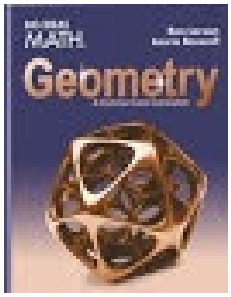

Geometry Honors Class - Ms. Stephanides

Geometry Honors Mathematics Course Description
Textbook: Big Ideas Geometry A Common Core Curriculum

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 Standards for Mathematical Practice apply throughout the course and together with the content standards prescribe that students experience mathematics as a coherent, useful, and logical subject that makes use of their ability to make sense of problem situations. The critical areas, organized into five units are as follows.

Unit 1- Congruence, Proof, and Constructions: In previous grades, students were asked to draw triangles based on given measurements. They also have prior experience with rigid motions: translations, reflections, and rotations and have used these to develop notions about what it means for two objects to be congruent. In this unit, students establish triangle congruence criteria, based on analyses of rigid motions and formal constructions. They use triangle congruence as a familiar foundation for the development of formal proof. Students prove theorems using a variety of formats and solve problems about triangles, quadrilaterals, and other polygons. They apply reasoning to complete geometric constructions and explain why they work.

Unit 2- Similarity, Proof, and Trigonometry: Students apply their earlier experience with dilation and proportional reasoning to build a formal understanding of similarity. They identify criteria for similarity of triangles, use similarity to solve problems, and apply similarity in right triangles to understand right triangle trigonometry, with particular attention to special right triangles and the Pythagorean theorem. Students develop the Laws of Sines and Cosines in order to find missing measures of general (not necessarily right) triangles, building on students work with quadratic equations done in the first course. They are able to distinguish whether three given measures (angles or sides) define 0, 1, 2, or infinitely many triangles.

Unit 3- Extending to Three Dimensions: Students' experience with two-dimensional and three-dimensional objects is extended to include informal explanations of circumference, area and volume formulas. Additionally, students apply their knowledge of two-dimensional shapes to consider the shapes of cross-sections and the result of rotating a two-dimensional object about a line.

Unit 4- Connecting Algebra and Geometry Through Coordinates: Building on their work with the Pythagorean theorem in 8th grade to find distances, students use a rectangular coordinate system to verify geometric relationships, including properties of special triangles and quadrilaterals and slopes of parallel and perpendicular lines, which relates back to work done in the first course. Students continue their study of quadratics by connecting the geometric and algebraic definitions of the parabola.

Unit 5 Circles With and Without Coordinates: In this unit students prove basic theorems about circles, such as a tangent line is perpendicular to a radius, inscribed angle theorem, and theorems about chords, secants, and tangents dealing with segment lengths and angle measures. They study relationships among segments on chords, secants, and tangents as an application of similarity. In the Cartesian coordinate system, students use the distance formula to write the equation of a circle when given the radius and the coordinates of its center. Given an equation of a circle, they draw the graph in the coordinate plane, and apply techniques for solving quadratic equations, which relates back to work done in the first course, to determine intersections between lines and circles or parabolas and between two circles.

Geometry Honors Overview of the Focus Units of Study

SEMESTER 1	*SEMESTER 2*
*Basics of Geometry	* Quadrilaterals and Other Polygons
*Proofs	* Similarity
*Parallel and Perpendicular Lines	* Right Triangles and Trigonometry
*Transformations	* Cirlces
*Congruent Triangles	*Circumference, Area, Volume
*Relationships within Triangles	

Grading Categories - Geometry Honors

Each quarter

Assessments/Projects	60%
Independent/Group Practice	40%

The final Geometry Honors Grade is is determined based on the two semester grades, the district midterm which is part of the first semester grade, and the FSA EOC grade which is worth 30% of the overall grade. The final grade earned in this class affects the student's grade point average in both middle and high school.

Students will also take the State Geometry End-of-Course Exam – ***a student must pass the FSA (Florida Standards Assessment) EOC in order to earn high school credit for the course.***

Student performance will be evaluated and reported based upon **mastery of standards**.

A	Superior progress	90-100
B	Commendable progress	80-89
C	Average progress	70-79
D	Lowest acceptable progress	60-69
F	Failure	0-59

Parent Portal for Attendance, Grades, and Schedule:
https://parentportal.sarasotacountyschools.net/

https://parentportal.sarasotacountyschools.net/How%20to%20Use%20Family%20Access.pdf

Students may use the provided FSA online calculators for the Geometry EOC as permitted based on specific standards. It is highly recommended they have a scientific calculator for this course.
See the links below for resources of the new Florida Standards for Geometry Honors.

http://www.cpalms.org/Public/PreviewCourse/Preview/10290

http://www.fsassessments.org/

https://fsassessments.org/students-and-families/practice-tests/index.stml