

Geometry

Course Syllabus



Supervising Teacher

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Course Description:

Geometry **2 semesters** **2 credits** Grades 9-11

This course deals with planar figures, congruence and similarity of convex polygons, and the direct proof, constructions, circles and arcs, right triangles, the concept of area, and an introduction to coordinate geometry.

Recommended Textbook Options:

McDougal-Littell: Geometry

Required:

MCDOUGAL LITTELL Geometry SE 2007 Edition I-DEA TOP PICK
MCDOUGAL LITTELL Geometry TE 2007 Edition I-DEA TOP PICK *OR*
MCDOUGAL LITTELL Geometry Worked Out Solution Key 2007 Edition I-DEA TOP PICK

Recommended:

MCDOUGAL LITTELL Geometry Practice Workbook 2007 Edition I-DEA TOP PICK
(requires TE)

Glencoe: Geometry

Required:

MCGRAW-HILL - GLENCOE Geometry SE 2008 Edition I-DEA TOP PICK
MCGRAW-HILL - GLENCOE Geometry TE 2008 Edition I-DEA TOP PICK *OR*

Recommended:

MCGRAW-HILL - GLENCOE Geometry Practice Workbook 2008 Edition I-DEA TOP PICK
(requires TE)

Harcourt Holt: Geometry

Required:

HARCOURT - HOLT Geometry Student Edition 2007 Edition I-DEA TOP PICK
HARCOURT - HOLT Geometry TE 2007 Edition I-DEA TOP PICK

Recommended:

HARCOURT - HOLT Geometry Homework and Practice Workbook 2007 Edition I-DEA TOP PICK
HARCOURT - HOLT Geometry Homework and Practice Workbook, Teacher's Edition 2007 Edition I-DEA TOP PICK
HARCOURT - HOLT Geometry Problem Solving Workbook 2007 Edition I-DEA TOP PICK
HARCOURT - HOLT Geometry Problem Solving Workbook, Teacher's Edition 2007 Edition I-DEA TOP PICK

Teaching Textbooks Geometry

Required:

TEACHING TEXTBOOKS Geometry I-DEA TOP PICK
Graphing Supplement

Recommended Supplemental Materials or Software:

ALEKS subscription

Supplies or Equipment:

Graphing Calculator

End of Course Assessment Options:

Since this course is required for high school graduation in the state of Idaho, an assessment piece is required. For this course there are two options

Option 1: End of Course Final Exam

A comprehensive semester examination will be given during exam week each semester. Semester examinations will be given by a supervising instructor at a previously agreed upon location, most often a resource center. 70% or better is considered a passing grade.

Option 2: Monthly Anchor Assignments

Monthly Anchor Assignments will be submitted via Moodle, and be graded by the supervising instructor. Information on the Anchor Assignments will be provided at the beginning of the course, along with the rubrics that will be used to evaluate each assignment and the conference. Grades on anchor assignments will be posted in Moodle for the student to gain feedback. Anchor assignments will be due each month as follows:

Semester A:

October	Tangrams and Tessellations
November	Progress in ALEKS or Apangea
December	Geometry in the Real World
January	Progress in ALEKS or Apangea

Semester B

February	Circles of Doom
March	Progress in ALEKS or Apangea
April	Proof and Logic
May	Progress in ALEKS or Apangea

Course Evaluation:

A. End of course Assessment: 40% of semester grade
See above

B. Home Participation: 60% of grade
Home participation is to be determined by the home teacher. The participation may include, but is not limited to, textbook activities, quizzes, unit tests, projects, oral reports, or research papers. Grades for home participation will be submitted to the contact teacher who will then forward a copy to the supervising instructor for semester grade tabulation.

C. Grading Scale:

90-100%	A
80-89%	B
70-79%	C
60-69%	D
0-59%	F

Standards Based Portfolio

A Portfolio containing graded examples of student work from the selected curriculum will be required as per school policy, and should be shared with the assigned Contact Teacher once per semester.

Pacing Guide

The topics and standards for this course have been divided between the two semesters.

Semester 1(Fall)	Semester 2 (Spring)
Segments, Lines, Rays, and Angles	Proving Triangles Congruent
Basic Logic*	Quadrilaterals, Properties of Quadrilaterals
Slope and Distance Formula	Similarity*
Parallel and Perpendicular Lines*	Polygons and Area
Triangles, Properties of Triangles, Pythagorean Theorem	Surface Area and Volume
	Circles

In order to fulfill this pacing requirement, the recommended texts have been broken down by chapter. Covering the chapters in the order listed will insure that all topics on the final exam will be covered during the appropriate semester.

Note: Chapters marked with an asterisk (*) contain proofs.

Glencoe – Geometry

Semester 1(Fall)	Semester 2 (Spring)
Chapter 1*	Chapter 5
Chapter 2*	Chapter 8
Chapter 3	Chapter 9
Chapter 4	Chapter 10
Chapter 6	Chapter 11
Chapter 7	Chapter 12
	Chapter 13

Holt – Geometry

Semester 1(Fall)	Semester 2 (Spring)
Chapter 1*	Chapter 4
Chapter 2*	Chapter 5
Chapter 3	Chapter 6
Chapter 11	Chapter 7
Chapter 12	Chapter 8
	Chapter 9

McDougal Littell – Geometry

Semester 1(Fall)	Semester 2 (Spring)
Chapter 1	Chapter 5
Chapter 2	Chapter 6
Chapter 3	Chapter 7
Chapter 4	Chapter 8
	Chapter 9
	Chapter 11

Data and Probability is integrated into the chapters, and can either be completed within the chapters, or “saved” and done as a custom unit during Semester 2.

Teaching Textbooks – Geometry

Semester 1(Fall)	Semester 2 (Spring)
Lessons 1-37, 72-75	Lessons 38-71, 81-110
Graphing Supplement	

I-DEA Student Honor Code:

With any form of valid proof of dishonesty with regard to student work or testing, the instructor may elect from a range of actions. Academic dishonesty could lead to a zero grade for the assignment or even failure for the entire course following consultation between the instructor, Secondary Supervisor, and Director.

All students must adhere to the **Honor Code**:

“On my honor, I will maintain the highest possible standards of honesty, integrity and personal responsibility. This means I will not lie, cheat or steal, and as a member of this academic community, I am committed to creating an environment of respect and mutual trust.”

Standards

Standard 1: Number and Operation

Students in Grade 10 deepen their understanding of real numbers by applying properties of rational numbers and exponents and by identifying exact and approximate roots without simplification. Students use positive and negative numbers, absolute value, fractions, decimals, percentages, and scientific notation. Students use the proper order of operations and perform operations with rational numbers. Students apply number sense to everyday situations and judge reasonableness of answers.

- Goal 1.1: Understand and use numbers
 - 10.M.1.1.1 Apply properties of rational numbers. (347.01.b)
 - 10.M.1.1.2 Use positive and negative numbers, absolute value, fractions, decimals, percentages, and scientific notation, including application in real world situations. (347.01.a)
 - 10.M.1.1.3 Apply properties of exponents. (347.01.c)
 - 10.M.1.1.4 Identify exact and approximate roots without simplification.
 - 10.M.1.1.5 Solve problems using number theory concepts (factors, multiples, primes). (347.01.d)
 - 10.M.1.1.6 Use appropriate vocabulary.
- Goal 1.2: Perform computations accurately.
 - 10.M.1.2.1 Use the order of operations and perform operations with rational numbers. (347.02.a)
- Goal 1.3: Estimate and judge reasonableness of results
 - 10.M.1.3.1 Apply number sense to everyday situations and judge reasonableness of results. (347.03.a)
 - 10.M.1.3.2 Identify that error accumulates in a computation when there is rounding. (349.05.b)

Standard 2: Concepts and Principles of Measurement

Students in Grade 10, given relative formulas, determine length, distance, area, surface area, capacity, and weight, with appropriate unit labels. Students formulate and use proportions, ratios, and scaling. Students apply concepts of rates and direct and indirect measurements. Students evaluate given measurement formulas for two- and three- dimensional objects.

- Goal 2.1: Understand and use U.S. customary and metric measurements.
 - 10.M.2.1.1 Given the formulas, find the circumference, perimeter, or area of triangles, circles, and quadrilaterals, the volume of spheres, non-oblique prisms, cylinders, and cones, and the surface area of spheres, non-oblique prisms, cylinders, and right
 - 10.M.2.1.2 Solve problems involving circumference, perimeter, or area of triangles, circles, and rectangles.
- Goal 2.2: Apply the concepts of rates, ratios, and proportions.
 - 10.M.2.2.1 Use rates, ratios, proportions, map scales, and scale factors (one- and two-dimensional) in problem-solving situations. (349.03.a)
 - 10.M.2.2.2 Apply concepts of rates and direct and indirect measurements.
 - 10.M.2.2.3 Construct equivalent units, comparable units, and conversions. (349.02.a)
- Goal 2.3: Apply dimensional analysis.
 - 10.M.2.3.1 Use customary and metric units and their relationship to one another and to real world applications involving length, area, capacity, weight, time, and temperature. (349.04.a)
- Goal 2.4: Apply appropriate techniques and tools to determine measurements.
 - 10.M.2.4.1 Determine and use appropriate units. (349.01.a)
 - 10.M.2.4.2 Approximate error in measurement situations.

Standard 3: Concepts and Language of Algebra and Functions

Students in Grade 10 use appropriate procedures for manipulating and simplifying algebraic expressions involving variables, integers, rational numbers, and for solving multi-step, first-degree equations and inequalities. Students understand the concept and applications of functions and mathematical models. Given graphs, charts, ordered pairs, mappings, or equations, students determine whether a relation is a function. Students evaluate functions written in functional notation and, given a function, students identify domain and range.

- Goal 3.1: Use algebraic symbolism as a tool to represent mathematical relationships.
 - 10.M.3.1.1 Represent mathematical relationships using variables, expressions, linear equations and inequalities. (350.01.a)
- Goal 3.2: Evaluate algebraic expressions.
 - 10.M.3.2.1 Use appropriate procedures for manipulating and simplifying algebraic expressions involving variables, integers, and rational numbers. (350.02.a)
- Goal 3.3: Solve algebraic equations and inequalities.
 - 10.M.3.3.1 Use appropriate procedures to solve multi-step, first-degree equations and inequalities; such as $3(2x - 5) = 5x + 7$ or $3(2x - 5) > 5x + 7$. (350.03.a)
 - 10.M.3.3.2 Differentiate between linear and non-linear equations and graphs.
- Goal 3.4: Understand the concept of functions.
 - 10.M.3.4.1 Use appropriate procedures to solve linear systems of equations involving two variables; such as $x + y = 7$ and $2x + 3y = 21$. (350.04.a)
- Goal 3.5: Represent equations, inequalities and functions in a variety of formats.
 - 10.M.3.5.1 Given graphs, charts, ordered pairs, mappings, or equations, determine whether a relation is a function.
 - 10.M.3.5.2 Evaluate functions written in functional notation.
 - 10.M.3.5.3 Given a function, identify domain and range.

- Goal 3.6: Apply functions to a variety of problems.
 - 10.M.3.6.1 Model and solve real-world phenomena using multi-step, first degree, single variable equations and inequalities, linear equations, and two-variable linear systems of equations. (353.01.a)
 - 10.M.3.6.2 Use graphs and sequences to represent and solve problems. (347.02.b)

Standard 4: Concepts and Principles of Geometry

Students in Grade 10 recognize congruency and similarity of two-dimensional figures. Students identify and use similarity as it relates to size variations in two- and three- dimensional objects. Given the Pythagorean Theorem, students calculate missing side lengths of right triangles without simplifying radicals. Students represent linear relationships using tables, graphs, and mathematical symbols. Students interpret attributes of linear relationships such as slope, rate of change, and intercepts. Students use logic to make and evaluate mathematical arguments.

- Goal 4.1: Apply concepts of size, shape, and spatial relationships.
 - 10.M.4.1.1 Recognize and apply congruency and similarity of two-dimensional figures. (351.01.a)
 - 10.M.4.1.2 Recognize and use similarity as it relates to size variations in two- and three- dimensional objects. (351.01.b)
- Goal 4.2: Apply the geometry of right triangles.
 - 10.M.4.2.1 Given the Pythagorean Theorem, calculate missing side lengths of right triangles without simplifying radicals. (351.02.c)
- Goal 4.3: Apply graphing in two dimensions.
 - 10.M.4.3.1 Identify attributes of the Cartesian Coordinate System, such as quadrants, origin, and axes. (351.03.a)
 - 10.M.4.3.2 Graph scatter plots and identify informal trend lines (e.g., eyeball fit lines).
 - 10.M.4.3.3 Identify positive and negative correlations.
- Goal 4.4: Represent and graph linear relationships.
 - 10.M.4.4.1 Create graphs and equations for linear relationships.
 - 10.M.4.4.2 Represent linear relationships using tables, graphs, and mathematical symbols.
 - 10.M.4.4.3 Interpret attributes of linear relationships such as slope, rate of change, and intercepts.
- Goal 4.5: Use reasoning skills.
 - 10.M.4.5.1 Use logic to make and evaluate mathematical arguments. (348.02.b)

Standard 5: Data Analysis, Probability, and Statistics

Students in Grade 10 read, interpret, and use tables, charts, and graphs, including scatter plots, multiple broken line graphs, and box-and-whisker plots. Students interpret and use basic statistical concepts including mean, median, mode, range, and distribution of data, including outliers. Students make predictions and draw conclusions based on statistical measures and students make predictions based on randomness, chance, equally likely events, and probability. Students find probabilities based on dependent, independent, and compound events and students make predictions based on randomness, chance, equally likely events, and probability.

- Goal 5.1: Understand data analysis.
 - 10.M.5.1.1 Analyze and interpret tables, charts, and graphs, including scatter plots, multiple broken line graphs, and box-and-whisker plots. (352.01.a)
- Goal 5.2: Collect, organize, and display data.
 - 10.M.5.2.1 Collect, organize, and display data in tables, charts, and graphs. (352.02.a)
- Goal 5.3: Apply simple statistical measurements.
 - 10.M.5.3.1 Interpret and use basic statistical concepts, including mean, median, mode, range, and distribution of data, including outliers. (352.03.a)
 - 10.M.5.3.2 Make predictions and draw conclusions based on statistical measures. (352.05.a)
- Goal 5.4: Understand basic concepts of probability.
 - 10.M.5.4.1 Find probabilities based on dependent, independent, and compound events.
 - 10.M.5.4.2 Contrast experimental and theoretical probability. (352.04.a)
- Goal 5.5: Make predictions or decisions based on data.
 - 10.M.5.5.1 Make predictions based on randomness, chance, equally likely events, and probability. (352.04.c)
 - 10.M.5.5.2 Use appropriate tools/technology to conduct simulations and employ graphical models to make predictions or decisions based on data. (352.05.a)
 - 10.M.5.5.3 Design, conduct, and interpret results of statistical experiments. (352.05.b)