

Ninth Grade - Tenth Grade Mathematics

Geometry Course Outline

<i>Unit & Content Objectives</i>	<i>Time</i>	<i>Activities & Methods</i>	<i>Books & Materials</i>	<i>Evaluation Techniques</i>
Tools of Geometry <ul style="list-style-type: none"> • Students will use inductive reasoning to make conjectures • Students will understand basic terms and postulates of geometry • Students will identify segments, rays, and parallel lines • Students will find lengths of segments • Students will identify special angle pairs • Students will use a compass and straightedge to construct congruent segments & angles as well as bisect segments & angles 	45 min/day, 5 days/wk, 3 Week(s)	<ul style="list-style-type: none"> • Real-World Applications • Chapter Project 	Prentice Hall Mathematics: Geometry	<ul style="list-style-type: none"> • Lesson Quizzes • Chapter Test • Vocabulary Quiz

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Reasoning and Proof <ul style="list-style-type: none"> • Students will recognize conditional statements and write converse statements • Students will write biconditional statements • Students will use the law of detachment and law of syllogism in deductive reasoning • Students will justify steps in a logical algebraic argument • Students will prove and apply theorems about angles 	45 min/day, 5 days/wk, 3 Week(s)	<ul style="list-style-type: none"> • Real-World Applications • Chapter Project 	Prentice Hall Mathematics: Geometry	<ul style="list-style-type: none"> • Lesson Quizzes • Chapter Test • Vocabulary Quiz

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<p>Parallel and Perpendicular Lines</p> <ul style="list-style-type: none"> • Students will identify various angles formed by transversals • Students will prove and use properties of parallel lines • Students will relate parallel and perpendicular lines • Students will classify triangles and find the measures of their angles • Students will classify polygons and find the sum of the measures of their interior and exterior angles • Students will construct parallel and perpendicular lines using a compass and straightedge 	<p>45 min/day, 5 days/wk, 3 Week(s)</p>	<ul style="list-style-type: none"> • Real-World Applications • Chapter Project 	<p>Prentice Hall Mathematics: Geometry</p>	<ul style="list-style-type: none"> • Lesson Quizzes • Chapter Test • Vocabulary Quiz

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<p>Congruent Triangles</p> <ul style="list-style-type: none"> • Students will recognize congruent figures and their corresponding parts • Students will prove two triangles congruent using sas, sss, asa, aas, and hl postulates/theorems • Students will use cpctc to prove parts of two triangles are congruent • Students will use and apply properties of isosceles triangles • Students will identify congruent overlapping triangles 	<p>45 min/day, 5 days/wk, 3 Week(s)</p>	<ul style="list-style-type: none"> • Real-World Applications • Chapter Project 	<p>Prentice Hall Mathematics: Geometry</p>	<ul style="list-style-type: none"> • Lesson Quizzes • Chapter Test • Vocabulary Quiz

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Relationships within Triangles <ul style="list-style-type: none"> • Students will use properties of segments to solve problems • Students will use properties of perpendicular bisectors and angle bisectors • Students will identify properties of perpendicular bisectors and angle bisectors • Students will write the negation of a statement, the inverse, and the contrapositive • Students will use inequalities involving angles and sides of triangles 	45 min/day, 5 days/wk, 3 Week(s)	<ul style="list-style-type: none"> • Real-World Applications • Chapter Project 	Prentice Hall Mathematics: Geometry	<ul style="list-style-type: none"> • Lesson Quizzes • Chapter Test • Vocabulary Quiz

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<p>Quadrilaterals</p> <ul style="list-style-type: none"> • Students will define and classify special types of quadrilaterals • Students will use relationships among sides and angles of parallelograms • Students will use relationships involving diagonals of parallelograms • Students will determine whether a quadrilateral is a parallelogram • Students will use properties of diagonals of rhombuses and rectangles • Students will determine whether a parallelogram is a rhombus or a rectangle • Students will verify and use properties of trapezoids and kites 	<p>45 min/day, 5 days/wk, 3 Week(s)</p>	<ul style="list-style-type: none"> • Real-World Applications • Chapter Project 	<p>Prentice Hall Mathematics: Geometry</p>	<ul style="list-style-type: none"> • Lesson Quizzes • Chapter Test • Vocabulary Quiz

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Similarity <ul style="list-style-type: none"> • Students will write ratios and solve proportions • Students will identify and apply similar polygons • Students will use and apply aa, sas, and sss similarity statements • Students will find and use relationships in similar right triangles • Students will use the triangle-angle bisector theorem 	45 min/day, 5 days/wk, 3 Week(s)	<ul style="list-style-type: none"> • Real-World Applications • Chapter Project 	Prentice Hall Mathematics: Geometry	<ul style="list-style-type: none"> • Lesson Quizzes • Chapter Test • Vocabulary Quiz

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Right Triangles and Trigonometry <ul style="list-style-type: none"> • Students will use the pythagorean theorem and its converse • Students will use the properties of 45°-45°-90° triangles and 30°-60°-90° triangles • Students will use the tangent, cosine, and sine ratios to determine the side lengths of triangles • Students will use angles of elevation and depression to solve problems 	45 min/day, 5 days/wk, 3 Week(s)	<ul style="list-style-type: none"> • Real-World Applications • Chapter Project 	Prentice Hall Mathematics: Geometry	<ul style="list-style-type: none"> • Lesson Quizzes • Chapter Test • Vocabulary Quiz

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Transformations <ul style="list-style-type: none"> • Students will identify isometries and find translation images of figures • Students will find reflection images of figures • Students will draw and identify rotation images of figures • Students will identify the type of symmetry in a figure • Students will locate dilation images of figures • Students will identify glide reflections • Students will identify transformations in tessellations and figures that will tessellate • Students will identify symmetries in tessellations 	45 min/day, 5 days/wk, 3 Week(s)	<ul style="list-style-type: none"> • Real-World Applications • Chapter Project 	Prentice Hall Mathematics: Geometry	<ul style="list-style-type: none"> • Lesson Quizzes • Chapter Test • Vocabulary Quiz

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<p>Area</p> <ul style="list-style-type: none"> • Students will find areas of parallelograms, triangles, trapezoids, rhombuses, and kites • Students will find the area of a regular polygon using formulas and trigonometry • Students will find the perimeters and areas of similar polygons • Students will find the measures of central angles and arcs • Students will find the circumference and arc length • Students will find the areas of circles, sectors, and segments of circles 	<p>45 min/day, 5 days/wk, 3 Week(s)</p>	<ul style="list-style-type: none"> • Real-World Applications • Chapter Project 	<p>Prentice Hall Mathematics: Geometry</p>	<ul style="list-style-type: none"> • Lesson Quizzes • Chapter Test • Vocabulary Quiz

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<p>Surface Area and Volume</p> <ul style="list-style-type: none"> • Students will recognize polyhedra and their parts • Students will find surface area of prisms, cylinders, pyramids, and cones • Students will find the volume of prisms, cylinders, pyramids, and cones • Students will find the surface area and volume of a sphere • Students will find relationships between the ratios of the areas and volumes of similar ratios 	<p>45 min/day, 5 days/wk, 3 Week(s)</p>	<ul style="list-style-type: none"> • Real-World Applications • Chapter Project 	<p>Prentice Hall Mathematics: Geometry</p>	<ul style="list-style-type: none"> • Lesson Quizzes • Chapter Test • Vocabulary Quiz

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Circles <ul style="list-style-type: none"> • Students will use the relationship between a radius and a tangent • Students will use the relationship between two tangents from one point • Students will use congruent chords, arcs, and central angles • Students will recognize properties of lines through the center of a circle • Students will find the measure of an inscribed angle and an angle formed by a tangent and chord • Students will find the measures of angles formed by chords, secants, and tangents • Students will find the lengths of segments associated with circles • Students will write an equation of a circle • Students will find the center and radius of a circle 	45 min/day, 5 days/wk, 3 Week(s)	<ul style="list-style-type: none"> • Real-World Applications • Chapter Project 	Prentice Hall Mathematics: Geometry	<ul style="list-style-type: none"> • Lesson Quizzes • Chapter Test • Vocabulary Quiz