

Santa Barbara Unified School District
NEW COURSE APPROVAL

I. The teacher proposing the new course of approval will submit this completed form to the Assistant Superintendent, Secondary Education on or by _____.

II. If a new textbook needs to be purchased for the new course, please remember to complete the 'Request for Textbook Adoption (Non- Primary State Adoption)' form.

III. Description of Proposed Course.

Before you complete this form, please make sure that you have considered the following questions:

- *Is there a similar course already being taught at another site?*
- *Have I looked through the district course catalog to make sure that the course doesn't already exist?*

- A. Title of course **CCSS Math 8 Plus Enrichment**
B. Length of course (semester, year long) **Year Long**
C. Targeted population
Special Education GATE English Language Learners
D. Description of the standards taught in the course.
See attached course description

If you need more room to answer the questions than what is allotted, please continue onto an additional sheet of paper and attach to form.

- E. What A-G requirement does it fulfill? (High School Course only) **N/A**
F. Does the course have targeted ability level? If so, what is the designation of the course? (AP, Honors, College Prep) _____
G. Explain the rationale for the creation of the course. What need does it fulfill?
This is a new course that addresses the state adopted California Common Core Math 8 Standards and is intended for students who demonstrate a need for mathematical experiences and topics beyond CCSS Math 8. It is designed to address all of the CCSS Math 8 content and math practices while providing students additional enrichment opportunities to increase students' depth of understanding by developing expertise in the modeling process and applying mathematics to novel and complex contexts.

- H. Describe the instructional materials used. Include the cost of instructional materials. **A team of district math teachers is in the process of gathering instructional materials for this course from both currently adopted instructional materials and new resources aligned to Common Core Standards. The course is designed around the scope and sequence created by the Georgia Department of Education. The Georgia mathematics units of instruction are developed under a grant from the U.S. Department of Education.**

- I. Describe any other costs associated with the course. What will be your source of funding for these materials? **There will be additional costs associated with photocopying materials for students and student learning materials (i.e. manipulatives, technology tools).**

- J. What is the targeted grade level of this course? **8th grade** Justification for targeted grade level **The course is based on the 8th Grade Common Core math standards.**

- K. Describe how this course fits into the sequence of courses already being offered at your site. **This course will be a part of a new series of secondary math courses that are designed to address the Common Core State Standards for Mathematics.**

- L. What credential(s) are required to teach this course? **Single Subject Mathematics credential**
Additional training? **No**

- M. Are there any partnerships with outside agencies? (businesses, community programs, colleges, grants). If yes, please explain. **None**

IV. Site Level Approval Signatures

Teacher Proposing Course

Date

Department Chair

Date

Additional Teacher (Same Department)

Date

Head Counselor

Date

Principal

Date

- V. After obtaining signatures, please forward this document to the Assistant Superintendent, Secondary Education at the District Office.

Assistant Superintendent, Secondary Education

Date _____

CCSS Mathematics 8 Plus Enrichment

Math 8 Plus Enrichment focuses on the same Common Core State Standards content standards as Math 8 (listed below), and includes additional topics and assignments (e.g., projects) that allow students the opportunity to connect their learning to other disciplines. These “enrichment opportunities should allow students to increase their depth of understanding by developing expertise in the modeling process and applying mathematics to novel and complex contexts.” (Massachusetts 2012).

The CCSS Math 8 Plus Enrichment course will contain extra topics not included in Math 8. These topics include elements from mathematics and applications in other disciplines that would be interesting to advanced middle school students. In addition, students in the Plus Enrichment course will have increased opportunities to model contextual situations with the mathematics at their grade level. The course have increased rigor and advanced content that will challenge the minds of high ability students.

In Math 8, instructional time should focus on three critical areas: (1) formulating and reasoning about expressions and equations, including modeling an association in bivariate data with a linear equation, and solving linear equations and systems of linear equations; (2) grasping the concept of a function and using functions to describe quantitative relationships; (3) analyzing two- and three-dimensional space and figures using distance, angle, similarity, and congruence, and understanding and applying the Pythagorean Theorem.

- 1. Students use linear equations and systems of linear equations to represent, analyze, and solve a variety of problems. Students recognize equations for proportions ($y/x = m$ or $y = mx$) as special linear equations ($y = mx + b$), understanding that the constant of proportionality (m) is the slope, and the graphs are lines through the origin. They understand that the slope (m) of a line is a constant rate of change, so that if the input or x -coordinate changes by an amount A , the output or y -coordinate changes by the amount $m \cdot A$. Students also use a linear equation to describe the association between two quantities in bivariate data (such as arm span vs. height for students in a classroom). At this grade, fitting the model, and assessing its fit to the data are done informally. Interpreting the model in the context of the data requires students to express a relationship between the two quantities in question and to interpret components of the relationship (such as slope and y -intercept) in terms of the situation. □□ Students strategically choose and efficiently implement procedures to solve linear equations in one variable, understanding that when they use the properties of equality and the concept of logical equivalence, they maintain the solutions of the original equation. Students solve systems of two linear equations in two variables and relate the systems to pairs of lines in the plane; these intersect, are parallel, or are the same line. Students use linear equations, systems of linear equations, linear functions, and their understanding of slope of a line to analyze situations and solve problems.
- 2. Students grasp the concept of a function as a rule that assigns to each input exactly one output. They understand that functions describe situations where one quantity determines another. They can translate among representations and partial representations of functions (noting that tabular and graphical representations may be partial representations), and they describe how aspects of the function are reflected in the different representations.

- 3. Students use ideas about distance and angles, how they behave under translations, rotations, reflections, and dilations, and ideas about congruence and similarity to describe and analyze two-dimensional figures and to solve problems. Students show that the sum of the angles in a triangle is the angle formed by a straight line, and that various configurations of lines give rise to similar triangles because of the angles created when a transversal cuts parallel lines. Students understand the statement of the Pythagorean Theorem and its converse, and can explain why the Pythagorean Theorem holds, for example, by decomposing a square in two different ways. They apply the Pythagorean Theorem to find distances between points on the coordinate plane, to find lengths, and to analyze polygons. Students complete their work on volume by solving problems involving cones, cylinders, and spheres.

Math 8 Overview

- **The Number System**

- Know that there are numbers that are not rational, and approximate them by rational numbers.

- **Expressions and Equations**

- Work with radicals and integer exponents.
- Understand the connections between proportional relationships, lines, and linear equations.
- Analyze and solve linear equations and pairs of simultaneous linear equations.

- **Functions**

- Define, evaluate, and compare functions.
- Use functions to model relationships between quantities.

- **Geometry**

- Understand congruence and similarity using physical models, transparencies, or geometry software.
- Understand and apply the Pythagorean Theorem.
- Solve real-world and mathematical problems involving volume of cylinders, cones and spheres.

- **Statistics and Probability**

- Investigate patterns of association in bivariate data.

- **Mathematical Practices**

- 1. Make sense of problems and persevere in solving them.
- 2. Reason abstractly and quantitatively.
- 3. Construct viable arguments and critique the reasoning of others.
- 4. Model with mathematics.
- 5. Use appropriate tools strategically.
- 6. Attend to precision.
- 7. Look for and make use of structure.
- 8. Look for and express regularity in repeated reasoning.