2017-2018 WCSD Geometry/Formal Geometry Program Evaluation Rubric

Evaluator Number

12

Program Number

2

Name of Text

Geometry

Publisher

McGraw-Hill

Rate This Text Overall

- [x] **High**
- [ ] **Mid**
- [ ] **Low**

Focus: Evaluate the table of contents and any pacing guides. Do not stop there; also evaluate units, chapters, and lessons. (Both student and teacher materials)

- ⇨ Basic Terms and Constructions (G.CO.1, G.CO.12)
- ⇨ The Distance Formula (G.GPE.7)
- ⇨ The Midpoint Formula (G.GPE.7)
- ⇨ Angle Measure
- ⇨ Angles (G.CO.1, G.CO.12)
- ⇨ Inductive Reasoning and Conjecture
- ⇨ Conditional Statements
- ⇨ Deductive Reasoning
- ⇨ Postulates
- ⇨ Algebraic
- ⇨ Segment Addition Postulate
- ⇨ Proving Angle Relationships
- ⇨ Parallel and Perpendicular Lines (G.CO.1, G.CO.12)
- ⇨ Partitioning a Segment (G.GPE.6)
- ⇨ Slope and Parallel Lines (G.GPE.5)
- ⇨ Slope and Perpendicular Lines (G.GPE.5)
- ⇨ Proofs About Line Segments and Angles (G.CO.9)
- ⇨ Proofs About Parallel and Perpendicular Lines (G.CO.9)
- ⇨ Perpendiculars and Distance (G.CO.1)
- ⇨ Transformations and Rigid Motions (G.CO.2)
- ⇨ Reflections (G.CO.2, G.CO.4, **G.CO.5,** G.CO.6)
- ⇨ Translations (G.CO.2, G.CO.4, **G.CO.5**, G.CO.6)
- ⇨ Rotations (G.CO.2, G.CO.4, **G.CO.5**, G.CO.6)
- ⇨ Compositions of transformations (G.CO.6)
- ⇨ Introduce basic dilations
- ⇨ Congruence and Triangles (**G.CO.5**, G.CO.6, G.CO.7)
- ⇨ Developing Congruence Criteria (G.CO.7, G.CO.8)
- ⇨ Using Congruence Criteria in Proofs (**G.SRT.5**)
- ⇨ The Triangle Sum Theorem (**G.CO.10**)
- ⇨ The Isosceles Triangle Theorem (**G.CO.10**)
- ⇨ Congruence (Proofs involving triangle congruence, corresponding parts of triangles) (**G.CO.5,** G.CO.6)
- ⇨ Angle Bisectors (G.CO.2, G.CO.9, **G.C.3**) – (construct Angle Bisectors of triangle, Incenter and Circle)
- ⇨ Perpendicular Bisectors (G.CO.2, G.CO.9, **G.C.3**) – (construct Perpendicular Bisectors of Triangle, Circumcenter & Circle)

- Medians of a Triangle (G.CO.10, G.GPE.4) – (no need for centroid and orthocenter)
- Indirect Proofs
- Triangle Inequality
- Inequalities in Two Triangles
- Ratios, Proportions, and Similarity (**G.SRT.2**, G.C.1)
- Similarity and Triangles (**G.SRT.2**, G.SRT.3)
- Solving Problems Using Similarity (**G.SRT.5**)
- Properties of Dilations - positive and negative dilations (G.SRT.1, G.CO.2)
- Drawing Dilations (G.CO.2)
- A line parallel to one side of a triangle divides the other two proportionally, and conversely (G.SRT.4, **G.SRT.5**)
- Midsegment of a Triangle (G.CO.10)
- Geometric Mean - (**G.SRT.5**) (derive formulas-no shortcuts)
- Proving the Pythagorean Theorem (G.SRT.4, **G.SRT.5**)
- Similarity (proofs throughout unit)
- Understand Triangle Similarity lead to definitions of the Trig Ratios (**G.SRT.6, G.SRT.7**)
- Through the use of similar triangles derive the Special Right Triangles (G.SRT.4, **G.SRT.5**)
- Solving Right Triangles (**G.SRT.8**)
- The Law of Sines and Cosines (G.SRT.10+, G.SRT.11+)
- Symmetry (**G.CO.3**)
- Sides and Angles of Parallelograms (**G.CO.3**, **G.CO.11**)
- Diagonals of Parallelograms (**G.CO.11**)
- Criteria for Parallelograms -Parallelograms (proofs throughout unit) (**G.CO.11**)
- Special Parallelograms (**G.CO.11**, G.CO.13, **G.SRT.5**)
- Kites and Trapezoids
- Derive area of the equilateral triangle (inscribed in a circle) (G.CO.13)
- Derive areas of polygons (inscribed in a circle) – solve for apothem (**G.SRT.8,** G.CO.13)
  (Use trig ratios and the Pythagorean Theorem to solve right triangles in applied problems)
- Coordinate Proofs - Distance, midpoint, slope, polygons, area (**G.CO.10**, G.GPE.4, G.GPE.7)
- Give an informal argument for the formulas for the circumference and area of a circle. (G.GMD.1)
- Central Angles and Inscribed Angles (**G.C.2**)
- Prove properties of angles for a quadrilateral inscribed in a circle. (**G.C.3**)
- Segments in circles (**G.C.2,** G.C.4+)
- Inscribed and Circumscribed Circles of triangles (Examine the relationships in the circle) (G.C.3)
- Circumference and Arc Length (G.CO.1, G.C.5)
- Area of Circles and Sectors (G.C.5)
- Visualizing Three-Dimensional Figures (G.GMD.4)
- Surface Area (use nets and find surface area of figures with regular polygonal bases) (7.G.6, **G.SRT.8**)
- Volume of Prisms and Cylinders (7.G.6, 8.G.9, **G.GMD.1, G.GMD.3**)
- Volumes of Pyramids and Cones (8.G.9, **G.GMD.1, G.GMD.3**)
- Volume of Spheres (8.G.9, G.GMD.2+, **G.GMD.3**)
- Solving Design Problems (**G.GMD.3**, G.MG.3)
- Probability and Set Theory (S.CP.1)
- Mutually Exclusive and Overlapping Events (**S.CP.7**)
- Understand the conditional probability of A given B (**S.CP.3**)
- Construct and interpret two-way frequency tables of data (**S.CP.4**)
- Independent Events (**S.CP.2, S.CP.3, S.CP.4,** S.CP.5)

100% of the standards are in the textbook.
Formal

Lengths of segments formed by secant and tangent lines not present. Set theory not addressed.

- ○ Less than 25%
- ○ Less than 85% but greater than 50%
- ● Less than 100% but greater than 85%
- ○ 100%

100% of the standards are in the textbook.
Regular

See above

- ○ Less than 25%
- ○ Less than 85% but greater than 50%
- ● Less than 100% but greater than 85%
- ○ 100%

Student work involves significant work with applications/modeling and problems that use algebra skills.
Formal

There is not a significant number of application/modeling problems in the homework sections, however, the algebra required does require significant work. Furthermore, it has performance tasks, and real world problems, and extra practice that include more application/ modeling problems.

- ○ Does not occur
- ○ Sometimes occurs
- ● Frequently occurs
- ○ Consistently occurs

Student work involves significant work with applications/modeling and problems that use algebra skills.
Regular

- ○ Does not occur
- ○ Sometimes occurs
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- ○ Consistently occurs

There are problems at a level of sophistication appropriate to high school (beyond mere review of previous course standards) that involve the application of knowledge and skills from grades 6-8.
Formal

The algebra required throughout the course requires previous skills learned in grades 6-8.

- ○ Does not occur
- ○ Sometimes occurs
- ● Frequently occurs
- ○ Consistently occurs

There are problems at a level of sophistication appropriate to high school (beyond mere review of previous course standards) that involve the application of knowledge and skills from grades 6-8.
Regular

See above.

- ○ Does not occur
- ○ Sometimes occurs
- ● Frequently occurs
- ○ Consistently occurs

Assessment: Do assessment tasks reveal whether student comprehend at all levels of rigor?
Formal

The majority of the problems focus on procedural skill and fluency. There are limited application problems, as well as problems that ask students to justify or explain their understanding, reasoning, and/or process.

- ○ Does not occur
- ● Sometimes occurs
- ○ Frequently occurs
- ○ Consistently occurs

Assessment: Do assessment tasks reveal whether student comprehend at all levels of rigor?
Regular

See above.

- ○ Does not occur
- ● Sometimes occurs
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Rigor: Do the materials feature high-quality conceptual problems and conceptual discussion questions? Do they provide opportunities for multiple representations?
Formal

There are very few high-quality conceptual problems throughout the individual homework sections, however, the preparing for assessment questions, performance tasks, and extended practices do include many high quality conceptual problems. But most problems throughout the text do not provide opportunities for multiple representation, nor do they have great potential to foster good discussion.

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Rigor: Do the materials feature high-quality conceptual problems and conceptual discussion questions? Do they provide opportunities for multiple representations?
Regular

See above.

- ○ Does not occur
- ○ Sometimes occurs
- ● Frequently occurs
- ○ Consistently occurs

Rigor: Are the materials designed so that students attain the fluency and procedural skills required? Evaluate the lessons, daily routines, and homework assignments for evidence in the development of fluency and procedural skill supported by conceptual understanding.
Formal

The presentation of information is clear and sufficient opportunities for the development of fluency and procedural skill are given.

- ○ Does not occur
- ○ Sometimes occurs
- ○ Frequently occurs
- ● Consistently occurs

Rigor: Are the materials designed so that students attain the fluency and procedural skills required? Evaluate the lessons, daily routines, and homework assignments for evidence in the development of fluency and procedural skill supported by conceptual understanding.
Regular

See above.

- ○ Does not occur
- ○ Sometimes occurs
- ○ Frequently occurs
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Rigor: Are the materials designed so that teachers and students spend sufficient time working with applications, including single- and multi-step contextual problems to afford student opportunities for practice, and engage them in problem solving?
Formal

There are many single- and multi-step problems, but not a huge emphasis on application and contextual problems.

- ( ) Does not occur
- ( ) Sometimes occurs
- (•) Frequently occurs
- ( ) Consistently occurs

Rigor: Are the materials designed so that teachers and students spend sufficient time working with applications, including single- and multi-step contextual problems to afford student opportunities for practice, and engage them in problem solving?
Regular

The overall quality of the problems is pretty good, but again, there isn't as much emphasis upon application.

- ( ) Does not occur
- ( ) Sometimes occurs
- (•) Frequently occurs
- ( ) Consistently occurs

Coherence: Are the materials coherent in their content, do the standards build on each other in a way that is beneficial to the instruction, student practice and assessments?
Formal

- ( ) Does not occur
- ( ) Sometimes occurs
- ( ) Frequently occurs
- (•) Consistently occurs

Coherence: Are the materials coherent in their content, do the standards build on each other in a way that is beneficial to the instruction, student practice and assessments?
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Mathematical Practices: Are the mathematical practices addressed in such a way to benefit instruction and expectation of students?
Formal

Although few of the problems are highlighted as mathematical practice problems, the practices can be seen throughout the text. Problems require students to use a variety of mathematical practices.

- ○ Does not occur
- ○ Sometimes occurs
- ● Frequently occurs
- ○ Consistently occurs

Mathematical Practices: Are the mathematical practices addressed in such a way to benefit instruction and expectation of students?
Regular

See above.

- ○ Does not occur
- ○ Sometimes occurs
- ● Frequently occurs
- ○ Consistently occurs

Additional Comments (overall impression of the text)

Most of the standards are addressed in this textbook. The flow and scope fit well with our curriculum and topics that we teach. However, the assessments and supplemental materials aren't as extensive. There aren't as many application and justification problems, so outside resources might need to be consulted. There aren't a lot of discussion questions, nor opportunities for discovery within the text.
However, the links to Geometer's Sketchpad and suggestions on how to incorporate them into the lessons are quite useful.
This textbook has a lot of review material at the end of each chapter, which is a nice feature.