

# Honors Geometry

2011-2012

Ms. Gale

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## Scope:

Geometry is important as a foundation for higher mathematics not only for its content (transformations, congruence, similarity, area, volume, triangle relationships, etc.) but also for the process of logical reasoning (proof). Both strands will be equally emphasized while using Algebra 1 skills when required. Reading and reasoning will be as much a part of your development as your ability to work with numbers.

## Materials:

### HRW Geometry

Three-ring binder for notes, homework, handouts, quizzes etc.

TI-84 Graphing Calculator (TI 83 is acceptable.)

pencil, eraser, straight edge, clear ruler with inches and centimeters, compass, protractor, graph paper, scissors, highlighters, triangles (see-through plastic is best)

**Note:** Though we may not use construction tools daily it is important that you have them when needed.

## Sequence:

### Semester 1

Exploring Geometry  
Reasoning in Geometry  
Parallels & Polygons  
Congruence  
Indirect Proof

### Semester 2

Perimeter & Area  
Shapes in Space  
Surface Area & Volume  
Similarity  
Introduction to Trigonometry  
Circles

## Grading Policy:

70% of each semester grade will be based on a percentage of total points of tests (100 points each), quizzes (30-50 points each), assignments and class participation (10%).

30% of each semester grade will be based on the final exam.

## Office Hours:

If you need to talk with me *for any reason* (mathematical, practical, personal etc...), you should drop in at the beginning of break or lunch, or after school. If possible we can take care of business at that time or, if necessary, we can make an appointment. If you are having difficulties with a topic, you should see me IMMEDIATELY. Do not wait for the morning of a test!

## General Expectations

Attendance: Regular attendance is critical for success in mathematics as the class work supplements the material presented in the textbook and vice versa. If an absence is unavoidable, I expect the student to get the notes from another students and make an effort to complete the assignment(s). If you have questions, bring the notes to office hours/appointment for clarification as soon as possible.

Tardiness: The student is expected to be on time to class. A student is on time when she is in her seat with her binder out when class begins. It is important that students get in the habit of arriving to school on time. For first period, the third tardy (and every tardy thereafter) per semester results in a detention. At the fifth tardy, the student is suspended from class without provision for make-up work.

Homework: In addition to “ponder and review the day’s lesson,” written homework is given regularly and reading the relevant section of the textbook will occasionally be necessary to complete the assignment. Although individual homework assignments will not be collected or graded, we will spend the beginning of each class reviewing the homework and answering questions. During this time I will often check to see that this work has been attempted. Students will receive a semester homework grade based on this sample. (Note: Work and diagrams must be shown with nearly every problem - a list of answers does not constitute complete homework.)

Participation: Students are expected to be participants in the learning process. Your contribution to the environment - positive or negative - will be considered when the semester grade is calculated. Participation includes, but is not limited to, making relevant observations, asking & answering questions, remaining on task, having grade sheet and binder up-to-date, being civil and helpful, attending regularly and being on time.

Make-Ups: Generally, students with extended absence for illness have as many days to make up an exam. Quizzes that have been graded and returned cannot be made-up, and a student who misses a quiz will be given a blank copy for study purposes without penalty.

- A student who is absent the day before a test, but present when the test was scheduled, should be prepared to take the test with the class.
- A student who is absent on the test day only should be prepared to take the test on the day she returns.
- Any extenuating circumstances must be discussed with me PRIOR to the beginning of class. Feel free to use e-mail.

CaML tests: Honors geometry students are expected to participate in the California Math League for which they will receive extra credit. The tests are administered at lunch 6 times during the school year. More information and sample tests will be shared before the first one in October.

Learning: Everyone is capable of learning the mathematics taught in this course, though perhaps to a different depth. Learning takes time, patience, practice and willingness to learn from mistakes. For this class, effort and perseverance will be more important than talent.

Gradesheet: You are required to keep track of your grade with a gradesheet. (See the last two pages of this syllabus.) Anytime the cumulative percent falls below 70 you should consider it cause for serious concern. Most chapters will consist of at least 1 quiz (30 - 50 points) and 1 exam (100 points). Standard percentages are used to convert to letter grade:

A : 94– 100%	B <sup>+</sup> : 87 – 89%	C <sup>+</sup> : 77 – 79%	D <sup>+</sup> : 67 – 69%	F: < 59%
A–: 90 – 93%	B : 83 – 86%	C : 73– 76%	D : 63– 66%	
	B–: 80 – 82%	C–: 70 – 72%	D–: 60 – 62%	

# Benchmarks

*Revised 7/06*

- Demonstrate understanding by identifying and giving examples of undefined terms, postulates, theorems, and inductive and deductive reasoning.
- Write geometric proofs
- Construct and judge the validity of a logical argument and give counterexamples to disprove a statement.
- Prove basic theorems involving congruence and similarity.
- Prove that triangles are congruent or similar and use the concept of corresponding parts of congruent triangles.
- Know and are able to use the Triangle Inequality Theorem.
- Prove and use theorems involving the properties of parallel lines cut by a transversal, the properties of quadrilaterals, and the properties of circles.
- Know, derive, and solve problems involving perimeter, circumference, area, volume and surface area of common geometric figures and solids and compounds of common figures and solids.
- Determine how changes in dimensions affect the perimeter, area, and volume of common geometric figures and solids.
- Find and use measures of sides and of interior and exterior angles of triangles and polygons to classify figures and solve problems.
- Prove relationships between angles in figures by using properties of complementary, supplementary, vertical, interior and exterior angles.
- Prove the Pythagorean Theorem and use it to determine distances and find missing side lengths of right triangles and apply it when required for other problems.
- Perform basic constructions with a straight edge and compass, such as angle bisectors, perpendicular bisectors, and the line parallel to the given through a point off the line and know how to apply them.
- Know and are able to use angle and side relationships in problems involving special right triangles ( $30^\circ$ - $60^\circ$ - $90^\circ$  and  $45^\circ$ - $45^\circ$ - $90^\circ$ ).
- Prove and solve problems regarding relationships among chords, secants, tangents, inscribed angles and inscribed and circumscribed polygons of circles.
- Know the effect of rigid and non-rigid motions on figures in the coordinate plane and space, including rotations, translations, reflections, and dilations
- Compute probabilities requiring an area model.
- Use Geometer's Sketchpad as a tool for inductive reasoning.
- Draw 3-dimensional objects, including a representation of coordinate space, isometric drawings, and drawings with 1 or 2 vanishing points. Draw orthographic projections of 3 dimensional figures.



