Geometry, 5th Edition

Lesson Plan Overview

Chapter 1: Foundations of Geometry

Pages	Objectives	Resources	Assessments
Welcome to *GEOMETRY*!			
viii–xii	• Explain the importance of geometry. • Provide an overview of the essential mathematical practices. • Describe features of the *GEOMETRY* Student Edition.		
1.1 Sets (2 days)			
4–8	1.1.1 Describe relationships between sets, subsets, and their elements. 1.1.2 Perform the set operations of union, intersection, and complement. 1.1.3 Represent set relationships and operations with Venn diagrams.	**Activities** • Sets in Brief—Elements & Subsets • Sets in Detail—Set Operations **BJU Press Trove*** • Chart: Sets: Intersection, Union • PowerPoint presentation: Section 1.1 **AfterSchoolHelp.com** • Sets	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 4)
1.2 Definitions & Undefined Terms			
9–13	1.2.1 Describe the characteristics of a good definition. 1.2.2 Evaluate definitions by using the characteristics of a good definition. 1.2.3 Illustrate the 3 undefined terms of Euclidean geometry. 1.2.4 Describe relationships between points, lines, and planes. 1.2.5 Explain why human reasoning is not sufficient to determine eternal truths. **BWS** Foundations (explain)	**Activities** • Math History—Georg Cantor **BJU Press Trove** • Chart: Lines: Parallel, Intersecting, Perpendicular • PowerPoint presentation: Section 1.2 **AfterSchoolHelp.com** • Definitions & Undefined Terms	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 9) **Assessments** • Quiz 1A (Sections 1.1–1.2)

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Pages	Objectives	Resources	Assessments
1.3 An Ideal Geometry			
14–19	1.3.1 Describe the structure and characteristics of an ideal geometric system. 1.3.2 State the incidence postulates and theorems. 1.3.3 Analyze relationships among basic geometric figures.	**Teacher Edition** • Appendix B: The Hiroshima of Mathematics **BJU Press Trove** • PowerPoint presentation: Section 1.3 **AfterSchoolHelp.com** • An Ideal Geometry	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 14)
Geometry in History—Not Your Usual Math Club (Part 1)			
20	1.GIH.1 Identify ways the ancient Egyptians and Babylonians used geometry. 1.GIH.2 Evaluate the pharaoh's response to geometric errors.	**BJU Press Trove** • Video: Ancient Geometry	**Student Edition** • Discussion questions
1.4 Subsets of Lines & Planes			
21–26	1.4.1 State the Separation Postulates. 1.4.2 Identify subsets of lines and planes. 1.4.3 Apply the Separation Postulates. 1.4.4 Analyze statements describing subsets of lines and planes.	**Activities** • Chapter 1A Terms & Symbols—Sections 1.1–1.4 • Chapter 1A Practice—Sections 1.1–1.4 • Chapter 1A Review—Sections 1.1–1.4 **BJU Press Trove** • PowerPoint presentation: Section 1.4 **AfterSchoolHelp.com** • Subsets of Lines & Planes	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 21) **Assessments** • Quiz 1B (Sections 1.3–1.4)
1.5 Segment & Angle Measures			
27–33	1.5.1 State the Ruler, Segment Addition, Protractor, and Angle Addition Postulates. 1.5.2 Find lengths of segments. 1.5.3 Find angle measures. 1.5.4 Classify angles by their measure.	**BJU Press Trove** • Additional Resource: Section 1.5 Worksheet—Figures from Student Exercises • Link: Segment Addition Postulate Demonstration • PowerPoint presentation: Section 1.5 **AfterSchoolHelp.com** • Segment & Angle Measures	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 27)

Pages	Objectives	Resources	Assessments
Technology Corner—Dynamic Geometry Software			
34		**BJU Press Trove** • Link: Dynamic Geometry Software	**Student Edition** • Exercises
1.6 2-Dimensional Figures (2 days)			
35–43	1.6.1 Identify curves, simple curves, and closed curves. 1.6.2 Identify convex and concave regions. 1.6.3 Identify polygons, circles, and their related components. 1.6.4 Calculate the perimeter of a polygon and the circumference of a circle.	**Activities** • Prefixes in Detail • Math History—Jan Brouwer **BJU Press Trove** • Video: Math Prefixes • Chart: Polygons • Chart: Perimeter Formulas • Chart: Circle • PowerPoint presentation: Section 1.6 **AfterSchoolHelp.com** • 2-Dimensional Figures	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 35) **Assessments** • Quiz 1C (Sections 1.5–1.6)
1.7 3-Dimensional Figures			
44–49	1.7.1 Explain why Scripture is the ultimate foundation of geometry. **BWS** Foundations (explain) 1.7.2 Identify spheres, cones, cylinders, and polyhedra. 1.7.3 Classify prisms, pyramids, and polyhedra. 1.7.4 Identify parts of 3-dimensional figures.	**Teacher Edition** • Appendix C: *Flatland* **BJU Press Trove** • Chart: Classifying Three-Dimensional Figures • PowerPoint presentation: Section 1.7 **AfterSchoolHelp.com** • 3-Dimensional Figures	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 44)
Geometry around Us—DNA: Life's Blueprint			
50	1.GAU.1 Identify geometric figures used in a DNA double helix structure. 1.GAU.2 Identify ways God created life with complexity.	**BJU Press Trove** • Video: DNA: Life's Blueprint	**Student Edition** • Discussion questions

Pages	Objectives	Resources	Assessments
1.8 Sketches, Drawings & Constructions			
51–55	1.8.1 Distinguish between sketches, drawings, and constructions. 1.8.2 Identify the assumptions that can be made from geometric diagrams. 1.8.3 Create simple sketches, drawings, and constructions.	**Activities** • Chapter 1 Construction Skills • Dynamic Geometry Software Investigation 1 • Chapter 1B Terms & Symbols—Sections 1.5–1.8 • Chapter 1B Practice—Sections 1.5–1.8 **BJU Press Trove** • Additional Resource: Section 1.8 Worksheet—Figures from Student Exercises • PowerPoint presentation: Section 1.8 **AfterSchoolHelp.com** • Sketches, Drawings & Constructions	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 51) **Assessments** • Quiz 1D (Sections 1.7–1.8)
Chapter 1 Review (2 days)			
56–59	Review the skills and concepts taught in Chapter 1.	**Teacher Edition** • Appendix A: Vocabulary (Chapter 1) **Activities** • Cumulative Review 1 **BJU Press Trove** • Additional Resource: Chapter 1 Review Worksheet—Figures from Student Exercises • Game/Enrichment: Chapter 01 Mathardy	**Student Edition** • Chapter 1 Review exercises
Chapter 1 Test			
	Demonstrate mastery of the skills and concepts taught in Chapter 1.		**Assessments** • Chapter 1 Test **BJU Press Trove** • Chapter 1 test bank

Chapter 2: Reasoning & Proof

Pages	Objectives	Resources	Assessments
2.1 Inductive Reasoning			
62–67	2.1.1 Explain the roles of inductive and deductive reasoning in making and verifying conjectures. 2.1.2 Make conjectures based on inductive reasoning. 2.1.3 Utilize counterexamples to disprove statements. 2.1.4 Identify the fallacy of hasty generalization.	**Activities** • Math History—Aristotle **BJU Press Trove*** • PowerPoint presentation: Section 2.1 **AfterSchoolHelp.com** • Inductive Reasoning	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 62)
Geometry around Us—Parallel Processing			
68	2.GAU.1 Identify how parallel processing is used in God's creation. 2.GAU.2 Identify examples of collaborative work in Scripture.	**BJU Press Trove** • Video: Parallel Processing	**Student Edition** • Discussion questions
2.2 Statements & Truth Values			
69–74	2.2.1 Compare simple statements and their negations. 2.2.2 Determine the truth values of conjunctions and disjunctions by using truth tables. 2.2.3 Apply quantifiers to statements and their negations.	**BJU Press Trove** • Link: Truth Table Generator • PowerPoint presentation: Section 2.2 **AfterSchoolHelp.com** • Statements & Truth Values	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 69) **Assessments** • Quiz 2A (Sections 2.1–2.2)

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Pages	Objectives	Resources	Assessments
2.3 Conditionals & Biconditionals (2 days)			
75–80	2.3.1 Write conditional and biconditional statements. 2.3.2 Determine truth values for conditionals and biconditionals. 2.3.3 State the inverse, converse, contrapositive, and equivalent disjunction of a conditional. 2.3.4 Use a truth table to prove that a conditional and its contrapositive are equivalent.	**Activities** • Practicing Truth Tables • Switching Circuits **BJU Press Trove** • PowerPoint presentation: Section 2.3 **AfterSchoolHelp.com** • Conditionals & Biconditionals	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 75)
Geometry in History—Not Your Usual Math Club (Part 2)			
81	2.GIH.1 Identify the Pythagoreans' relationship between music and mathematics. 2.GIH.2 Evaluate the philosophy of the Pythagoreans.	**BJU Press Trove** • Video: The Pythagorean Brotherhood	**Student Edition** • Discussion questions
2.4 Deductive Reasoning			
82–88	2.4.1 Classify arguments as inductive or deductive. 2.4.2 Apply 3 methods of deductive reasoning: modus ponens, modus tollens, and transitivity. 2.4.3 Identify the fallacies of assuming the inverse and assuming the converse. 2.4.4 Evaluate the truth, validity, and soundness of deductive arguments. 2.4.5 Explain a key limitation of human reasoning. **BWS** Reasoning (explain)	**Teacher Edition** • Appendix D: *Through the Looking-Glass* **Activities** • Fallacies in Advertising **BJU Press Trove** • Additional Resource: Mind over Math Solution • PowerPoint presentation: Section 2.4 **AfterSchoolHelp.com** • Deductive Reasoning	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 82) **Assessments** • Quiz 2B (Sections 2.3–2.4)

Pages	Objectives	Resources	Assessments
2.5 Algebraic Reasoning			
89–94	2.5.1 Identify the major subsets of the real numbers. 2.5.2 Apply properties of real numbers and equality. 2.5.3 Write algebraic proofs.	**Activities** • Sports Teams as an Equivalence Relation • Truth Tables in Detail **BJU Press Trove** • PowerPoint presentation: Section 2.5 **AfterSchoolHelp.com** • Algebraic Reasoning	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 89)
2.6 Proofs Using Segments			
95–99	2.6.1 List the 5 parts of a typical 2-column proof. 2.6.2 Prove that segment congruence is an equivalence relation. 2.6.3 Write missing statements and reasons in 2-column proofs related to segments. 2.6.4 Create 2-column proofs related to segment lengths.	**Activities** • Pasch's Postulate **BJU Press Trove** • PowerPoint presentation: Section 2.6 **AfterSchoolHelp.com** • Proofs Using Segments	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 95) **Assessments** • Quiz 2C (Sections 2.5–2.6)
Technology Corner—Angle Conjectures			
100			**Student Edition** • Exercises
2.7 Proofs Using Angles (2 days)			
101–8	2.7.1 Prove that angle congruence is an equivalence relation. 2.7.2 Write missing statements and reasons in 2-column proofs related to angles. 2.7.3 Apply theorems related to angles. 2.7.4 Create 2-column proofs related to angles. 2.7.5 Explain why learning to reason well is important for a believer. **BWS** Reasoning (explain)	**BJU Press Trove** • Link: Dynamic Geometry Software • PowerPoint presentation: Section 2.7 **AfterSchoolHelp.com** • Proofs Using Angles	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 101)

Pages	Objectives	Resources	Assessments
2.8 Using Bisectors			
109–14	2.8.1 Prove theorems involving bisectors of segments and angle bisectors. 2.8.2 Construct perpendicular bisectors of segments and angle bisectors. 2.8.3 Apply bisectors to solve problems.	**Activities** • Dynamic Geometry Software Investigation 2 • Chapter 2 Construction Skills • Chapter 2 Terms, Symbols & Proofs **BJU Press Trove** • Additional Resource: Section 2.8 Worksheet—Figures from Student Exercises • Link: Section 2.8 Essential Question Demonstration • PowerPoint presentation: Section 2.8 **AfterSchoolHelp.com** • Using Bisectors	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 109) **Assessments** • Quiz 2D (Sections 2.7–2.8)
Chapter 2 Review (2 days)			
115–19	Review the skills and concepts taught in Chapter 2.	**Teacher Edition** • Appendix A: Vocabulary (Chapter 2) **Activities** • Cumulative Review 2 **BJU Press Trove** • Game/Enrichment: Chapter 02 Mathardy	**Student Edition** • Chapter 2 Review exercises
Chapter 2 Test			
	Demonstrate mastery of the skills and concepts taught in Chapter 2.		**Assessments** • Chapter 2 Test **BJU Press Trove** • Chapter 2 test bank

Chapter 3: Parallel & Perpendicular Lines

Pages	Objectives	Resources	Assessments
3.1 Parallel Lines & Transversals			
122–27	3.1.1 Identify pairs of angles formed by a transversal intersecting 2 lines. 3.1.2 Prove theorems relating pairs of angles formed by a transversal of 2 parallel lines. 3.1.3 Find the measures of angles formed by a transversal of 2 parallel lines.	**Activities** • Parallel Lines **BJU Press Trove*** • Link: Dynamic Geometry Software • Link: Postulate 3.1.1 Demonstration • PowerPoint presentation: Section 3.1 **AfterSchoolHelp.com** • Parallel Lines & Transversals	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 122)
3.2 Proving Lines Are Parallel			
128–33	3.2.1 Prove 2 lines are parallel by using angles formed by a transversal. 3.2.2 Prove relationships between parallel and perpendicular lines. 3.2.3 Apply relationships between angles formed by transversals of parallel lines to find unknown angle measures.	**Activities** • Practicing with Transversals **BJU Press Trove** • PowerPoint presentation: Section 3.2 **AfterSchoolHelp.com** • Proving Lines Are Parallel	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 128) **Assessments** • Quiz 3A (Sections 3.1–3.2)
Geometry in History—Not Your Usual Math Club (Part 3)			
134	3.GIH.1 Identify alternate views of geometry. 3.GIH.2 Explain how people's worldviews affect their view of mathematics.	**BJU Press Trove** • Video: The Pythagorean Worldview	**Student Edition** • Discussion questions

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Pages	Objectives	Resources	Assessments
3.3 Constructing Parallel & Perpendicular Lines			
135–40	3.3.1 Construct a line that is through a given point and parallel or perpendicular to a given line. 3.3.2 Combine constructions to construct angles with a given measure. 3.3.3 Construct an equilateral triangle with a given side length. 3.3.4 Explain how a complex building gives evidence of design. **BWS** Design (explain)	**Activities** • Chapter 3 Construction Skills • Design in Architecture **BJU Press Trove** • Additional Resource: Section 3.3 Worksheet—Figures from Student Exercises • Link: 3.3 Ex. 39 Demonstration • Link: 3.3 Mind over Math Demonstration • PowerPoint presentation: Section 3.3	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 135) **Assessments** • Quiz 3B (Section 3.3)
Technology Corner—Exploring Midpoints & Slopes			
141			**Student Edition** • Exercises
3.4 Distance, Midpoint & Slope			
142–48	3.4.1 Calculate the distance between 2 points in the coordinate plane. 3.4.2 Find the midpoint of a segment in the coordinate plane. 3.4.3 Calculate the slope between 2 points in the coordinate plane. 3.4.4 Identify parallel and perpendicular lines by using their slopes.	**BJU Press Trove** • PowerPoint presentation: Section 3.4 **AfterSchoolHelp.com** • Distance, Midpoint & Slope	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 142)
Geometry around Us—Designers & Patterns			
149	3.GAU.1 Identify geometric designs present in God's creation and used in human designs. 3.GAU.2 Identify examples of biomimicry.	**BJU Press Trove** • Video: Designers and Patterns	**Student Edition** • Discussion questions

Pages	Objectives	Resources	Assessments
3.5 Equations of Lines (2 days)			
150–55	3.5.1 Graph a line given its equation. 3.5.2 Write the equation of a line given information about its graph. 3.5.3 Explain how a complex universe gives evidence of design. **BWS** Design (explain)	**Activities** • Dynamic Geometry Software Investigation 3 • Math History—Johann Heinrich Lambert **BJU Press Trove** • PowerPoint presentation: Section 3.5 **AfterSchoolHelp.com** • Equations of Lines	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 150) **Assessments** • Quiz 3C (Sections 3.4–3.5)
Chapter 3 Review (2 days)			
156–59	Review the skills and concepts taught in Chapter 3.	**Teacher Edition** • Appendix A: Vocabulary (Chapter 3) **Activities** • Cumulative Review 3 **BJU Press Trove** • Game/Enrichment: Chapter 03 Mathardy	**Student Edition** • Chapter 3 Review exercises
Chapter 3 Test			
	Demonstrate mastery of the skills and concepts taught in Chapter 3.		**Assessments** • Chapter 3 Test **BJU Press Trove** • Chapter 3 test bank
First Quarter Review & Exam (2 days)			
	Review and demonstrate mastery of the skills and concepts taught in Chapters 1–3.		**Assessments** • Exam 1 (Chapters 1–3) **BJU Press Trove** • Chapters 1–3 test banks

Chapter 4: Congruent Triangles

Pages	Objectives	Resources	Assessments
4.1 Angles in Triangles			
162–70	4.1.1 Classify triangles by angle measures and side lengths. 4.1.2 Prove relationships between angles related to triangles. 4.1.3 Find unknown angle measures related to triangles.	**Activities** • Dynamic Geometry Software Investigation 4 **BJU Press Trove*** • Chart: Triangles • Link: Dynamic Geometry Software • PowerPoint presentation: Section 4.1 **AfterSchoolHelp.com** • Angles in Triangles	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 162)
4.2 Congruent Figures			
171–77	4.2.1 Identify congruent figures and their corresponding parts. 4.2.2 Find missing lengths and angle measures in congruent polygons. 4.2.3 Prove triangles to be congruent by using the definition of congruent triangles. 4.2.4 Prove that the congruence of figures is an equivalence relation.	**BJU Press Trove** • PowerPoint presentation: Section 4.2 **AfterSchoolHelp.com** • Congruent Figures	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 171) **Assessments** • Quiz 4A (Sections 4.1–4.2)
Geometry around Us—Architects & Buildings			
178	4.GAU.1 Identify geometric figures present in building designs. 4.GAU.2 Describe several ways that architects can use their occupation to glorify God.	**Activities** • Design in Detail **BJU Press Trove** • Video: Architects and Buildings	**Student Edition** • Discussion questions

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Pages	Objectives	Resources	Assessments
4.3 Congruence Postulates			
179–84	4.3.1 Demonstrate the Side-Angle-Side and Angle-Side-Angle Congruence Postulates by constructing congruent triangles. 4.3.2 Apply the SAS and ASA Congruence Postulates to prove triangles to be congruent. 4.3.3 Use congruent triangles to prove that corresponding sides or angles are congruent.	**BJU Press Trove** • PowerPoint presentation: Section 4.3 **AfterSchoolHelp.com** • Congruence Postulates	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 179)
4.4 Applying Congruence Postulates (2 days)			
185–92	4.4.1 Construct flow-chart proofs related to congruent triangles. 4.4.2 Apply the Angle-Angle-Side Congruence Theorem to prove triangles to be congruent. 4.4.3 Prove theorems related to isosceles and equilateral triangles. 4.4.4 Find side and angle measures in isosceles, equilateral, and congruent triangles. 4.4.5 Create a flow-chart proof that models a scriptural argument. **BWS** Reasoning (formulate)	**Activities** • Math History—Euclid **BJU Press Trove** • PowerPoint presentation: Section 4.4 **AfterSchoolHelp.com** • Applying Congruence Postulates	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 185) **Assessments** • Quiz 4B (Sections 4.3–4.4)
Technology Corner—Exploring AAA & SSA			
193			**Student Edition** • Exercises

Pages	Objectives	Resources	Assessments
4.5 Conditions for Congruent Triangles			
194–202	4.5.1 Apply the Side-Side-Side Congruence Theorem. 4.5.2 Identify insufficient conditions for proving triangle congruence. 4.5.3 Use congruent overlapping triangles to prove that segments or angles are congruent.	**BJU Press Trove** • Chart: Triangle Congruence & Similarity • Link: Section 4.5 Essential Question Demonstration • PowerPoint presentation: Section 4.5 **AfterSchoolHelp.com** • Conditions for Congruent Triangles	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 194)
4.6 Right Triangle Congruence			
203–9	4.6.1 Prove right triangle congruence theorems. 4.6.2 Apply right triangle congruence theorems. 4.6.3 Use right triangles to prove properties of isosceles triangles. 4.6.4 Evaluate the idea that a sound argument will always result in belief. **BWS** Reasoning (evaluate)	**Activities** • Chapter 4 Construction Skills • Chapter 4 Terms & Symbols **BJU Press Trove** • PowerPoint presentation: Section 4.6 **AfterSchoolHelp.com** • Right Triangle Congruence	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 203) **Assessments** • Quiz 4C (Sections 4.5–4.6)
Geometry in History—A Revolutionary Museum (Part 1)			
210	4.GIH.1 Evaluate the Enlightenment's impact on Christianity. 4.GIH.2 Identify how the Enlightenment influenced mathematics.	**BJU Press Trove** • Video: The Enlightenment, Revolution, and Math	**Student Edition** • Discussion questions
4.7 Coordinate Geometry of Triangles			
211–17	4.7.1 Use coordinate geometry to identify characteristics of triangles. 4.7.2 Apply the Triangle Midsegment Theorem. 4.7.3 Use coordinate geometry to prove triangles to be congruent.	**BJU Press Trove** • Link: Dynamic Geometry Software • PowerPoint presentation: Section 4.7 **AfterSchoolHelp.com** • Coordinate Geometry of Triangles	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 211) **Assessments** • Quiz 4D (Section 4.7)
Chapter 4 Review			
218–222	Review the skills and concepts taught in Chapter 4.	**Teacher Edition** • Appendix A: Vocabulary (Chapter 4) **Activities** • Cumulative Review 4 **BJU Press Trove** • Game/Enrichment: Chapter 04 Mathardy	**Student Edition** • Chapter 4 Review exercises

Pages	Objectives	Resources	Assessments
Chapter 4 Test			
	Demonstrate mastery of the skills and concepts taught in Chapter 4.		**Assessments** • Chapter 4 Test **BJU Press Trove** • Chapter 4 test bank
STEM Project—Do Parallel Lines Exist?			
223	S.1.1 Research characteristics of different geometric spaces. S.1.2 Design a model for each of the 3 geometric spaces: Euclidean, spherical, and hyperbolic by using the engineering design process. S.1.3 Assemble models that illustrate each of the 3 geometric spaces. S.1.4 Optimize the accuracy of the geometric models by evaluating and modifying the design.	**Activities** • STEM—Do Parallel Lines Exist? **BJU Press Trove** • Video: Do Parallel Lines Exist?	**Activities** • STEM—Do Parallel Lines Exist? project grading rubric

Chapter 5: Relationships in Triangles

Pages	Objectives	Resources	Assessments
5.1 Circumcenters & Orthocenters (2 days)			
226–33	5.1.1 Prove the Perpendicular Bisector Theorem. 5.1.2 Apply the Perpendicular Bisector Theorem, the Circumcenter Theorem, and the Orthocenter Theorem to solve problems. 5.1.3 Construct a triangle's circumcenter and orthocenter.	**Teacher Edition** • Appendix E: Concurrency Proofs **Activities** • Conjectures **BJU Press Trove*** • Link: Dynamic Geometry Software • Additional Resource: Section 5.1 Worksheet • PowerPoint presentation: Section 5.1 **AfterSchoolHelp.com** • Circumcenters & Orthocenters	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (pp. 226–27)
5.2 Incenters & Centroids			
234–41	5.2.1 Prove the Angle Bisector Theorem. 5.2.2 Apply the Angle Bisector Theorem, the Incenter Theorem, and the Centroid Theorem to solve problems. 5.2.3 Construct a triangle's incenter and centroid. 5.2.4 Explain how finding the incenter of a triangle could be used to help others. **BWS** Modeling (explain)	**Teacher Edition** • Appendix E: Concurrency Proofs **Activities** • Dynamic Geometry Software Investigation 5A • Dynamic Geometry Software Investigation 5B **BJU Press Trove** • Link: Dynamic Geometry Software • Additional Resource: Section 5.2 Worksheet • PowerPoint presentation: Section 5.2 **AfterSchoolHelp.com** • Incenters & Centroids	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 234) **Assessments** • Quiz 5A (Sections 5.1–5.2)

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Pages	Objectives	Resources	Assessments
Technology Corner—Triangle Relationships			
242			**Student Edition** • Exercises
5.3 Inequalities in Triangles			
243–48	5.3.1 Apply properties of inequalities. 5.3.2 Prove the Exterior Angle Inequality Theorem, the Greater Angle Theorem, and the Longer Side Theorem. 5.3.3 Compare the measures of angles and sides within a triangle.	**Activities** • Math History—Jean-Victor Poncelet **BJU Press Trove** • PowerPoint presentation: Section 5.3 **AfterSchoolHelp.com** • Inequalities in Triangles	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 243)
Geometry in History—A Revolutionary Museum (Part 2)			
249	5.GIH.1 State Descartes's major contribution to mathematics. 5.GIH.2 Analyze Descartes's famous saying "I think; therefore, I am" by using modus ponens deductive reasoning.	**BJU Press Trove** • Video: Descartes and Newton	**Student Edition** • Discussion questions
5.4 Indirect Proofs (2 days)			
250–55	5.4.1 State the steps in an indirect proof. 5.4.2 Identify contradictory statements. 5.4.3 Complete indirect proofs of algebraic and geometric statements.	**Activities** • Indirect Proofs in Detail • Detectives **BJU Press Trove** • PowerPoint presentation: Section 5.4 **AfterSchoolHelp.com** • Indirect Proofs	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 250) **Assessments** • Quiz 5B (Sections 5.3–5.4)

Pages	Objectives	Resources	Assessments
5.5 More Inequalities in Triangles			
256–64	5.5.1 Apply the Triangle Inequality Theorem to determine whether 3 segments of given length form a triangle. 5.5.2 Apply the Triangle Inequality Theorem to determine the range of lengths for the third side of a triangle given the lengths of the other 2 sides. 5.5.3 Apply the Hinge Theorem and its converse to compare the measures of sides and angles in triangles with 2 pairs of congruent sides. 5.5.4 Evaluate the claim that triangle inequalities have no practical applications. **BWS** Modeling (evaluate)	**BJU Press Trove** • Link: Theorem 5.5.1 Demonstration • PowerPoint presentation: Section 5.5 **AfterSchoolHelp.com** • More Inequalities in Triangles	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 256) **Assessments** • Quiz 5C (Sections 5.4–5.5)
Geometry around Us—Carpentry			
265	5.GAU.1 Identify geometric concepts used in carpentry. 5.GAU.2 Identify ministry opportunities relating to a career in carpentry.	**BJU Press Trove** • Video: Carpentry	**Student Edition** • Discussion questions
Chapter 5 Review (2 days)			
266–69	Review the skills and concepts taught in Chapter 5.	**Teacher Edition** • Appendix A: Vocabulary (Chapter 5) **Activities** • Chapter 5 Terms & Proofs • Cumulative Review 5 **BJU Press Trove** • Game/Enrichment: Chapter 05 Mathardy	**Student Edition** • Chapter 5 Review exercises
Chapter 5 Test			
	Demonstrate mastery of the skills and concepts taught in Chapter 5.		**Assessments** • Chapter 5 Test **BJU Press Trove** • Chapter 5 test bank

Chapter 6: Quadrilaterals

Pages	Objectives	Resources	Assessments
6.1 Classifying Quadrilaterals			
272–79	6.1.1 Identify special quadrilaterals and their relationships to each other. 6.1.2 Find the sum of the measures of the interior angles in quadrilaterals and other polygons. 6.1.3 Find the sum of the measures of an exterior angle at each vertex of any convex polygon. 6.1.4 Find measures of interior and exterior angles of quadrilaterals and other polygons.	**BJU Press Trove*** • Chart: Quadrilaterals • Link: Dynamic Geometry Software • Link: Theorem 6.1.3 Demonstration • PowerPoint presentation: Section 6.1 **AfterSchoolHelp.com** • Classifying Quadrilaterals	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 272)
Technology Corner—Exploring Quadrilaterals			
280		**BJU Press Trove** • Link: Chapter 6 Technology Corner Demonstrations	**Student Edition** • Exercises
6.2 Characteristics of Parallelograms			
281–87	6.2.1 Prove properties of parallelograms. 6.2.2 Apply properties of parallelograms to find measures of angles and segments. 6.2.3 Apply the Congruent Division of Transversals Theorem to solve problems. 6.2.4 Explain the underlying assumption about the world that is necessary to create useful designs. **BWS** Design (explain)	**Activities** • Math History—Lambert & Saccheri **BJU Press Trove** • Link: Dynamic Geometry Software • PowerPoint presentation: Section 6.2 **AfterSchoolHelp.com** • Characteristics of Parallelograms	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 281) **Assessments** • Quiz 6A (Sections 6.1–6.2)

*Digital resources for homeschool users are available on Homeschool Hub.

Pages	Objectives	Resources	Assessments
6.3 Proofs of Parallelograms (2 days)			
288–94	6.3.1 Prove that quadrilaterals with given characteristics are parallelograms. 6.3.2 Identify conditions that ensure a quadrilateral is a parallelogram. 6.3.3 Prove that 2 parallelograms are congruent using SAS Congruence for Parallelograms.	**BJU Press Trove** • Link: Dynamic Geometry Software • Link: 6.3 Ex. 34 Demonstration • Additional Resource: Section 6.3 Mind over Math Worksheet • PowerPoint presentation: Section 6.3 **AfterSchoolHelp.com** • Proofs of Parallelograms	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 288)
6.4 Rectangles, Rhombi & Squares			
295–301	6.4.1 Prove properties of rectangles, rhombi, and squares. 6.4.2 Apply properties of rectangles, rhombi, and squares to find measures of angles and segments. 6.4.3 Prove that a quadrilateral with given characteristics is a rectangle, a rhombus, or a square.	**Activities** • Chapter 6 Construction Skills **BJU Press Trove** • Link: Dynamic Geometry Software • PowerPoint presentation: Section 6.4 **AfterSchoolHelp.com** • Rectangles, Rhombi & Squares	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 295) **Assessments** • Quiz 6B (Sections 6.3–6.4)
Geometry around Us—Sports			
302	6.GAU.1 Identify geometric concepts used in sports. 6.GAU.2 Identify a common pitfall in sports as well as several biblical character traits that can be developed through sports.	**BJU Press Trove** • Video: Sports	**Student Edition** • Discussion questions
6.5 Trapezoids & Kites			
303–11	6.5.1 Prove properties of trapezoids and kites. 6.5.2 Apply properties of trapezoids and kites to find measures of angles and segments. 6.5.3 Prove that a quadrilateral with given characteristics is a trapezoid or a kite. 6.5.4 Explain why people constantly try to improve upon designs. **BWS** Design (explain)	**Activities** • Parallelogram Proofs • Cyclic Quadrilaterals • Dynamic Geometry Software Investigation 6 **BJU Press Trove** • PowerPoint presentation: Section 6.5 **AfterSchoolHelp.com** • Trapezoids & Kites	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 303)

Pages	Objectives	Resources	Assessments
Geometry in History—A Revolutionary Museum (Part 3)			
312	6.GIH.1 Compare Descartes's worldview to a biblical worldview.	**BJU Press Trove** • Video: Descartes's Bones	**Student Edition** • Discussion questions
6.6 Coordinate Geometry of Quadrilaterals (2 days)			
313–19	6.6.1 Use coordinate geometry to classify quadrilaterals. 6.6.2 Determine the coordinates of a quadrilateral's vertices by applying its properties. 6.6.3 Apply coordinate geometry to prove theorems related to quadrilaterals.	**Activities** • Chapter 6 Terms & Proofs **BJU Press Trove** • Link: Dynamic Geometry Software • PowerPoint presentation: Section 6.6 **AfterSchoolHelp.com** • Coordinate Geometry of Quadrilaterals	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 313) **Assessments** • Quiz 6C (Sections 6.5–6.6)
Chapter 6 Review (2 days)			
320–23	Review the skills and concepts taught in Chapter 6.	**Teacher Edition** • Appendix A: Vocabulary (Chapter 6) **Activities** • Cumulative Review 6 **BJU Press Trove** • Game/Enrichment: Chapter 06 Mathardy	**Student Edition** • Chapter 6 Review exercises
Chapter 6 Test			
	Demonstrate mastery of the skills and concepts taught in Chapter 6.		**Assessments** • Chapter 6 Test **BJU Press Trove** • Chapter 6 test bank
Second Quarter Review & Exam (2 days)			
	Review and demonstrate mastery of the skills and concepts taught in Chapters 4–6.		**Assessments** • Exam 2 (Chapters 4–6) **BJU Press Trove** • Chapters 4–6 test banks

Chapter 7: Area

Pages	Objectives	Resources	Assessments
7.1 Areas of Rectangles, Parallelograms & Triangles			
326–33	7.1.1 Define the area of a region. 7.1.2 Derive area formulas for rectangles, parallelograms, and triangles by using the area postulates. 7.1.3 Find the areas of rectangles, parallelograms, triangles, and regions composed of these figures. 7.1.4 Determine unknown lengths by applying area formulas to regions with known areas.	**Activities** • Perimeter & Area • Dynamic Geometry Software Investigation 7 **BJU Press Trove*** • Chart: Perimeter, Area, Volume • Chart: Area Formulas • Link: 7.1 Mind over Math Exploration • Link: 7.1 Mind over Math Solution • PowerPoint presentation: Section 7.1 **AfterSchoolHelp.com** • Areas of Rectangles, Parallelograms & Triangles	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 326)
Technology Corner—Center of Gravity			
334			**Student Edition** • Exercises
7.2 Areas of Other Quadrilaterals			
335–41	7.2.1 Derive area formulas for trapezoids, kites, and rhombi. 7.2.2 Find the areas of trapezoids, kites, rhombi, and regions composed of these figures. 7.2.3 Determine unknown lengths by applying area formulas to regions with known areas. 7.2.4 Apply area formulas when determining population densities. 7.2.5 Explain how assumptions about human origins might influence the interpretation of population density data. **BWS** Ethics (explain)	**BJU Press Trove** • PowerPoint presentation: Section 7.2 **AfterSchoolHelp.com** • Areas of Other Quadrilaterals	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 335) **Assessments** • Quiz 7A (Sections 7.1–7.2)

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Pages	Objectives	Resources	Assessments
7.3 The Pythagorean Theorem			
342–47	7.3.1 Complete proofs of the Pythagorean Theorem and its converse. 7.3.2 Determine unknown side lengths and areas of regions containing right triangles. 7.3.3 Identify Pythagorean triples. 7.3.4 Classify triangles with given side lengths as right, acute, or obtuse.	**Activities** • Math History—Heron of Alexandria **BJU Press Trove** • PowerPoint presentation: Section 7.3 **AfterSchoolHelp.com** • The Pythagorean Theorem	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 342)
7.4 Special Right Triangles			
348–53	7.4.1 Derive the relationships between side lengths in 45-45-90 triangles and in 30-60-90 triangles. 7.4.2 Apply special right triangle relationships to determine unknown side lengths. 7.4.3 Calculate the areas of equilateral triangles by applying the derived formula.	**Activities** • Chapter 7A Practice—Sections 7.1–7.4 **BJU Press Trove** • PowerPoint presentation: Section 7.4 **AfterSchoolHelp.com** • Special Right Triangles	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 348) **Assessments** • Quiz 7B (Sections 7.3–7.4)
Geometry in History—Another Purpose (Part 1)			
354	7.GIH.1 Identify the effects of worldview on mathematics and medicine during the Renaissance.	**BJU Press Trove** • Video: Galileo and the Renaissance Period	**Student Edition** • Discussion questions
7.5 Areas of Regular Polygons			
355–60	7.5.1 Derive a formula for the area of regular polygons. 7.5.2 Apply the formula for the area of a regular polygon to find its area or an unknown length. 7.5.3 Determine the relationships between a side, an apothem, and a radius of an equilateral triangle.	**Activities** • Drawing Octagons **BJU Press Trove** • PowerPoint presentation: Section 7.5 **AfterSchoolHelp.com** • Areas of Regular Polygons	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 355)
Geometry around Us—Home Ownership			
361	7.GAU.1 Identify ways geometry is used in home ownership. 7.GAU.2 Describe ways Christians can use their homes to be an encouragement to others.	**BJU Press Trove** • Video: Home Ownership	**Student Edition** • Discussion questions

Pages	Objectives	Resources	Assessments
7.6 Circles, Sectors & Segments (2 days)			
362–68	7.6.1 Derive formulas for the area of a circle and a sector of a circle. 7.6.2 Calculate the areas of circles, sectors, and segments of a circle. 7.6.3 Calculate the areas of regions composed of circles and other 2-dimensional figures. 7.6.4 Explain how a pie chart can be used unethically. **BWS** Ethics (explain)	**Activities** • Chapter 7B Practice—Sections 7.5–7.6 • Geometric Probability • Chapter 7 Terms, Symbols & Proofs **BJU Press Trove** • PowerPoint presentation: Section 7.6 **AfterSchoolHelp.com** • Circles, Sectors & Segments	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 362) **Assessments** • Quiz 7C (Sections 7.5–7.6)
Chapter 7 Review (2 days)			
369–73	Review the skills and concepts taught in Chapter 7.	**Teacher Edition** • Appendix A: Vocabulary (Chapter 7) **Activities** • Cumulative Review 7 **BJU Press Trove** • Game/Enrichment: Chapter 07 Mathardy	**Student Edition** • Chapter 7 Review exercises
Chapter 7 Test			
	Demonstrate mastery of the skills and concepts taught in Chapter 7.		**Assessments** • Chapter 7 Test **BJU Press Trove** • Chapter 7 test bank

Chapter 8: Circles

Pages	Objectives	Resources	Assessments
8.1 Circles & Chords			
376–82	8.1.1 Prove relationships between chords and radii in congruent circles. 8.1.2 Use the relationships between chords and radii in congruent circles to find unknown lengths.	**Activities** • Dynamic Geometry Software Investigation 8A **BJU Press Trove*** • PowerPoint presentation: Section 8.1 **AfterSchoolHelp.com** • Circles & Chords	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 376)
8.2 Tangents (2 days)			
383–91	8.2.1 Prove properties of tangents to a circle. 8.2.2 Construct tangents to a circle. 8.2.3 Apply properties of tangents to determine unknown lengths and angle measures. 8.2.4 Classify common tangents and tangent circles. 8.2.5 Evaluate the importance of definitions in deductive arguments. **BWS** Foundations (evaluate)	**Activities** • Dynamic Geometry Software Investigation 8B • Locus Problem Principles **BJU Press Trove** • PowerPoint presentation: Section 8.2 **AfterSchoolHelp.com** • Tangents	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 383) **Assessments** • Quiz 8A (Sections 8.1–8.2)
Technology Corner—Constructing Common Tangents			
392			**Student Edition** • Exercises
8.3 Arc Measure & Length (2 days)			
393–401	8.3.1 Identify minor arcs, major arcs, and semicircles. 8.3.2 Determine an arc's measure and its length. 8.3.3 Prove relationships between the measures of arcs, central angles, and intercepting chords in congruent circles. 8.3.4 Determine angle measures and lengths of arcs, chords, and radii in circles.	**BJU Press Trove** • PowerPoint presentation: Section 8.3 **AfterSchoolHelp.com** • Arc Measure & Length	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 393)

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Pages	Objectives	Resources	Assessments
8.4 Inscribed Angles			
402–7	8.4.1 Prove the relationship between inscribed angles and their intercepted arcs. 8.4.2 Find the measures of inscribed angles and their intercepted arcs.	**BJU Press Trove** • PowerPoint presentation: Section 8.4 **AfterSchoolHelp.com** • Inscribed Angles	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 402) **Assessments** • Quiz 8B (Sections 8.3–8.4)
Geometry around Us—Transportation			
408	8.GAU.1 Identify the presence of circular geometry in transportation. 8.GAU.2 Explain how God's Word, His creation, and geometry facilitate doing His will.	**BJU Press Trove** • Video: Transportation	**Student Edition** • Discussion questions
8.5 Angles & Circles			
409–14	8.5.1 Prove the relationships between the angles formed by intersecting tangents or secants and their intercepted arcs. 8.5.2 Find unknown measures of arcs and angles formed by intersecting tangents or secants. 8.5.3 Evaluate the importance of definitions and undefined terms in proving theorems. **BWS** Foundations (evaluate)	**Activities** • Math History—Archimedes **BJU Press Trove** • PowerPoint presentation: Section 8.5 **AfterSchoolHelp.com** • Angles & Circles	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 409) **Assessments** • Quiz 8C (Section 8.5)
Geometry in History—Another Purpose (Part 2)			
415	8.GIH.1 Identify the difference between astronomy and astrology. 8.GIH.2 Determine the usefulness of geometry in the study of astronomy.	**BJU Press Trove** • Video: Medicine in the Renaissance	**Student Edition** • Discussion questions

Pages	Objectives	Resources	Assessments
8.6 Circular Constructions (2 days)			
416–21	8.6.1 Construct a circle through 3 noncollinear points. 8.6.2 Construct regular polygons inscribed in a circle. 8.6.3 Apply the properties of inscribed and circumscribed circles to construct related figures.	**Activities** • Chapter 8 Construction Skills • Cyclic Quadrilaterals Revisited **BJU Press Trove** • Link: 8.6 Ex. 38–40 Demonstration • PowerPoint presentation: Section 8.6 **AfterSchoolHelp.com** • Circular Constructions	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 416)
8.7 Coordinate Geometry of Circles			
422–27	8.7.1 Determine the standard-form equation of a circle given its center and either its radius or a point on the circle. 8.7.2 Determine the center and radius of a circle given its standard-form equation. 8.7.3 Convert equations of circles to standard form.	**Activities** • Chapter 8 Practice **BJU Press Trove** • PowerPoint presentation: Section 8.7 **AfterSchoolHelp.com** • Coordinate Geometry of Circles	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 422) **Assessments** • Quiz 8D (Sections 8.6–8.7)
Chapter 8 Review (2 days)			
428–31	Review the skills and concepts taught in Chapter 8.	**Teacher Edition** • Appendix A: Vocabulary (Chapter 8) **Activities** • Chapter 8 Terms & Symbols • Cumulative Review 8 **BJU Press Trove** • Game/Enrichment: Chapter 08 Mathardy	**Student Edition** • Chapter 8 Review exercises
Chapter 8 Test			
	Demonstrate mastery of the skills and concepts taught in Chapter 8.		**Assessments** • Chapter 8 Test **BJU Press Trove** • Chapter 8 test bank

Chapter 9: Surface Area & Volume

Pages	Objectives	Resources	Assessments
9.1 Analyzing 3-Dimensional Figures			
434–40	9.1.1 Apply Euler's formula to relate the number of faces, vertices, and edges of a polyhedron. 9.1.2 Sketch cross sections and nets of 3-dimensional figures.	**Activities** • Math History—Plato • Platonic Solids **BJU Press Trove*** • Chart: Three-Dimensional Figures • Chart: Solids • Additional Resource: Section 9.1 Worksheet—Figures from Student Exercises • PowerPoint presentation: Section 9.1 **AfterSchoolHelp.com** • Analyzing 3-Dimensional Figures	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 434)
Technology Corner—Platonic Solids			
441		**BJU Press Trove** • Additional Resources: Nets of Platonic Solids • Link: Tetrahedron Net • Link: Dodecahedron Net • Link: Cube Net • Link: Octahedron Net • Link: Icosahedron Net	**Student Edition** • Exercises
9.2 Surface Areas of Prisms & Cylinders			
442–49	9.2.1 Derive formulas for the surface areas of prisms and cylinders. 9.2.2 Calculate surface areas of prisms and cylinders. 9.2.3 Determine unknown dimensions of prisms and cylinders having known surface areas.	**BJU Press Trove** • Chart: Surface Area • PowerPoint presentation: Section 9.2 **AfterSchoolHelp.com** • Surface Areas of Prisms & Cylinders	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 442) **Assessments** • Quiz 9A (Sections 9.1–9.2)

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Pages	Objectives	Resources	Assessments
9.3 Surface Areas of Pyramids & Cones			
450–58	9.3.1 Derive formulas for the surface areas of pyramids and cones. 9.3.2 Calculate surface areas of pyramids and cones. 9.3.3 Determine unknown dimensions of pyramids and cones having known surface areas. 9.3.4 Explain why architects build a scale model before beginning construction. **BWS** Modeling (explain)	**BJU Press Trove** • Chart: Surface Area • Chart: Solids • PowerPoint presentation: Section 9.3 **AfterSchoolHelp.com** • Surface Areas of Pyramids & Cones	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 450)
9.4 Volumes of Prisms & Cylinders			
459–65	9.4.1 Define the volume of a solid. 9.4.2 Derive formulas for the volumes of prisms and cylinders by applying volume postulates and Cavalieri's Principle. 9.4.3 Calculate volumes of prisms, cylinders, and composite solids. 9.4.4 Determine unknown dimensions of prisms and cylinders having known volumes.	**BJU Press Trove** • Chart: Three-Dimensional Figures • Chart: Volume Formulas • PowerPoint presentation: Section 9.4 **AfterSchoolHelp.com** • Volumes of Prisms & Cylinders	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 459) **Assessments** • Quiz 9B (Sections 9.3–9.4)
Geometry around Us—Engineering			
466	9.GAU.1 Identify examples of geometry in various fields of engineering. 9.GAU.2 Explain the benefits and drawbacks of engineering models.	**BJU Press Trove** • Video: Engineering	**Student Edition** • Discussion questions

Pages	Objectives	Resources	Assessments
9.5 Volumes of Pyramids & Cones			
467–73	9.5.1 Derive formulas for the volumes of pyramids and cones by applying volume postulates and Cavalieri's Principle. 9.5.2 Calculate volumes of pyramids, cones, and composite solids. 9.5.3 Determine unknown dimensions of pyramids and cones having known volumes. 9.5.4 Evaluate the idea that a scale model can tell you whether building a structure is the right thing to do. **BWS** Modeling (evaluate)	**BJU Press Trove** • Chart: More Volume Formulas • Chart: Solids • Additional Resource: Section 9.5 Worksheet—Pyramid & Prism Volumes • PowerPoint presentation: Section 9.5 **AfterSchoolHelp.com** • Volumes of Pyramids & Cones	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 467)
9.6 Surface Area & Volume of Spheres			
474–79	9.6.1 Define terms related to spheres. 9.6.2 Derive formulas for the surface area and volume of spheres. 9.6.3 Calculate the surface area and volume of spheres and composite solids. 9.6.4 Determine unknown dimensions of spheres having known surface areas or volumes.	**Activities** • Chapter 9 Practice—Surface Area & Volume **BJU Press Trove** • PowerPoint presentation: Section 9.6 **AfterSchoolHelp.com** • Surface Area & Volume of Spheres	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 474) **Assessments** • Quiz 9C (Sections 9.5–9.6)
Geometry in History—Another Purpose (Part 3)			
480	9.GIH.1 Identify Galileo's worldview and its effects on his view of the role of mathematics.	**BJU Press Trove** • Video: Galileo and Aristotle	**Student Edition** • Discussion questions
9.7 Geometry of Spheres (2 days)			
481–87	9.7.1 Identify locations by using the geographical coordinate system of latitude and longitude. 9.7.2 Find arc lengths between points on a great circle. 9.7.3 Contrast spherical and Euclidean geometries.	**Teacher Edition** • Appendix F: Implications and Insights **Activities** • Math History—Georg Friedrich Bernhard Riemann • Hyperbolic Geometry **BJU Press Trove** • Video: Latitude and Longitude • PowerPoint presentation: Section 9.7 **AfterSchoolHelp.com** • Geometry of Spheres	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 481)

Pages	Objectives	Resources	Assessments
9.8 Drawing 3-Dimensional Figures			
488–94	9.8.1 Draw isometric and orthographic views of 3-dimensional figures. 9.8.2 Draw figures in 1-point, 2-point, and 3-point perspective.	**Activities** • Math History—Gaspard Monge • Dynamic Geometry Software Investigation 9 **BJU Press Trove** • PowerPoint presentation: Section 9.8	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 488) **Assessments** • Quiz 9D (Sections 9.7–9.8)
Chapter 9 Review			
495–98	Review the skills and concepts taught in Chapter 9.	**Teacher Edition** • Appendix A: Vocabulary (Chapter 9) **Activities** • Chapter 9 Terms & Practice • Cumulative Review 9 **BJU Press Trove** • Game/Enrichment: Chapter 09 Mathardy	**Student Edition** • Chapter 9 Review exercises
Chapter 9 Test			
	Demonstrate mastery of the skills and concepts taught in Chapter 9.		**Assessments** • Chapter 9 Test **BJU Press Trove** • Chapter 9 test bank
Third Quarter Review & Exam (2 days)			
	Review and demonstrate mastery of the skills and concepts taught in Chapters 7–9.		**Assessments** • Exam 3 (Chapters 7–9) **BJU Press Trove** • Chapters 7–9 test banks
STEM Project—Fragile, Pack It Right!			
499	S.2.1 Design a package for ice cream cones by using the engineering design process. S.2.2 Research materials and design for packaging fragile objects. S.2.3 Assemble a package for ice cream cones that protects the cones through a series of tests. S.2.4 Optimize the efficiency of the package by evaluating and modifying the design. S.2.5 Describe the efficiency of the newly designed packages.	**Activities** • STEM—Fragile, Pack It Right! **BJU Press Trove** • Video: Packaging Design: Fragile, Pack It Right!	**Activities** • STEM—Fragile, Pack It Right! project grading rubric

Chapter 10: Transformations & Symmetry

Pages	Objectives	Resources	Assessments
10.1 Reflections			
502–9	10.1.1 Define the reflection of a figure across a line. 10.1.2 Illustrate reflections of a figure. 10.1.3 Determine the coordinates of points reflected across lines in the coordinate plane. 10.1.4 Apply reflections to solve real-world problems.	**Activities** • Transformations in Brief **BJU Press Trove*** • Additional Resource: Section 10.1 Worksheet—Figures from Student Exercises • PowerPoint presentation: Section 10.1 **AfterSchoolHelp.com** • Reflections	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 502)
10.2 Translations			
510–17	10.2.1 Define a translation using a composition of reflections, a vector, or a mapping rule. 10.2.2 Illustrate translations of a figure by a given vector or a composition of reflections. 10.2.3 Determine the coordinates of translated points. 10.2.4 Apply translations to solve real-world problems.	**BJU Press Trove** • Link: Dynamic Geometry Software • Additional Resource: Section 10.2 Worksheet—Figures from Student Exercises • PowerPoint presentation: Section 10.2 **AfterSchoolHelp.com** • Translations	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 510) **Assessments** • Quiz 10A (Sections 10.1–10.2)
Geometry around Us—Video Games			
518	10.GAU.1 Explain how geometric transformations are used in video games. 10.GAU.2 Explain why we are able to use geometric transformations in video game design.	**BJU Press Trove** • Video: Video Games	**Student Edition** • Discussion questions

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Pages	Objectives	Resources	Assessments
10.3 Rotations (2 days)			
519–27	10.3.1 Define a rotation about a point using a composition of reflections or an angle of rotation. 10.3.2 Illustrate rotations about a point as a composition of reflections or an angle of a given magnitude. 10.3.3 Determine the coordinates of points after a rotation. 10.3.4 Apply rotations to solve real-world problems.	**BJU Press Trove** • Additional Resource: Section 10.3 Worksheet—Figures from Student Exercises • PowerPoint presentation: Section 10.3 **AfterSchoolHelp.com** • Rotations	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 519)
10.4 Isometries			
528–35	10.4.1 Identify transformations that are isometries. 10.4.2 State the preserved characteristics in any isometry. 10.4.3 Illustrate glide reflections of a figure. 10.4.4 Describe an isometry that maps a figure to another congruent figure. 10.4.5 Apply isometries to solve real-world problems.	**Activities** • Dynamic Geometry Software Investigation 10 • Isometries **BJU Press Trove** • Additional Resource: Section 10.4 Worksheet—Figures from Student Exercises • PowerPoint presentation: Section 10.4 **AfterSchoolHelp.com** • Isometries	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 528) **Assessments** • Quiz 10B (Sections 10.3–10.4)
10.5 Symmetry			
536–42	10.5.1 Identify examples of line, rotational, and point symmetry in 2-dimensional figures. 10.5.2 Identify examples of plane and rotational symmetry in 3-dimensional objects. 10.5.3 Identify points, lines, planes, and angles of symmetry in geometric figures and real-world objects. 10.5.4 Formulate a biblical view of why symmetry is evident in creation. **BWS** Design (formulate)	**BJU Press Trove** • PowerPoint presentation: Section 10.5 **AfterSchoolHelp.com** • Symmetry	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 536)

Pages	Objectives	Resources	Assessments
10.6 Dilations			
543–49	10.6.1 Define a dilation. 10.6.2 Use the scale factor to classify dilations and determine measures in dilated figures. 10.6.3 Illustrate dilations of an image by a given scale factor. 10.6.4 Determine coordinates of points after a dilation. 10.6.5 State the preserved characteristics in any dilation.	**Activities** • Inverse Transformations • Math History—Felix Klein • Möbius Strip & Klein Bottle • Topological Transformations **BJU Press Trove** • Additional Resource: Section 10.6 Worksheet—Figures from Student Exercises • PowerPoint presentation: Section 10.6 **AfterSchoolHelp.com** • Dilations	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 543) **Assessments** • Quiz 10C (Sections 10.5–10.6)
Geometry in History—Computer Graphics (Part 1)			
550	10.GIH.1 Analyze how geometry software helped mathematicians in the early development of computer hardware and software.	**BJU Press Trove** • Video: Ivan Sutherland	**Student Edition** • Discussion questions
10.7 Tessellations			
551–56	10.7.1 Define a tessellation. 10.7.2 Identify regular, semi-regular, and irregular tessellations. 10.7.3 Create tessellations with and without technology. 10.7.4 Create a tessellation that gives praise to God for His wisdom and beauty in creation. **BWS** Design (apply)	**BJU Press Trove** • Link: Dynamic Geometry Software • Link: 10.7 Additional Example 6 • PowerPoint presentation: Section 10.7	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 551) **Assessments** • Quiz 10D (Section 10.7)
Technology Corner—Drawing Tessellations			
557			**Student Edition** • Exercises

Pages	Objectives	Resources	Assessments
Chapter 10 Review (2 days)			
558–63	Review the skills and concepts taught in Chapter 10.	**Teacher Edition** • Appendix A: Vocabulary (Chapter 10) **Activities** • Chapter 10 Terms, Symbols & Practice • Cumulative Review 10 **BJU Press Trove** • Additional Resource: Chapter 10 Review Worksheet—Figures from Student Exercises • Game/Enrichment: Chapter 10 Mathardy	**Student Edition** • Chapter 10 Review exercises
Chapter 10 Test			
	Demonstrate mastery of the skills and concepts taught in Chapter 10.		**Assessments** • Chapter 10 Test **BJU Press Trove** • Chapter 10 test bank

Chapter 11: Similarity

Pages	Objectives	Resources	Assessments
11.1 Similar Figures			
566–73	11.1.1 Solve proportions. 11.1.2 Identify similar figures. 11.1.3 Find unknown lengths and angle measures in similar polygons. 11.1.4 Use proportions to solve real-world problems.	**Activities** • Math History—David Hilbert **BJU Press Trove*** • Chart: Similar and Congruent • Link: Dynamic Geometry Software • PowerPoint presentation: Section 11.1 **AfterSchoolHelp.com** • Similar Figures	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 566)
11.2 Proving Similarity in Triangles			
574–81	11.2.1 Prove that given triangles are similar by using the AA Similarity Postulate and the SSS and SAS Similarity Theorems. 11.2.2 Find unknown side lengths and angle measures in similar triangles. 11.2.3 Prove that triangle similarity is an equivalence relation. 11.2.4 Apply similar triangles to solve real-world problems. 11.2.5 Explain the importance of proportions in solving real-world problems. **BWS** Modeling (explain)	**Activities** • Dynamic Geometry Software Investigation 11A **BJU Press Trove** • Link: AA Similarity Postulate Demonstration • Link: Dynamic Geometry Software • PowerPoint presentation: Section 11.2 **AfterSchoolHelp.com** • Proving Similarity in Triangles	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 574) **Assessments** • Quiz 11A (Sections 11.1–11.2)
11.3 Similarity within Right Triangles			
582–87	11.3.1 Prove the Right Triangle Altitude Theorem and its corollaries. 11.3.2 Calculate the geometric mean of 2 numbers. 11.3.3 Find lengths of the altitude to the hypotenuse, the resulting segments of the hypotenuse, and sides of a right triangle.	**Activities** • Dynamic Geometry Software Investigation 11B **BJU Press Trove** • Chart: Similar Right Triangles • Link: Theorem 11.3.1 Demonstration • PowerPoint presentation: Section 11.3 **AfterSchoolHelp.com** • Similarity within Right Triangles	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 582)

*Digital resources for homeschool users are available on Homeschool Hub.

Pages	Objectives	Resources	Assessments
Technology Corner—Investigating Parallel Partitions			
588			**Student Edition** • Exercises
11.4 Proportional Partitions			
589–96	11.4.1 Prove the Side-Splitter Theorem, its converse, its corollary, and the Triangle Angle Bisector Theorem. 11.4.2 Find lengths of segments created by parallel partitions and a triangle's angle bisector.	**BJU Press Trove** • PowerPoint presentation: Section 11.4 **AfterSchoolHelp.com** • Proportional Partitions	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 589) **Assessments** • Quiz 11B (Sections 11.3–11.4)
Geometry in History—Computer Graphics (Part 2)			
597	11.GIH.1 Identify the role of dominion in the advancement of computer science.	**BJU Press Trove** • Video: Computer Science in the 1970s	**Student Edition** • Discussion questions
11.5 Lengths, Areas & Volumes of Similar Figures			
598–604	11.5.1 Prove that the lengths of the sides, altitudes, medians, and angle bisectors in similar triangles are proportional. 11.5.2 Prove the relationships of lengths in similar figures to their perimeters, areas, and volumes. 11.5.3 Calculate segment lengths, perimeters, areas, and volumes of similar figures.	**Activities** • Dynamic Geometry Software Investigation 11C **BJU Press Trove** • Link: Dynamic Geometry Software • PowerPoint presentation: Section 11.5 **AfterSchoolHelp.com** • Lengths, Areas & Volumes of Similar Figures	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 598)
11.6 Circles & Proportions			
605–11	11.6.1 Prove theorems relating the lengths of segments determined by secants and tangents to circles. 11.6.2 Calculate lengths of segments determined by secants and tangents to circles.	**BJU Press Trove** • Link: Theorem 11.6.3 Demonstration • PowerPoint presentation: Section 11.6 **AfterSchoolHelp.com** • Circles & Proportions	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 605) **Assessments** • Quiz 11C (Sections 11.5–11.6)
Geometry around Us—Art			
612	11.GAU.1 Explain how truth can be expressed using geometry in art. 11.GAU.2 Identify specific ways artistic talent can be used to the glory of God.	**BJU Press Trove** • Video: Art • Link: Museum & Gallery	**Student Edition** • Discussion questions

Pages	Objectives	Resources	Assessments
11.7 The Golden Ratio			
613–19	11.7.1 Define the golden ratio and related figures. 11.7.2 Use Fibonacci sequences to approximate the golden ratio. 11.7.3 Identify instances of the golden ratio in natural and architectural designs. 11.7.4 Apply the ability to recognize and model the golden ratio in nature to praise God for His wisdom. **BWS** Modeling (apply)	**Activities** • Dynamic Geometry Software Investigation 11D • Chapter 11 Practice **BJU Press Trove** • Video: Golden Ratio • Link: Dynamic Geometry Software • PowerPoint presentation: Section 11.7	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 613) **Assessments** • Quiz 11D (Section 11.7)
Chapter 11 Review (2 days)			
620–23	Review the skills and concepts taught in Chapter 11.	**Teacher Edition** • Appendix A: Vocabulary (Chapter 11) **Activities** • Cumulative Review 11 **BJU Press Trove** • Game/Enrichment: Chapter 11 Mathardy	**Student Edition** • Chapter 11 Review exercises
Chapter 11 Test			
	Demonstrate mastery of the skills and concepts taught in Chapter 11.		**Assessments** • Chapter 11 Test **BJU Press Trove** • Chapter 11 test bank

Chapter 12: Introduction to Trigonometry

Pages	Objectives	Resources	Assessments
12.1 Trigonometric Ratios			
626–31	12.1.1 Define the 3 basic trigonometric ratios. 12.1.2 Find the sine, cosine, and tangent ratios within a given right triangle. 12.1.3 Determine the exact sine, cosine, and tangent ratios for 30°, 45°, and 60° angles. 12.1.4 Find the trigonometric ratios of other acute angles by using technology.	**Activities** • Math History—The Development of Trigonometry • Dynamic Geometry Software Investigation 12 **BJU Press Trove*** • PowerPoint presentation: Section 12.1 **AfterSchoolHelp.com** • Trigonometric Ratios	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 626)
12.2 Solving Right Triangles (2 days)			
632–38	12.2.1 Find angles having a given sine, cosine, or tangent ratio by using technology. 12.2.2 Solve right triangles by using trigonometric ratios. 12.2.3 Calculate measures in real-world problems by applying trigonometric ratios. 12.2.4 Explain the importance of definitions when using trigonometry to solve real-world problems. **BWS** Reasoning (explain)	**BJU Press Trove** • Additional Resource: Section 12.2 Worksheet—Bell Ringer • PowerPoint presentation: Section 12.2 **AfterSchoolHelp.com** • Solving Right Triangles	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 632) **Assessments** • Quiz 12A (Sections 12.1–12.2)
Geometry around Us—Space Exploration			
639	12.GAU.1 Analyze astronauts' quotations for evidence of their worldviews.	**BJU Press Trove** • Video: Space Exploration	**Student Edition** • Discussion questions
12.3 Area			
640–45	12.3.1 Determine the area of a regular polygon by applying the relationships between its sides, radius, and apothem. 12.3.2 Determine the area of a triangle by applying the SAS Area Theorem or Heron's formula.	**Activities** • Chapter 12A Practice—Sections 12.1–12.3 **BJU Press Trove** • PowerPoint presentation: Section 12.3 **AfterSchoolHelp.com** • Area	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 640)

*Digital resources for homeschool users are available on Homeschool Hub.

Pages	Objectives	Resources	Assessments
12.4 Vectors			
646–52	12.4.1 Describe characteristics of vectors. 12.4.2 Express vectors in component form and by magnitude and direction. 12.4.3 Perform vector operations using vector components and coordinate geometry. 12.4.4 Solve real-world problems involving vector quantities.	**BJU Press Trove** • PowerPoint presentation: Section 12.4 **AfterSchoolHelp.com** • Vectors	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 646) **Assessments** • Quiz 12B (Sections 12.3–12.4)
Technology Corner—Discovering Trigonometric Identities			
653			**Student Edition** • Exercises
12.5 Trigonometric Identities			
654–58	12.5.1 Define the 3 reciprocal trigonometric ratios. 12.5.2 Prove trigonometric identities by applying the Pythagorean Identity and quotient identities. 12.5.3 Write a deductive proof that applies a general biblical principle to a specific, personal situation. **BWS** Reasoning (apply)	**BJU Press Trove** • PowerPoint presentation: Section 12.5 **AfterSchoolHelp.com** • Trigonometric Identities	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 654)
12.6 Law of Cosines & Law of Sines			
659–64	12.6.1 Apply the Law of Cosines to solve oblique triangles when given SSS or SAS measures. 12.6.2 Apply the Law of Sines to solve oblique triangles when given AAS or ASA measures. 12.6.3 Solve real-world problems by using the Law of Cosines and the Law of Sines.	**Activities** • Chapter 12B Practice—Section 12.6 **BJU Press Trove** • PowerPoint presentation: Section 12.6 **AfterSchoolHelp.com** • Law of Cosines & Law of Sines	**Student Edition** • Skill Checks • Exercises **Teacher Edition** • Bell ringer (p. 659) **Assessments** • Quiz 12C (Sections 12.5–12.6)
Geometry in History—Computer Graphics (Part 3)			
665	12.GIH.1 Identify worldviews apparent in the historical narrative. 12.GIH.2 Analyze worldviews apparent in the historical narrative.	**BJU Press Trove** • Video: Artificial Intelligence	**Student Edition** • Discussion questions

Pages	Objectives	Resources	Assessments
Chapter 12 Review (2 days)			
666–69	Review the skills and concepts taught in Chapter 12.	**Teacher Edition** • Appendix A: Vocabulary (Chapter 12) **Activities** • Chapter 12 Terms & Practice • Cumulative Review 12 **BJU Press Trove** • Game/Enrichment: Chapter 12 Mathardy	**Student Edition** • Chapter 12 Review exercises
Chapter 12 Test			
	Demonstrate mastery of the skills and concepts taught in Chapter 12.		**Assessments** • Chapter 12 Test **BJU Press Trove** • Chapter 12 test bank
Fourth Quarter Review & Exam (4 days)			
	Review and demonstrate mastery of the skills and concepts taught in Chapters 10–12.		**Assessments** • Exam 4 (Chapters 10–12) **BJU Press Trove** • Chapters 10–12 test banks