

Geometry

Text:	Bass, Charles, Johnson & Kennedy (2004). <i>Prentice Hall mathematics: Geometry</i> , Prentice Hall: Upper Saddle River, New Jersey. Or Kalin & Corbitt (1990). <i>Prentice Hall: Geometry</i> , Prentice Hall: Upper Saddle River, New Jersey.
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Supplemental Materials:	
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Course Description:	Geometry is a course that uses problem situations, physical models, and appropriate technology to investigate geometric concepts, relationships, and systems. Problem-solving situations provide all students an environment that promotes communication, engages student reasoning, and fosters connections within mathematics, to other disciplines, and to the real world. Students will use physical models to represent, explore, and develop abstract concepts. The use of appropriate technology will help students apply mathematics in an increasingly technological world. The concepts/topics emphasized in the course include measurement, geometric patterns, coordinate geometry, two- and three-dimensional figures, transformational geometry, congruence, and similarity. Students will be challenged through critical thinking models which will enable them to practice skills which will be needed for higher education acquisition.
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Methods of Evaluation:	Students can be evaluated through tests, quizzes, daily practice sets, homework problem sets, lab grades quarterly exams, semester exams and/or any other form of evaluation instrument the instructor finds applicable to the course.
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Pace of Instruction:	First Semester: Units 1 – 6 Second Semester: Units 7 - 12
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Course Objectives:	At the end of this course students should be able to: <ol style="list-style-type: none"> 1. Make plausible conclusions based on patterns observed under the foundation blocks for the structure of Geometry. 2. Measure segments and angles. 3. Use constructions and the coordinate plane to represent geometric figures. 4. Write conditionals, biconditionals, and definitions. 5. Use conditionals, biconditionals, and definitions and deductive reasoning to conclude that other statements are true. 6. Apply deductive reasoning to form conclusions using Algebra. 7. Use deductive reasoning to study the elementary proofs and form significant conclusions about geometric relationships.
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8. Use deductive reasoning to make conclusions about parallel and perpendicular lines.
9. Use parallel lines to learn about angle measures in triangles and other polygons.
10. Think about parallel and perpendicular lines in a coordinate plane.
11. Understand the meaning of congruent polygons.
12. Prove two triangles congruent by five different methods.
13. Prove triangles congruent and discover properties of the isosceles triangle.
14. Draw other conclusions, once two triangles have been proven congruent.
15. Understand the concept of three lines passing through a point.
16. Understand two other types of statements that are related to a conditional as well as indirect reasoning.
17. Deduce information about inequalities in triangles by applying indirect reasoning.
18. Understand properties of parallelograms and quadrilaterals.
19. Place figures in the coordinate plane and verify the properties using coordinate techniques.
20. Understand the use of finding the area of a rectangle.
21. Understand the Pythagorean Theorem and its converse to find relationships in special right angles.
22. Find the areas of special quadrilaterals and regular polygons.
23. Understand the relationships between similar polygons.
24. Prove similar triangles.
25. Understand the relationships between perimeters and areas.
26. Use right triangles to define the sine, cosine, and tangent ratios.
27. Solve height and distance problems using angles of elevation and angles of depression.
28. Use vectors as a tool in other applications of trigonometry.
29. Understand special three dimensional figures built from two dimensional figures such as triangles and rectangles.
30. Work with space figures to create three dimensional drawings.
31. Use perimeter and area to find surface and volume.
32. Understand the properties of circles, lines and segments that intersect circles.
33. Understand how the angles formed by these lines and segments are related to the arcs the intercept on a circle.
34. Describe a set of points as a locus.
35. Use transformations known as reflections, translations and rotations to create a congruent image of a given shape.
36. Use transformations for relating two given congruent shapes to each other.
37. Understand symmetry and tessellation.