Hampden Academy

Hampden Academy challenges all students to achieve individual excellence.

Honors Geometry
B Day Period 4
Course Syllabus

"Mathematics is not a spectator sport." ~ Anonymous

Classroom Expectations:

1. Be respectful
2. Be honest and ethical
3. Be responsible
4. Be on time and be prepared
5. Have fun!

In addition you can expect the following of me in this class:

1. I will arrive on time and will be fully prepared
2. Be honest and ethical
3. Be responsible
4. Be on time and be prepared
5. Have fun!

Course Information:

Course Title:	Honors Geometry
Course Number:	444
Course Date:	2018 - 2019
Course Location:	Room 117
Instructor:	Sara Ballard **Office Hours:** I am typically available between 7:30 am and 8 am and afternoons between 2:05 pm and 3:30 pm or by appointment. Additionally, I am free the following periods during school: A Days Period 3 and B Days Period 1. **Phone:** (207) 862 - 3791 **E-mail:** sballard@rsu22.us
Course Description:	This is the most challenging geometry course offered at HA and is designed for the accelerated math student who is self- motivated and has very strong algebraic skills and study habits. Students will apply deductive and inductive reasoning to develop proofs and solve problems. Topics will include points and lines, parallel and perpendicular lines, similarity, congruence, polygons, right triangles and trigonometric concepts, coordinate geometry, circles, area, surface area, and volume. The stage will be set for dealing with the challenging problem situations encountered in Honors Algebra 2. Critical thinking skills will be emphasized.
Prerequisite:	Algebra 1 and Teacher Recommendation

Graduation Standards: Distance Formula or Pythagorean Theorem (ED.MA.G.CS.06)
Supplementary, Complementary, Vertical, and Adjacent Angles(ED.MA.G.AE.08)
Perimeter, Geometric Theorems(ED.MA.G.CS.04)
Similar Figures and Congruence Transformations(ED.MA.G.CS.05)
Scale Drawings(ED.MA.G.AE.13)
Right Triangle Trigonometry (ED.MA.G.AE.16)
Inscribed Angles, Radii, Chords, Arc Lengths, and Sectors of Circles(ED.MA.G.AE.17)
Finding Area of Polygons(ED.MA.G.M.06)
Surface Area of Cones, Cylinders, Spheres, Prisms, and Pyramids(ED.MA.G.M.11)
Volume of Cones, Cylinders, Spheres, Prisms, and Pyramids(ED.MA.G.M.10)

Learning Outcomes:

1. Be able to identify and model points, lines, and planes and identify collinear and coplanar points and intersecting lines and planes in space.
2. Be able to measure segments, determine the accuracy of measurement, and compute with measures.
3. Be able to find the distance and midpoint between two points.
4. Be able to measure and classify angles and identify and use congruent angles and the bisector of an angle.
5. Be able to identify and use special pairs of angles.
6. Be able to identify perpendicular lines.
7. Be able to identify polygons, name polygons, and find the perimeter of polygons.
8. Be able to make conjectures based on inductive reasoning and find counterexamples.
9. Be able to determine truth values of conjunctions and disjunctions and construct truth tables.
10. Be able to analyze statements in if-then form and write the converse, inverse, and contrapositive of if-then statements.
11. Be able to identify and use basic postulates about points, lines, and planes.
12. Be able to use algebra to write two-column proofs and use the properties of equality in geometric proofs.
13. Be able to write proofs involving segment addition and segment congruence.
14. Be able to write proofs involving supplementary angles, complementary angles, congruent angles, and right angles.
15. Be able to identify the relationships between two lines or two planes.
16. Be able to name angles formed by a pair of lines and a transversal, use the properties of parallel lines to determine congruent angles, and use algebra to find angle measures.
17. Be able to find slopes of lines and use the slope to identify parallel and perpendicular lines.
18. Be able to write an equation of a line given information about its graph and solve problems by writing equations.
19. Be able to recognize angle conditions that occur with parallel lines and prove that two lines are parallel based on given angle relationships.
20. Be able to classify triangles by angles and sides.
21. Be able to apply the Angle Sum Theorem and the Exterior Angle Theorem.
22. Be able to name and label corresponding parts of congruent triangles and identify congruence transformations.
23. Be able to use the SSS, SAS, ASA, and AAS to test for and prove triangle congruence.
24. Be able to apply the properties of isosceles and equilateral triangles.
25. Be able to write ratios and use the properties of proportions to solve problems.
26. Be able to identify similar figures and solve problems involving scale factors.
27. Be able to identify similar triangles and use similar triangles to solve problems.

28. Be able to use proportional parts of triangles and divide a segment into parts.
29. Be able to find the geometric mean between two numbers.
30. Be able to solve problems involving relationships between parts of a right triangle and the altitude to its hypotenuse.
31. Be able to use the Pythagorean Theorem and its converse.
32. Be able to use properties of 45-45-90 and 30-60-90 triangles.
33. Be able to find trigonometric ratios using right triangles and solve problems involving trigonometric ratios.
34. Be able to solve problems involving angles of elevation and angles of depression.
35. Be able to use the Law of Sines to solve triangles and solve problems by using the Law of Sines.
36. Be able to use the Law of Cosines to solve triangles and solve problems by using the Law of Cosines.
37. Be able to find the sum of the measures of the interior angles and exterior angles of a polygon.
38. Be able to recognize and apply properties of the sides, angles, and diagonals of parallelograms.
39. Be able to recognize the conditions that ensure a quadrilateral is a parallelogram and prove that a set of points forms a parallelogram in the coordinate plane.
40. Be able to recognize and apply properties of rectangles and determine whether parallelograms are rectangles.
41. Be able to recognize and apply the properties of rhombi, squares, and trapezoids and solve problems involving the medians of trapezoids..
42. Be able to identify and use parts of circles and solve problems involving the circumference of a circle.
43. Be able to recognize major arcs, minor arcs, semicircles, and central angles and their measures.
44. Be able to find arc length in a circle.
45. Be able to recognize and use relationships between arcs and chords and between chords and diameters.
46. Be able to find measures of inscribed angles and find measures of angles of inscribed polygons.
47. Be able to find perimeters and areas of parallelograms.
48. Be angles to find areas of triangles, trapezoids, rhombi, regular polygons, circles, and irregular figures.
49. Be able to solve problems involving geometry probability and involving sectors and segments of circles.
50. Be able to find the surface area and volume of prisms, cylinders, pyramids, cones, and spheres.
51. Be able to identify and use perpendicular bisectors and angle bisectors in triangles.
52. Be able to identify and use medians and altitudes in triangles.
53. Be able to recognize and apply properties of inequalities to the measures of angles of a triangle.
54. Be able to recognize and apply properties of inequalities to the relationships between angles and sides of a triangle.
55. Be able to apply the Triangle Inequality Theorem.
56. Be able to determine the shortest distance between a point and a line.
57. Be able to find the magnitudes and directions of vectors.
58. Be able to perform translations with vectors.

Instructional Methods:

This course is taught using a variety of instructional methods including, but not limited to, direct instruction, class discussions, worked examples, individual work, and collaborative learning.

Supporting Materials:

Textbook Title: Geometry
Publisher: Glencoe

Materials: Ti-30X or Ti-84 Graphing Calculator is required
3 Ring Binder
Pencil and Pen

Google Classroom Code: 9n83msr

Topics:

Chapter 1: Lines and Angles

Chapter 2: Reasoning and Proof

Chapter 3: Parallel and Perpendicular Lines

Chapter 4: Congruent Triangles

Chapter 5: Relationships in Triangles

Chapter 6: Proportions and Similarity

Chapter 7: Right Triangles and Trigonometry

Chapter 8: Quadrilaterals

Chapter 9: Transformations

Chapter 10: Circles

Chapter 11: Areas of Polygons and Circles

Chapter 12 and 13: Surface Area and Volume

Assessment:

Formative assessment tools: Quizzes and Math Practice

Summative assessment tools: Tests

Grading Policy: Your grade in this class will be calculated as follows:

50% Tests: This category will include tests. You will have a test at the end of every chapter.

30% Quizzes: Weekly quizzes will be given during the last class meeting of each week. Quizzes will be closed notes and may be announced or unannounced. You will also have a notebook check at least once every quarter, which will count as a quiz grade.

Quiz Corrections:
You will have an opportunity to complete quiz corrections on all of your quizzes and can earn back half of your points on your quizzes for making these corrections. In order to earn back half of your points on your quizzes, you must have the correct answers for all of the problems on your quiz and the correct work to support your new answers. Quiz corrections must be

turned in on or before the chapter test. If you are having trouble completing your quiz corrections, feel free to set up a time to see me for help.

10% Math Practice: Math practice will consist of both homework, in-class work, and survey bundles. Homework will be assigned on a **daily** basis. Homework assignments will cover the section or sections that were covered in the last day's class period. Homework will be graded on correctness. You will complete a Homework Check for each homework assignment you are given. On your homework check, you will write down your answers to **5 randomly selected questions** from the assignment. Each answer will count as 20 points.

Homework Corrections:
You will have an opportunity to complete homework corrections on all of your homework assignments and can earn back all of your points on your homework assignment for making these corrections. In order to earn back your points on your homework, you must fill out a homework paper where you will redo the problem(s) you got incorrect on your homework check. You must have the correct answer(s), correct work, and write a brief explanation of why you got the problem incorrect and what you can do differently to make sure you understand the concept(s) being assessed. Homework corrections are due on or before the day of the quiz which covers the material on that homework assignment. In the event that there is not a quiz over that particular lesson, the homework correction for that lesson will be due on or before the day of the test over that unit. if you are having trouble with your homework corrections, feel free to set up a time to see me for help.

Homework completion is mandatory. After a student has three missing homework assignments, they will be required to stay after school for a 30 minute homework detention to complete the assignments they are missing and will not receive full credit on the assignments.

Not knowing how to start a problem is not an excuse for not attempting the problem. If you are having trouble with your homework it is **your** responsibility to see me **before** the class when the assignment is due.

10% Participation: Participation is a must in this class. Participation includes in-class behavior, coming to class prepared and on time, and asking and answering questions.

Final Note: Each day you need to come to class prepared, willing to try your hardest, and with a positive attitude. In addition, I strongly encourage contacting me either at school or via e-mail in order to get help if you need it. Good luck this year and let's have some fun in math!

If you have any questions about the syllabus or about Honors Geometry, please feel free to contact me.