

**2010 Mathematics Textbooks and Instructional Materials Committee Member
Correlation to the 2009 Mathematics Standards of Learning and Curriculum Framework – Geometry**

Text/Instructional Material Title: Geometry

Publisher: CORD Communications, Inc.

| Section I. Correlation with the Mathematics 2009 SOL and Curriculum Framework | Rating | | |
|---|----------|---------|-------------|
| | Adequate | Limited | No Evidence |
| G.1 | ✓ | | |
| G.2 | ✓ | | |
| G.3 | ✓ | | |
| G.4 | ✓ | | |
| G.5 | ✓ | | |
| G.6 | ✓ | | |
| G.7 | ✓ | | |
| G.8 | ✓ | | |
| G.9 | ✓ | | |
| G.10 | ✓ | | |
| G.11 | ✓ | | |
| G.12 | ✓ | | |
| G.13 | ✓ | | |
| G.14 | ✓ | | |

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| Section II. Additional Criteria: Instructional Planning and Support | Rating | | |
|--|-----------------|----------------|--------------------|
| | Adequate | Limited | No Evidence |
| 1. Materials emphasize the use of effective instructional practices and learning theory. | ✓ | | |
| a. Students are guided through critical thinking and problem-solving approaches. | ✓ | | |
| b. Concepts are introduced through concrete experiences that use manipulatives and other technologies. | ✓ | | |
| c. Multiple opportunities are provided for students to develop and apply concepts through the use of calculators, computers, and other technologies. | ✓ | | |
| d. Students use the language of mathematics including specialized vocabulary and symbols. | ✓ | | |
| e. Students use a variety of representations (graphical, numerical, symbolic, verbal, and physical) to connect mathematical concepts. | ✓ | | |
| 2. The mathematics content is significant and accurate. | ✓ | | |
| a. Materials are presented in an organized, logical manner which represents the current thinking on how students learn mathematics. | ✓ | | |
| b. Materials are organized appropriately within and among units of study. | ✓ | | |
| c. Format design includes titles, subheadings, and appropriate cross-referencing for ease of use. | ✓ | | |
| d. Writing style, length of sentences, vocabulary, graphics, and illustrations are appropriate. | ✓ | | |
| e. Level of abstraction is appropriate, and practical/real-life examples, including careers, are provided. | ✓ | | |
| f. Sufficient applications are provided to promote depth of application. | ✓ | | |
| 3. Materials present content in an accurate, unbiased manner. | ✓ | | |

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| Mathematics Standard of Learning | Rating Scale | | |
|---|--|----------------|--------------------|
| | Please indicate the rating for each by placing an X in the appropriate cell. | | |
| | Adequate | Limited | No Evidence |
| G.1 The student will construct and judge the validity of a logical argument consisting of a set of premises and a conclusion. This will include | | | |
| a) identifying the converse, inverse, and contrapositive of a conditional statement; | ✓ | | |
| b) translating a short verbal argument into symbolic form; | ✓ | | |
| c) using Venn diagrams to represent set relationships; and | ✓ | | |
| d) using deductive reasoning. | ✓ | | |
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|---|--------------|---------|-------------|
| | Adequate | Limited | No Evidence |
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| G.2 The student will use the relationships between angles formed by two lines cut by a transversal to | | | |
| a) determine whether two lines are parallel; | ✓ | | |
| b) verify the parallelism, using algebraic and coordinate methods as well as deductive proofs; and | ✓ | | |
| c) solve real-world problems involving angles formed when parallel lines are cut by a transversal. | ✓ | | |
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| | Adequate | Limited | No Evidence |
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| G.3 The student will use pictorial representations, including computer software, constructions, and coordinate methods, to solve problems involving symmetry and transformation. This will include | | | |
| a) investigating and using formulas for finding distance, midpoint, and slope; | ✓ | | |
| b) applying slope to verify and determine whether lines are parallel or perpendicular; | ✓ | | |
| c) investigating symmetry and determining whether a figure is symmetric with respect to a line or a point; and | ✓ | | |
| d) determining whether a figure has been translated, reflected, rotated, or dilated, using coordinate methods. | ✓ | | |
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| | Adequate | Limited | No Evidence |
| G.4 The student will construct and justify the constructions of | | | |
| a) a line segment congruent to a given line segment; | ✓ | | |
| b) the perpendicular bisector of a line segment; | ✓ | | |
| c) a perpendicular to a given line from a point not on the line; | ✓ | | |
| d) a perpendicular to a given line at a given point on the line; | ✓ | | |
| e) the bisector of a given angle; | ✓ | | |
| f) an angle congruent to a given angle; and | ✓ | | |
| g) a line parallel to a given line through a point not on the given line. | | | ✓ |
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| | Adequate | Limited | No Evidence |
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| G.5 The student, given information concerning the lengths of sides and/or measures of angles in triangles, will | | | |
| a) order the sides by length, given the angle measures; | ✓ | | |
| b) order the angles by degree measure, given the side lengths; | ✓ | | |
| c) determine whether a triangle exists; and | ✓ | | |
| d) determine the range in which the length of the third side must lie. | ✓ | | |
| These concepts will be considered in the context of real-world situations. | ✓ | | |
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| | Adequate | Limited | No Evidence |
| G.6 The student, given information in the form of a figure or statement, will prove two triangles are congruent, using algebraic and coordinate methods as well as deductive proofs. | ✓ | | |
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| | Adequate | Limited | No Evidence |
| G.7 The student, given information in the form of a figure or statement, will prove two triangles are similar, using algebraic and coordinate methods as well as deductive proofs. | ✓ | | |
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| | Please indicate the rating for each by placing an X in the appropriate cell. | | |
| | Adequate | Limited | No Evidence |
| G.8 The student will solve real-world problems involving right triangles by using the Pythagorean Theorem and its converse, properties of special right triangles, and right triangle trigonometry. | ✓ | | |
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| | Adequate | Limited | No Evidence |
| G.9 The student will verify characteristics of quadrilaterals and use properties of quadrilaterals to solve real-world problems. | ✓ | | |
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| | Adequate | Limited | No Evidence |
| G.10 The student will solve real-world problems involving angles of polygons. | ✓ | | |
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| | Adequate | Limited | No Evidence |
| G.11 The student will use angles, arcs, chords, tangents, and secants to | | | |
| a) investigate, verify, and apply properties of circles; | ✓ | | |
| b) solve real-world problems involving properties of circles; and | ✓ | | |
| c) find arc lengths and areas of sectors in circles. | ✓ | | |
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| | Adequate | Limited | No Evidence |
| G.12 The student, given the coordinates of the center of a circle and a point on the circle, will write the equation of the circle. | ✓ | | |
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| | Adequate | Limited | No Evidence |
| G.13 The student will use formulas for surface area and volume of three-dimensional objects to solve real-world problems. | ✓ | | |
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| | Adequate | Limited | No Evidence |
| G.14 The student will use similar geometric objects in two- or three-dimensions to | | | |
| a) compare ratios between side lengths, perimeters, areas, and volumes; | ✓ | | |
| b) determine how changes in one or more dimensions of an object affect area and/or volume of the object; | ✓ | | |
| c) determine how changes in area and/or volume of an object affect one or more dimensions of the object; and | ✓ | | |
| d) solve real-world problems about similar geometric objects. | ✓ | | |
| Comments: Provide comments to support “limited” or “no evidence” ratings. | | | |