

Geometry College Prep A CURRICULUM GUIDE

Number: 312
Level: College Prep A
Revised: August 2008
Textbook: GEOMETRY , Holt, Rinehart and Wilson, 2007
Credits: 5 Credits

Midterm Exam Revised: January 2008

Final Exam Revised: June 2008

Prerequisites:

Students enrolling in this course must have successfully completed CP Algebra 1A with at least a “C -” average. Students from CP Algebra 1B who wish to take this course should have an “A” average in CP Algebra 1B and a teacher recommendation.

Course Description:

This course is the second year of college preparatory level mathematics at the A 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.

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. When appropriate, students will be expected to apply the concepts they learn to new situations and problem solving. Students will be encouraged to think and communicate mathematically.

There are two major projects for this course. The first is a guided Independent Study of Transformations using the textbook, sketchpad and patty paper investigations. The second is an Internet Study of Non -Euclidean Geometry. There will also be smaller projects assigned throughout the year to enable students to apply geometric concepts using talents they may have from other disciplines.

Homework will usually be given 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. Some of the homework will be based on the sample problems done in class and students are expected to study these examples and use them as a guide when doing their homework. Other problems will require the student to extend the concepts learned in class to new situations. Students may also be given reading assignments either to preview new material or to learn new procedures independently.

Students will be able to access online help provided by Holt, Rinehart and Winston at go.hrw.com/gopages/ma/geo_07.html.

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: Equal Opportunity

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-economic status.

Course Objectives:

Students will be able to:

1. Apply basic facts about points, lines, planes, segments and angles; measure segment lengths, measure and classify angles.
2. Use inductive and deductive reasoning; identify, analyze and write conditional and biconditional statements and the logical statements that follow.
3. Justify geometric properties using various types of proofs.
4. Identify the relationships between the angles formed by two lines and a transversal; use properties of parallel and perpendicular lines both in plane and coordinate geometry.
5. Classify triangles by angles and sides; identify the properties of angles and segments in relation to special triangles.
6. Identify corresponding parts of congruent triangles and understand the conditions and shortcuts necessary for determining whether two triangles are congruent.
7. Identify the properties of angle bisectors and perpendicular bisectors; identify and use the properties of the special points of concurrency in a triangle.
8. Identify and use the various inequalities properties of triangles.
9. Identify special quadrilaterals and use their respective properties to calculate measurements.
10. Identify and show polygons are similar; use ratio and solve proportions in relations to similar triangles.
11. Find and use trigonometric ratios in right triangles and real life applications; "solve" a right triangle.
12. Find the perimeters and areas of different figures, especially in problem solving applications.
13. Identify and name solid figures; find their surface area and volumes especially in problem solving applications; identify the effects of changing dimensions of three dimensional figures proportionally.
14. Identify the parts of a circle, understand and apply the properties and relationships of angles and segments connected to a circle.

15. 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.
16. 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:

A major test will be given at mid-chapter and at the completion of each chapter of the textbook; quizzes will be given at least once a week. An exam covering the semester's work will be given at the end of each semester. Small projects, lab work, group activities and class participation will also be used to evaluate the student's understanding of concepts.

Two major projects to be graded as tests will be assigned during the year.

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.

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

A. Marking Period Grade

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|---|-----|
| 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%

Notes to the Teacher

The course is based on the textbook. However, in some units material is added to the textbook or deleted. Therefore, the teacher should use the proficiencies as a guide for the course. At the end of each unit the appropriate textbook chapter is listed. For each unit there are also extensive supplementary materials from which the teacher should select appropriate activities for their class. These materials include:

1. Chapter Resource Books for each unit which includes parent letter, three levels of practice worksheets, reteach, challenge, problem solving, reading strategies and answers pages.
2. Alternate Openers: Explorations Transparencies
3. Homework and Practice Teacher's Guide
4. Know-It Notebook Teacher's Guide (to correspond with the Know-It Notebook for students)
5. Lesson Transparencies and Countdown to Testing Transparencies
6. Problem Solving Workbook Teacher's Guide
7. Solutions Key
8. Are You Ready? Intervention and Enrichment Book and Ready to Go On? supplementary workbooks
9. Assessment Resources
10. A set of CD's including a One Step Planner, Lesson Tutorial Videos and PowerPoint Presentations for each lesson
11. Online resources at go.hrw.com for both teacher and students
12. Practice SAT and HSPA Worksheets

We will also be using the Geometer's Sketchpad. Sample activities can be found in the book, Exploring Geometry with the Geometer's Sketchpad.

Cooperative learning groups, problem solving, communicating mathematics and discovery should be used on a regular basis. The resources above provide sample activities. The textbook has many suggestions for these types of activities to be incorporated into the classroom.

HSPA review problems and SAT type questions should be used on a regular basis throughout the year.

Scientific calculators are required. Correct methods of using calculators should be discussed emphasizing number sense and estimation so the student can recognize calculator error. However, the emphasis remains on the process, not the answer. Thus, students should be required to show work, indicating the operations they performed with their calculators.

Unit 1: Foundations for Geometry

15 Days

Goals: Students will be able to apply basic facts about points, lines, planes, segments and angles; determine measurements and perform constructions; use formulas for segments and points in coordinate geometry.

Objectives: Students will be able to:

1. Identify, name, draw and apply basic facts about points, lines, rays, planes, segments and angles
2. Find lengths and midpoint of a segment
3. Perform constructions of midpoints, congruent segments and other figures using computer software and traditional construction tools
4. Use the different features of *Geometer's Sketchpad*, laying the foundation for future investigations
5. Use the angle postulate to classify and measure angles
6. Bisect an angle and a segment using geometric tools
7. Identify special angle pairs and use their properties to determine angle measures
8. Use and apply formulas for area, perimeter and circumference
9. Use the distance formula and midpoint formula in coordinate geometry
10. Introduce transformations in the coordinate plane
11. Describe iterative patterns that generate fractals

New Jersey Core Curriculum Content Standards (CCCS)

4.1.B.2, 4.2.A.1, 4.2.B.1, 4.2.B.4, 4.2.C.1, 4.C.E.2, 4.3.D.1, 4.3.D.2, 4.5.A.1, 4.5.A.2, 4.5.A.4, 4.5.A.5, 4.5.B, 4.5.C.1, 4.5.C.3, 4.5.C.4, 4.5.C.5, 4.5.E, 4.5.F.1, 4.5.F.4, 4.5.F.5

References:

1. Textbook. Chapter 1, p.882-883
2. Lesson Presentation CD-ROM
3. Teaching, Alternate Lesson Opener, Exploration Transparencies
4. Know-It-Notebook
5. Chapter 1, Resource Book
6. On-Line Homework Tutorial Lessons
7. Exploring Geometry with the Geometer's Sketchpad, pp 3-9, 15-16, 38-39
8. Supplementary worksheets for Internet Investigation into fractals

Unit 2: Geometric Reasoning

16 Days

Goals: Students will be able to use inductive and deductive reasoning, conditional and biconditional statements, and the laws of logic to justify statements in algebra and geometry.

Objectives: Students will be able to:

1. Use inductive reasoning to identify patterns, make conjectures and find counterexamples to disprove conjectures
2. Identify, write, and analyze conditional statements and their corresponding inverse, converse and contrapositive statements
3. Identify and apply the Law of Detachment and the Law of Syllogism in logical reasoning
4. Write and analyze biconditional statements
5. Review properties of equality and use them to write algebraic proofs
6. Identify the properties of congruence
7. Prove geometric theorems by using deductive reasoning
8. Write two-column, paragraph, and flowchart proofs

New Jersey Core Curriculum Content Standards (CCCS)

4.1.A.1, 4.1.A.3, 4.2.A.1, 4.2.A.4, 4.2.C.1, 4.3.A.3, 4.3.C.1, 4.3.D.1, 4.3.D.2, 4.4.A.1, 4.4.A.2, 4.4.D.1, 4.5.A, 4.5.B, 4.5.C, 4.5.D.1, 4.5.D.2, 4.5.D.3, 4.5.D.5, 4.5.D.6

References:

1. Textbook. Chapter 2
2. Lesson Presentation CD-ROM
3. Teaching, Alternate Lesson Opener, Exploration Transparencies
4. Know-It-Notebook
5. Chapter 2, Resource Book
6. On-Line Homework Tutorial Lessons
7. Exploring Geometry with the Geometer's Sketchpad, pp 15 – 16
8. On Line Puzzle "Who Owns the Zebra?"
(<http://www.themathlab.com/gym/brainbuilders/logic/whozebra.htm>)

Unit 3: Parallel and Perpendicular Lines

14 Days

Goals: Students will be able to recognize and apply the properties of parallel and perpendicular lines, and the angle relationships they form.

Objectives: Students will be able to:

1. Identify parallel, perpendicular and skew lines and their properties
2. Identify the angles formed by two lines and a transversal
3. Prove and use theorems about the angles formed by parallel lines and a transversal.
4. Use the angles formed by two lines and a transversal to prove two lines are parallel
5. Prove and apply theorems about perpendicular lines
6. Use slope to identify lines that are parallel or perpendicular; write the equations of lines parallel or perpendicular to a given line
7. Use the equations of lines in slope intercept form to determine whether two lines are parallel, intersecting or coinciding

New Jersey Core Curriculum Content Standards (CCCS)

4.2.A.1, 4.2.A.3, 4.2.A.4, 4.2.C.1, 4.3.B.2, 4.3.C.1, 4.3.D.2, 4.4.A.4, 4.5.A, 4.5.B, 4.5.C.1, 4.5.C.2, 4.5.C.3, 4.5.C.4, 4.5.C.6, 4.5.D.1, 4.5.D.2, 4.5.D.3, 4.5.D.5, 4.5.D.6, 4.5.E, 4.5.F.4, 4.5.F.5

References:

1. Textbook. Chapter 3
2. Lesson Presentation CD-ROM
3. Teaching, Alternate Lesson Opener, Exploration Transparencies
4. Know-It-Notebook
5. Chapter 3, Resource Book
6. On-Line Homework Tutorial Lessons
7. Exploring Geometry with the Geometer's Sketchpad, pp 17 – 18

Unit 4: Triangle Congruence

16 Days

Goals: Students will be able to classify and prove theorems about congruent triangles, corresponding parts, and special triangles.

Objectives: Students will be able to:

1. Classify triangle according to angle and side measures, and use classified triangles to determine angle and side measures
2. Find the measures of and apply theorems about interior and exterior angles of a triangle
3. Use properties of congruent triangles
4. Prove two triangles are congruent using the definition of congruence and the triangle congruence shortcuts
5. Apply the triangle congruence shortcuts to solve problems
6. Use CPCTC to prove parts of triangles are congruent
7. Prove geometric concepts by using coordinate proofs
8. Prove theorems and apply properties of isosceles and equilateral triangles

New Jersey Core Curriculum Content Standards (CCCS)

4.2.A.1, 4.2.A.3, 4.2..4, 4.3.B.2, 4.3.C.1, 4.3.D.2, 4.5.A, 4.5.B, 4.5.C.1, 4.5.C.3, 4.5.C.4, 4.5.C.6, 4.5.D.1, 4.5.D.2, 4.5.D.3, 4.5.D.5, 4.5.D.6, 4.5.E.1, 4.5.E.2, 4.5.E.3, 4.5.F.1, 4.5.F.4, 4.5.F.5

References:

1. Textbook. Chapter 4
2. Lesson Presentation CD-ROM
3. Teaching, Alternate Lesson Opener, Exploration Transparencies
4. Know-It-Notebook
5. Chapter 4, Resource Book
6. On-Line Homework Tutorial Lessons
7. Exploring Geometry with the Geometer's Sketchpad, pp 63 – 68

Goals: Students will be able to identify and use the different properties involving triangles and their special segments; identify and apply the triangle inequality relationships; and use indirect proofs to prove statements.

Objectives: Students will be able to:

1. Identify, prove and use special properties of perpendicular and angle bisectors
2. Identify, prove and apply special properties of perpendicular and angle bisectors in a triangle and their respective points of concurrency
3. Identify, prove and apply special properties of medians and altitudes in a triangle and their respective points of concurrency
4. Prove and use properties of triangle midsegments
5. Recognize and apply the inequality relationships between angles and segments in one and two triangles
6. Understand and use indirect to prove statements
7. Use the Pythagorean Theorem to solve problems
8. Apply the Pythagorean Inequality Theorems to classify triangles and solve problems
9. Justify and apply the properties of the special right triangles (45° - 45° - 90° and 30° - 60° - 90°)

New Jersey Core Curriculum Content Standards (CCCS)

4.1.A.2, 4.2.A.1, 4.2.A.3, 4.2.A.4, 4.2.E.1, 4.3.C.1, 4.3.D.2, 4.5.A, 4.5.B, 4.5.C, 4.5.D.1, 4.5.D.2, 4.5.D.3, 4.5.D.5, 4.5.D.6, 4.5.E.1, 4.5.E.2, 4.5.E.3, 4.5.F.1

References:

1. Textbook. Chapter 5
2. Lesson Presentation CD-ROM
3. Teaching, Alternate Lesson Opener, Exploration Transparencies
4. Know-It-Notebook
5. Chapter 5, Resource Book
6. On-Line Homework Tutorial Lessons
7. Exploring Geometry with the Geometer's Sketchpad, pp 63 – 68, 163-164
8. <http://www.geom.uiuc.edu/~demo5337/Group2/trianglecenters.html>

Unit 6: Polygons and Quadrilaterals

16 Days

Goals: Students will be able to identify and use the different properties involving polygons and the special quadrilaterals; and use various methods of proofs to prove statements about quadrilaterals.

Objectives: Students will be able to:

1. Classify polygons according to angle and side measurement
2. Identify, prove and apply the theorems about interior and exterior angles of a polygon
3. Prove and apply properties of parallelograms, rectangles, rhombuses and squares and use these properties to solve problems
4. Prove that a quadrilateral is a parallelogram, rectangle, rhombus or a square
5. Identify and use the properties of kites and isosceles trapezoids to solve problems
6. Do proofs involving the special quadrilaterals
7. Determine whether a network is traceable, an Euler Path or Euler Circuit
8. Use networks to describe topological problems

New Jersey Core Curriculum Content Standards (CCCS)

4.2.A.1, 4.2.A.3, 4.2.A.4, 4.3.B.4, 4.3.C.1, 4.3.D.2, 4.5.A, 4.5.B, 4.5.C.1, 4.5.C.3, 4.5.C.4, 4.5.D, 4.5.E, 4.5.F.1, 4.5.F.4, 4.5.F.5

References:

1. Textbook. Chapter 6
2. Lesson Presentation CD-ROM
3. Teaching, Alternate Lesson Opener, Exploration Transparencies
4. Know-It-Notebook
5. Chapter 6, Resource Book
6. On-Line Homework Tutorial Lessons
7. Exploring Geometry with the Geometer's Sketchpad, pp 89 – 102, 109 -110, 112-114
8. Supplementary proof worksheets as needed
9. Additional worksheets on networks

Unit 7: Similarity

15 Days

Goals: Students will be able to verify that polygons are similar using corresponding angles and sides, use their properties to solve problems, and write proofs about similar polygons.

Objectives: Students will be able to:

1. Classify polygons according to angle and side measurement
2. Identify, prove and apply the theorems about interior and exterior angles of a polygon
3. Prove and apply properties of parallelograms, rectangles, rhombuses and squares and use these properties to solve problems
4. Prove that a quadrilateral is a parallelogram, rectangle, rhombus or a square
5. Identify and use the properties of kites and isosceles trapezoids to solve problems
6. Do proofs involving the special quadrilaterals
7. Determine whether a network is traceable, an Euler Path or Euler Circuit
8. Use networks to describe topological problems

New Jersey Core Curriculum Content Standards (CCCS)

4.2.A.1, 4.2.A.3, 4.2.A.4, 4.3.B.4, 4.3.C.1, 4.3.D.2, 4.5.A, 4.5.B, 4.5.C.1, 4.5.C.3, 4.5.C.4, 4.5.D, 4.5.E, 4.5.F.1, 4.5.F.4, 4.5.F.5

References:

1. Textbook. Chapter 7
2. Lesson Presentation CD-ROM
3. Teaching, Alternate Lesson Opener, Exploration Transparencies
4. Know-It-Notebook
5. Chapter 7, Resource Book
6. On-Line Homework Tutorial Lessons
7. Exploring Geometry with the Geometer's Sketchpad, pp 181, 186, 187-189

Unit 8: Right Triangles and Trigonometry

15 Days

Goals: Students will be able to identify and solve problems involving the relationships formed by the altitude to the hypotenuse in right triangles; use trigonometric ratios to solve real life problems.

Objectives: Students will be able to:

1. Recognize and use the geometric mean relationships in a right triangle
2. Use the similarity properties in right triangles to solve problems
3. Identify the sine, cosine and tangent ratios of the acute angles in a right triangle
4. Use trigonometric ratios to find side and angle measures in a right triangle, and solve real life problems
5. Solve problems involving angles of elevation and depression
6. Use the Laws of Sine and Cosine to solve triangles
7. Use vector and vector addition to solve real life problems

New Jersey Core Curriculum Content Standards (CCCS)

4.2.A.1, 4.2.A.4, 4.2.C.2, 4.2.E.1, 4.3.A.1, 4.3.B.4, 4.3.C.1, 4.5.A, 4.5.B, 4.5.C.1, 4.5.C.3, 4.5.C.4, 4.5.C.5, 4.5.D, 4.5.E.1, 4.5.E.2, 4.5.E.3, 4.5.F.1

References:

1. Textbook. Chapter 8
2. Lesson Presentation CD-ROM
3. Teaching, Alternate Lesson Opener, Exploration Transparencies
4. Know-It-Notebook
5. Chapter 8, Resource Book
6. On-Line Homework Tutorial Lessons

Unit 9: Extending Perimeter, Circumference and Area

15 Days

Goals: Students will be able to find the areas and perimeters of geometric figures using different methods and understand how to derive and justify various formulas,

Objectives: Students will be able to:

1. Develop formulas for the areas of triangles and special quadrilaterals, and solve problems involving the perimeters and areas of these figures
2. Develop and apply the formulas for the area and circumference of circles
3. Develop and apply the formulas for the area of a regular polygon
4. Find the area of composite figures and use this to estimate the area of irregular shapes
5. Find the perimeters and areas of figures in the coordinate plane
6. Identify and describe the effect on perimeter and area when one or more dimensions of a figure are proportionally changed
7. Calculate geometric probabilities and use them to make predictions in real world situations

New Jersey Core Curriculum Content Standards (CCCS)

4.2.A.1, 4.2.E.2, 4.3.A.2, 4.4.B.1, 4.4.B.2, 4.4.B.4, 4.4.B.5, 4.4.B.6, 4.5.A, 4.5.B, 4.5.C, 4.5.D.4, 4.5.D.6, 4.5.E

References:

1. Textbook. Chapter 9
2. Lesson Presentation CD-ROM
3. Teaching, Alternate Lesson Opener, Exploration Transparencies
4. Know-It-Notebook
5. Chapter 9, Resource Book
6. On-Line Homework Tutorial Lessons

Unit 10: Spatial Reasoning

15 Days

Goals: Students will be able to identify, apply the properties and find the surface area and volume of three dimensional figures.

Objectives: Students will be able to:

1. Classify three dimensional figures according to their properties
2. Use nets and cross sections to analyze three dimensional figures
3. Draw and recognize three dimensional figures from given representations
4. Understand and apply the formula for the surface areas of prisms, cylinders, pyramids and cones
5. Understand and apply the formulas for the volumes of prisms, cylinders, pyramids and cones
6. Understand and apply the formulas for the surface area and volume of spheres
7. Apply the three dimensional formulas to solve complex problems and real life applications

New Jersey Core Curriculum Content Standards (CCCS)

4.2.A.1, 4.2.A.2, 4.2.B.2, 4.2.E.C, 4.3.A.2, 4.5.A.1, 4.5.A.2, 4.5.A.4, 4.5.A.5, 4.5.B, 4.5.C, 4.5.D.6, 4.5.E, 4.5.F.1, 4.5.F.2, 4.5.F.4, 4.5.F.5

References:

1. Textbook. Chapter 10, omit section 10-3
2. Lesson Presentation CD-ROM
3. Teaching, Alternate Lesson Opener, Exploration Transparencies
4. Know-It-Notebook
5. Chapter 10, Resource Book
6. On-Line Homework Tutorial Lessons
7. Supplementary visual representations worksheets

Unit 11: Circles

16 Days

Goals: Students will be able to find lengths, angle measures, and areas associated with circles, and apply circle theorems to solve a wide range of problems.

Objectives: Students will be able to:

1. Identify tangents, secants and chords and use the properties of tangents to solve problems
2. Identify and apply the properties of arcs of a circle
3. Find the areas of sectors, and length of arcs
4. Identify and use the properties of inscribed angle to solve problems
5. Find the measures of segment lengths formed by lines that intersect a circle and apply their properties to solving problems
6. Find the measures of different angles from by lines and segments of a circle, and apply their properties to solving problems
7. Write equations of circles in the coordinate plane (optional)

New Jersey Core Curriculum Content Standards (CCCS)

4.2.A.1, 4.2.A.3, 4.2.A.4, 4.3.C.1, 4.3.D.2, 4.5.A, 4.5.B, 4.5.C.1, 4.5.C.3, 4.5.C.4, 4.5.C.5, 4.5.D, 4.5.E, 4.5.F.1, 4.5.F.4, 4.5.F.5, 4.5.F.6

References:

1. Textbook. Chapter 11, section 11-7 is optional
2. Lesson Presentation CD-ROM
3. Teaching, Alternate Lesson Opener, Exploration Transparencies
4. Know-It-Notebook
5. Chapter 11, Resource Book
6. On-Line Homework Tutorial Lessons
7. Exploring Geometry with the Geometer's Sketchpad, pp 119 - 130

**Unit 12: Extending Transformational Geometry
(Independent Project)**

2 Days

Goals: Students will be able to identify the rule for transformations in the coordinate plane, identify the properties of transformations and symmetry of figures

Objectives: Students will be able to:

1. Do a project involving independent study, sketchpad activities, and patty paper constructions
2. Identify the properties of and draw reflections, translations, rotations, and dilations
3. Identify the properties of and draw compositions of transformations
4. Identify and describe symmetry in geometric figures
5. Use transformations to draw tessellations
6. Identify regular and semi regular tessellations, and figures that will tessellate in the plane

New Jersey Core Curriculum Content Standards (CCCS)

4.2.A.1, 4.2.B.1, 4.2.B.3, 4.3.B.3, 4.5.A, 4.5.B, 4.5.C.1, 4.5.C.2, 4.5.C.3, 4.5.C.4, 4.5.C.6, 4.5.D.6, 4.5.F.1, 4.5.F.4, 4.5.F.5, 4.5.E

References:

1. Textbook. Chapter 12,
2. Materials in the Project Folder (attached)
3. On-Line Homework Tutorial Lessons
4. Additional online resources: <http://library.thinkquest.org/16661/>,
<http://library.thinkquest.org/16661/>