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Definitions

CALPADS	California Longitudinal Pupil Achievement Data System
CTE Technical Prep	A course within a CTE technical career pathway or program that has been articulated with a postsecondary education or through an apprenticeship program of at least 2 years following secondary instruction.
Instructional Level Code	Represents a nonstandard instructional level at which the content of a specific course is either above or below a 'standard' course instructional level. These levels may be identified by the actual level of instruction or identified by equating the course content and level of instruction with a state or nationally recognized advanced course of study, such as IB or AP.
Instructional Level Honors, UC Certified	Includes all AP courses.
Instructional Level Honors, non UC Certified	Requires Board approval.
Instructional Level College	Includes ACE courses. Equivalent to college course and content, but not an AP course. Not related to section, but to course.

EDUCATIONAL SERVICES

Course Title: Applied Geometry

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EDUCATIONAL SERVICES

Department: **Mathematics**

Course Title: **Applied Geometry**

Course Number: _____

Unit Title: Congruence

Content Area Standards (Please identify the source): List content standards students will master in this unit.

- Experiment with transformations in the plane
- Understand congruence in terms of rigid motions

Unit Outline: A detailed descriptive summary of all topics covered in the unit. Explain what the students will learn, know and be able to do.

Experiment with transformations in the plane

G-CO 1. Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.

G-CO 3. Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.

G-CO 4. Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.

G-CO 5. Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another. Understand congruence in terms of rigid motions

Understand congruence in terms of rigid motions

G-CO 6. Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.

G-CO 7. Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.

Instructional Strategies: Indicate how the Instructional Strategies support the delivery of the curriculum and the course goals. Indicate how assignments support the Anchor Standards.

Teachers will use a variety of instructional strategies that may include, direct instruction utilizing Smart Notebook, investigative approaches using measurement tools and manipulatives, and simulations or demonstrations with graphing calculators and mathematical software. Students may take notes in pre-printed note packets or workbooks. Teachers will guide practice as students work independently, collaboratively in pairs or in groups to discover, investigate, practice and apply the concepts of the course to a mastery level.

Assessments: Describe the Formative and Summative assessments that will be used to demonstrate learning and mastery of the standards.

Formative assessments will include warm-ups, classwork, homework, individual and collaborative quizzes, investigative activities and multi-step performance tasks. Summative assessments will include unit tests, semester finals and culminating projects that simulate and apply the common core standards.

Interventions: Describe methods used to support students who fail to master unit Formative and Summative assessments.

Students may access additional remedial sessions available by the teacher, math department or site. These may include teacher intervention periods, peer-tutoring, on-line textbook resources, Academic Recovery, support classes and Intersession.

EDUCATIONAL SERVICES

Department: **Mathematics**

Course Title: **Applied Geometry**

Course Number: _____

Unit Title: Similarity, Right Triangles, and Trigonometry

Content Area Standards (Please identify the source): List content standards students will master in this unit.

- Understand similarity in terms of similarity transformations
- Define trigonometric ratios and solve problems involving right triangles

Unit Outline: A detailed descriptive summary of all topics covered in the unit. Explain what the students will learn, know and be able to do.

Understand similarity in terms of similarity transformations

G-SRT 1. Verify experimentally the properties of dilations given by a center and a scale factor: a. A dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged. b. The dilation of a line segment is longer or shorter in the ratio given by the scale factor.

G-SRT 2. Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.

Define trigonometric ratios and solve problems involving right triangles.

G-SRT 6. Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles.

G-SRT 7. Explain and use the relationship between the sine and cosine of complementary angles.

G-SRT 8. Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.

G-SRT 8.1 Know and use angle and side relationships in problems with special right triangles.

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Department: **Mathematics**

Course Title: **Applied Geometry**

Course Number: _____

Unit Title: Expressing Geometric Properties with Equations

Content Area Standards (Please identify the source): List content standards students will master in this unit.

- Use coordinates to prove simple geometric theorems algebraically

Unit Outline: A detailed descriptive summary of all topics covered in the unit. Explain what the students will learn, know and be able to do.

Use coordinates to prove simple geometric theorems algebraically

G-GPE 5. Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).

G-GPE 6. Find the point on a directed line segment between two given points that partitions the segment in a given ratio.

G-GPE 7. Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.

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EDUCATIONAL SERVICES

Department: **Mathematics**

Course Title: **Applied Geometry**

Course Number: _____

Unit Title: Geometric Measurement and Dimension

Content Area Standards (Please identify the source): List content standards students will master in this unit.

- Explain volume formulas and use them to solve problems
- Visualize relationships between two-dimensional and three-dimensional objects

Unit Outline: A detailed descriptive summary of all topics covered in the unit. Explain what the students will learn, know and be able to do.

Explain volume formulas and use them to solve problems

G-GMD 1. Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone. Use dissection arguments, Cavalieri's principle, and informal limit arguments.

G-GMD 2. Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.

Visualize relationships between two-dimensional and three-dimensional objects.

G-GMD 4. Determine how changes in dimensions affect the perimeter, area, and volume of common geometric figures and solids.

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Department: **Mathematics**

Course Title: **Applied Geometry**

Course Number: _____

Unit Title: Modeling with Geometry

Content Area Standards (Please identify the source): List content standards students will master in this unit.

- Apply geometric concepts in modeling situations

Unit Outline: A detailed descriptive summary of all topics covered in the unit. Explain what the students will learn, know and be able to do.

Apply geometric concepts in modeling situations

G-MG 1. Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).

G-MG 3. Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios).

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EDUCATIONAL SERVICES

Department: **Mathematics**

Course Title: **Applied Geometry**

Course Number: _____

Unit Title: Definitions and Examples

Content Area Standards (Please identify the source): List content standards students will master in this unit.

- Identify and give examples of undefined terms, axioms, theorems, and inductive and deductive reasoning.

Unit Outline: A detailed descriptive summary of all topics covered in the unit. Explain what the students will learn, know and be able to do.

CA 1.0 Demonstrate understanding by identifying and giving examples of undefined terms, axioms, theorems, and inductive and deductive reasoning.

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