
High School Course Description SDC Geometry 81341 / 81342

Course Title: SDC Geometry**Curricular Area:** Mathematics**Course Number:** 81341 / 81342**Length:** One Year**Grade Level:** 10-12**Prerequisites:** Algebra I (any) and IEP Placement**Meets a UC a-g Requirement:** No**Meets NCAA Requirement:** No

Meets High School Graduation Requirement for:
Mathematics

Course Description

Students develop their ability to construct formal, logical arguments and proofs in geometric settings and problems, Geometry is a one year course designed to prepare students for successful entry into higher level mathematics courses and completion of the California High School Exit Examination.

Alignment

This course is aligned to the California Content Standards for *Geometry* for California public schools.

Instructional MaterialsRequired textbook(s)*PM Geometry*, Pearson AGS Globe 2007, ISBN: 0-13-023-837-6Student Workbook: *PM Geometry***Exit Criteria**

<u>Activities</u>	<u>Percentage</u>
Homework and Class Participation.....	40%
Tests and Quizzes	40%
Final Examination.....	20%
Total:	100%

UNIT PLANS

UNIT 1:	Points, Lines, Planes and Angles	Week 1-2
UNIT 2:	Perimeter, Area, and Pythagorean Theorem	Weeks: 3-4
UNIT 3:	Distance Formula, Midpoint Formula, Parallel and Perpendicular Lines	Weeks: 5-6
UNIT 4:	Reasoning and Proof	Weeks: 7-8
UNIT 5:	Parallel and Perpendicular Lines	Week: 9
UNIT 6:	Congruent Triangles	Week: 10-12
UNIT 7:	Properties of Triangles	Weeks: 13-15
UNIT 8:	Quadrilaterals	Weeks: 16-18
UNIT 9:	Similarity	Weeks: 19-20
UNIT 10:	Right Triangle Trigonometry	Weeks: 21-23
UNIT 11:	Circles	Weeks: 24-25
UNIT 12:	Transformations	Weeks: 26-27
UNIT 13:	Surface Area and Volume	Weeks: 28-30
UNIT 14:	Polygons and Polyhedra	Weeks: 31-33
UNIT 15:	Coordinate Geometry	Weeks: 34-35
UNIT 16:	Equations of Circles, Loci and Introduction to Conics	Weeks: 36

Colton Joint Unified School District Course of Study
Units Guides for SDC Geometry 81341 / 81342

SECTION 1: Points, Lines, Planes and Angles

Length: Week: 1-2

Instructional Materials:

PM Geometry

State Content Standards Covered

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

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.

Links to ESLRs:

Competencies to be Developed:

Determining Acceptable Evidence:

Learning Experiences and Instruction:

Support for English Language Learners:

Extra time or modified versions of assignments can be given. Other strategies include assigning students to work with a partner or providing a language assistant, if available.

Support for Special Education Students:

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Stretching the Lesson for GATE Students:

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Colton Joint Unified School District Course of Study
Units Guides for SDC Geometry 81341 / 81342

SECTION 2: Perimeter, Area, and Pythagorean Theorem

Length: Weeks: 3-4

Instructional Materials:

PM Geometry

State Content Standards Covered

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.

14.0 Students prove the Pythagorean Theorem.

15.0 Students use the Pythagorean Theorem to determine distance and find missing lengths of sides of right triangles.

Links To ESLRs:

Competencies to be Developed:

Determining Acceptable Evidence:

Learning Experiences and Instruction:

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SECTION 3: Distance Formula, Midpoint Formula, Parallel and Perpendicular Lines

Length: Weeks 5-6

Instructional Materials:

PM Geometry

State Content Standards Covered

7.0 Students prove and use theorems involving the properties of parallel lines cut by a transversal, the properties of quadrilaterals, and the properties of circles.

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.

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.

Links To ESLRs:

Competencies to be Developed:

Determining Acceptable Evidence:

Learning Experiences and Instruction:

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SECTION 4: Reasoning and Proof

Length: Weeks 7-8

Instructional Materials:

PM Geometry

State Content Standards Covered

- 2.0 Students write geometric proofs, including proofs by contradiction.
- 4.0 Students prove basic theorems involving congruence and similarity.
- 5.0 Students prove that triangles are congruent or similar, and they are able to use the concept of corresponding parts of congruent triangles.
- 7.0 Students prove and use theorems involving the properties of parallel lines cut by a transversal, the properties of quadrilaterals, and the properties of circles.
- 14.0 Students prove the Pythagorean Theorem.

Links To ESLRs:

Competencies to be Developed:

Determining Acceptable Evidence:

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SECTION 5: Parallel and Perpendicular Lines

Length: Week 9

Instructional Materials:

PM Geometry

State Content Standards Covered

7.0 Students prove and use theorems involving the properties of parallel lines cut by a transversal, the properties of quadrilaterals, and the properties of circles.

Links To ESLRs:

Competencies to be Developed:

Determining Acceptable Evidence:

Learning Experiences and Instruction:

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Colton Joint Unified School District Course of Study
Units Guides for SDC Geometry 81341 / 81342

SECTION 6: Congruent Triangles

Length: Week 10-12

Instructional Materials:

PM Geometry

State Content Standards Covered

4.0 Students prove basic theorems involving congruence and similarity.

5.0 Students prove that triangles are congruent or similar, and they are able to use the concept of corresponding parts of congruent triangles.

Links To ESLRs:

Competencies to be Developed:

Determining Acceptable Evidence:

Learning Experiences and Instruction:

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Colton Joint Unified School District Course of Study
Units Guides for SDC Geometry 81341 / 81342

SECTION 7: Properties of Triangles

Length: Weeks 13-15

Instructional Materials:

PM Geometry

State Content Standards Covered:

6.0 Students know and are able to use the triangle inequality theorem.

12.0 Students find and use measures sides and of interior and exterior angles of triangles and polygons to classify figures and solve problems.

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.

Links To ESLRs:

Competencies to be Developed:

Determining Acceptable Evidence:

Learning Experiences and Instruction:

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Stretching the Lesson for GATE Students:

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SECTION 8: Quadrilaterals

Length: Weeks 16-18

Instructional Materials:

PM Geometry

State Content Standards Covered

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

11.0 Students determine how changes in dimensions affect the perimeter, area, and volume of common geometric figures and solids.

12.0 Students find and use measures sides and of interior and exterior angles of triangles and polygons to classify figures and solve problems.

13.0 Students prove relationships between angles in polygons by using properties of complementary, supplementary, vertical, and exterior angles.

Links To ESLRs:

Competencies to be Developed:

Determining Acceptable Evidence:

Learning Experiences and Instruction:

Support for English Language Learners:

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Colton Joint Unified School District Course of Study
Units Guides for SDC Geometry 81341 / 81342

SECTION 9: Similarity

Length: Weeks 19-20

Instructional Materials:

PM Geometry

State Content Standards Covered

4.0 Students prove basic theorems involving congruence and similarity.

5.0 Students prove that triangles are congruent or similar, and they are able to use the concept of corresponding parts of congruent triangles.

Links To ESLRs:

Competencies to be Developed:

Determining Acceptable Evidence:

Learning Experiences and Instruction:

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SECTION 10: Right Triangle Trigonometry

Length: Weeks 21-23

Instructional Materials:*PM Geometry***State Content Standards Covered**

14.0 Students prove the Pythagorean Theorem.

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.

20.0 Students know and are able to use angle and side relationships in problems with special right triangles, such as 30° , 60° , and 90° triangles and 45° , 45° , and 90° triangles.**Links To ESLRs:****Identified Desired Knowledge and Skills:****Determining Acceptable Evidence:****Learning Experiences and Instruction:****Support for English Language Learners:**

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Stretching the Lesson for GATE Students:

Lessons can be stretched by adding additional tasks to assignments or creating advanced level projects.

SECTION 11: Circles

Length: Weeks 24-25

Instructional Materials:

PM Geometry

State Content Standards Covered

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

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.

21.0 Students prove and solve problems regarding relationships among chords, secants, tangents, inscribed angles, and inscribed and circumscribed polygons of circles.

Links To ESLRs:

Identified Desired Knowledge and Skills:

Determining Acceptable Evidence:

Learning Experiences and Instruction:

Support for English Language Learners:

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Colton Joint Unified School District Course of Study
Units Guides for SDC Geometry 81341 / 81342

SECTION 12: Transformations

Length: Weeks 26-27

Instructional Materials:

PM Geometry

State Content Standards Covered

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

Links To ESLRs:

Identified Desired Knowledge and Skills:

Determining Acceptable Evidence:

Learning Experiences and Instruction:

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Stretching the Lesson for GATE Students:

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SECTION 13: Surface Area and Volume

Length: Weeks 28-30

Instructional Materials:

PM Geometry

State Content Standards Covered

9.0 Students compute the volumes and surface areas of prisms, pyramids, cylinders, cones, and spheres; and students commit to memory the formulas for prisms, pyramids, and cylinders.

Links To ESLRs:

Identified Desired Knowledge and Skills:

Determining Acceptable Evidence:

Learning Experiences and Instruction:

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SECTION 14: Polygons and Polyhedra

Length: Weeks 31-33

Instructional Materials:*PM Geometry***State Content Standards Covered**

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

11.0 Students determine how changes in dimensions affect the perimeter, area, and volume of common geometric figures and solids.

12.0 Students find and use measures sides and of interior and exterior angles of triangles and polygons to classify figures and solve problems.

13.0 Students prove relationships between angles in polygons by using properties of complementary, supplementary, vertical, and exterior angles.

Links To ESLRs:**Identified Desired Knowledge and Skills:****Determining Acceptable Evidence:****Learning Experiences and Instruction:****Support for English Language Learners:**

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Stretching the Lesson for GATE Students:

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SECTION 15: Coordinate Geometry

Length: Week 34-35

Instructional Materials:

PM Geometry

State Content Standards Covered

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.

Links To ESLRs:

Identified Desired Knowledge and Skills:

Determining Acceptable Evidence:

Learning Experiences and Instruction:

Support for English Language Learners:

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Stretching the Lesson for GATE Students:

Lessons can be stretched by adding additional tasks to assignments or creating advanced level projects

SECTION 16: Equations of Circles, Loci and Introduction to Conics

Length: Week 36

Instructional Materials:

PM Geometry

State Content Standards Covered

21.0 Students prove and solve problems regarding relationships among chords, secants, tangents, inscribed angles, inscribed and circumscribed polygons of circles.

Links To ESLRs:

Identified Desired Knowledge and Skills:

Determining Acceptable Evidence:

Learning Experiences and Instruction:

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