2017-2018 WCSD Geometry/Formal Geometry Program Evaluation Rubric

Evaluator Number

4

Program Number

6

Name of Text

Big ideas math geometry

Publisher

Big ideas

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

Did not see finding area of composite figures in the textbook. There is only one reference to geometric probability. Only one or two examples of "find the probability of landing on the shaded region".

- ○ 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

Same as 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

Really liked the exercises. There is a mixture of procedural and application with the levels in between. At the end of every chapter there is a performance task the students can complete. Did not see as many algebraic questions. Did not see any solve for x by factoring. More conceptual than algebraic.

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

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

Same as above. Has more basic level for regular geo but leaves room for students to grow and go further at the regular level

- ○ 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.
Formal

Yes, the level of questioning ranges from low or intermediate with some higher questions. The algebraic questions are very first semester algebra. Not sure they would be challenging enough for the formal geometry students.
Really liked the performance tasks and the exploratory questions in the chapters. The questions are more conceptual rather than algebraic

- ○ 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

Yes. See explanation above.

Also, I liked that there were many proofs throughout the book.

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

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

The general assessments do not meet the level of rigor needed in formal geometry. However, the alternative assessments for each chapter and the performance tasks are really good for making the students go further. They looked liked they would help prepare students for the EOC's.

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

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

See explanation above

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

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

Yes, from the exploration activities to the homework exercise to the end of chapter review questions. Let's the students discover the theorems and postulates rather than just be given the theorems. Most of the exploratory questioning is related to "what did you notice...how can you sum up...etc." allows students to put the theorems in their own words.

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

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

Yes, for the formal level and the regular level. Has enough to push the regular level. See above for more explanation.

- ○ 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

Yes. The students start with an exploration, then examples, then procedural questions, then they get progressively harder. At the end of each chapter there is a performance task. Each section has a page summing up what they learned. The student journal is like guided notes for each section. The chapter resources are basically more practice problems. However, the assessment book has more performance tasks and alternative assessments that are project based.

- ○ 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

Yes see above explanation

- ○ 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?
Formal

Yes, the exploratory activities at the beginning of each section and the critical thinking questions in the exercises. The quiz and test prep/ test in the textbook are good for extra questions. The alternative assessments and performance tasks located in the assessment book I think would help for more student centered learning.

- ○ 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

Same as above

- ○ 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

Yes, I liked the layout of the chapters and sections. Seemed to flow fluidly. To prove new theorems they used past theorems that the students had already been taught

- ○ 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?
Regular

Same as above

- ○ 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?
Formal

Yes, the mathematical practices are referred too. They are located on the back of the textbook. In the textbook they are not clearly stating " you are using MP 6 attend to precision" however, it is pretty clear during the different problems and exercises which MP is the most prevalent for that question.

- ○ 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

Same as above

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

Additional Comments (overall impression of the text)

I really liked the exploration activities before every section. I also liked how they are more conceptual based. Ex (explain what you need to know in order to prove...). Really liked the assessment book with the alternative assessments and performance tasks. Think those are great for the geo kids to make them go further. Student journal may or may not be useful for regular geo. Not going to be super useful for formal. Resource book is just more practice problems which doesn't hurt.
The one thing I did not like is I thought the algebra they tied into the geometry is pretty basic. Did not see any quadratics or fractional x's (.5x, .33x, etc.). Not sure if that will hinder the preparation for the EOC's and algebra 2 the next year.