

## Honors Geometry Syllabus

Teacher: Mrs. Cuba 2008-2009

Room: S109

Philosophy: Welcome to geometry! As you know from previous schooling, geometry is all around you. I hope this year you will learn about and appreciate the beauty of it. We will study the properties of many geometric figures and develop your abstract and logical thinking through deductive and inductive reasoning techniques. I expect you to put forth your best effort, enjoy the journey of learning, and have a great year!

Required Materials: You need to bring to class daily your textbook, graphing calculator, notebook, pencils and a folder for handouts. You will also occasionally need a protractor, compass, geometry template, and graph paper.

Assessment: Ninety percent of your grade is based on your work on comprehensive tests, quizzes, and graded assignments. Partial credit is given based on shown work. Tests are worth two or three times more points than quizzes or graded assignments. The remaining ten percent of your grade is based on your work on daily written assignments. All of these assignments should be done in pencil and kept in your notebook. You must label the assignment with the page number and problem number and include the work for each problem, not just the answer. Each assignment is due at the beginning of the class period. It is graded as follows: 4 points - completely done and on time  
3 points - partially done on time  
2 points - late and completely done  
1 points - late and partially done  
0 points - not done

Classroom Expectations: Our class time is limited! It is therefore expected that during class you will **be attentive, maintain a positive attitude, put forth your best effort,** and **respect others.**

\*\* The honors designation for this course means that we will differ in our emphasis on formal structure and proof. We will also cover the content with greater depth. In addition, supplementary graded assignments will be given.

## Tentative Honors Geometry Schedule

### Week Chapter(s) Topic(s)

1 1 Essentials of Geometry  
2 1 Essentials of Geometry  
3 1 & 2 Test; Reasoning and Proof  
4 2 Reasoning and Proof  
5 2 Reasoning and Proof ; Test  
6 3 Parallel and Perpendicular Lines  
7 3 Parallel and Perpendicular Lines  
8 3 Parallel and Perpendicular Lines  
9 3 & 4 Test; Congruent Triangles  
10 4 Congruent Triangles  
11 4 Congruent Triangles  
12 1 - 4 Review and Exam

### ----- Second Trimester

1 4 Congruent Triangles  
2 5 Relationships within Triangles  
3 5 Relationships within Triangles  
4 5 & 6 Test; Similarity  
5 6 Similarity  
6 6 & 7 Test; Right Triangles  
7 7 Right Triangles  
8 7 Trigonometry  
9 8 Quadrilaterals  
10 8 Quadrilaterals  
11 8 & 9 Quadrilaterals; Transformations

### ----- Third Trimester

1 9 Transformations  
2 9 Transformations  
3 10 Circles  
4 10 Circles

- 5 10 Circles
- 6 11 Measuring Length and Area
- 7 11 Measuring Length and Area
- 8 11 Measuring Length and Area
- 9 12 Surface Area and Volume
- 10 12 Surface Area and Volume
- 11 all Review
- 12 all Exam

## Honors Geometry Outline

### I. Essentials of Geometry

- A. Identify Points, Lines, and Planes
- B. Use Segments and Congruence
- C. Use Midpoint and Distance Formulas
- D. Measure and Classify Angles
- E. Describe Angle Pair Relationships
- F. Classify Polygons
- G. Find Perimeter, Circumference, and Area

### II. Reasoning and Proof

- A. Use Inductive Reasoning
- B. Analyze Conditional Statements
- C. Apply Deductive Reasoning
- D. Use Postulates and Diagrams
- E. Reason Using Properties from Algebra
- F. Prove Statements about Segments and Angles
- G. Prove Angle Pair Relationships

### III. Parallel and Perpendicular Lines

- A. Identify Pairs of Lines and Angles
- B. Use Parallel Lines and Transversals
- C. Prove Lines are Parallel
- D. Find and Use Slopes of Lines
- E. Write and Graph Equations of Lines
- F. Prove Theorems about Perpendicular Lines

### IV. Congruent Triangles

- A. Apply Triangle Sum Properties
- B. Apply Congruence and Triangles
- C. Prove Triangles Congruent by SSS
- D. Prove Triangles Congruent by SAS and HL

- E. Prove Triangles Congruent by ASA and AAS
- F. Use Congruent Triangles
- G. Use Isosceles and Equilateral Triangles
- H. Perform Congruence Transformations

#### V. Relationships within Triangles

- A. Midsegment Theorem and Coordinate Proof
- B. Use Perpendicular Bisectors
- C. Use Angle Bisectors of Triangles
- D. Use Medians and Altitudes
- E. Use Inequalities in a Triangle
- F. Inequalities in Two Triangles and Indirect Proof

#### VI. Similarity

- A. Ratios, Proportions, and the Geometric Mean
- B. Use Proportions to Solve Geometry Problems
- C. Use Similar Polygons
- D. Prove Triangles Similar by AA
- E. Prove Triangles Similar by SSS and SAS
- F. Use Proportionality Theorems
- G. Perform Similarity Transformations

#### VII. Right Triangles and Trigonometry

- A. Apply the Pythagorean Theorem
- B. Use the Converse of the Pythagorean Theorem
- C. Use Similar Right Triangles
- D. Special Right Triangles
- E. Apply the Tangent Ratio
- F. Apply the Sine and Cosine Ratios
- G. Solve Right Triangles

#### VIII. Quadrilaterals

- A. Find Angle Measures in Polygons
- B. Use Properties of Parallelograms
- C. Show that a Quadrilateral is a Parallelogram
- D. Properties of Rhombuses, Rectangles, and Squares
- E. Use Properties of Trapezoids and Kites
- F. Identify Special Quadrilaterals

#### IX. Properties of Transformations

- A. Translate Figures and Use Vectors
- B. Use Properties of Matrices
- C. Perform Reflections
- D. Perform Rotations

- E. Apply Compositions of Transformations
- F. Identify Symmetry
- G. Identify and Perform Dilations

X. Properties of Circles

- A. Use Properties of Tangents
- B. Find Arc Measures
- C. Apply Properties of Chords
- D. Use Inscribed Angles and Polygons
- E. Apply Other Angle Relationships in Circles
- F. Find Segment Lengths in Circles
- G. Write and Graph Equations of Circles

XI. Measuring Length and Area

- A. Areas of Triangles and Parallelograms
- B. Areas of Trapezoids, Rhombuses, and Kites
- C. Perimeter and Area of Similar Figures
- D. Circumference and Arc Length
- E. Areas of Circles and Sectors
- F. Areas of Regular Polygons
- G. Use Geometric Probability

XII. Surface Area and Volume of Solids

- A. Explore Solids
- B. Surface Area of Prisms and Cylinders
- C. Surface Area of Pyramids and Cones
- D. Volume of Prisms and Cylinders
- E. Volume of Pyramids and Cones
- F. Surface Area and Volume of Spheres
- G. Explore Similar Solids