



## Geometry (#1206310)

### Course Syllabus

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**Textbook:** Glencoe Geometry Common Core Edition

**Required Materials:** Refer to the Materials for Math Class document

### Course Description:

The fundamental purpose of the course in Geometry is to formalize and extend students' geometric experiences from the middle grades. Students explore more complex geometric situations and deepen their explanations of geometric relationships, moving towards formal mathematical arguments. The goal of the course is to help the students develop their skills in both deductive and inductive reasoning. Not only will students use geometry instruments for geometric constructions but they will also be encouraged to use dynamic geometry software such as Geogebra, to create their own geometric constructions and describe relationships they observe. They will attempt to explain validity of any conjecture they formulate that lead to a proof. This syllabus is adapted from the Course description as provided on CPALMS. Click on the website below to read the complete description

<http://www.cpalms.org/Public/PreviewCourse/Preview/10293>

### Common Core Standards for Geometry

- **Congruence**
  - Experiment with transformations in the plane
  - Understand congruence in terms of rigid motions
  - Prove geometry theorems
  - Make geometric constructions
- **Similarity, Right Triangles and Trigonometry**
  - Understand similarity in terms of similarity transformations
  - Prove theorems involving similarity

- Define trigonometric ratios and solve problems involving right triangles
- Apply trigonometry to general triangles
- **Circles**
  - Understand and apply theorems about circles
  - Find arc lengths and areas of sectors of circles
- **Expressing Geometric Properties with Equations**
  - Translate between the geometric description and the equation for conic sections.
  - Use coordinates to prove simple geometric theorems algebraically
- **Geometric Measurement and Dimension**
  - Explain volume formulas and use them to solve problems
  - Visualize relationships between two-dimensional and three-dimensional objects
- **Modeling with Geometry**
  - Apply geometric concepts in modeling situations
- **Mathematical Practices**
  - Make sense of problems and persevere in solving them
  - Reason abstractly and quantitatively
  - Construct viable arguments and critique the reasoning of others
  - Model with mathematics
  - Use appropriate tools strategically
  - Attend to precision
  - Look for and make use of structure
  - Look for and express regularity in repeated reasoning

## **Course Outline:**

### **Unit 1- Congruence, Proof and Construction**

#### **Chapter 1: Tools of Geometry**

- 1-1 Points, Lines and Planes
- 1-2 Linear Measure
- 1-3 Distance and Midpoints
- 1-4 Angle Measure
- 1-5 Angle Relationships- **LAB**: Constructing Parallel lines

#### **Chapter 2: Reasoning and Proof**

- 2-1 Inductive Reasoning
- 2-2 Logic
- 2-3 Conditional Statements
- 2-4 Deductive Reasoning
- 2-5 Postulates and Paragraph Proofs
- 2-6 Algebraic Proof
- 2-7 Proving Segment Relationships
- 2-8 Proving Angle Relationships

#### **Chapter 4: Congruent Triangles**

- 4-1 Classifying Triangles
- 4-2 Angles of Triangles **LAB**: Exploring Angles

- 4-3 Congruent Triangles
- 4-4 & 4-5 Proving Triangles Congruent    **LABS:** 1. Proving Constructions  
2. Congruence in Triangles
- 4-6 Isosceles and Equilateral Triangles
- 4-8 Triangles and Coordinate Proof
- 4-7 Congruence Transformations

## **Chapter 6: Quadrilaterals**

- 6-1 Angles of Polygons
- 6-2 Parallelograms
- 6-3 Tests for Parallelogram
- 6-4 Rectangles
- 6-5 Rhombi and Squares
- 6-6 Trapezoids and Kites

## **Unit 2- Similarity, Proof and Similarity**

### **Chapter 5 Relationships in Triangles**

- 5-1 Bisectors of Triangles    **LAB:** Constructing Bisectors
- 5-2 Medians and Altitude    **LAB:** Constructing medians & Altitudes
- 5-3 Inequalities in One Triangle
- 5-6 Inequalities in Two Triangles
- 5-5 The Triangle Inequality
- 5-4 Indirect Proof

### **Chapter 7 Proportions and Similarity**

- 7-1 Ratios and Proportions
- 7-2 Similar Polygons
- 7-3 Similar Triangles
- 7-5 Parts of Similar Triangles
- 7-4 Parallel Lines and Proportional Parts
- 7-6 Similarity Transformations

### **Chapter 8 Right Triangles and Trigonometry**

- 8-1 Geometric Mean
- 8-2 The Pythagorean Theorem and its Converse **LAB:** Proof without words
- 8-3 Special Right Triangles
- 8-4 Trigonometry
- 8-5 Angles of Elevation and Depression
- 8-6 The Law of Sines and Law of Cosine

## **Unit 3- Extending to Three Dimensions**

### **Chapter 9: Transformations and Symmetry**

- 9-1 Reflections
- 9-2 Translation
- 9-3 Rotations
- 9-4 Compositions of Transformations
- 9-6 Dilations

**Chapter 10: 10-1 Circles and Circumference**

**Chapter 11: Areas of Polygons and Circles**

- 11-1 Areas of Parallelograms and Triangles
- 11-2 Areas of Trapezoids, Rhombi and Kites LAB: Areas of Trapezoids  
Rhombi and Kites
- 11-3 Areas of Circles and Sectors
- 11-4 Areas of Regular Polygons LAB: Investigating Areas of Regular  
Polygons
- 11-5 Areas of Similar Figures

**Chapter 12: Extending Surface Area and Volume**

- 12-1 Representations of Three- Dimensional Figures LAB: Solids formed by  
Translation
- 12-2 Surface Areas of Prisms and Cylinders
- 12-3 Surface Areas of Pyramids and Cones
- 12-4 Volumes of Prisms and Cylinders
- 12-5 Volumes of Pyramids and Cones
- 12-6 Surface Areas of Volumes of Spheres

**Unit 4: Connecting Algebra and Geometry Through Coordinates**

**Chapter 3: Parallel and Perpendicular Lines**

- 3-1 Parallel Lines and Transversals
- 3-2 Angles and Parallel Lines
- 3-3 Slopes and Lines
- 3-4 Equations of Lines
- 3-5 Proving lines Parallel

**Unit 5: Circles with or without Coordinates**

**Chapter 10 Circles**

- 10-2 Measuring Angles and Arcs
- 10-3 Arcs and Chords
- 10-4 Inscribed Angles
- 10-5 Tangents LAB: Inscribed and Circumscribed Circles
- 10-6 Secants, Tangents and Angle Measures
- 10-7 Special Segments in a Circle
- 10-8 Equations of Circles

## **My expectations of all students are that my students**

1. Have integrity: Do your own work and be honest. Do not copy another student's work and submit it as your own. You will get a zero
2. Take responsibility: Take responsibility for your own education
  - Submit your work on time
  - Make up missed assignments
  - Seek help to discuss concepts or skills with which you are having difficulty
  - Use any available tutoring opportunities
3. Work hard: Do not waste time but put out effort to succeed in the course.

### **Assignment Procedures:**

#### **Tests and Quizzes:**

Tests are given at end of each chapter in some cases you will be given a mid-chapter test mid way in the chapter. Quizzes are given at the end of each unit to check on understanding of the lesson concepts. Be sure to do nightly review in order to do well in any given quiz

#### **Homework:**

Homework is an integral part of the class and completing homework assignments is critical to your success in the class. The homework assignments will serve as a means of reinforcing concepts and help to gauge understanding of lesson concepts. Time should be spent outside the classroom to complete all homework assignments. It is not advisable that you hurriedly copy from another classmate's paper as you will get a zero. Ask questions about your assignments before you leave the classroom or collaborate with a classmate to fully understand the assignments. Homework assignments will be posted on the whiteboard at the beginning of each class and online on the school's homework website. Written homework is assigned daily except on the days before or after a test. In that event use the time to review new vocabulary terms, practice new concepts and read ahead to the next lesson. Since homework is important in this class, the average grade for homework will be counted as one test grade at the end of each nine weeks.

#### **Bell ringer/Warm ups/Spiral Review:**

The first 10 minutes are devoted to Bell Ringer/Spiral Review and also practice of skills and concepts from previous day's lesson. Refer to the whiteboard as soon as you enter the classroom for your Bell ringer/Spiral Review assignment. This assignment must be completed prior to the tardy bell. Bell ringer assignments are graded as participation grade and cannot be made up but you will be excused only if you have an excused absence or an excused tardy.

#### **Class Participation & Classwork:**

You will be graded for class participation. Therefore you will be observed in how you respond, for example answering questions, asking questions and doing other assigned math work in class. You will be graded for the quality and completeness of assignments. You will not receive credit for late or incomplete work. In order to demonstrate your understanding of the

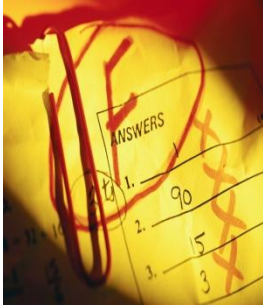
concepts that are taught each day you should be actively involved in all given class assignments. This will increase your confidence and you will be more motivated to learn new mathematics concepts.

**Assessment/Evaluation:** Throughout the year I will be assessing you according to the standards for your course. You will be given both formative assessments (quizzes, homework and mid-chapter tests and chapter test) to ensure you understand the concepts of each lesson, and summative assessment (Final Exam and Project) to determine your mastery of the course. You are to take detailed notes in your notebook or on loose paper which should be kept neatly organized in a three-ringed and study for all tests and final exam. You are to practice daily to deepen your understanding of the concepts you learn in class and keep up with all given assignments. Also take advantage of any weekly tutoring opportunities to improve and maintain your mathematics skills.

**Assignment Presentation:**

Your work should always be neat and clean. All assignments must be submitted on loose leaf paper and completed in pencil. You must have your name, class, date, and name of assignment on the right hand side of your paper starting on the first line. Always skip lines after each completed exercise in order to avoid confusion and for clarity. Do not submit any work on notebook paper or paper ripped from your spiral notebook. You will not get a grade. No excuses. Your notebook is for class notes and all paper therein should remain intact.

## GRADING POLICY FOR ALL ASSIGNMENTS



**THE FINAL GRADE FOR EACH MARKING PERIOD WILL BE DETERMINED AS FOLLOWS:**

<b>ASSIGNMENTS</b>	<b>GRADE PERCENTAGE</b>
<b>Tests/ Projects</b>	<b>40%</b>
<b>Classwork</b>	<b>15%</b>
<b>Homework/Class Participation</b>	<b>10%</b>
<b>Notebook</b>	<b>5%</b>
<b>Bellringers/Spiral Review</b>	<b>5%</b>
<b>Quizzes</b>	<b>25%</b>
<b>Final Exam</b>	<b>20%</b>

## GRADING SCALE

<b>PERCENTAGE</b>	<b>LETTER GRADE</b>
<b>90%-100%</b>	<b>A</b>
<b>87%-89%</b>	<b>B+</b>
<b>80%-86%</b>	<b>B</b>
<b>77%-79%</b>	<b>C+</b>
<b>70%-76%</b>	<b>C</b>
<b>67%-69%</b>	<b>D+</b>
<b>60%-66%</b>	<b>D</b>
<b>59% or below</b>	<b>F</b>