

GUSD High School Course Description

A. COVER PAGE

1. Course Title: Algebra A	9. Subject Area: <input type="checkbox"/> History Social Science <input type="checkbox"/> English <input checked="" type="checkbox"/> Mathematics <input type="checkbox"/> Lab Science <input type="checkbox"/> Life <input type="checkbox"/> Physical Science <input type="checkbox"/> Foreign Language <input type="checkbox"/> Visual and Performing Arts <input type="checkbox"/> Other _____
2. Transcript Title/Abbreviation Algebra A	
3. Transcript Course Code/Number 2024	
4. School Gilroy High School	
5. District Gilroy Unified School District	
6. School/District Website http://www.gusd.k12.ca.us/	10. Grade Level <input checked="" type="checkbox"/> 9 <input checked="" type="checkbox"/> 10 <input checked="" type="checkbox"/> 11 <input checked="" type="checkbox"/> 12
7. City Gilroy	11. Unit Value <input type="checkbox"/> 0.5 (half year or semester equivalent) <input checked="" type="checkbox"/> 1.0 (one year equivalent)
8. School Course List Contact James Maxwell, Principal (408) 847-2424	12. Approved by UC <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
13. Recommended Course Prerequisites: 9 th - 12 th C or better in Algebra Readiness and $230 \leq \text{MAP}$ or $325 \leq \text{GenMathCST}$	

B. COURSE DESCRIPTION/OVERVIEW

1. Course Description

This is the first year of a two-year course, which is equivalent to Algebra 1. It involves the study of the properties of the real number system, which leads to the solution of equations and inequalities. Emphasis is placed on linear functions. Exponents, problem solving techniques, and applications are included.

2. Course Content

Connections to Algebra

- Variables in Algebra, Exponents and Powers, Order of Operations, Equations and Inequalities, Translating Words into Mathematical Symbols, A Problem Solving Plan Using Models, Tables and Graphs, An Introduction to Functions

Properties of Real Numbers

- The Real Number Line, Absolute Value, Adding Real Numbers, Subtracting Real Numbers, Multiplying Real Numbers, The Distributive Property, Combining Like Terms, Dividing Real Numbers

Solving Linear Equations

GUSD High School Course Description

- Solving Equations Using Addition and Subtraction, Solving Equations Using Multiplication and Division, Solving Multi-Step Equations, Solving Equations with Variables on Both Sides, More on Linear Equations, Solving Decimal Equations, Formulas, Ratios and Rates, Percents
- Graphing Linear Equations and Functions
- The Coordinate Plane, Graphing Linear Equations, Graphing Horizontal and Vertical Lines, Graphing Lines Using Intercepts, The Slope of a Line, Direct Variation, Graphing Lines Using Slope-Intercept Form, Functions and Relations
- Writing Linear Equations
- Slope-Intercept Form, Point-Slope Form, Writing Linear Equations Given Two Points, Standard Form, Modeling with Linear Equations, Perpendicular Lines
- Solving and Graphing Linear Inequalities
- Solving Inequalities Using Addition and Subtraction, Solving Inequalities Using Multiplication and Division, Solving Multi-Step Inequalities, Solving Compound Inequalities Involving “And”, Solving Compound Inequalities Involving “Or”, Solving Absolute Value Equations, Solving Absolute Value Inequalities, Graphing Linear Inequalities in Two Variables
- Exponents and Exponential Functions
- Multiplication Properties of Exponents, Zero and Negative Exponents, Division Properties of Exponents, Scientific Notation

3. Course Materials

Materials must be brought to class daily. These materials are:

- McDougal Littell: *CA Algebra I: Concepts and Skills, 2001*
- 3-Ring Binder
- Notebook Paper
- Pencils
- Erasers

4. Universal Access i.e. Special Populations (English Learners, Special Ed., GATE/high achieving students)

To establish universal access for all students, the teacher should:

- 1) Establish a safe environment in which the students are encouraged to talk and to ask questions freely when they do not understand.
- 2) Use a wide variety of ways to explain a concept.
- 3) Provide assistance in the general vocabulary to be used each lesson.
- 4) Set up tutoring situations that offer additional assistance.
- 5) Enlist the help of parents at home when possible.
- 6) Use a variety of ways to check frequently for understanding.

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C. COURSE POLICIES

1. Attendance/Absences/Make-up Work

(Teacher Handbook Guidelines)

Make-up tests and assignments shall be reasonably equivalent to, but not necessarily identical to, the tests and assignments, which the student missed during an absence.

Every student will be given an opportunity to make-up work for any assignment missed for full credit during an excused absence. The teacher will determine when make-up assignments will be due. Due dates should be within a reasonable amount of time.

Makeup assignments for work missed during an unexcused absence, including “cuts” and suspensions, will be given at the discretion of the teacher.

2. Classroom Rules/Expectations

In addition to school-wide rules each teacher will establish clear and concise rules for his/her classroom. Teachers will provide each student and their administrator with a written copy of the classroom rules. The teacher will enforce these rules. Should a student choose to violate these rules the teacher will administer the consequences for the violation. Students continuing to violate all classroom rules will be referred to an administrator. Copies of teacher's classroom rules are available upon individual requests of the administrators.

3. Behavioral Management Plan

(Teacher Handbook Guidelines)

- 1) The student will have been made aware of the classroom rules and procedures. The student will also have been made aware of the consequences for violation of classroom rules and procedures. Consequences assigned by the classroom teacher for violations of classroom rules and procedures are to take place outside the normal school day.
- 2) When a problem occurs, the teacher will confer with the student and attempt to resolve the problem.
- 3) If the student does not modify his/her behavior or comply with the consequences the classroom teacher will:
 - a. Assign teacher detention.
 - b. Attempt to make phone contact with the parent within three days to discuss the problem and solicit parental assistance in modifying the student's behavior.
- 4) Referral to administration and placement on the appropriate step of the Administrative Discipline Ladder.

4. Homework Policy

Homework will be assigned daily. Sometimes on test days there won't be any homework. On most days, homework will be started in class and completed at home. The assignment will be checked and corrected the next time the class meets.

5. Extra Credit

Sometimes an extra credit problem may be given on a test. That problem should constitute no

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more than 5% of the overall test. Extra credit can increase a student's overall grade by at most 3%

6. Academic Honesty

The Governing Board believes that academic honesty and personal integrity are fundamental components of a student's education and character development. The Board expects that students will not cheat, lie, conspire to cheat, plagiarize or commit other acts of academic dishonesty.

Students, parents/guardians, staff and administrators shall be responsible for creating and maintaining a positive school climate that encourages honesty. Students found to have committed and act of academic dishonesty shall be subject to district and school-site discipline rules. B.P. 5131.9

D. COURSE REQUIREMENTS

1. Grading Policy

Grading: Grades will be calculated using the following weights:

Tests (including Final)	50%
Homework	15%
H.W. Quizzes/Quizzes	10%
Classwork	10%
Notebook	10%
Essay	5%

*As part of the Algebra A curriculum and accountability, students will have to pass Mastery Tests. These Masteries are in addition to regular unit exams. In order to earn a passing grade in Algebra A, all masteries must be passed with 90%. Masteries may be taken as many times as needed to earn the 90% pass. Masteries do not count in the point total of the overall grade.

2. Course Procedures

Students will be expected to keep a notebook with their notes, class work, and old tests/quizzes. Homework quizzes are given periodically in which past homework problems are tested. Students will be given the opportunity to use their old homework assignments on homework quizzes. Chapter tests are given at the end of every unit and are representative of material taught in the unit. Mastery quizzes on key objectives are given and may be re-taken until 90 percent proficiency is achieved. Students who do not pass one of the masteries in a given semester will fail the course.

3. Personal Statement

It is very important that you do your work in class, review your notes at home, and complete any homework that is assigned. If you are having difficulties with any of the topics covered in this course, see the teacher as soon as possible. Each teacher has their own tutoring times.

4. Additional Information

There are other resources available on campus for tutoring as well. Just ask. You can also log onto www.mcdougallittel.com for additional help.

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E. COMPREHENSIVE COURSE NARRATIVE

The step from Grade 7 mathematics to the discipline of algebra, which is one of the largest in the curriculum, can be more difficult to bridge than the previous steps from one grade level to the next. Algebra A is a gateway course. Without a strong background in the fundamentals of algebra, students will not succeed in more advanced mathematics courses. Nor will they be able to enter many high-technology and high-paying fields after graduation from high school.

This course is designed to help students succeed in Algebra B curriculum and further study into Geometry and Algebra II. In the first semester students will also be expected to be proficient and show mastery of:

- Addition, subtraction, multiplication, and division of decimals,
- Addition, subtraction, multiplication, and division of fractions,
- Addition, subtraction, multiplication, and division of negative and positive integers,
- Combining like terms,
- Distributive property,
- Solving single step and multi-step equations.

For second semester study students will be expected to be proficient and show mastery of:

- Graphing lines using x- and y-intercepts,
- Finding slope,
- Using slope-intercept form,
- Simplifying inequalities with variables on both sides
- Solving inequalities where you need to divide or multiply with a negative
- Exponent properties, in particular, working with negative exponents.

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A. COVER PAGE

1. Course Title: Algebra B	9. Subject Area: <input type="checkbox"/> History Social Science <input type="checkbox"/> English <input checked="" type="checkbox"/> Mathematics <input type="checkbox"/> Lab Science <input type="checkbox"/> Life <input type="checkbox"/> Physical Science <input type="checkbox"/> Foreign Language <input type="checkbox"/> Visual and Performing Arts <input type="checkbox"/> Other _____
2. Transcript Title/Abbreviation: Alg.B	
3. Transcript Course Code/Number 2034	
4. School : Gilroy High School	
5. District: Gilroy Unified School District	
6. School/District Website www.gusd.k12.ca.us	10. Grade Level <input checked="" type="checkbox"/> 10 <input type="checkbox"/> 11 <input type="checkbox"/> 12
7. City: Gilroy, CA	11. Unit Value <input type="checkbox"/> 0.5 (half year or semester equivalent) <input checked="" type="checkbox"/> 1.0 (one year equivalent)
8. School Course List Contact	12. Approved by UC <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
13. Recommended Course Prerequisites: Prerequisites- 9 th - not available C or better in Algebra A and _MAP ≥235 or GenMathCST ≥ 325	

B. COURSE DESCRIPTION/OVERVIEW

1. Course Description

This is the second year of a two-year course which is equivalent to Algebra I. It involves the study of the properties of the real number system, which leads to the solution of equations and inequalities. Emphasis is placed on solving systems of linear equations, and quadratic equations using algebraic and graphing methods. Operations with polynomials, factoring, radicals, exponential and rational functions, problem solving techniques, and applications are included.

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<p>Chapter 10</p> <p>Polynomials and Factoring</p>	<p>Adding and Subtracting polynomials</p> <p>Multiplying Polynomials: monomials, binomials, and trinomials by various methods</p> <p>Factoring and using factoring to solve quadratic equations</p>	<p>10.2 Multiplying two binomials</p> <p>10.6 Factoring greatest common factor</p> <p>10.5-10.7 Factoring quadratic trinomials</p>
<p>Chapter 11</p> <p>Rational Expressions and Equations</p>	<p>Solving proportions.</p> <p>Direct and inverse proportion</p> <p>Add, subtract, multiply, divide, and reduce rational expressions.</p>	<p>11.1 Solving proportions</p> <p>11.3 Reducing algebraic fractions</p> <p>11.4 Multiplying and dividing algebraic fractions</p> <p>11.5 Adding algebraic fractions having a common denominator</p> <p>11.6 Adding algebraic fractions that do not have a common denominator</p>
<p>Chapter 12</p> <p>Radicals and More Connections to Geometry</p>	<p>Operations with radical expressions</p> <p>Pythagorean Theorem</p> <p>Midpoint Formula</p> <p>Distance Formula</p>	<p>12.2 Operations with radical expressions</p>

3. Course Materials

McDougal Littell: *Algebra 1, Concepts & Skills, 2001*

4. Universal Access i.e. Special Populations (English Learners, Special Ed., GATE/high achieving students)

To establish universal access for all students, the teacher should:

- 1) Establish a safe environment in which the students are encouraged to talk and to ask questions freely when they do not understand.
- 2) Use a wide variety of ways to explain a concept.
- 3) Provide assistance in the general vocabulary to be used each lesson.
- 4) Set up tutoring situations that offer additional assistance.
- 5) Enlist the help of parents at home when possible.
- 6) Use a variety of ways to check frequently for understanding.

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C. COURSE POLICIES

1. Attendance/Absences/Make-up Work

(Teacher Handbook Guidelines)

Make-up tests and assignments shall be reasonably equivalent to, but not necessarily identical to, the tests and assignments, which the student missed during an absence.

Every student will be given an opportunity to make-up work for any assignment missed for full credit during an excused absence. The teacher will determine when make-up assignments will be due. Due dates should be within a reasonable amount of time.

Makeup assignments for work missed during an unexcused absence, including “cuts” and suspensions, will be given at the discretion of the teacher.

2. Classroom Rules/Expectations

Students are expected to follow all School rules in addition to each individual teacher’s classroom rules and expectations.

3. Behavioral Management Plan

(Teacher Handbook Guidelines)

1. The student will have been made aware of the classroom rules and procedures. The student will also have been made aware of the consequences for violation of classroom rules and procedures. Consequences assigned by the classroom teacher for violations of classroom rules and procedures are to take place outside the normal school day.
2. When a problem occurs, the teacher will confer with the student and attempt to resolve the problem.
3. If the student does not modify his/her behavior or comply with the consequences the classroom teacher will:
 - a. Assign teacher detention.
 - b. Attempt to make phone contact with the parent **within three days** to discuss the problem and solicit parental assistance in modifying the student's behavior.
4. Referral to administration and placement on the appropriate step of the Administrative Discipline Ladder.

4. Homework Policy

Homework will be assigned at the end of every class session.. It will mostly consist of assignments from the textbook. The procedure for doing homework is as follows:

- Copy down the problem.
- Show ALL work.
- Check the answers to odd numbered problems in the back of the textbook. If your answer is incorrect, check your work. If you can’t find a mistake, be prepared to ask about the problem during the next class session.
- Keep your homework in your binder. You will need to have all of your homework for homework quizzes.

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1. Extra Credit

The only extra credit available will be extra problems on exams. These will be limited to no more than 5% of the exam points. There are no extra credit projects or homework assignments. The extra credit on exams may not exceed 3% of the total grade in the class.

6. Academic Honesty

The Governing Board believes that academic honesty and personal integrity are fundamental components of a student's education and character development. The Board expects that students will not cheat, lie, conspire to cheat, plagiarize or commit other acts of academic dishonesty.

Students, parents/guardians, staff and administrators shall be responsible for creating and maintaining a positive school climate that encourages honesty. Students found to have committed and act of academic dishonesty shall be subject to district and school-site discipline rules. B.P. 5131.9

D. COURSE REQUIREMENTS

1. Grading Policy

Grading: Grades will be calculated using the following weights:

Tests	40 %
Final Exams	10 %
Quizzes & Mastery Tests	25 %
Homework /Homework Quizzes	10 %
Class work/Notebooks/Projects	10%
Quarterly Writing Prompts	5 %

For each chapter, certain essential skills have been identified and students must demonstrate proficiency of these skills on Mastery Tests, which the student must pass with a 90% or better. Students may retest as often as necessary to achieve 90%. Students not proving mastery of these key skills will fail the course.

2. Course Procedures

Homework is assigned nightly.

A quiz is given about half-way through each chapter.

An exam is given at the end of each chapter.

For each chapter, certain essential skills have been identified and students must demonstrate proficiency of these skills on Mastery Tests, which the student must pass with a 90% or better. Students may retest as often as necessary to achieve 90%. Students not proving mastery of these key skills will fail the course.

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3. Personal Statement

4. Additional Information

E. COMPREHENSIVE COURSE NARRATIVE

Topics that are stressed in the Algebra B curriculum are solving systems of linear equations, graphing and solving quadratic equations, polynomial operations and simplifying rational expressions.

Each quarter, students will be assigned a writing prompt in which they will describe Algebra I concept in essay format. Grading will be based on conceptual ideas and organization.

Mastery Tests are short exams which test proficiency in key topics of the Algebra I curriculum. These are normally limited to ten problems. Mastery Tests are graded on a Pass or No Pass Basis and are assigned no point value towards a student's grade. If a student has not passed all of the required mastery for an academic quarter, then they will receive a failing grade for that quarter. Mastery Test Topics for the Algebra B course will include:

- Solving Systems of Linear Equations – Graphically and Algebraically
- Properties of Exponents and Scientific Notation
- Simplifying Square Roots
- Solving Quadratic Equations by Square Roots
- Solving Quadratic Equations by Quadratic Formula
- Multiplying Polynomials
- Factoring Quadratics
- Simplifying, Multiplying and Dividing Rational Expressions
- Adding and Subtracting Rational Expressions with Like and Un-Like Denominators

CA High School Exit Exam and California Standards Test Materials, such as Released Test Questions, will also be included in course content as appropriate.

GUSD High School Course Description

A. COVER PAGE

1. Course Title: Algebra I	9. Subject Area: <input type="checkbox"/> History Social Science <input type="checkbox"/> English <input checked="" type="checkbox"/> Mathematics <input type="checkbox"/> Lab Science <input type="checkbox"/> Life <input type="checkbox"/> Physical Science <input type="checkbox"/> Foreign Language <input type="checkbox"/> Visual and Performing Arts <input type="checkbox"/> Other _____
2. Transcript Title/Abbreviation Algebra I	
3. Transcript Course Code/Number 2043	
4. School : Gilroy High School	
5. District: Gilroy Unified School District	
6. School/District Website www.gusd.k12.ca.us	
7. City: Gilroy, CA	10. Grade Level <input checked="" type="checkbox"/> 9 <input checked="" type="checkbox"/> 10 <input checked="" type="checkbox"/> 11 <input checked="" type="checkbox"/> 12
8. School Course List Contact James Maxwell, Principal, (408)847-2424, james.maxwell@gusd.k12.ca.us	11. Unit Value <input type="checkbox"/> 0.5 (half year or semester equivalent) <input checked="" type="checkbox"/> 1.0 (one year equivalent)
12. Approved by UC <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
13. Recommended Course Prerequisites: Prerequisite- <ul style="list-style-type: none"> ■ 9th-Algebra 1 CST<350 repeats Algebra I OR Grade “A/B” in Algebra Readiness and $235 \leq \text{MAP}$ or $350 \leq \text{GenMathCST}$, ■ 10th-Grade “A/B” in Algebra Readiness and $235 \leq \text{MAP}$ or $350 \leq \text{GenMathCST}$ 	

B. COURSE DESCRIPTION/OVERVIEW

1. Course Description

Algebra I (satisfies UC/CSU Requirement “C”)

This is the study of the properties of the real number system which leads to the solutions of equations and inequalities. Emphasis is placed on functions, both linear and quadratic. Exponents, radicals, polynomial and rational functions, sets, problem solving techniques, and applications are included.

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2. Course Content

Unit Topic
Connections to Algebra <ul style="list-style-type: none">■ Variables in Algebra■ Exponents and Powers■ Order of Operations■ One Variable Equations and Inequalities■ Translating Words to Symbols■ Problems Solving with Models■ Tables and Graphs■ Introduction to Functions
Properties of Real Numbers <ul style="list-style-type: none">■ The Real Number Lines■ Absolute Value■ Adding Real Numbers■ Subtracting Real Numbers■ Multiplying Real Numbers■ The Distributive Property■ Combining Like Terms■ Dividing Real Numbers
Solving One Variable Linear Equations <ul style="list-style-type: none">■ Solving Equations using Addition and Subtraction■ Solving Equations using Multiplication and Division■ Solving Multi-Step Equations■ Formulas■ Ratios and Rates■ Percents
Graphing Linear Equations and Functions <ul style="list-style-type: none">■ The Coordinate Plane■ Graphing Linear Equations■ Graphing Horizontal and Vertical Lines■ Graphing Lines using Intercepts■ Slope of a Line■ Direct Variation■ Graphing Line using Slope Intercept Form■ Functions and Relations
Writing Two Variable Linear Equations <ul style="list-style-type: none">■ Write equations in Slope Intercept Form■ Write Equations in Point Slope Form■ Write Linear Equations given two Points■ Standard Form■ Modeling with Linear Equations■ Parallel and Perpendicular Lines
Solving and Graphing One Variable Linear Inequalities <ul style="list-style-type: none">■ Solving Inequalities using Addition or Subtraction■ Solving Inequalities using Multiplication and Division■ Solving Multi-Step Inequalities■ Solving Compound Inequalities involving “And”■ Solving Compound Inequalities involving “Or”■ Solving Absolute Value equations■ Solving Absolute Value inequalities

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Exponents and Exponential Functions <ul style="list-style-type: none">■ Multiplication Properties of Exponents■ Zero and Negative Exponents■ Graphs of Exponential Functions■ Division Properties of Exponents■ Scientific Notation■ Exponential Growth Function■ Exponential Decay Function
Systems of Linear Equations and Inequalities <ul style="list-style-type: none">■ Graphing Linear Systems■ Solving Linear Systems by Substitution■ Solving Linear Systems by Linear Combination■ Linear Systems and Problem Solving■ Special Types of Linear Systems■ Systems of Linear Inequalities
Quadratic Equations and Functions <ul style="list-style-type: none">■ Square Roots■ Solving Quadratic Equations by Finding Square Roots■ Simplifying Radicals■ Graphing Quadratic Equations■ Solving Quadratic Functions by Graphing■ Solving Quadratic Equations by the Quadratic Formula■ Using the Discriminant
Polynomials and Factoring <ul style="list-style-type: none">■ Adding and Subtracting Polynomials■ Multiplying Polynomials■ Special Products of Polynomials■ Solving Quadratic Equations in Factored Form■ Factoring $x^2 + bx + c$■ Factoring $ax^2 + bx + c$■ Factoring Special Products
Rational Expressions and Equations <ul style="list-style-type: none">■ Proportions■ Direct and Inverse Variation■ Simplifying Rational Expressions■ Multiplying and Dividing Rational Expressions■ Adding and Subtracting With Like Denominators■ Adding and Subtracting With Unlike Denominators■ Rational Equations
Radicals and Connections to Geometry <ul style="list-style-type: none">■ Functions involving Square Roots■ Operations with Radical Expressions■ Solving Radical Equations■ Rational Exponents■ Completing the Square■ The Pythagorean Theorem and Converse■ The Distance Formula

3. Course Materials

McDougal Littell: *CA Algebra I: Concepts and Skills, 2001*

GUSD High School Course Description

C. COURSE POLICIES

1. Attendance/Absences/Make-up Work

(Teacher Handbook Guidelines)

Make-up tests and assignments shall be reasonably equivalent to, but not necessarily identical to, the tests and assignments, which the student missed during an absence.

Every student will be given an opportunity to make-up work for any assignment missed for full credit during an excused absence. The teacher will determine when make-up assignments will be due. Due dates should be within a reasonable amount of time.

Makeup assignments for work missed during an unexcused absence, including “cuts” and suspensions, will be given at the discretion of the teacher.

2. Classroom Rules/Expectations

Students are expected to follow all School rules in addition to each individual teacher’s classroom rules and expectations.

3. Behavioral Management Plan

(Teacher Handbook Guidelines)

1. The student will have been made aware of the classroom rules and procedures. The student will also have been made aware of the consequences for violation of classroom rules and procedures. Consequences assigned by the classroom teacher for violations of classroom rules and procedures are to take place outside the normal school day.
2. When a problem occurs, the teacher will confer with the student and attempt to resolve the problem.
3. If the student does not modify his/her behavior or comply with the consequences the classroom teacher will:
 - a. Assign teacher detention.
 - b. Attempt to make phone contact with the parent within three days to discuss the problem and solicit parental assistance in modifying the student's behavior.
4. Referral to administration and placement on the appropriate step of the Administrative Discipline Ladder.

4. Homework Policy

Homework in the Algebra I course will be based on the material outlined in the course content. Homework may include assignments from the textbook and additional resource materials. Homework will be assigned on a daily basis.

5. Extra Credit

Extra Credit opportunities maybe made available to all students under the conditions that it does not exceed 3% of their overall grade and is agreed upon by all Algebra I teachers.

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6. Academic Honesty

The Governing Board believes that academic honesty and personal integrity are fundamental components of a student's education and character development. The Board expects that students will not cheat, lie, conspire to cheat, plagiarize or commit other acts of academic dishonesty.

Students, parents/guardians, staff and administrators shall be responsible for creating and maintaining a positive school climate that encourages honesty. Students found to have committed and act of academic dishonesty shall be subject to district and school-site discipline rules. B.P. 5131.9

D. COURSE REQUIREMENTS

1. Grading Policy

Grading: Grades will be calculated using the following weights:

Tests and Final Exams	50 %
Quizzes	10%
Homework Completion	15 %
Classwork	20%
Quarterly Writing Prompts	5 %

*As part of the Algebra 1 curriculum and accountability, students will have to pass Mastery Tests. These Masteries are in addition to regular unit exams. In order to earn a passing grade in Algebra 1, *ALL MASTERIES MUST BE PASSED WITH 90%*. Masteries may be taken as many times as needed to earn the 90% pass. Masteries do not count in the point total of the overall grade.

2. Course Procedures

Students will be expected to keep a notebook with their notes, class work, and old tests/quizzes. Homework quizzes are given periodically in which past homework problems are tested. Students will be given the opportunity to use their old homework assignments on homework quizzes. Chapter tests are given at the end of every unit and are representative of material taught in the unit.

3. Personal Statement

4. Additional Information

Please check with your student's teacher for their contact information and availability. Also their

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contact information may be found on www.gilroyhighschool.com. You may also inquire if your student's teacher uses school loop (www.gilroyhs.schoolloop.com) to update grades and daily assignments.

E. COMPREHENSIVE COURSE NARRATIVE

Topics that are stressed in the Algebra 1 curriculum are Properties of the Real Number System, Solving Linear and Quadratic Equations, and Graphing Linear and Quadratic Functions.

Each quarter, students will be assigned a writing prompt in which they will describe an Algebra I concept in essay format. Grading will be based on conceptual ideas and organization.

Mastery Tests are short exams which test proficiency in key topics of the Algebra I curriculum. These are normally limited to ten problems. Mastery Tests are graded on a Pass or No Pass Basis and are assigned no point value towards a student's grade. If a student has not passed all of the required mastery for an academic quarter, then they will receive a failing grade for that quarter. Mastery Test Topics for the Algebra I course will include:

- Order of Operations
- Absolute Value
- Integer Operations
- Distributive Property and Combining Like Terms
- Solving One-Step Linear Equations
- Solving Multi-Step Linear Equations
- Graphing Linear Equations
- Solving Linear Inequalities
- Solving Systems of Linear Equations
- Properties of Exponents and Scientific Notation
- Multiplying Polynomials
- Factoring Polynomials
- Solving Quadratic Equations
- Simplifying, Multiplying and Dividing Rational Expressions
- Adding and Subtracting Rational Expressions with Like and Un-Like Denominators
- Simplifying Radical Expressions

CA High School Exit Exam and California Standards Test Materials, such as Released Test Questions, will also be included in course content as appropriate.

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A. COVER PAGE

1. Course Title: Algebra II	9. Subject Area: <input type="checkbox"/> History Social Science <input type="checkbox"/> English <input checked="" type="checkbox"/> Mathematics <input type="checkbox"/> Lab Science <input type="checkbox"/> Life <input type="checkbox"/> Physical Science <input type="checkbox"/> Foreign Language <input type="checkbox"/> Visual and Performing Arts <input type="checkbox"/> Other _____
2. Transcript Title/Abbreviation	
3. Transcript Course Code/Number 2073	
4. School Gilroy High School	
5. District Gilroy Unified School District	
6. School/District Website gilroyhighschool.com gusd.k12.ca.us/exec/inde	
7. City Gilroy	10. Grade Level <input checked="" type="checkbox"/> 9 <input checked="" type="checkbox"/> 10 <input checked="" type="checkbox"/> 11 <input checked="" type="checkbox"/> 12
8. School Course List Contact Arturo Rodriguez – Assistant Principal Arturo.Rodriguez2@gusd.k12.ca.us	11. Unit Value <input type="checkbox"/> 0.5 (half year or semester equivalent) <input checked="" type="checkbox"/> 1.0 (one year equivalent)
	12. Approved by UC <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
13. Recommended Course Prerequisites: Prerequisites - 10 th - "C" or better in Geometry and $253 \leq \text{Geo MAP}$ or $350 \leq \text{Alg I CST}$ 11 th - "C" or better in Geometry and $253 \leq \text{Geo MAP}$ or $350 \leq \text{Alg I CST}$	

B. COURSE DESCRIPTION/OVERVIEW

1. Course Description

This course is an advanced algebra course. Topics include: complex numbers, logarithms, conic sections, combinations and permutation, proof by induction, arithmetic and geometric series. This course is required as the minimum mathematics course completed for admission to most four-year colleges. Students should carefully consider the prerequisites before signing up for this course.

2. Course Content

- Equations and Inequalities
- Solving One Variable Linear Equations
 - Problem Solving Using Algebraic Models and Manipulating Formulas
 - Solving One-Variable Linear Inequalities
 - Solving Absolute Value Equations and Inequalities
- Linear Equations and Functions
- Functions and Their Graphs

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- Slope and Rate of Change
- Correlation and Best-Fitting Lines
- Linear Inequalities in Two Variables
- Piecewise Functions
- Absolute Value Functions
- Systems of Linear Equations and Inequalities
 - Solving Linear Systems by Graphing
 - Solving Linear Systems Algebraically
 - Graphing and Solving Systems of Linear Inequalities
 - Linear Programming
 - Graphing Linear Equations in Three Variables
 - Solving Systems of Linear Equations in Three Variables
- Matrices and Determinants
 - Matrix Operations
 - Multiplying Matrices
 - Determinants and Cramer's Rule
 - Identity and Inverse Matrices
 - Solving Systems Using Inverse Matrices
- Quadratic Functions
 - Graphing Quadratic Functions
 - Solving Quadratic Functions by Factoring
 - Solving Quadratic Functions by Finding Square Roots
 - Complex Numbers
 - Completing the Square
 - Quadratic Formula and Discriminants
 - Graphing and Solving Quadratic Inequalities
 - Modeling Quadratic Functions
- Polynomials and Polynomial Functions
 - Using Properties of Exponents
 - Evaluating and Graphing Polynomial Functions
 - Polynomial Operations
 - Factoring and Solving Polynomial Equations
 - Rational Root Theorem
 - The Fundamental Theorem of Algebra
 - Analyzing Graphs of Polynomials
 - Modeling Polynomial Functions
- Powers, Roots, and Radicals
 - n^{th} Roots and Rational Exponents
 - Properties of Rational Exponents
 - Power Functions and Function Operations
 - Inverse Functions
 - Graphing Square Root and Cube Root Functions
 - Solving Radical Equations
- Exponential and Logarithmic Functions
 - Exponential Growth
 - Exponential Decay
 - The Number e
 - Logarithmic Functions
 - Properties of Logarithms
 - Solving Exponential and Logarithmic Equations
 - Modeling with Exponential and Power Functions

GUSD High School Course Description

Rational Equations and Functions

- Inverse and Joint Variation
- Graphing Rational Functions
- Operations on Rational Expressions
- Complex Fractions
- Solving Rational Equations

Quadratic Relations and Conic Sections

- Parabolas
- Circles
- Ellipses
- Hyperbolas
- Graphing and Classifying Conics
- Solving Quadratic Systems

Sequences and Series

- Arithmetic Sequences and Series
- Geometric Sequences and Series
- Infinite Geometric Series
- Recursive Definitions for Sequences

Probability and Statistics

- Fundamental Counting Principle and Permutations
- Combinations and Binomial Theorem
- Probability of Compound Events
- Probability of Independent and Dependent Events
- Binomial Distributions
- Normal Distributions

Introduction to Trigonometric Ratios and Functions

3. Course Materials

McDougal Little: *Algebra II* textbook, paper and pencil supplies, notebook for notes, graphing calculator recommended (TI-83 strongly suggested)

C. COURSE POLICIES

1. Attendance/Absences/Make-up Work

(Teacher Handbook Guidelines)

Make-up tests and assignments shall be reasonably equivalent to, but not necessarily identical to, the tests and assignments, which the student missed during an absence.

Every student will be given an opportunity to make-up work for any assignment missed for full credit during an excused absence. The teacher will determine when make-up assignments will be due. Due dates should be within a reasonable amount of time.

Makeup assignments for work missed during an unexcused absence, including “cuts” and suspensions, will be given at the discretion of the teacher.

2. Classroom Rules/Expectations

Students are expected to follow all School rules in addition to each individual teacher’s classroom rules and expectations.

GUSD High School Course Description

3. Behavioral Management Plan

(Teacher Handbook Guidelines)

- 1) The student will have been made aware of the classroom rules and procedures. The student will also have been made aware of the consequences for violation of classroom rules and procedures. Consequences assigned by the classroom teacher for violations of classroom rules and procedures are to take place outside the normal school day.
- 2) When a problem occurs, the teacher will confer with the student and attempt to resolve the problem.
- 3) If the student does not modify his/her behavior or comply with the consequences the classroom teacher will:
 - (a) Assign teacher detention.
 - (b) Attempt to make phone contact with the parent within three days to discuss the problem and solicit parental assistance in modifying the student's behavior.
- 4) Referral to administration and placement on the appropriate step of the Administrative Discipline Ladder.

4. Homework Policy

Homework will be assigned each day and is due at the beginning of the next class period. Work must be shown to receive full credit. Late work is accepted for full credit only with an excused absence/tardy. Students should check the answers to odd-numbered problems in the back of the book. The answers to the even-numbered problems will be provided. Refer to BP 6154.

5. Extra Credit

If extra credit is given, it must count less than 3% of the grade.

6. Academic Honesty

The Governing Board believes that academic honesty and personal integrity are fundamental components of a student's education and character development. The Board expects that students will not cheat, lie, conspire to cheat, plagiarize or commit other acts of academic dishonesty.

Students, parents/guardians, staff and administrators shall be responsible for creating and maintaining a positive school climate that encourages honesty. Students found to have committed and act of academic dishonesty shall be subject to district and school-site discipline rules. B.P. 5131.9

D. COURSE REQUIREMENTS

1. Grading Policy

Grading: Grades will be calculated using the following weights:

Tests and Final Exams	50 %
Quizzes	15 %
Homework	10 %
Homework Quizzes	10 %

GUSD High School Course Description

Notebooks	10 %
Quarterly Writing Prompts	5 %

2. Course Procedures

Students will be expected to keep a notebook with their notes, class work, and old tests/quizzes. Homework quizzes are given periodically in which past homework problems are tested. Students will be given the opportunity to use their old homework assignments on homework quizzes. Chapter tests are given at the end of every unit and are representative of material taught in the unit.

3. Personal Statement

4. Additional Information

Please check with your student's teacher for their contact information and availability. Also their contact information may be found on www.gilroyhighschool.com. You may also inquire if your student's teacher uses school loop (www.gilroyhs.schoolloop.com) to update grades and daily assignments.

E. COMPREHENSIVE COURSE NARRATIVE

Algebra II expands on the mathematical content of Algebra I and Geometry. There is no single unifying theme. Instead, many new concepts and techniques are introduced that will be basic to more advanced courses in mathematics and the sciences and useful in the workplace. In general terms, the emphasis is on abstract thinking skills, the function concept, and the algebraic solution of problems in various content areas.

Algebra II is an advanced algebra course and is required as the minimum mathematics course completed for admission to most four year colleges. Hence it is a college preparatory course and equal in difficulty to many honors level courses. Algebra II is a fast-paced course and should not be taken lightly.

The emphasis are on absolute value and inequalities, complex numbers, polynomials, rational expressions, quadratic functions, logarithmic and exponential functions, arithmetic and geometric sequences and series, and the binomial theorem. The basic trigonometric ratios are reviewed and new trigonometric concepts are introduced.

GUSD High School Course Description

A. COVER PAGE

1. Course Title: Algebra Readiness	9. Subject Area: <input type="checkbox"/> History Social Science <input type="checkbox"/> English <input checked="" type="checkbox"/> Mathematics <input type="checkbox"/> Lab Science <input type="checkbox"/> Life <input type="checkbox"/> Physical Science <input type="checkbox"/> Foreign Language <input type="checkbox"/> Visual and Performing Arts <input type="checkbox"/> Other _____
2. Transcript Title/Abbreviation Alg Readiness	
3. Transcript Course Code/Number 2104	
4. School : Gilroy High School	
5. District: Gilroy Unified School District	
6. School/District Website www.gusd.k12.ca.us	
7. City: Gilroy, CA	
8. School Course List Contact James Maxwell, Principal, (408) 847-2424, james.maxwell@gusd.k12.ca.us	10. Grade Level <input checked="" type="checkbox"/> 9 <input checked="" type="checkbox"/> 10 <input type="checkbox"/> 11 <input type="checkbox"/> 12
	11. Unit Value <input type="checkbox"/> 0.5 (half year or semester equivalent) <input checked="" type="checkbox"/> 1.0 (one year equivalent)
	12. Approved by UC <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
13. Recommended Course Prerequisites: 9 th and 10th- MAP \leq 230 and GenMathCST < 325 11th Not Available	

B. COURSE DESCRIPTION/OVERVIEW

1. Course Description

Algebra Readiness (9th and 10th grade)

This course provides a foundation for future courses in Algebra and Geometry. The course focus is on the properties and operations of real numbers in their many forms: integers, fractions, decimals, percents and scientific notation. An understanding of ratios, rates and proportions is developed and applied to geometry and probability. Classification and measurement of triangles, quadrilaterals, and circles are explored.

2. Course Content

Content Standard	Skill Focus	Selections

GUSD High School Course Description

NS 1.0	Students compare and order positive and negative fractions, decimals, and mixed numbers. Students solve problems involving fractions, ratios, proportions, and percentages.	
NS 2.0	Students calculate and solve problems involving addition, subtraction, multiplication, and division:	
Algebra & Functions 1.0	Students write verbal expressions and sentences as algebraic expressions and equations; they evaluate algebraic expressions, solve simple linear equations, and graph and interpret their results:	
2.0	Students analyze and use tables, graphs, and rules to solve problems involving rates and proportions:	
3.0	Students investigate geometric patterns and describe them algebraically:	
Measurement & Geometry 1.0	Students deepen their understanding of the measurement of plane and solid shapes and use this understanding to solve problems:	
2.0	Students identify and describe the properties of two-dimensional figures:	
Statistics, Data Analysis & Probability 1.0	Students compute and analyze statistical measurements for data sets:	
2.0	Students use data samples of a population and describe the characteristics and limitations of the samples:	
3.0	Students determine theoretical and experimental probabilities and use these to make predictions about events:	
Mathematical Reasoning 1.0	Students make decisions about how to approach problems:	
2.0	Students use strategies, skills, and concepts in finding solutions:	
3.0	Students move beyond a particular problem by generalizing to other situations:	

3. Course Materials

Prentice Hall: <i>Algebra Readiness</i> , 2008
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GUSD High School Course Description

4. Universal Access i.e. Special Populations (English Learners, Special Ed., GATE/high achieving students)

To establish universal access for all students, the teacher should:

- 1) Establish a safe environment in which the students are encouraged to talk and to ask questions freely when they do not understand.
- 2) Use a wide variety of ways to explain a concept.
- 3) Provide assistance in the general vocabulary to be used each lesson.
- 4) Set up tutoring situations that offer additional assistance.
- 5) Enlist the help of parents at home when possible.
- 6) Use a variety of ways to check frequently for understanding.

C. COURSE POLICIES

1. Attendance/Absences/Make-up Work

(Teacher Handbook Guidelines)

Make-up tests and assignments shall be reasonably equivalent to, but not necessarily identical to, the tests and assignments, which the student missed during an absence.

Every student will be given an opportunity to make-up work for any assignment missed for full credit during an excused absence. The teacher will determine when make-up assignments will be due. Due dates should be within a reasonable amount of time.

Makeup assignments for work missed during an unexcused absence, including “cuts” and suspensions, will be given at the discretion of the teacher.

2. Classroom Rules/Expectations

Students are expected to follow all School rules in addition to each individual teacher’s classroom rules and expectations.

3. Behavioral Management Plan

(Teacher Handbook Guidelines)

1. The student will have been made aware of the classroom rules and procedures. The student will also have been made aware of the consequences for violation of classroom rules and procedures. Consequences assigned by the classroom teacher for violations of classroom rules and procedures are to take place outside the normal school day.
2. When a problem occurs, the teacher will confer with the student and attempt to resolve the problem.
3. If the student does not modify his/her behavior or comply with the consequences the classroom teacher will:
 - a. Assign teacher detention.
 - b. Attempt to make phone contact with the parent within three days to discuss the problem and solicit parental assistance in modifying the student's behavior.
4. Referral to administration and placement on the appropriate step of the Administrative Discipline Ladder.

GUSD High School Course Description

4. Homework Policy

Homework will mostly consist of assignments from the textbook. The procedure for doing homework is as follows:

10. Copy down the problem (unless it is a word problem)
11. Show ALL work
12. Check the answers to odd numbered problems in the back of the textbook. If your answer is incorrect, check your work. If you can't find a mistake, be prepared to ask about the problem during the next class session.
13. Keep your homework in your binder. You will need to have all of your homework for homework quizzes.

5. Extra Credit

No extra credit will be offered in this class.

6. Academic Honesty

The Governing Board believes that academic honesty and personal integrity are fundamental components of a student's education and character development. The Board expects that students will not cheat, lie, conspire to cheat, plagiarize or commit other acts of academic dishonesty.

Students, parents/guardians, staff and administrators shall be responsible for creating and maintaining a positive school climate that encourages honesty. Students found to have committed and act of academic dishonesty shall be subject to district and school-site discipline rules. B.P. 5131.9

D. COURSE REQUIREMENTS

1. Grading Policy

Grading: Grades will be calculated using the following weights:

Tests and Final Exams	50 %
Quizzes	10%
Homework/Homework Quizzes	15 %
Classwork/Projects	25%

Masteries:

Masteries test your solid understanding of math concepts. **YOU MUST PASS ALL THE MASTERIES TO PASS THE CLASS.** Mastery tests will be assigned no points. Masteries are pass/fail.

2. Course Procedures

Students will be expected to keep a notebook with their notes, class work, and old tests/quizzes. Homework quizzes are given periodically in which past homework problems are tested. Students will be given the opportunity to use their old homework assignments on homework quizzes.

GUSD High School Course Description

Chapter tests are given at the end of every unit and are representative of material taught in the unit.

3. Personal Statement

4. Additional Information

Please check with your student's teacher for their contact information and availability. Also their contact information may be found on www.gilroyhighschool.com. You may also inquire if your student's teacher uses school loop (www.gilroyhs.schoolloop.com) to update grades and daily assignments.

E. COMPREHENSIVE COURSE NARRATIVE

The Algebra Readiness class is designed to help students remediate any fundamental gaps in their mathematical knowledge before moving on to Algebra I. This provides a solid foundation for continuing success in Algebra I and beyond.

Topics to be covered in the class include:

- Operations with Whole Numbers (add/subtract and multiply/divide mastery tests)
- [This is a fundamental building block to future math success]
- Mathematical Expressions (order of operations mastery test)
- Unit Analysis
- Problem Solving
- Fractions (add/subtract and multiply/divide mastery tests)
- Decimals (add/subtract and multiply/divide mastery tests)
- Percents (numerical and word problem mastery tests)
- Integers
- Properties of Rational Numbers
- Exponents
- CAHSEE Review
- [This is typically the students' last exposure to general math topics on this exam]
- Geometry of lines, angles, polygons and circles
- [This is typically the students' last exposure to general math topics on this exam]
- Square roots and the Pythagorean Theorem
- Equations in one variable
- CST Review
- [Exposure to formats and styles of standardized tests]
- Inequalities in one variable
- Linear equations in two variables

GUSD High School Course Description

A. COVER PAGE

1. Course Title: Finite Math	9. Subject Area:
2. Transcript Title/Abbreviation Finite Math	<input type="checkbox"/> History Social Science
3. Transcript Course Code/Number 2194	<input type="checkbox"/> English
4. School Gilroy High School	<input checked="" type="checkbox"/> Mathematics
5. District Gilroy Unified School District	<input type="checkbox"/> Lab Science
	<input type="checkbox"/> Life
	<input type="checkbox"/> Physical Science
	<input type="checkbox"/> Foreign Language
	<input type="checkbox"/> Visual and Performing Arts
	<input type="checkbox"/> Other _____
6. School/District Website http://www.gusd.k12.ca.us/	Grade Level
	9 <input checked="" type="checkbox"/> 10 <input checked="" type="checkbox"/> 11 <input checked="" type="checkbox"/> 12
7. City Gilroy	Unit Value
	<input type="checkbox"/> 0.5 (half year or semester equivalent)
	<input checked="" type="checkbox"/> 1.0 (one year equivalent)
8. School Course List Contact James Maxwell, Principal (408) 847-2424	Approved by UC
	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Recommended Course Prerequisites: C or better in Alg II and $255 \leq \text{Alg II Map}$ or $325 \leq \text{Alg II CST}$	

B. COURSE DESCRIPTION/OVERVIEW

1. Course Description

This is a year long course based primarily on the California State Standards for Linear Algebra and Probability and Statistics. The course stresses the many applications of mathematics while studying: functions, linear systems, matrices, linear programming, mathematics of finance, counting techniques and probability, statistical problem solving, and game theory. The graphing calculator, Texas Instrument (TI-83+), is used extensively as a learning tool and is required for the course.

2. Course Content

- Explore applications of functions with emphasis on linear, exponential and logarithmic models.
- Explore the mathematics of finance.
- Formulate models of linear systems.
- Explore methods of solving linear systems.
- Explore matrices and their application to linear programming.
- Explore probability and statistics when applied to business and science.
- Extend the use of matrices by applying to probability and Markov chains.
- Introduce game theory.

GUSD High School Course Description

3. Course Materials

- Materials must be brought to class daily. These materials are:
- Houghton Mifflin: *Finite Math*, 2005 class textbook
- 3-Ring Binder
- Notebook Paper
- Pencils
- Erasers

4. Universal Access i.e. Special Populations (English Learners, Special Ed., GATE/high achieving students)

To establish universal access for all students, the teacher should:

- 1) Establish a safe environment in which the students are encouraged to talk and to ask questions freely when they do not understand.
- 2) Use a wide variety of ways to explain a concept.
- 3) Provide assistance in the general vocabulary to be used each lesson.
- 4) Set up tutoring situations that offer additional assistance.
- 5) Enlist the help of parents at home when possible.
- 6) Use a variety of ways to check frequently for understanding.

C. COURSE POLICIES

1. Attendance/Absences/Make-up Work

Make-up tests and assignments shall be reasonably equivalent to, but not necessarily identical to, the tests and assignments, which the student missed during an absence.

Every student will be given an opportunity to make-up work for any assignment missed for full credit during an excused absence. The teacher will determine when make-up assignments will be due. Due dates should be within a reasonable amount of time.

Makeup assignments for work missed during an unexcused absence, including “cuts” and suspensions, will be given at the discretion of the teacher.

2. Classroom Rules/Expectations

In addition to school-wide rules each teacher will establish clear and concise rules for his/her classroom. Teachers will provide each student and their administrator with a written copy of the classroom rules. The teacher will enforce these rules. Should a student choose to violate these rules the teacher will administer the consequences for the violation. Students continuing to violate all classroom rules will be referred to an administrator. Copies of teacher's classroom rules are available upon individual requests of the administrators.

GUSD High School Course Description

3. Behavioral Management Plan

CLASSROOM DISCIPLINE

- 1) The student will have been made aware of the classroom rules and procedures. The student will also have been made aware of the consequences for violation of classroom rules and procedures. Consequences assigned by the classroom teacher for violations of classroom rules and procedures are to take place outside the normal school day.
- 2) When a problem occurs, the teacher will confer with the student and attempt to resolve the problem.
- 3) If the student does not modify his/her behavior or comply with the consequences the classroom teacher will:
 - a. Assign teacher detention.
 - b. Attempt to make phone contact with the parent within three days to discuss the problem and solicit parental assistance in modifying the student's behavior.
- 4) Referral to administration and placement on the appropriate step of the Administrative Discipline Ladder.

4. Homework Policy

Homework will be assigned daily. Sometimes on test days there won't be any homework. On most days, homework will be started in class and completed at home. The assignment will be checked and corrected the next time the class meets. Refer to BP 6154.

5. Extra Credit

Sometimes an extra credit problem may be given on a test. That problem should constitute no more than 5% of the overall test. Extra credit can increase a student's overall grade by at most 3%.

6. Academic Honesty

The Governing Board believes that academic honesty and personal integrity are fundamental components of a student's education and character development. The Board expects that students will not cheat, lie, conspire to cheat, plagiarize or commit other acts of academic dishonesty.

Students, parents/guardians, staff and administrators shall be responsible for creating and maintaining a positive school climate that encourages honesty. Students found to have committed and act of academic dishonesty shall be subject to district and school-site discipline rules. B.P. 5131.9.

GUSD High School Course Description

D. COURSE REQUIREMENTS

1. Grading Policy

Tests (including Final)	50%
Homework	15%
H.W.Quizzes/Quizzes	10%
Classwork	10%
Notebook	10%
Essay	5%

2. Course Procedures

Students will be expected to keep a notebook with their notes, class work, and old tests/quizzes. Homework quizzes are given periodically in which past homework problems are tested. Students will be given the opportunity to use their old homework assignments on homework quizzes. Chapter tests are given at the end of every unit and are representative of material taught in the unit.

3. Personal Statement

It is very important that you do your work in class, review your notes at home, and complete any homework that is assigned. If you are having difficulties with any of the topics covered in this course, see the teacher as soon as possible. Each teacher has their own tutoring times.

4. Additional Information

There are other resources available for tutoring as well. Just ask.

E. COMPREHENSIVE COURSE NARRATIVE

This engaging course uses intriguing real-world applications to capture the interest of those planning to study business, economics, life and social science. The text naturally integrates a graphing calculator and spreadsheet explorations to expose students to the practical side of mathematics and tools they will encounter in their future careers.

Previews at the beginning of most sections use in-depth applications that motivate students to focus on the material ahead. More features providing a wealth of support include investigations of new topics in which students learn to carry out otherwise difficult calculations while discovering the limitations and pitfalls of technology.

GUSD High School Course Description

A. COVER PAGE

<p>1. Course Title: Geometry</p>	<p>9. Subject Area:</p> <p><input type="checkbox"/> History Social Science</p> <p><input type="checkbox"/> English</p> <p><input checked="" type="checkbox"/> Mathematics</p> <p><input type="checkbox"/> Lab Science</p> <p style="padding-left: 20px;"><input type="checkbox"/> Life</p> <p style="padding-left: 20px;"><input type="checkbox"/> Physical Science</p> <p><input type="checkbox"/> Foreign Language</p> <p><input type="checkbox"/> Visual and Performing Arts</p> <p><input type="checkbox"/> Other _____</p>
<p>2. Transcript Title/Abbreviation Geometry</p>	
<p>3. Transcript Course Code/Number 2063</p>	
<p>4. School Gilroy High School</p>	
<p>5. District Gilroy Unified School District</p>	
<p>6. School/District Website www.gusd.k12.ca.us www.gilroyhighschool.com</p>	<p>10. Grade Level</p> <p><input checked="" type="checkbox"/> 9 <input checked="" type="checkbox"/> 10 <input checked="" type="checkbox"/> 11 <input checked="" type="checkbox"/> 12</p>
<p>7. City Gilroy</p>	<p>11. Unit Value</p> <p><input type="checkbox"/> 0.5 (half year or semester equivalent)</p> <p><input checked="" type="checkbox"/> 1.0 (one year equivalent)</p>
<p>8. School Course List Contact James Maxwell Principal (408)847-2424 james.maxwell@gusd.k12.ca.us</p>	<p>12. Approved by UC</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>13. Recommended Course Prerequisites:</p> <p>9th Grade A/B in Alg 1 and $245 \leq \text{Alg 1 MAP}$ or $350 \leq \text{Alg 1 CST}$</p> <p>10th - 12th C or better in Alg 1/B and $245 \leq \text{Alg 1 MAP}$ or $350 \leq \text{Alg 1 CST}$</p>	

B. COURSE DESCRIPTION/OVERVIEW

1. Course Description

The course emphasizes geometric thinking through applications and constructions. Practical use for geometry including constructions, area and volume will be emphasized. Included in this class are some geometric proofs but proofs are not a major emphasis of this course. This course is designed for students who do not anticipate taking trigonometry/ precalculus after completing Algebra II. This course does not exclude students from taking trig/precalculus; however students intending to take trig/ precalculus or who anticipates a need for calculus should take Honors Geometry.

GUSD High School Course Description

2. Course Content

Unit Topic:

Basics of Geometry

- Patterns and Inductive Reasoning
- Points, Lines and Planes
- Segments and their Measures
- Angles and their Measures
- Segment and Angle Bisectors
- Angle Pair Relationships
- Intro to Perimeter, Circumference and Area

Reasoning And Proof

- Conditional Statements
- Definitions and Bi-Conditional Statements
- Deductive Reasoning
- Reasoning with Properties from Algebra
- Proving Statements about Segments
- Proving Statements about Angles

Perpendicular and Parallel Lines

- Lines and Angles
- Proving Lines are Perpendicular
- Parallel Lines and Transversals
- Proving Lines are Parallel
- Using Properties of Parallel Lines
- Parallel Lines and the Coordinate Plane
- Perpendicular Lines and the Coordinate Plane

Congruent Triangles

- Classifying Triangles
- Congruence of Triangles
- Proving Triangles are Congruent: SSS, SAS, ASA, AAS
- Using Congruent Triangles
- Congruence of Isosceles, Equilateral, and Right Triangles

Properties of Triangles

- Perpendiculars and Bisectors
- Bisectors of a Triangle
- Medians and Altitudes of a Triangle
- Midsegment Theorem
- Inequalities in One Triangle
- Indirect Proofs of Inequalities in Two Triangles

Properties of Quadrilaterals

- Properties of Parallelograms
- Proving Quadrilaterals are Parallelograms
- Properties of Special Parallelograms: Rhombuses, Rectangles, and Squares
- Properties of Trapezoids
- Properties of Kites
- Summarizing Properties of Quadrilaterals
- Areas of Triangles and Quadrilaterals

Transformations

GUSD High School Course Description

- Rigid Motion in a Plane
- Reflections
- Rotations
- Translations and Vectors
- Glide Reflections and Compositions
- Frieze Patterns
- Similarity
- Ratios and Proportion
- Problem Solving in Geometry with Proportions
- Similar Polygons
- Similar Triangles
- Proving Triangles are Similar
- Proportions and Similar Triangles
- Right Triangles and Trigonometry
- Similar Right Triangles
- Pythagorean Theorem
- Converse of the Pythagorean Theorem
- Special Right Triangles
- Trigonometric Ratios
- Solving Right Triangles
- Circles
- Tangents to Circles
- Arcs and Chords
- Inscribed Angles
- Other Angle Relationships in Circles
- Segment Lengths in Circles
- Equations of Circles
- Area of Polygons and Circles
- Angle Measures in Polygons
- Areas of Regular Polygons
- Perimeters and Areas of Similar Figures
- Circumference and Arc Length
- Areas of Circles and Sectors
- Geometric Probability
- Surface Area and Volume
- Exploring Solids
- Surface Area of Prisms and Cylinders
- Surface Area of Pyramids and Cones
- Volume of Prisms and Cylinders
- Volume of Pyramids and Cones
- Surface Area and Volume of Spheres

3. Course Materials

Required: McDougal Littell: *Geometry*, Scientific Calculator, 3 Ring Binder or Composition Book, Compass, Protractor, Highlighter, Pencils, and Paper.

GUSD High School Course Description

4. Universal Access i.e. Special Populations (English Learners, Special Ed., GATE/high achieving students)

Although GHS does have a number of specially designed courses to meet the needs of some of our Special populations (ELD classes, Honors, etc.) the English II course does . . . Support English Learners: (from the Math framework)

Instructional opportunities and materials. Most important, teachers plan opportunities, supported by appropriate instructional materials, for students to produce language they have acquired, use language in academic interactions with peers and adults, and monitor and correct their oral and written language. Teachers create an environment in which students feel comfortable in risking the use of new and unfamiliar language. Instructional materials describe for teachers the linguistic features of the most commonly spoken languages as they differ from English (e.g., analysis of similar and dissimilar sounds). Teachers apply the understanding of similarities and differences among the languages in planning instruction and use questioning and other strategies to foster substantive student discussion and participation. Emphasis is placed on the students' producing language in a variety of contexts and the teachers' electing student participation and thought.

C. COURSE POLICIES

1. Attendance/Absences/Make-up Work

(Teacher Handbook Guidelines)

Make-up tests and assignments shall be reasonably equivalent to, but not necessarily identical to, the tests and assignments, which the student missed during an absence.

Every student will be given an opportunity to make-up work for any assignment missed for full credit during an excused absence. The teacher will determine when make-up assignments will be due. Due dates should be within a reasonable amount of time.

Makeup assignments for work missed during an unexcused absence, including "cuts" and suspensions, will be given at the discretion of the teacher.

2. Classroom Rules/Expectations

Students are expected to follow all School rules in addition to each individual teacher's classroom rules and expectations.

3. Behavioral Management Plan

(Teacher Handbook Guidelines)

- 1) The student will have been made aware of the classroom rules and procedures. The

GUSD High School Course Description

student will also have been made aware of the consequences for violation of classroom rules and procedures. Consequences assigned by the classroom teacher for violations of classroom rules and procedures are to take place outside the normal school day.

- 2) When a problem occurs, the teacher will confer with the student and attempt to resolve the problem.
- 3) If the student does not modify his/her behavior or comply with the consequences the classroom teacher will:
 - a. Assign teacher detention.
 - b. Attempt to make phone contact with the parent within three days to discuss the problem and solicit parental assistance in modifying the student's behavior.
- 4) Referral to administration and placement on the appropriate step of the Administrative Discipline Ladder.

4. Homework Policy

Homework will be assigned every class meeting. When it is assigned, the teacher shall provide sufficient direction in class to enable the student to succeed in doing the assigned homework. Homework should be for the review and reinforcement and not new material.

5. Extra Credit

Extra credit can not make up more than 3% of the students overall grade and will be assigned when Geometry Teachers deem appropriate.

6. Academic Honesty

The Governing Board believes that academic honesty and personal integrity are fundamental components of a student's education and character development. The Board expects that students will not cheat, lie, conspire to cheat, plagiarize or commit other acts of academic dishonesty.

Students, parents/guardians, staff and administrators shall be responsible for creating and maintaining a positive school climate that encourages honesty. Students found to have committed and act of academic dishonesty shall be subject to district and school-site discipline rules. B.P. 5131.9

D. COURSE REQUIREMENTS

1. Grading Policy

Grades will be calculated using the following weights:

Tests (including 2 semester finals)	50%
Quizzes	20%
Homework	15%

GUSD High School Course Description

Classwork/Binder Check	10%
Essays (Writing Prompts)	5%

2. Course Procedures

Scientific Calculators: Will be required from chapter 9 through chapter 12.

3. Personal Statement

It is very important that students diligently take notes and review them when needed. It is also vital that students attempt homework assignments the day that they are assigned and stay current with all homework assignments. Success in math begins with practicing math everyday through homework and class assignments. When students attempt homework it is important to check all answers so students can be prepared to ask questions in class the next day.

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E. COMPREHENSIVE COURSE NARRATIVE

(From the Math Framework)

The main purpose of the geometry curriculum is to develop geometric skills and concepts and the ability to construct formal logical arguments and proofs in a geometric setting. Although the curriculum is weighted heavily in favor of plane (synthetic) Euclidean geometry, there is room for placing special emphasis on coordinated geometry and its transformations. The first standards introduce students to the basic nature of logical reasoning in mathematics: Students demonstrate understanding by identifying and giving examples of undefined terms, axioms, theorems, and inductive and deductive reasoning. Students construct and judge the validity of a logical argument and give counterexamples to disprove a statement. Starting with undefined terms and axioms, students learn to establish the validity of other assertions through logical deductions; that is, they learn to prove theorems. This is their first encounter with an axiomatic system, and experience shows that they do not easily adjust to the demand of total precision needed for the task. In general, it is important to impress on students from the beginning that the main point of a proof is the mathematical correctness of the argument, not the literary polish of the writing or the adherence to a particular proof format.

Inductive Reasoning

Standard 1.0 also calls for an understanding of inductive reasoning. Students are expected to recognize that inductive reasoning by itself does not prove anything in mathematics, but that it fosters the kind of intuition that is indispensable for finding proofs. To this end students should be encouraged to draw many pictures to develop a geometric sense and to amass a wealth of geometric data in the process.

Many students—including high-achieving ones—complete a course in geometry with so little

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geometric intuition that, given three noncollinear points, they cannot even begin to visualize what the circumcircle of these points must be like. One way to develop this geometric sense is to have the students become familiar with the basic straightedge-compass constructions, as illustrated in the following standard:

16.0 Students perform basic constructions with a straightedge and compass, such as angle bisectors, perpendicular bisectors, and the line parallel to a given line through a point off the line.

It would be desirable to introduce students to these constructions early in the course and leave the proofs of their validity to the appropriate place of the logical development later.

Geometric Proofs

The subject then turns to geometric proofs in earnest. The foundational results of plane geometry are embodied in the following standards:

- 2.0 Students write geometric proofs, including proofs by contradiction.
- 4.0 Students prove basic theorems involving congruence and similarity.
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- 21.0 Students prove and solve problems regarding relationships among chords, secants, tangents, inscribed angles, and inscribed and circumscribed polygons of circles.

It has become customary in high school geometry textbooks to start with axioms that incorporate real numbers. Although doing geometric proofs with real numbers runs counter to the spirit of Euclid, this approach is a good mathematical compromise in the context of school mathematics. However, the parallel postulate occupies a special place in geometry and should be clearly stated in the traditional form: Through a point not on a given line L , there is exactly one line parallel to L . Because this postulate played a fundamental role in the development of mathematics up to the nineteenth century, the significance of the postulate should be discussed. And because there always exists at least one parallel line through a point to a given line, the import of this postulate lies in the uniqueness of the parallel line. A discussion of this postulate provides a natural context to show students the key concept of uniqueness in mathematics—a concept that experience indicates students usually find difficult. One should soft-pedal the early theorems that are the immediate deductions from the axioms, regardless of which axiomatic system is used. These deceptively simple theorems are in fact conceptually difficult and pedagogically deadly. It is better to proceed to the proofs of more advanced, and therefore more substantive, theorems. It is also recommended that the topics of circles and similarity be taught as early as possible. Once those topics have been presented, the course enters a new phase not only because of the interesting theorems that can now be proved but also because the concept of similarity expands the applications of algebra to geometry. These applications might include determining one side of a regular decagon on the unit circle through the use of the quadratic formula as well as the applications of geometry to practical problems. It is often not realized that theorems for circles can be introduced very early in a geometry course. For instance, the

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remarkable theorem that inscribed angles on a circle which intercept equal arcs must be equal can in fact

be presented within three weeks after the introduction of axioms. All it takes is to prove the following two theorems:

1. Base angles of isosceles triangles are equal.
2. The exterior angle of a triangle equals the sum of opposite interior angles.

At this point it is necessary to deal with one of the controversies in mathematics education concerning the format of proofs. It has been argued that the traditional two-column format is stultifying for students and that the format for proofs in the mathematics literature is always paragraph proofs. While the latter observation is true, teachers should be aware that a large part of the reason for using paragraph proofs is the expense of typesetting more elaborate formats, not that paragraph proofs are intrinsically better or clearer. In fact, neither of these claims of superiority for paragraph proofs is actually valid. Furthermore, it appears that for beginners to learn the precision of argument needed, the two-column format is best. After the students have shown a mastery of the basic logical skills, it would be appropriate to relax the requirements on form. But the teacher should never relax the requirement that all arguments presented by the students be precise and correct.

Pythagorean Theorem

One of the high points of elementary mathematics, in fact of all of mathematics, is the Pythagorean theorem:

14.0 Students prove the Pythagorean theorem.

This theorem can be proved initially by using similar triangles formed by the altitude on the hypotenuse of a right triangle. Once the concept of area is introduced (Standard 8.0), students can prove the Pythagorean theorem in at least two more ways by using the familiar picture of four congruent right triangles with legs a and b nestled inside a square of side $a + b$.

8.0 Students know, derive, and solve problems involving the perimeter, circumference, area, volume, lateral area, and surface area of common geometric figures.

10.0 Students compute areas of polygons, including rectangles, scalene triangles, equilateral triangles, rhombi, parallelograms, and trapezoids. For rectilinear figures in the plane, the concept of area is simple because everything reduces to a union of triangles. However, the course must deal with circles, and here limits must be used and the number π defined. The concept of limit can be employed

intuitively without proofs. If the area or length of a circle is defined as the limit of approximating, inscribing, or circumscribing regular polygons, then π is either the area of a disk of unit radius or the ratio of circumference to diameter, and heuristic arguments (see the glossary) for the equivalence of these two definitions would be given. The concept of volume, in contrast with that of area, is not simple even for polyhedra and should be touched on only lightly and intuitively. However, the formulas for volumes and surface areas of prisms, pyramids, cylinders, cones, and spheres (Standard 9.0) should be memorized. An important aspect of teaching three-dimensional geometry is to cultivate students' spatial intuition. Most students find spatial visualization difficult, which is all the more reason to make the teaching of this topic a high priority. The basic mensuration formulas for area and volume are among the main applications of geometry. However, the Pythagorean theorem and the concept of similarity give rise to even more applications through the introduction of trigonometric functions. The basic trigonometric functions in the following

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standards should be presented in a geometry course:

18.0 Students know the definitions of the basic trigonometric functions defined by the angles of a right triangle. They also know and are able to use elementary relationships between them. For example, $\tan(x) = \sin(x)/\cos(x)$, $(\sin(x))^2 + (\cos(x))^2 = 1$.

19.0 Students use trigonometric functions to solve for an unknown length of a side of a right triangle, given an angle and a length of a side.

Finally, the Pythagorean theorem leads naturally to the introduction of rectangular coordinates and coordinate geometry in general. A significant portion of the curriculum can be devoted to the teaching of topics embodied in the next two standards:

17.0 Students prove theorems by using coordinate geometry, including the midpoint of a line segment, the distance formula, and various forms of equations of lines and circles.

22.0 Students know the effect of rigid motions on figures in the coordinate plane and space, including rotations, translations, and reflections.

The Connection Between Algebra and Geometry

These standards lead students to the next level of sophistication: an algebraic and transformation-oriented approach to geometry. Students begin to see how algebraic concepts add a new dimension to the understanding of geometry and, conversely, how geometry gives substance to algebra. Thus straight lines are no longer merely simple geometric objects; they are also the graphs of linear equations. Conversely, solving simultaneous linear equations now becomes finding the point of intersection of straight lines. Another example is the interpretation of the geometric concept of congruence in the Euclidean plane as a correspondence under an isometry of the coordinate plane. Concrete examples of isometries are studied: rotations, reflections, and translations. It is strongly suggested that the discussion be rounded off with at least the precise statement of the structure theorem: Every isometry of the coordinate plane is a translation or the composition of a translation and a rotation or the composition of a translation, a rotation, and a reflection. Special attention should be given to the fact that a gap in Algebra I must be filled here. Standards 7.0 and 8.0 of Algebra I assert that: 1.

The graph of a linear equation is a straight line. 2. Two straight lines are perpendicular if and only if their slopes have a product of -1 . These facts should now be proved.

Additional Comments and Cautionary Notes

This section provides further comments and cautions in presenting the material in geometry courses.

Introduction to proofs

An important point to make to students concerning proofs is that while the written proofs presented in class should serve as models for exposition, they should in no way be a model of how proofs are discovered. The perfection of the finished product can easily mislead students into thinking that they must likewise arrive at their proofs with the same apparent ease.

Teachers need to make clear to

their students that the actual thought process is usually full of false starts and that there are many zigzags between promising leads and dead ends. Only trial and error can lead to a correct proof. This awareness of the nature of solving mathematical problems might lead to a

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deemphasis of the rigid requirements on the writing of two-column proofs in some classrooms.

Students' perceptions of proofs.

The first part of the course sets the tone for students' perceptions of proofs. With this in mind, it is advisable to discuss, mostly without proofs, those first consequences of the axioms that are needed for later work. A few proofs should be given for illustrative purposes; for example, the equality of vertical

angles or the equality of the base angles of an isosceles triangle and its converse. There are two reasons for the recommendation to begin with only a few proofs. The foremost is that a complete logical development is neither possible nor desirable. This has to do with the intrinsic complexity of the structure of Euclidean geometry (see Greenberg 1993, 1–146). A second reason is the usual misconception that such elementary proofs are easy for beginners.

Working on the level of

axioms is actually more difficult for beginners than working with the theorems that come a little later in the logical development. This difficulty occurs because, on the one hand, working with axioms requires a heavy reliance on formal logic without recourse to intuition—in fact often in spite of one's intuition. On the other hand, working on the level of axioms does not usually have a clear

direction or goal, and it is difficult to convince students to learn something without a clearly stated goal. If one so desires, students can always be made to go back to prove the elementary theorems after they have already developed a firm grasp of proof techniques.

Structured work with proofs.

Students' first attempts at proofs need to be structured with care. At the beginning of the development of this skill, instead of asking students to do many trivial proofs after showing them the proofs of two or three easy theorems, it might be a good strategy to proceed as follows: 1. As early as possible, the students might be shown a generous number of proofs of substantive theorems so that they can gain an understanding of what a proof is before they write any proofs themselves. 2. As a prelude to constructing proofs themselves, the students might provide reasons for some of the steps in the sample (substantive) proofs instead of constructing extremely easy proofs on their own. 3. After an extended

exposure to nontrivial proofs, students might be asked to give proofs of simple corollaries of substantive theorems. The reason for steps 2 and 3 is to make students, from the beginning, associate proofs with real mathematics rather than perform a formal ritual. This goal can be accomplished with the use of local axiomatics; that is, if the proof of a theorem makes use of facts not previously proved, let these facts be stated clearly before the proof. These facts need not be previously proven but should ideally be sufficiently plausible even without a proof.

Extensive use of local axiomatics would make possible, sufficiently early in the course, the presentation of interesting but perhaps advanced theorems.

Development of geometric intuition.

The following geometric constructions are recommended to develop students' geometric intuition. (In this context construction means "construction with straightedge and compass.") It is understood that all of them will be proved at some time during the course of study. The constructions that students should be able to do are:

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- Bisecting an angle
- Constructing the perpendicular bisector of a line segment
- Constructing the perpendicular to a line from a point on the line and from a point not on the line
- Duplicating a given angle
- Constructing the parallel to a line through a point not on the line
- Constructing the circumcircle of a triangle
- Dividing a line segment into n equal parts
- Constructing the tangent to a circle from a point on the circle
- Constructing the tangents to a circle from a point not on the circle
- Locating the center of a given circle
- Constructing a regular n -gon on a given circle for $n \in \{3, 4, 5, 6\}$

Use of technology.

This is the place to add a word about the use of technology. The availability of good computer software makes the accurate drawing of geometric figures far easier. Such software can enhance the experience of making the drawings in the constructions described previously. In addition, the ease of making accurate drawings encourages the formulation and exploration of geometric conjectures. For example, it is now easy to convince oneself that the intersections of adjacent angle trisectors of the angles of a triangle are most likely the vertices of an equilateral triangle (Morley's theorem).

If students do have access to such software, the potential for a more intense mathematical encounter is certainly there. In encouraging students to use the technology, however, one should not lose sight of the fact that the excellent visual evidence thus provided must never be taken as a replacement for understanding. For example, software may give the following heuristic evidence for why the sum of the angles of a triangle is 180° . When any three points on the screen are clicked, a triangle with these three points as vertices appears. When each angle is clicked again, three numbers will appear that give the angle measurement of each angle. When these numbers are added, 180° will be the answer. Furthermore, no matter the shape of the triangle, the result will always be the same. While such exercises may boost one's belief in the validity of the theorem about the sum of the angles,

it must be recognized that these angle measurements have added nothing to one's understanding of why this theorem is true. Furthermore, if one really wants to have a hands-on experience with angle measurements in order to check the validity of this theorem, the best way is to do it painstakingly

by hand on paper. Morley's theorem, mentioned earlier, is another illustration of the same principle: evidence cannot replace proofs. The computer program would not reveal the reason the three points are always the vertices of an equilateral triangle. $ax + by = c$, with at least one of a and b not equal to zero. Lines $a_1x + b_1y = c_1$ and $a_2x + b_2y = c_2$ are defined as parallel if (a_1, b_1) is proportional to (a_2, b_2) , but (a_1, b_1, c_1) is not proportional to (a_2, b_2, c_2) . The verification of the axioms is straightforward.

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A. COVER PAGE

<p>1. Course Title: Honors Geometry</p>	<p>9. Subject Area:</p> <p><input type="checkbox"/> History Social Science</p> <p><input type="checkbox"/> English</p> <p><input checked="" type="checkbox"/> Mathematics</p> <p><input type="checkbox"/> Lab Science</p> <p style="padding-left: 20px;"><input type="checkbox"/> Life</p> <p style="padding-left: 20px;"><input type="checkbox"/> Physical Science</p> <p><input type="checkbox"/> Foreign Language</p> <p><input type="checkbox"/> Visual and Performing Arts</p> <p><input type="checkbox"/> Other _____</p>
<p>2. Transcript Title/Abbreviation Honors Geometry</p>	
<p>3. Transcript Course Code/Number</p>	
<p>4. School Gilroy High School</p>	
<p>5. District Gilroy Unified School District</p>	
<p>6. School/District Website www.gusd.k12.ca.us www.gilroyhighschool.com</p>	<p>10. Grade Level</p> <p><input checked="" type="checkbox"/> 9 <input checked="" type="checkbox"/> 10 <input checked="" type="checkbox"/> 11 <input checked="" type="checkbox"/> 12</p>
<p>7. City Gilroy</p>	<p>11. Unit Value</p> <p><input type="checkbox"/> 0.5 (half year or semester equivalent)</p> <p><input checked="" type="checkbox"/> 1.0 (one year equivalent)</p>
<p>8. School Course List Contact James Maxwell Principal (408)847-2424 james.maxwell@gusd.k12.ca.us</p>	<p>12. Approved by UC</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>13. Recommended Course Prerequisites:</p> <p>Prerequisite – 9th – Grade “A/B” in Alg I AND MUST HAVE 253 < MAP or 350 < Alg I CST</p> <p>10th- Grade “A/B” in Alg I/B AND MUST HAVE 253 < MAP or 350 < Alg I CST</p>	

B. COURSE DESCRIPTION/OVERVIEW

1. Course Description

This course emphasizes geometric thinking through the use of geometric proofs. Students will understand mathematical thinking from postulates and develop theorems. This course includes applications and constructions, but proofs are the major emphasis of this course. This course is strongly recommended for students who anticipate taking trigonometry/pre-calculus after completing Algebra II.

2. Course Content

	Curriculum Map
Unit Topic	

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<p>Basics of Geometry</p> <ul style="list-style-type: none">■ Patterns and Inductive Reasoning■ Points, Lines and Planes■ Segments and their Measures■ Angles and their Measures■ Segment and Angle Bisectors■ Angle Pair Relationships■ Intro to Perimeter, Circumference and Area
<p>Reasoning And Proof</p> <ul style="list-style-type: none">■ Conditional Statements■ Definitions and Bi-Conditional Statements■ Deductive Reasoning■ Reasoning with Properties from Algebra■ Proving Statements about Segments■ Proving Statements about Angles
<p>Perpendicular and Parallel Lines</p> <ul style="list-style-type: none">■ Lines and Angles■ Proving Lines are Perpendicular■ Parallel Lines and Transversals■ Proving Lines are Parallel■ Using Properties of Parallel Lines■ Parallel Lines and the Coordinate Plane■ Perpendicular Lines and the Coordinate Plane
<p>Congruent Triangles</p> <ul style="list-style-type: none">■ Classifying Triangles■ Congruence of Triangles■ Proving Triangles are Congruent: SSS, SAS, ASA, AAS■ Using Congruent Triangles■ Congruence of Isosceles, Equilateral, and Right Triangles
<p>Properties of Triangles</p> <ul style="list-style-type: none">■ Perpendiculars and Bisectors■ Bisectors of a Triangle■ Medians and Altitudes of a Triangle■ Midsegment Theorem■ Inequalities in One Triangle■ Indirect Proofs of Inequalities in Two Triangles
<p>Properties of Quadrilaterals</p> <ul style="list-style-type: none">■ Properties of Parallelograms■ Proving Quadrilaterals are Parallelograms■ Properties of Special Parallelograms: Rhombuses, Rectangles, and Squares■ Properties of Trapezoids■ Properties of Kites■ Summarizing Properties of Quadrilaterals■ Areas of Triangles and Quadrilaterals
<p>Transformations</p> <ul style="list-style-type: none">■ Rigid Motion in a Plane■ Reflections■ Rotations■ Translations and Vectors■ Glide Reflections and Compositions■ Frieze Patterns

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Similarity <ul style="list-style-type: none">■ Ratios and Proportion■ Problem Solving in Geometry with Proportions■ Similar Polygons■ Similar Triangles■ Proving Triangles are Similar■ Proportions and Similar Triangles
Right Triangles and Trigonometry <ul style="list-style-type: none">■ Similar Right Triangles■ Pythagorean Theorem■ Converse of the Pythagorean Theorem■ Special Right Triangles■ Trigonometric Ratios■ Solving Right Triangles
Circles <ul style="list-style-type: none">■ Tangents to Circles■ Arcs and Chords■ Inscribed Angles■ Other Angle Relationships in Circles■ Segment Lengths in Circles■ Equations of Circles
Area of Polygons and Circles <ul style="list-style-type: none">■ Angle Measures in Polygons■ Areas of Regular Polygons■ Perimeters and Areas of Similar Figures■ Circumference and Arc Length■ Areas of Circles and Sectors■ Geometric Probability
Surface Area and Volume <ul style="list-style-type: none">■ Exploring Solids■ Surface Area of Prisms and Cylinders■ Surface Area of Pyramids and Cones■ Volume of Prisms and Cylinders■ Volume of Pyramids and Cones■ Surface Area and Volume of Spheres

3. Course Materials

Required: McDougal Littell: *Geometry*, Scientific Calculator, 3 Ring Binder or Composition Book, Compass, Protractor, Highlighter, Pencils, and Paper.

4. Universal Access i.e. Special Populations (English Learners, Special Ed., GATE/high achieving students)

Although GHS does have a number of specially designed courses to meet the needs of some of our Special populations (ELD classes, Honors, etc.) the English II course does Support English Learners: (from the Math framework)

Instructional opportunities and materials. Most important, teachers plan opportunities, supported by appropriate instructional materials, for students to produce language they have acquired, use language in academic interactions with peers and adults, and monitor and correct their oral and

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written language. Teachers create an environment in which students feel comfortable in risking the use of new and unfamiliar language. Instructional materials describe for teachers the linguistic features of the most commonly spoken languages as they differ from English (e.g., analysis of similar and dissimilar sounds). Teachers apply the understanding of similarities and differences among the languages in planning instruction and use questioning and other strategies to foster substantive student discussion and participation. Emphasis is placed on the students' producing language in a variety of contexts and the teachers' electing student participation and thought.

C. COURSE POLICIES

1. Attendance/Absences/Make-up Work

Make-up tests and assignments shall be reasonably equivalent to, but not necessarily identical to, the tests and assignments, which the student missed during an absence.

Every student will be given an opportunity to make-up work for any assignment missed for full credit during an excused absence. The teacher will determine when make-up assignments will be due. Due dates should be within a reasonable amount of time.

Makeup assignments for work missed during an unexcused absence, including "cuts" and suspensions, will be given at the discretion of the teacher.

2. Classroom Rules/Expectations

Students are expected to follow all School rules in addition to each individual teacher's classroom rules and expectations.

3. Behavioral Management Plan

1. The student will have been made aware of the classroom rules and procedures. The student will also have been made aware of the consequences for violation of classroom rules and procedures. Consequences assigned by the classroom teacher for violations of classroom rules and procedures are to take place outside the normal school day.
2. When a problem occurs, the teacher will confer with the student and attempt to resolve the problem.
3. If the student does not modify his/her behavior or comply with the consequences the classroom teacher will:
 - a. Assign teacher detention.
 - b. Attempt to make phone contact with the parent **within three days** to discuss the problem and solicit parental assistance in modifying the student's behavior.
4. Referral to administration and placement on the appropriate step of the Administrative Discipline Ladder.

4. Homework Policy

Homework will be assigned every class meeting. When it is assigned, the teacher shall provide sufficient direction in class to enable the student to succeed in doing the assigned homework. Homework should be for the review and reinforcement and not new material.

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5. Extra Credit

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GUSD High School Course Description

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GUSD High School Course Description

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1. Base angles of isosceles triangles are equal.
2. The exterior angle of a triangle equals the sum of opposite interior angles.

At this point it is necessary to deal with one of the controversies in mathematics education concerning the format of proofs. It has been argued that the traditional two-column format is stultifying for students and that the format for proofs in the mathematics literature is always paragraph proofs. While the latter observation is true, teachers should be aware that a large part of the reason for using paragraph proofs is the expense of typesetting more elaborate formats, not that paragraph proofs are intrinsically better or clearer. In fact, neither of these claims of superiority for paragraph proofs is actually valid. Furthermore, it appears that for beginners to learn the precision of argument needed, the two-column format is best. After the students have shown a mastery of the basic logical skills, it would be appropriate to relax the requirements on form. But the teacher should never relax the requirement that all arguments presented by the students be precise and correct.

Pythagorean Theorem

One of the high points of elementary mathematics, in fact of all of mathematics, is the Pythagorean theorem:

- 14.0 Students prove the Pythagorean theorem.

This theorem can be proved initially by using similar triangles formed by the altitude on the hypotenuse of a right triangle. Once the concept of area is introduced (Standard 8.0), students can prove the Pythagorean theorem in at least two more ways by using the familiar picture of four congruent right triangles with legs a and b nestled inside a square of side $a + b$.

- 8.0 Students know, derive, and solve problems involving the perimeter, circumference, area, volume, lateral area, and surface area of common geometric figures.

- 10.0 Students compute areas of polygons, including rectangles, scalene triangles, equilateral triangles, rhombi, parallelograms, and trapezoids.

For rectilinear figures in the plane, the concept of area is simple because everything reduces to a union of triangles. However, the course must deal with circles, and here limits must be used and the number π defined. The concept of limit can be employed intuitively without proofs. If the area or length of a circle is defined as the limit of approximating, inscribing, or circumscribing regular polygons, then

GUSD High School Course Description

π is either the area of a disk of unit radius or the ratio of circumference to diameter, and heuristic arguments (see the glossary) for the equivalence of these two definitions would be given. The concept of volume, in contrast with that of area, is not simple even for polyhedra and should be touched on only lightly and intuitively. However, the formulas for volumes and surface areas of prisms, pyramids, cylinders, cones, and spheres (Standard 9.0) should be memorized. An important aspect of teaching three-dimensional geometry is to cultivate students' spatial intuition. Most students find spatial visualization difficult, which is all the more reason to make the teaching of this topic a high priority. The basic mensuration formulas for area and volume are among the main applications of geometry. However, the Pythagorean theorem and the concept of similarity give rise to even more applications through the introduction of trigonometric functions. The basic trigonometric functions in the following standards should be presented in a geometry course:

18.0 Students know the definitions of the basic trigonometric functions

defined by the angles of a right triangle. They also know and are able to use elementary relationships between them. For example, $\tan(x) = \sin(x)/\cos(x)$, $(\sin(x))^2 + (\cos(x))^2 = 1$.

19.0 Students use trigonometric functions to solve for an unknown length of a side of a right triangle, given an angle and a length of a side.

Finally, the Pythagorean theorem leads naturally to the introduction of rectangular coordinates and coordinates geometry in general. A significant portion of the curriculum can be devoted to the teaching of topics embodied in the next two standards:

17.0 Students prove theorems by using coordinate geometry, including the midpoint of a line segment, the distance formula, and various forms of equations of lines and circles.

22.0 Students know the effect of rigid motions on figures in the coordinate plane and space, including rotations, translations, and reflections.

The Connection Between Algebra and Geometry

These standards lead students to the next level of sophistication: an algebraic and transformation-oriented approach to geometry. Students begin to see how algebraic concepts add a new dimension to the understanding of geometry and, conversely, how geometry gives substance to algebra. Thus straight lines are no longer merely simple geometric objects; they are also the graphs of linear equations. Conversely, solving simultaneous linear equations now becomes finding the point of intersection of straight lines. Another example is the interpretation of the geometric concept of congruence in the Euclidean plane as a correspondence under an isometry of the coordinate plane. Concrete examples of isometries are studied: rotations, reflections, and translations. It is strongly suggested that the discussion be rounded off with at least the precise statement of the structure theorem: Every isometry of the coordinate plane is a translation or the composition of a translation and a rotation or the composition of a translation, a rotation, and a reflection. Special attention should be given to the fact that a gap in Algebra I must be filled here. Standards 7.0 and 8.0 of Algebra I assert that: 1. The graph of a linear equation is a straight line. 2. Two straight lines are perpendicular if and only if their slopes have a product of -1 . These facts should now be proved.

Additional Comments and Cautionary Notes

This section provides further comments and cautions in presenting the material in geometry courses.

Introduction to proofs

An important point to make to students concerning proofs is that while the written proofs presented in class should serve as models for exposition, they should in no way be a model of how proofs are discovered. The perfection of the finished product can easily mislead students into thinking that they must likewise arrive at their proofs with the same apparent ease. Teachers need to make clear to

GUSD High School Course Description

their students that the actual thought process is usually full of false starts and that there are many zigzags between promising leads and dead ends. Only trial and error can lead to a correct proof. This awareness of the nature of solving mathematical problems might lead to a deemphasis of the rigid requirements on the writing of two-column proofs in some classrooms.

Students' perceptions of proofs.

The first part of the course sets the tone for students' perceptions of proofs. With this in mind, it is advisable to discuss, mostly without proofs, those first consequences of the axioms that are needed for later work. A few proofs should be given for illustrative purposes; for example, the equality of vertical angles or the equality of the base angles of an isosceles triangle and its converse. There are two reasons for the recommendation to begin with only a few proofs. The foremost is that a complete logical development is neither possible nor desirable. This has to do with the intrinsic complexity of the structure of Euclidean geometry (see Greenberg 1993, 1–146). A second reason is the usual misconception that such elementary proofs are easy for beginners. Working on the level of axioms is actually more difficult for beginners than working with the theorems that come a little later in the logical development. This difficulty occurs because, on the one hand, working with axioms requires a heavy reliance on formal logic without recourse to intuition—in fact often in spite of one's intuition. On the other hand, working on the level of axioms does not usually have a clear direction or goal, and it is difficult to convince students to learn something without a clearly stated goal. If one so desires, students can always be made to go back to prove the elementary theorems after they have already developed a firm grasp of proof techniques.

Structured work with proofs.

Students' first attempts at proofs need to be structured with care. At the beginning of the development of this skill, instead of asking students to do many trivial proofs after showing them the proofs of two or three easy theorems, it might be a good strategy to proceed as follows: 1. As early as possible, the students might be shown a generous number of proofs of substantive theorems so that they can gain an understanding of what a proof is before they write any proofs themselves. 2. As a prelude to constructing proofs themselves, the students might provide reasons for some of the steps in the sample (substantive) proofs instead of constructing extremely easy proofs on their own. 3. After an extended exposure to nontrivial proofs, students might be asked to give proofs of simple corollaries of substantive theorems. The reason for steps 2 and 3 is to make students, from the beginning, associate proofs with real mathematics rather than perform a formal ritual. This goal can be accomplished with the use of local axiomatics; that is, if the proof of a theorem makes use of facts not previously proved, let these facts be stated clearly before the proof. These facts need not be previously proven but should ideally be sufficiently plausible even without a proof. Extensive use of local axiomatics would make possible, sufficiently early in the course, the presentation of interesting but perhaps advanced theorems.

Development of geometric intuition.

The following geometric constructions are recommended to develop students' geometric intuition. (In this context construction means "construction with straightedge and compass.") It is understood that all

of them will be proved at some time during the course of study. The constructions that students should be able to do are:

- Bisecting an angle
- Constructing the perpendicular bisector of a line segment
- Constructing the perpendicular to a line from a point on the line and from a point not on the line
- Duplicating a given angle
- Constructing the parallel to a line through a point not on the line
- Constructing the circumcircle of a triangle

GUSD High School Course Description

- Dividing a line segment into n equal parts
- Constructing the tangent to a circle from a point on the circle
- Constructing the tangents to a circle from a point not on the circle
- Locating the center of a given circle
- Constructing a regular n -gon on a given circle for $n \in \{3, 4, 5, 6\}$

Use of technology.

This is the place to add a word about the use of technology. The availability of good computer software makes the accurate drawing of geometric figures far easier. Such software can enhance the experience of making the drawings in the constructions described previously. In addition, the ease of making accurate drawings encourages the formulation and exploration of geometric conjectures. For example, it is now easy to convince oneself that the intersections of adjacent angle trisectors of the angles of a triangle are most likely the vertices of an equilateral triangle (Morley's theorem). If students do have access to such software, the potential for a more intense mathematical encounter is certainly there. In encouraging students to use the technology, however, one should not lose sight of the fact that the excellent visual evidence thus provided must never be taken as a replacement for understanding. For example, software may give the following heuristic evidence for why the sum of the angles of a triangle is 180° . When any three points on the screen are clicked, a triangle with these three points as vertices appears. When each angle is clicked again, three numbers will appear that give the angle measurement of each angle. When these numbers are added, 180° will be the answer. Furthermore, no matter the shape of the triangle, the result will always be the same. While such exercises may boost one's belief in the validity of the theorem about the sum of the angles, it must be recognized that these angle measurements have added nothing to one's understanding of why this theorem is true. Furthermore, if one really wants to have a hands-on experience with angle measurements in order to check the validity of this theorem, the best way is to do it painstakingly by hand on paper. Morley's theorem, mentioned earlier, is another illustration of the same principle: evidence cannot replace proofs. The computer program would not reveal the reason the three points are always the vertices of an equilateral triangle.

Lines $a_1x + b_1y = c_1$ and $a_2x + b_2y = c_2$ are defined as parallel if (a_1, b_1) is proportional to (a_2, b_2) , but (a_1, b_1, c_1) is not proportional to (a_2, b_2, c_2) . The verification of the axioms is straightforward.

GUSD High School Course Description

A. COVER PAGE

1. Course Title: Math Lab	9. Subject Area: <input type="checkbox"/> History Social Science <input type="checkbox"/> English <input checked="" type="checkbox"/> Mathematics <input type="checkbox"/> Lab Science <input type="checkbox"/> Life <input type="checkbox"/> Physical Science <input type="checkbox"/> Foreign Language <input type="checkbox"/> Visual and Performing Arts <input type="checkbox"/> Other _____
2. Transcript Title/Abbreviation Math Lab	
3. Transcript Course Code/Number 2001	
4. School : Gilroy High School	
5. District: Gilroy Unified School District	
6. School/District Website www.gusd.k12.ca.us	
7. City: Gilroy, CA	10. Grade Level <input checked="" type="checkbox"/> 9 <input type="checkbox"/> 10 <input type="checkbox"/> 11 <input type="checkbox"/> 12
8. School Course List Contact James Maxwell, Principal, (408)847-2424, james.maxwell@gusd.k12.ca.us	11. Unit Value <input type="checkbox"/> 0.5 (half year or semester equivalent) <input checked="" type="checkbox"/> 1.0 (one year equivalent)
12. Approved by UC <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
13. Recommended Course Prerequisites: English I	

B. COURSE DESCRIPTION/OVERVIEW

Course Description

Math Lab (not college prep/not math credit) Pre-requisites - 9thMAP ≤ 222 and GenMath CST < 325

This course is a support course for 9th grade students in Algebra Readiness. The course focus for semester 1 is on a conceptual understanding of whole numbers and their operations. The course focus for semester 2 is on a conceptual understanding of rational numbers and their operations.

2. Course Content

Semester 1
Unit 1

Topic

Students will learn:

GUSD High School Course Description

Number Sense and Algebraic Thinking	<ul style="list-style-type: none">■ Whole Number Operations■ Whole Number Estimation■ Powers and Exponents■ Order of Operation■ Variables and Exponents■ Problem Solving
Measurement and Statistics	<ul style="list-style-type: none">■ Measuring Length■ Perimeter and Area■ Scale Drawings■ Frequency Tables and Line Plots■ Bar Graphs■ Coordinates and Line Graphs■ Circle Graphs■ Mean, Median, and Mode
Decimal Addition and Subtraction	<ul style="list-style-type: none">■ Decimals and Place Value■ Measuring Metric Length■ Ordering Decimals■ Rounding Decimals■ Decimal Estimation■ Adding and Subtracting Decimals
Decimal Multiplication and Division	<ul style="list-style-type: none">■ Multiplying Decimals and Whole Numbers■ The Distributive Property■ Multiplying Decimals■ Dividing by Whole Numbers■ Multiplying and Dividing by Powers of Ten■ Dividing by Decimals
Semester 1 Unit 2	
Number Patterns and Fractions	<ul style="list-style-type: none">■ Prime Factorization■ Common Factor■ Equivalent Fractions■ Common Multiple■ Ordering Fractions■ Mixed Numbers and Improper Fractions■ Changing Decimals to Fractions■ Changing Fractions to Decimals
Addition and Subtraction of Fractions	<ul style="list-style-type: none">■ Fraction Estimation■ Fractions wit Common Denominators■ Fractions with Different Denominators■ Adding and Subtraction Mixed Numbers■ Subtracting Mixed Numbers by Renaming■ Measures of Time

GUSD High School Course Description

Multiplication and Division of Fractions

- Multiplying Fractions and Whole Numbers
- Multiplying Fractions
- Multiplying Mixed Numbers
- Dividing Fractions
- Dividing Mixed Numbers
- Weight and Capacity in Customary Units
- Changing Customary Units

Semester 2
Unit 3

Ratio, Proportion, and Percent

- Ratios
- Rates
- Solving Proportions
- Proportions and Scale Drawings
- Understanding Percent
- Percents, Decimals and Fractions
- Finding a Percent of a Number

Geometric Figures

- Introduction to Geometry
- Angles
- Classifying Angles
- Classifying Triangles
- Classifying Quadrilaterals
- Polygons
- Congruent and Similar Figures
- Line Symmetry
- Area of a Parallelogram
- Area of a Triangle
- Circumference of a Circle
- Area of a Circle
- Solid Figures
- Surface Area of a Prism
- Volume of a Prism

Geometry and Measurement

Semester 2
Unit 4

Integers

- Comparing Integers
- Adding Integers
- Subtracting Integers
- Multiplying Integers
- Dividing Integers
- Translations in a Coordinate Plane
- Reflections and Rotations

Equations and Functions

- Writing Expressions and Equations
- Solving Addition Equations
- Solving Subtraction Equations
- Solving Multiplication and Division Equations
- Functions
- Graphing Functions

GUSD High School Course Description

Probability and Statistics

- Introduction to Probability
- Finding Outcomes
- Probability of Independent Events
- Misleading Statistics
- Stem-and-Leaf Plots
- Box-and-Whisker Plots
- Choosing an Appropriate Data Display

3. Course Materials

“McDougal Littell, *Middle School Math*” *Course 1*

4. Universal Access i.e. Special Populations (English Learners, Special Ed., GATE/high achieving students)

To establish universal access for all students, the teacher should:

- 1) Establish a safe environment in which the students are encouraged to talk and to ask questions freely when they do not understand.
- 2) Use a wide variety of ways to explain a concept.
- 3) Provide assistance in the general vocabulary to be used each lesson.
- 4) Set up tutoring situations that offer additional assistance.
- 5) Enlist the help of parents at home when possible.
- 6) Use a variety of ways to check frequently for understanding.

C. COURSE POLICIES

1. Attendance/Absences/Make-up Work

(Teacher Handbook Guidelines)

Make-up tests and assignments shall be reasonably equivalent to, but not necessarily identical to, the tests and assignments, which the student missed during an absence.

Every student will be given an opportunity to make-up work for any assignment missed for full credit during an excused absence. The teacher will determine when make-up assignments will be due. Due dates should be within a reasonable amount of time.

Makeup assignments for work missed during an unexcused absence, including “cuts” and suspensions, will be given at the discretion of the teacher.

Makeup assignments for work missed during an unexcused absence, including “cuts” and suspensions, will be given at the discretion of the teacher.

2. Classroom Rules/Expectations

Students are expected to follow all School rules in addition to each individual teacher’s classroom rules and expectations.

GUSD High School Course Description

3. Behavioral Management Plan

(Teacher Handbook Guidelines)

- 5) The student will have been made aware of the classroom rules and procedures. The student will also have been made aware of the consequences for violation of classroom rules and procedures. Consequences assigned by the classroom teacher for violations of classroom rules and procedures are to take place outside the normal school day.
- 6) When a problem occurs, the teacher will confer with the student and attempt to resolve the problem.
- 7) If the student does not modify his/her behavior or comply with the consequences the classroom teacher will:
 - a. Assign teacher detention.
 - b. Attempt to make phone contact with the parent within three days to discuss the problem and solicit parental assistance in modifying the student's behavior.
- 8) Referral to administration and placement on the appropriate step of the Administrative Discipline Ladder.

4. Homework Policy

Homework is assigned daily. Refer to BP 6154.

5. Extra Credit

None

6. Academic Honesty

The Governing Board believes that academic honesty and personal integrity are fundamental components of a student's education and character development. The Board expects that students will not cheat, lie, conspire to cheat, plagiarize or commit other acts of academic dishonesty.

Students, parents/guardians, staff and administrators shall be responsible for creating and maintaining a positive school climate that encourages honesty. Students found to have committed and act of academic dishonesty shall be subject to district and school-site discipline rules. B.P. 5131.9

D. COURSE REQUIREMENTS

1. Grading Policy

Grading: Grades will be calculated using the following weights:

Mastery Tests 25%

Homework 15%

Class Work 35%

Midterm/Final 25%

*As part of the Math Lab curriculum and accountability, students will have to pass Mastery Tests. These Masteries are in addition to regular unit exams. In order to earn a passing grade in Math Lab, all masteries must be passed with 90%. Masteries may be taken as many times as needed to earn the 90% pass. Masteries do not count in the point total of the overall grade.

GUSD High School Course Description

2. Course Procedures

Students will be expected to keep a notebook with their notes, class work, and old tests/quizzes. Homework quizzes are given periodically in which past homework problems are tested. Students will be given the opportunity to use their old homework assignments on homework quizzes. Chapter tests are given at the end of every unit and are representative of material taught in the unit.

3. Personal Statement

4. Additional Information

Please check with your student's teacher for their contact information and availability. Also their contact information may be found on www.gilroyhighschool.com. You may also inquire if your student's teacher uses school loop (www.gilroyhs.schoolloop.com) to update grades and daily assignments.

E. COMPREHENSIVE COURSE NARRATIVE

Math Lab is an intervention course for students testing below 6th grade level on MAP tests and General Math CSTs. It is focused on the six volumes outlined intervention program in the Mathematics Framework: I: Place Value and Basic Number Skills, II: Fractions and Decimals, III: Ratios, Rates, and Percents, IV: Core Processes of Mathematics, V: Functions and Equations, and VI: Measurement. The course is designed to prepare students for success in Algebra I curriculum and further study into Geometry and Algebra II. The course emphasizes the underlining skills found on the CAHSEE and SAT, thus providing the best chance possible for students to score proficient on these exams.

In the first semester students will be expected to be proficient and show mastery of:

- Addition, subtraction, multiplication, and division of whole numbers,
- Divisibility Rules
- Addition, subtraction, multiplication, and division of decimals,
- Addition, subtraction, multiplication, and division of fractions,
- Prime factorization, and common factors
- Conversions between fractions and decimals
- Ordering and comparing fractions and decimals

For second semester study students will be expected to be proficient and show mastery of:

- Solving proportions,
- Conversions between fractions, decimals and percents,
- Finding percents,
- Finding perimeters, areas and circumference,
- Addition, subtraction, multiplication, and division of negative and positive integers.

GUSD High School Course Description

A. COVER PAGE

1. Course Title: Trigonometry/PreCalculus	9. Subject Area: <input type="checkbox"/> History Social Science <input type="checkbox"/> English <input checked="" type="checkbox"/> Mathematics <input type="checkbox"/> Lab Science <input type="checkbox"/> Life <input type="checkbox"/> Physical Science <input type="checkbox"/> Foreign Language <input type="checkbox"/> Visual and Performing Arts <input type="checkbox"/> Other _____
2. Transcript Title/Abbreviation Trig/Pre-Calc	
3. Transcript Course Code/Number 2083	
4. School Gilroy High School	
5. District Gilroy Unified School District	
6. School/District Website gilroyhighschool.com gusd.k12.ca.us/exec/inde	10. Grade Level <input checked="" type="checkbox"/> 9 <input checked="" type="checkbox"/> 10 <input checked="" type="checkbox"/> 11 <input checked="" type="checkbox"/> 12
7. City Gilroy	11. Unit Value <input type="checkbox"/> 0.5 (half year or semester equivalent) <input checked="" type="checkbox"/> 1.0 (one year equivalent)
8. School Course List Contact Arturo Rodriguez – Assistant Principal Arturo.Rodriguez2@gusd.k12.ca.us	12. Approved by UC <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
13. Recommended Course Prerequisites: 10 th - 12 th Grade A/B in Alg II and 260 ≤ Alg 2 MAP or 350 ≤ Alg II CST	

B. COURSE DESCRIPTION/OVERVIEW

1. Course Description

Trigonometry/Precalculus is a study of circular functions, their identities, trigonometric functions and their identities. The practical aspects of trigonometry include the complete solution of triangles, vector, and the force problems. The relationship of infinite series and circular functions are examined. Precalculus, covered during the forth quarter involves an introduction to advanced topics in polynomial equations, analytical geometry and intro to calculus applying the first derivative to maximum and minimum problems.

2. Course Content

- Trigonometric Functions
- Measurement of angles, arcs and sectors
 - Use reference angles, calculators, and special angles to find values of the six trigonometric functions
 - Graph the six trigonometric functions
 - Inverse trigonometric functions

GUSD High School Course Description

Trigonometric Equations and Applications

- Solve simple trigonometric equations including inclination of lines and directions angles of conics
- Find equations for trigonometric curves by finding period, amplitude, and translations.
- Use trigonometric functions to model periodic behavior
- Prove trigonometric identities and use them to simplify expressions

Triangle Trigonometry

- Use trigonometric ratios to solve right triangles
- Find the area of a triangle given the lengths of two sides and their included angle
- Find the areas of various figures, including quadrilaterals and sectors of circles
- Use the law of sines and/or the law of cosines to solve triangles
- Use trigonometry to solve navigation and surveying problems

Trigonometric Addition Formulas

- Derive and apply the sum and difference formulas for cosine, sine and tangent
- Derive and apply the double-angle and half-angle formulas
- Use the formulas to simplify expressions, prove identities, and find exact values of the six trigonometric functions
- Solve trigonometric equations algebraically (using the formulas) or geometrically (using technology)

Polar Coordinates and Complex Numbers

- Represent points in both polar and rectangular coordinates
- Graph polar equations
- Transform equations from one system to the other
- Write, graph and operate on complex numbers in rectangular and polar form
- Use De Moivre's theorem to find powers and roots of complex numbers

Vectors and Determinants

- Represent vectors in two and three dimensions geometrically and algebraically
- Perform basic operations on vectors
- Perform scalar multiplication, find the dot product and the cross product
- Convert vector equations into parametric equations
- Draw graphs of parametric equations
- Solve physics and navigation problems involving vectors in two dimensions
- Extend vectors to three dimensions to sketch and find equations of planes
- Define and evaluate determinants
- Use determinants to find intersections of lines in plane, lines in space, angles between lines and planes, and distances between a point and a plane
- Use Cramer's rule to solve systems of equations

Sequences and Series

- Identify arithmetic and geometric sequences
- Define sequences explicitly and recursively
- Find the limit, if it exists, of an infinite sequence
- Find the sums of finite and infinite series
- Use sigma notation to represent a series

Linear and Quadratic Functions (Review)

- Coordinate geometry of lines
- Use slope with the distance and midpoint formulas to verify properties of quadrilaterals
- Find equations of medians, altitudes, and perpendicular bisectors of sides of various triangles
- Use various methods of finding the real and imaginary roots of quadratic equations
- Find points of intersection between lines and parabolas

Polynomial Functions

- Evaluate polynomial functions using synthetic substitution

GUSD High School Course Description

- Use synthetic division and apply the remainder and factor theorems
 - Graph and find equations for polynomial functions
 - Find maximum and minimum points on quadratic and cubic graphs
 - Solve extreme-value problems from physics, business, and manufacturing
 - Solve polynomial equations by various methods of factoring, including the use of the rational root theorem
 - Apply general theorems about polynomial equations
- Polynomial Inequalities
- Solve and graph polynomial inequalities in one variable
 - Graph polynomial inequalities in two variables
 - Graph the solution set of a system of inequalities
 - Find a set of inequalities to define shaded regions
- Functions
- Identify a function
 - Determine the domain, range, and zeros of a function
 - Graph functions using reflections and symmetry
 - Determine periodicity and amplitude of functions
 - Perform operations, including composite, on functions and determine the domain of the resulting function
 - Find the inverse of a function, if the inverse exists
- Exponents and Logarithms
- Simplify exponential expressions using laws of exponents
 - Define and use exponential growth and decay models
 - Define and use the natural exponential function e^x
 - Simplify logarithmic expressions using laws of logarithms
 - Solve exponential equations using logarithms
- Analytic Geometry
- Find equations and graph conic sections: circles, ellipse, hyperbolas, and parabolas
 - Find the points of intersection of pairs of conics by using both algebraic and geometric methods
- Limits
- Find the limit of a function
 - Find the quotient of two functions
 - Determine whether a function is continuous
 - Sketch graphs of rational functions
- Introduction to Calculus
- Find derivatives of functions
 - Sketch the graphs of functions using derivatives
 - Solve extreme-value problems using derivatives
 - Find instantaneous velocities and accelerations

3. Course Materials

Daily Required Materials:

- Houghton Mifflin: *Advanced Mathematics*
- Graphing calculator (TI-83plus strongly suggested)
- Composition book (class work)
- Spiral notebook (homework)
- Pencil, Red Pen, Highlighter

C. COURSE POLICIES

GUSD High School Course Description

1. Attendance/Absences/Make-up Work

(Teacher Handbook Guidelines)

Make-up tests and assignments shall be reasonably equivalent to, but not necessarily identical to, the tests and assignments, which the student missed during an absence.

Every student will be given an opportunity to make-up work for any assignment missed for full credit during an excused absence. The teacher will determine when make-up assignments will be due. Due dates should be within a reasonable amount of time.

Makeup assignments for work missed during an unexcused absence, including “cuts” and suspensions, will be given at the discretion of the teacher.

2. Classroom Rules/Expectations

Students are expected to follow all School rules in addition to each individual teacher’s classroom rules and expectations.

3. Behavioral Management Plan

(Teacher Handbook Guidelines)

1) The student will have been made aware of the classroom rules and procedures. The student will also have been made aware of the consequences for violation of classroom rules and procedures. Consequences assigned by the classroom teacher for violations of classroom rules and procedures are to take place outside the normal school day.

2) When a problem occurs, the teacher will confer with the student and attempt to resolve the problem.

3) If the student does not modify his/her behavior or comply with the consequences the classroom teacher will:

(a) Assign teacher detention.

(b) Attempt to make phone contact with the parent within three days to discuss the problem and solicit parental assistance in modifying the student's behavior.

4) Referral to administration and placement on the appropriate step of the Administrative Discipline Ladder.

4. Homework Policy

Homework will be assigned each day and is due at the beginning of the next class period. Work must be shown to receive full credit. Late work is accepted for full credit only with an excused absence/tardy. Students should check the answers to odd-numbered problems in the back of the book. The answers to the even-numbered problems will be provided. Refer to BP 6154.

5. Extra Credit

If extra credit is given, it must count less than 3% of the grade.

6. Academic Honesty

The Governing Board believes that academic honesty and personal integrity are fundamental components of a student’s education and character development. The Board expects that students

GUSD High School Course Description

will not cheat, lie, conspire to cheat, plagiarize or commit other acts of academic dishonesty.

Students, parents/guardians, staff and administrators shall be responsible for creating and maintaining a positive school climate that encourages honesty. Students found to have committed and act of academic dishonesty shall be subject to district and school-site discipline rules. B.P. 5131.9

D. COURSE REQUIREMENTS

1. Grading Policy

Grading: Grades will be calculated using the following weights:

Tests and Final Exams	50 %
Homework	10 %
Homework Quizzes	10 %
Class work/Notebooks/Quizzes/Essays	30 %

2. Course Procedures

Students must bring the following supplies to every class period:

- Composition book – used for warm-ups, notes, and class work. Collected every chapter for a grade on completeness and usability as a reference.
- Spiral notebook – used for homework. Homework will be checked and corrected daily in class. Homework notebooks will be collected every chapter for a grade on completeness and corrections.
- Pencil
- Red pen for correcting
- Highlighter

Absent students are responsible for:

- Section notes and class exercises
- Homework assignment. Check School Loop or call a friend.

The above should be completed before returning to class.

3. Personal Statement

4. Additional Information

Please check with your student's teacher for their contact information and availability. Also their contact information may be found on www.gilroyhighschool.com. You may also inquire if your student's teacher uses school loop (www.gilroyhs.schoolloop.com) to update grades and daily assignments.

E. COMPREHENSIVE COURSE NARRATIVE

GUSD High School Course Description

(Excerpt from Advanced Mathematics text page T26)

The precalculus course includes material from a number of branches of mathematics, thereby enabling students to experience connections among them. These are interrelationships among topics and processes, some perhaps encountered previously as the student spiraled upward through the mathematics curriculum. A student may study the same concept expressed in a number of manifestations. Students at the level represented by this course are ready to see these connections, to understand them, and even to appreciate them. A short but not exhaustive list follows.

- **Functions:** The function concept is used to progress from the familiar linear and quadratic functions, building to polynomial, exponential, and trigonometric functions.
- **Functions and Inverses:** Function techniques are used to define important new types of functions. These include exponential, logarithmic, trigonometric, and inverse trigonometric.
- **Algebra and Geometry:** Connections between algebra and geometry are exploited throughout the course. The parallel development here is between the algebraically stated function or equation and the geometric representation as a graph. Characteristics of polynomials, such as zeros and maxima or minima, are translated directly into geometric terms.
- **Circular functions and Series:** Circular and trigonometric functions are introduced early, with the usual definitions. Students study series and are presented with a whole new way of looking at sines and cosines.
- **Coordinate Systems and Complex Numbers:** Representing points in a plane takes on a new dimension as students are introduced to polar coordinates as an alternative to the rectangular coordinates they've used for years already. Complex number can then be studied from two points of view, using both rectangular and polar forms of a given complex number.
- **Parametric Equations:** Students have graphed equations for years. In this course they have extensive experience with graphing, moving on to graphs of new classes of equations such as trigonometric and exponential equations. In the context of vectors, the concept of parametric equations is introduced. At this point, students have an altogether new way of viewing the graphing process, which can be used to picture a number of equations that they have studied only in explicit form before. The variable x and y are seen as determined by a third variable, the parameter, rather than as dependent on each other.
- **Recursive and Closed-Form Definitions:** Sequences are approached in two ways. Closed-form definitions are the initial introduction. They are followed by recursive definitions, in which a given term of a sequence is related to the preceding term. The two forms are seen to be equivalent, with each especially suited to its own purposes or applications.
- **Matrices and Linear Systems:** Students have learned to solve systems through algebraic transformations. Now they are shown that matrices can be used to represent systems efficiently and compactly, and that matrix techniques can be used to produce and actual solutions of a system. This method is shown to be quite powerful because of its generality and adaptability to computer applications.