

Intermediate Geometry

Ernest Righetti High School (053303)

Submitted: May 7, 2021

Decision: May 28, 2021

Submission Feedback

APPROVED

Basic Course Information

School(s) Offering This Course:

School Name	Course Learning Environment	Transcript Code(s)	
		Abbreviation	Course Code
Ernest Righetti High School (053303)	Classroom Based	NA	

Title:	Intermediate Geometry
Length of course:	Full Year
Subject area:	Mathematics (C) / Geometry
UC honors designation?	No
Prerequisites:	Alg 1 (Recommended) 2 yr Alg C/D (Recommended)
Co-requisites:	None
Integrated (Academics / CTE)?	No
Grade levels:	10th, 11th, 12th

course Description

course overview:

This course is for students who have shown some proficiency in basic mathematic skills, but whose mathematical history shows a need for practice in algebra with the introduction of geometric concepts. The purpose is to provide an understanding of the basic structure of geometry, including inductive reasoning, informal proofs, deductive reasoning and geometric figures. Text and supplemental materials incorporate visual analysis and geometric information in solving problems.

This course should follow successful completion of 2 Year Algebra C/D or by teacher recommendation following completion of Algebra 1. This course develops the mathematics skills necessary for successful entry into Intermediate Algebra 2 or Algebra 2. The course content satisfies the requirement of the California State Standards.

1. Students will utilize algebraic equations with geometric properties for a variety of polygons and circles to hypothesis and come to solutions and conclusions.
2. Students will assess and connect visual diagrams and symbols of geometric figures to the properties of these figures.
3. Students will determine what formulas and techniques and calculations are necessary to form conclusions about geometric figures. This will be based off investigation and developing facts with their understanding of various properties related to a geometric figure.
4. Students will use the relationship of congruence and similarity to investigate various polygons. This will be studied with an emphasis on the use of algebra.
5. Students will be able to use formulas of distance, slope and midpoint in coordinated geometry to reach conclusions.
6. Proofs will be in the form of data and understanding the related properties of geometric figures being studied.

course content:

Unit 1: Basics of Geometry / Reasoning

1. Points/lines/planes
2. Seeing structure in patterns
3. Solving / using perimeter/area
4. Introduction to inductive reasoning and logical argument.

Unit Assignment(s):

- Each chapter will begin with a Maintaining mathematical proficiency assignment that links previously learned material to the chapter.
- Assignments include the mathematical practices to solve problems in everyday life, society and the workplace.
- Students will use multiple forms of instruction to model classwork assignments including and exploration for section. Technology and hands on materials with guidance will be in place to support these explorations.
- Students will be assigned a variety of DOK leveled problems to attempt.
- Similarly, the assignments will ask for students to apply learned topics to problems they have not encountered.
- Correcting and reworking the problems each day will clarify any misconceptions the students have encountered.

- Each Chapter students will have at minimum one Quiz

Instructional methods used in this unit will include:

1. Direction instruction, lecture with the use of organizers and study guides.
 2. Group work followed by individual practice and self assessment
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 4. Use of computer based programs to emphasis concepts and allow for student lead investigation.
 5. Daily practice of concepts
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Unit 2: Geometric Relationships

1. Identifying and understanding problems involving segments
2. Concept and usage of congruent segments
3. Graphing linear equations

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Unit 3: Angle relationships

1. Naming angles
2. Using angle measurement
3. Understanding angle addition
4. Relationships of angles : adjacent angles / linear pairs

5. Supplemental and congruent angles
6. Perpendicular lines, constructions (straightedge / compass)

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Unit 4: Parallel and Perpendicular Lines

1. Parallel lines
2. Transversals and angle relationships
3. proving lines parallel, slope / equations of lines

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Unit 5: Congruent Triangles

1. Classifying Triangles
2. Problem solving with angles of triangles
3. Congruent triangles proofs (recognizing sss, sas, asa, aas)
4. Using corresponding parts of congruent triangles

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Unit 6: Relationships with Triangles

1. Medians, altitudes
2. Bisectors in triangles
3. Angular inequalities
4. Isosceles/right triangles
5. Pythagorean theorem
6. Distance formula

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Unit 7: Theorems involving Triangle relationships

1. Exterior angle theorem
2. Inequalities within a triangle
3. Triangle inequality theorem

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Unit 8: Quadrilaterals

1. Quadrilateral Properties
2. Parallelograms
3. Rectangles
4. Rhombi
5. Squares
6. Trapezoids

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Unit 9: Similarity in Polygons

1. Ratios and proportions
2. Similar polygons
3. Similar triangles
4. Proportional parts and triangles
5. Triangle and parallel lines
6. Perimeters and similarity

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Unit 10: Two Dimensional Geometry

1. Naming Polygons
2. Diagonals and angle measure
3. Area: polygons, trapezoids, and triangles
4. Symmetry transformations

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Unit 11: Circles

1. Parts of a circle
2. Arcs and central angles
3. Inscribed angles
4. Equation of a circle
5. Circumference, area

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Unit 12: Three Dimensional Geometry

1. Solid Figures
2. Prisms and cylinders
3. Surface areas
4. Volume

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Unit 13: Introduction to Right Triangle Trigonometry

1. Special Right Triangles:45-45-90, 30-60-90
2. Right triangle trigonometric ratios: sine, cose, tangent,
3. Solving systems of equations

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Course Materials

Textbooks

Title	Author	Publisher	Edition	Website	Primary
Big Ideas Geometry	Larson & Boswell	Big Ideas Learning	1st Edition 2015	https://bim.easyaccessmaterials.com/index.php?location_user=cchs	No
Geometry	Jurgenson, Brown, & Jurgenson	McDougal Littell	2004	[empty]	Yes

Additional Information

Course Author:

Nathan Watts
 Teacher
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 59372051 ext. 2856

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