2. PERFORMANCE OBJECTIVES:

2.1 Grade 2

2.1.1 Students model and solve problems by representing, adding, and subtracting amounts of money.

2.1.1.1 Solve problems using combinations of coins and bills

2.1.1.2 Know and use the decimal notation and the dollar and cents symbols for money

2.1.2 Students use estimation strategies in computation and problem solving that involve numbers that use the ones, tens, hundreds and thousands places.

2.1.2.1 Recognize when an estimate is reasonable in measurements (e.g., closest inch

2.1.3 Students model, represent and interpret number relationships to create and solve problems involving addition and subtraction.

2.1.3.1 Use the commutative and associative rules to simplify mental calculations and check results (e.g., $2 + 3 = 3 + 2$ and $(2 + 5) + 6 = 2 + (5 + 6)$)

2.1.4 Students describe and compare the attributes of plane and solid geometric figures and use their understanding to show relationships and solve problems.

2.1.4.1 Identify, describe and classify polygons (including pentagons, hexagons and octagons)

2.1.4.2 Identify attributes of triangles (e.g., two equal sides for the isosceles triangle, three equal sides for the equilateral triangle, right angle for the right triangle)

2.1.4.3 Identify attributes of quadrilaterals (e.g., parallel sides for the parallelogram, right angles for the rectangle, equal sides and right angles for the square)

2.1.4.4 Identify right angles in geometric figures or in appropriate objects and determine whether other angles are greater or less than a right angle

2.1.4.5 Identify, describe and classify common three-dimensional geometric objects (e.g., cube, rectangular solid, sphere, prism, pyramid, cone, cylinder)

2.1.4.6 Identify the common solid objects that are the component parts needed to make a more complex solid object

2.1.5 Students understand that fractions and decimals can refer to parts of a set and parts of a whole.

2.1.5.1 Recognize, name and compare unit fractions up to 1/12

2.1.5.2 Recognize fractions of a whole and parts of a group (e.g., ¼ of a pie, 2/3 of 15 balls, ½ of ten cookies)

2.1 Grade 3

2.1.1 <u>Number Sense</u>

Students understand place value of whole numbers.

2.1.1.1 Count, read, and write whole number to 10,000
2.1.1.2 Compare and order whole numbers to 10,000
2.1.1.3 Identify the place value for each digit in numbers to 10,000
2.1.1.4 Round off numbers to 10,000 to the nearest ten, hundred and thousand
2.1.1.5 Use expanded notation to represent numbers (e.g., 3,206 = 3,000 + 200 + 6)

2.1.2 Students calculate and solve problems involving addition, subtraction, multiplication and division.

2.1.2.1 Find the sum or difference of two whole numbers between 0 and 10,000
2.1.2.2 Memorize to automaticity the multiplication table for numbers between 1 and 10
2.1.2.3 Use the inverse relationship of multiplication and division to compute and check results
2.1.2.4 Solve simple problems involving multiplication of multi-digit numbers by one-digit numbers (3.671 x 3 = __)
2.1.2.5 Solve division problems in which a multi-digit number is evenly divided by a one-digit number (135/5)
2.1.2.6 Understand the special properties of 0 and 1 in multiplication and division
2.1.2.7 Determine the unit cost when given the total cost and number of units
2.1.2.8 Solve problems which combine two or more of the skills above

2.1.3 Students understand the relationship between whole numbers, simple fractions and decimals.

2.1.3.1 Compare fractions represented by drawings or concrete materials to show equivalency, and to add and subtract simple fractions in context (e.g., ½ of a pizza is the same amount as 2/4 of another pizza that is the same size; show that 3/8 is more than 1/8)
2.1.3.2 Add and subtract simple fractions (e.g., determine that 1/8 + 3/8 is the same as ½)
2.1.3.3 Solve problems in involving addition, subtraction, multiplication and division of money amounts in decimal notation and multiply and divide money amounts in decimal notation using whole number multipliers and divisors
2.1.3.4 Know and understand that fractions and decimals are two different representations of the same concept (e.g., 50 cents is ½ of a dollar, 75 cents is ¾ of a dollar)

2.1 Grade 4

2.1.1 Students understand place value of whole numbers and decimals to two decimal places, how these relate to simple fractions, and use concepts of negative numbers.

2.1.2 Interpret and evaluate mathematical expressions that use parentheses

2.1.3 Use parentheses to indicate which operation to perform first when writing expressions containing more than two terms and different operations

2.1 Grade 5

2.1.1 Interpret percents as part of a hundred; find decimal and percent equivalents for common fractions; explain why they represent the same value; and compute a given percent of a whole number.

2.1.2 Determine the prime factors of all numbers through 50 and write numbers as the product of their prime factors using exponents to show multiples of a factor (e.g., $24 = 2 \times 2 \times 2 \times 3 = 2^3 \times 3$).

2.1.3 Write and solve real world problems involving addition and subtraction of fractions.

2.1.4 Students perform calculations and solve problems involving addition, subtraction and simple multiplication and division of fractions and decimals.

2.1.5 Add, subtract, multiply and divide with decimals and negative numbers and verify the reasonableness of the results.

2.1.6 Are proficient with division, including division with positive decimals and long division with multiple digit divisors.

2.1.7 Solve simple problems including ones arising in concrete situations involving the addition and subtraction of fractions and mixed numbers (like and unlike denominators of 20 or less) and express answers in simplest form.

2.1.8 Understand the concept of multiplication and division of fractions.

2.1.9 Compute and perform simple multiplication and division of fractions and apply these procedures to solving problems.

2.1.10 Use a variety of strategies (e.g., estimation, rounding, mental math, paper and pencil) to solve computation problems

(1) explain thinking orally and in writing

(2) show two ways to solve a given problem

2.1 Grade 6

2.1.1 Students compare and order fractions, decimals, and mixed numbers. They solve problems involving fractions, ratios, proportions, and percentages.

2.1.2 Students calculate and solve problems involving addition, subtraction, multiplication and division of rational numbers.

2.1.3 Determine the least common multiple and greatest common divisor of whole numbers. Use them to solve problems with fractions (e.g., to find a common denominator in order to add two fractions or to find the reduced form for a fraction).

2.1 Grade 7

2.1.1 Add, subtract, multiply and divide rational numbers, integers, fractions and decimals and take rational numbers to whole number powers.

2.1.2 Convert fractions to decimals and percents and use these representations in estimation, computation and applications.
2.1.3 Add and subtract fractions using factoring to find common denominators.
2.1.4 Multiply, divide, and simplify fractions using exponent rules.
2.1.5 Use estimation to verify the reasonableness of calculated results.
2.1.6 Apply strategies and results from simpler problems to more complex problems.
2.1.7 Use a variety of methods such as words, numbers, symbols, charts, graphs, tables, diagrams and models to explain mathematical reasoning.
2.1.8 Express the solution clearly and logically using appropriate mathematical notation and terms and clear language, and support solutions with evidence, in both verbal and symbolic work.
2.1.9 Make precise calculations and check the validity of the results from the context of the problem.
2.1.10 Evaluate the reasonableness of the solution in the context of the original situation.

2.2 Confident mathematical communication
2.2.1 Translate mathematical expression graphically and symbolically.
2.2.2 Discuss and negotiate problem solving methods using precise mathematical vocabulary.

2.3 Organization for math success
2.3.1 Demonstrate consistently application of organizational skills such as bringing materials, updating agenda, note-taking, binder organization and problem solving.
2.3.2 Monitor self-progress

3. CONTENT OUTLINE:

3.1 Reading and Saying Cardinal and Ordinal Numbers
3.1.1 Cardinal numbers and ordinal numbers
3.1.2 Base-ten place names
3.1.3 Comma placement
3.1.4 How to say cardinal numbers and ordinal numbers
3.1.5 How to say dates

3.2 Rounding Numbers
3.2.1 Rounding off numbers
3.2.2 Rounding off to the tens, hundreds and thousands places
3.2.3 Estimation

3.3 Properties and Operations with Whole Numbers
3.3.1 Addition

3.7 Operations with Fractions

- 3.7.1 Multiplying fractions
- 3.7.2 Reciprocals
- 3.7.3 Dividing fractions
- 3.7.4 Solving word problems
- 3.7.5 Adding fractions
- 3.7.6 Solving word problems
- 3.7.7 Subtracting fractions
- 3.7.8 Solving word problems

3.8 Ratios and Percents

- 3.8.1 Language of ratios
- 3.8.2 Using ratios
- 3.8.3 Language of percents
- 3.8.4 Writing percents as decimals and fractions
- 3.8.5 Solving percent problems

3.9 Operations with Integers

- 3.9.1 Positive and negative integers
- 3.9.2 Absolute value
- 3.9.3 Operations with integers

3.10 Geometry and Measurement

- 3.10.1 Points, lines, and planes
- 3.10.2 Intersecting and parallel lines
- 3.10.3 Angles
- 3.10.4 Perpendicular lines
- 3.10.5 Triangles
- 3.10.6 Circles
- 3.10.7 Polygons
- 3.10.8 Congruent figures
- 3.10.9 Corresponding parts
- 3.10.10 Names of regular polygons
- 3.10.11 Perimeter
- 3.10.12 Circumference of a circle
- 3.10.13 Area of a rectangle, square, triangle, parallelogram and circle

3.11 Algebra and Functions

- 3.11.1 Symbolic, concrete and pictorial representations of algebraic patterns and functions
- 3.11.2 Basic operations on algebraic expressions
- 3.11.3 Word problems involving algebraic expressions or equations

3.12 Solving Multistep Equalities and Inequalities

- 3.12.1 Solve linear equations and inequalities using concrete, informal and formal methods

3.12.2 Solve and graph linear equations

3.13 Coordinate Planes
   3.13.1 Basic characteristics and features of the coordinate system
   3.13.2 Solves simple systems of equations graphically

4. TIME ESTIMATES:

4.1 Instructional sequences vary in length from a few days to several weeks.

5. INSTRUCTIONAL MATERIALS:

5.1 Textbook and supplemental materials
5.2 Technology materials
5.3 Teacher created materials/online materials

6. EVALUATION OF STUDENT PROGRESS:
Students communicate mathematically and demonstrate content knowledge that leads to math competence.

6.1 Teacher observation
6.2 Written assignments
6.3 Tests and quizzes

Committee Members:

Steve Sankey	MDHS
John Ghiozzi	YVHS
Mary Ditkof	YVHS
Susan Seeley	CVHS
Suzette Blanke	CPHS
Norma Meyerkorth	CHS
Brianne Whiteside	CHS
Judy Cubillo	NHS
Peri Curtis	OHS
Sandy Bruketta	Curriculum Specialist