Geometry
College Prep B
Course Outline

Number: 313
Level: College Prep B
Revised: June 2008
Textbook: GEOMETRY CONCEPTS AND SKILLS , McDougal Littell, 2003
Credits: 5 Credits

Prerequisites:

Students must have successfully completed CP Algebra 1 B, or if they failed Algebra 1, they must take it simultaneously with Geometry. Students who received a "D" in CP Algebra 1 A should also schedule CP Geometry B instead of level A.

Course Description:

This course is the second year of college preparatory level mathematics at the B level. Geometry describes the shapes we see in the world which enables us to describe our environment. It is also the student's first serious study of the concepts of inductive and deductive reasoning, sharpening logical thinking skills. Every career uses the logical reasoning learned in geometry. Some topics covered are basic terms of geometry, angle relationships, parallel and perpendicular lines, triangles, polygons, congruency, similarity, right triangles, trigonometry, circles, area and volume, and transformations. Through a study of these areas and their applications, students should come to better understand and appreciate the role of mathematics in their lives. HSPA practice problems will be integrated throughout the course.

Students are expected to be active participants in the learning process. The teacher will involve them in the introduction and development of material through question and class discussions. The chalkboard, overhead projector, models, collaborative group work, power point lesson presentations, and the computer program, "The Geometer's Sketchpad," will be used to help students visualize geometric concepts. Understanding of concepts is stressed rather than rote memorization of skills. The emphasis is on problem solving, understanding and applying the concepts, not on formal proofs, although basic justification of the reasons why conjectures are true will be included.

Homework will usually be assigned daily and is an important part of the course, providing students with the opportunity to apply skills learned in class, strengthen their understanding of the concepts and identify areas they don't understand. It is **imperative** that students do their homework regularly and conscientiously. Homework will be reviewed in class and it is the student's responsibility during that time to ask questions about problems he/she doesn't understand, to identify specific mistakes, and to take notes on any further explanations concerning these problems. Students will be responsible to make up any missed class work (tests, quizzes, homework) in a timely manner.

District Policy: ACADEMIC INTEGRITY

Pupils are expected to be honest in all of their academic work. This means that the students in this course will not engage in any of the following acts:

• Cheating on examinations or other school assignments, including but not limited to, the non-authorized use of books or notes, the use of crib sheets, copying from other students' papers, exchanging information with other students orally, in writing, or by signals, obtaining copies of the examination illegally and other similar activities. Cheating through the use of technology to exchange information on any school assignment, examination, etc. is prohibited. Technology is defined as, but not limited to, computers, telephones, text messaging, palm pilots, calculators, cameras or any other hand held device.
• Plagiarism is not permitted in term papers, themes, essays, reports, images, take-home examinations, and other academic work. Plagiarism is defined as stealing or use without acknowledgment of the ideas, words, formulas, textual materials, on-line services, computer programs, etc. of another person, or in any way presenting the work of another person as one's own.
• Falsifications, including forging signatures, altering answers after they have been graded, inserting answers after the fact, erasing of grader's markings, and other acts that allow for falsely taking credit.

A pupil found guilty of academic dishonesty may be subjected to a full range of penalties including, but not limited to reprimand and loss of credit for all of the work that is plagiarized. Disciplinary action may also be a consequence of such behavior. Additional consequences may apply as defined in specific department policies and guidelines.

A teacher who believes that a pupil has been academically dishonest in his/her class should resolve the matter in the following manner:
• Reprimand the student orally and/or in writing. The teacher is also authorized to withhold credit in the work due to academic dishonesty.
• If warranted, the teacher shall file a written complaint against the student with the Administration, requesting a more stringent form of discipline. The complaint must describe in detail the academic dishonesty that is alleged to have taken place, and must request that the matter be reviewed by the Administration.
• The Administration will determine if further discipline of the pupil is appropriate, and will determine the nature of the discipline on a case-by-case basis.
• If the pupil is not in agreement with the disciplinary action of the Administration, he/she may appeal the action first to the Principal and secondly to the Superintendent. If the pupil is dissatisfied with the Superintendent's disposition of the case, he/she may grieve the action in accordance with Policy No. 5710, Pupil Grievance.

District Policy: Discrimination

High Point Regional High School's curriculum and instruction are aligned to the State's Core Curriculum Content Standards and address the elimination of discrimination by narrowing the achievement gap, by providing equity in educational programs and by providing opportunities for students to interact positively with others regardless of race, creed, color, national origin, ancestry, age, marital status, affectional or sexual orientation, gender, religion, disability or socio-economical status.

Course Objectives:

Students will be able to:

1. Use and understand geometric terminology.
2. Sketch points, lines, planes and their intersections; measure segment lengths, measure and classify angles.
3. Use inductive reasoning to make conjectures.
4. Use basic laws of logic and explain how theorems are justified and used.
5. Identify the relationships between the angles formed by two lines and a transversal; use properties of parallel and perpendicular lines.
6. Visualize objects in two and three dimensions.
7. Classify triangles by angles and sides; identify the properties of angles and segments in relation to triangles.
8. Identify and use the various inequalities properties of triangles.
9. Explain the properties for congruent figures and the shortcuts for showing triangles are congruent.
10. Explain and use properties of altitudes and medians in triangles.
11. Use the Pythagorean in a wide variety of applications.
12. Identify special quadrilaterals and describe their properties.
13. Identify and perform transformations on figures in plane and coordinate geometry; identify line and rotational symmetry in figures; identify and construct tessellations in the plane.
14. Identify and show polygons are similar; describe and use properties of similarity.
15. Find the areas of different figures and explain how the formulas can be derived.
16. Calculate geometric probability.
17. Identify and name solid figures; find surface area and volume of solid figures and apply the formulas to solve problems.

18 Find and use trigonometric ratios in right triangles.

19. Identify parts of a circle, and explain the relationships of angles and segments relative to circles.
20. Identify fractals and understand some of their properties.
21. Create networks for maps, rooms, and floor plans; use and apply directed graphs.
22. Recognize, understand the properties of and create tessellations.
23. Apply the concepts learned to real life problem solving.

NEW JERSEY CORE CURRICULUM CONTENT STANDARDS (CCCS) ADDRESSED:

Standard 4.1 Numbers and Numerical Operations

All students will develop number sense and will perform standard numerical operations and estimations on all types of numbers in a variety of ways.

Standard 4.2 Geometry and Measurement

All students will develop spatial sense and ability to use geometric properties, relationships, and measurements to model, describe and analyze phenomena.

Standard 4.3 Patterns and Algebra

All students will represent and analyze relationships among variable quantities and solve problems involving patterns, functions and algebraic concepts and processes.

Standard 4.4 Data Analysis

All students will develop an understanding of the concepts and techniques of data analysis, probability, and discrete mathematics and will use them to model situations, solve problems, and analyze and draw appropriate inferences from data.

Standard 4.5 Mathematical Processes

All students will use the mathematical processes of problem solving, communication, connections, reasoning, representations and technology to solve problems and communicate mathematical ideas.

Student Evaluation:

Quizzes, based on the course proficiencies, will be given about once a week, with a major test, based on the proficiencies, given at the end of each unit. An exam covering the semester's work will be given at the end of each semester. Major tests and quizzes will be announced, but unannounced quizzes will also be given at times.

Several projects and alternate assessments will be assigned and grades throughout the year. The projects enable students to use their talents in other disciplines and apply it to the geometry they are learning.

Homework will be checked daily. It will usually not be graded, but will be considered satisfactory if the work shown indicates the student has made a **conscientious** effort to complete the assignment. If a student did not understand the work and was not able to complete an assignment, he/she may be asked to redo the assignment for credit. Occasionally, an assignment given for homework may be collected and graded as a quiz. This will occur only when the concepts have been thoroughly reviewed. Class work/group

work may also be graded.

Grades will be calculated according to the school grading policy. The following guidelines will apply:

A. Marking Period Grade

1. Tests and Quizzes (includes projects, notebook, lab work, etc)	90%
2. Homework, class participation	10%

B. Final Grade

1. Each Marking Period	20%
2. Midterm Exam	10%
3. Final Exam	10%