

Curriculum Guide

Course: Regular Geometry

Description

This course is a full-year course in plane Euclidean geometry with applications in solid geometry. The basic foundations of geometry will be discussed. An intuitive approach is emphasized. Students learn basic geometric concepts and relationships through practical experience. Geometric constructions will be taught as a way to develop concepts about geometric shapes and their properties.

Meets Requirements for:

SUHSD - One Year Advanced Course of Math

Length of Course:

One year

Prerequisite course(s):

Algebra 1A & 1B
Or Algebra I

Units:

10

Requisite Skills:

Basic arithmetic

Linear equations

Square roots

Solving proportions

Operations with fractions

Problem solving processes

Basic measurement

Observational skills

Organizational skills

Basic research skills

Ability to read and follow instructions

Pattern recognition and description

Essential Content and Skills

- 1.0 Students demonstrate understanding by identifying and giving examples of undefined terms, axioms, theorems, and inductive and deductive reasoning.
- 3.0 Students construct and judge the validity of a logical argument and give counterexamples to disprove a statement.
- 5.0 Students prove that triangles are congruent or similar, and they are able to use the concept of corresponding parts of congruent triangles.

- 6.0 Students know and are able to use the triangle inequality theorem.
- 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.
- 8.0 Students know, derive, and solve problems involving the perimeter, circumference, area, volume, lateral area, and surface area of common geometric figures.
- 9.0 Students compute the volume and surface area of prisms, pyramids, cylinders, cones, and spheres; and students commit to memory the formulas for prisms, pyramids, and cylinders.
- 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 perimeter, area, and volume of common geometric figures and solids.
- 12.0 Students find and use measures of 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.
- 15.0 Students use the Pythagorean Theorem to determine distance and find missing lengths of sides of right triangles.
- 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.
- 18.0 Students know the definitions of the basic trigonometric functions defined by the angles of a right triangle
- 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.
- 22.0 Students know the effect of rigid motions on figures in the coordinate plane and space, including rotations, translations, and reflections.

Instructional Resources

Scientific calculator, protractor, compass, technological applications (Geometer's Sketchpad software, computer, projector), textbook, graph paper, various manipulatives

Teaching Strategies

Identifying similarities and differences

Summarizing and note taking

Reinforcing effort and providing recognition

Homework and practice

Graphical representations, hands-on activities, models (non-linguistic representations)

Cooperative learning

Setting objectives, providing feedback

Generating and testing hypotheses

Questions, cues, advance organizers

Modeling of expectations

Assessment feedback as instructional tool

Assessment Strategies

Constructive/Projects

Multiple Choice/True-False/Free Response

Tests/Quizzes

Definitions

Student Presentations/Demonstrations

Structured Educational games (e.g., angel

Network puzzle)

SUHSD Suggested Pacing Chart - Regular Geometry
Textbook: McDougall Littell - Geometry: Concepts and Skills © 2003

Begin First Semester
(79 Days) THIS HAS 63 LESSON DAYS

Initial Two Weeks (10 Lesson Days)
Construction and Calculation of Figures and Areas
Before Textbooks Are Issued

Chapter 1			
Basics of Geometry			
Chapter-Section	Days	Topic	CA Standards
1-1	1	Finding and Describing Patterns	
1-2	1	Inductive Reasoning	1, 3
1-3	1	Points, Lines, and Planes	1
1-4	1	Sketching Intersections	
1-5	1	Segments and Their Measures	
1-6	1	Angles and Their Measures	
Review	1		
Test	1		
TOTAL	8		

Chapter 2 Segments and Angles			
Chapter-Section	Days	Topic	CA Standards
2-1	1	Segment Bisectors	
2-2	1	Angle Bisectors	
2-3	1	Complementary and Supplementary Angles	1
2-4	1	Vertical Angles	
2-5	1	If-Then Statements and Deductive Reasoning	1, 3
2-6	1	Properties of Equality and Congruence	3
Review	1		
Test	1		
TOTAL	8		

Chapter 3 Parallel and Perpendicular Lines			
Chapter-Section	Days	Topic	CA Standards
3-1	1	Relationships Between Lines	
3-2	1	Theorems About Perpendicular Lines	3
3-3	1	Angles Formed by Transversals	
3-4	3	Parallel Lines and Transversals	7
3-5	1	Showing Lines Are Parallel	3, 7
3-6	1	Using Perpendicular and Parallel Lines	3, 7, 16
3-7	0	Translations	22
Review	1		
Test	1		
TOTAL	10		

Chapter 4 Triangle Relationships			
Chapter- Section	Days	Topic	CA Standards
4-1	1	Classifying Triangles	12
4-2	1	Angle Measures of Triangles	3, 12
4-3	1	Isosceles and Equilateral Triangles	12, 16
4-4	3	The Pythagorean Theorem and the Distance Formula	12, 15
4-5	1	The Converse of the Pythagorean Theorem	3, 12, 15
4-6	2	Medians of a Triangle	
4-7	1	Triangle Inequalities	6
Review	1		
Test	1		
TOTAL	12		

Chapter 5 Congruent Triangles			
Chapter- Section	Days	Topic	CA Standards
5-1	1	Congruence of Triangles	5, 12
5-2	1	Proving Triangles Are Congruent: SSS and SAS	2, 3, 4, 5, 13, 16
5-3	1	Proving Triangles Are Congruent: ASA and AAS	2, 3, 4, 5, 13
5-4	0	Hypotenuse-Leg Congruence Theorem: HL	2, 3, 4, 5, 13

5-5	0	Using Congruent Triangles	2, 3, 4, 5, 6
5-6	0	Angle Bisectors and Perpendicular Bisectors	2, 3, 4, 5, 6
5-7	0	Reflections and Symmetry	3, 5, 22
Review	1		
Test	1		
TOTAL	5		

Chapter 6 Quadrilaterals			
Chapter-Section	Days	Topic	CA Standards
6-1	1	Polygons	7, 12
6-2	1	Properties of Parallelograms	7, 12
6-3	1	Showing Quadrilaterals Are Parallelograms	3, 7, 12, 17
6-4	2	Rhombuses, Rectangles, and Squares	7, 12
6-5	2	Trapezoids	7, 12
6-6	1	Reasoning about Special Quadrilaterals	3, 7, 12
Review	1		
Test	1		
TOTAL	10		

END FIRST SEMESTER

Begin Second Semester (78 Days) THIS HAS 67 LESSON DAYS
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Chapter 8			
Polygons and Area			
Chapter-Section	Days	Topic	CA Standards
8-1	1	Classifying Polygons	12
8-2	1	Angles in Polygons	12
8-3	1	Area of Squares and Rectangles	8, 10
8-4	2	Area of Triangles	8, 10, 15
8-5	1	Area of Parallelograms	8, 10
8-6	1	Area of Trapezoids	8, 10
8-7	2	Circumference and Area of Circles	8
Review	1		
Test	1		
TOTAL	10		

Most of Two Weeks (8 Lesson Days) Spent Specifically on CAHSEE Review
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Chapter 7			
Similarity			
Chapter-Section	Days	Topic	CA Standards
7-1	1	Ratio and Proportion	
7-2	2	Similar Polygons	5, 8, 12
7-3	1	Showing Triangles Are Similar: AA	3, 5, 12
7-4	1	Showing Triangles Are Similar: SSS and SAS	3, 5
7-5	1	Proportions and Similar	5, 12

		Triangles	
7-6	2	Dilations	5, 22
Review	1		
Test	1		
TOTAL	10		

Chapter 10 Right Angles and Trigonometry			
Chapter-Section	Days	Topic	CA Standards
10-1	1	Simplifying Square Roots	10, 15
10-2	1	45°-45°-90° Triangles	12, 15, 20
10-3	1	30°-60°-90° Triangles	10, 12, 15, 20
10-4	2	Tangent Ratio	12, 18, 19
10-5	2	Sine and Cosine Ratio	12, 18
10-6	1	Solving Right Triangles	15, 18
Review	1		
Test	1		
TOTAL	10		

Chapter 11 Circles			
Chapter-Section	Days	Topic	CA Standards
11-1	1	Parts of a Circle	21
11-2	1	Properties of Tangents	7, 21
11-3	1	Arcs and Central Angles	7, 21
11-4	1	Arcs and Chords	7, 21
11-5	1	Inscribed Angles and Polygons	7, 21
11-6	1	Properties of Chords	7, 21
11-7	1	Equations of Circles	
11-8	2	Rotations	22
Review	1		
Test	1		
TOTAL	14		

Chapter 9			
Surface Area and Volume			
Chapter-Section	Days	Topic	CA Standards
9-1	1	Solid Figures	
9-2	2	Surface Area of Prisms and Cylinders	8, 9
9-3	1	Surface Area of Pyramids and Cones	8, 9, 15
9-4	2	Volume of Prisms and Cylinders	8, 9, 11
9-5	2	Volume of Pyramids and Cones	8, 9, 15
9-6	1	Surface Area and Volume of Spheres	8, 9
Review	1		
Test	1		
TOTAL	11		

END SECOND SEMESTER
