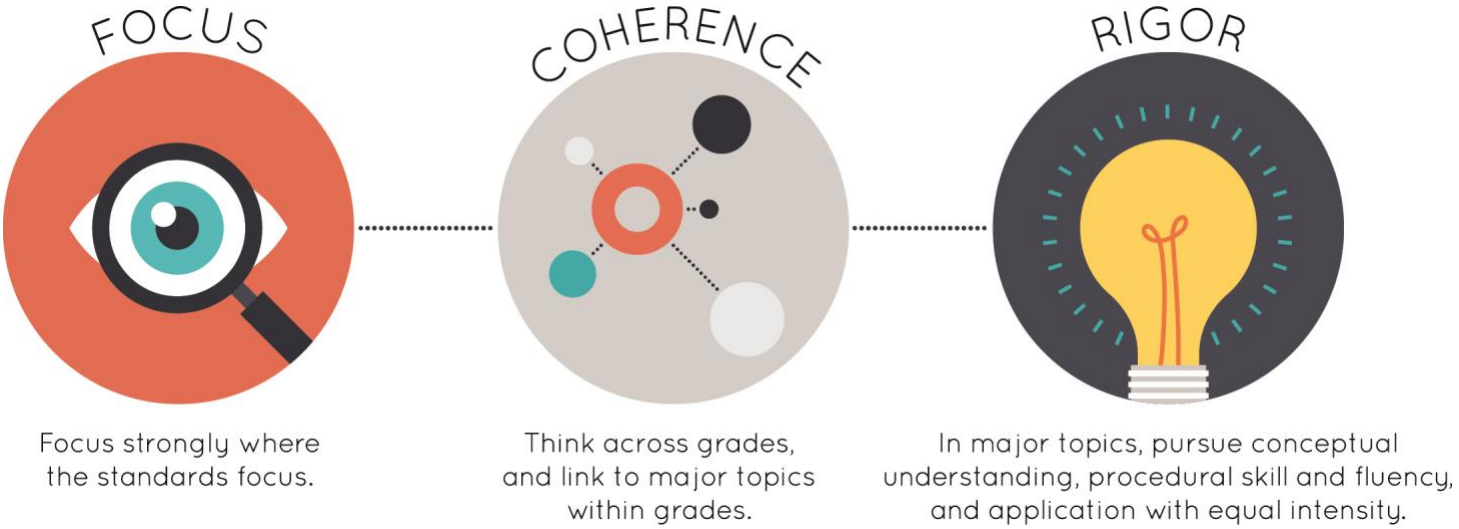
DEPARTMENT of EDUCATION
Louisiana Believes

Instructional Materials Evaluation Tool for Alignment in Mathematics Grades K – 12 (IMET)

FULL CURRICULUM
Instructional Materials

Strong mathematics instruction contains the following elements:



Title: **Geometry Common Core**

Grade/Course: **Geometry**

Publisher: **geometrycommoncore.com**

Copyright: **2016**

Overall Rating: **Tier I, Exemplifies quality**

Tier I, Tier II, Tier III Elements of this review:

STRONG	WEAK
1. Focus on Major Work (Non-Negotiable)	
2. Consistent, Coherent Content (Non-Negotiable)	
3. Rigor and Balance (Non-Negotiable)	
4. Focus Coh. via Practice Std (Non-Negotiable)	
5. Alignment Criteria for Stnds. for Math Content	
6. Alignment Criteria for Stnds. for Math Practice	
7. Indicators of Quality	

To evaluate each set of submitted materials for alignment with the Standards, begin by reviewing the indicators listed in Column 2 for the non-negotiable criteria in Section I. If there is a "Yes" for all indicators in Column 2 for Section I, then the materials receive a "Yes" in Column 1. If there is a "No" for any indicator in Column 2 for Section I, then the materials receive a "No" in Column 1.

For Section II, begin by reviewing the required indicators in Column 2 for each criterion. If there is a "Yes" for all required indicators in Column 2, then the materials receive a "Yes" in Column 1. If there is a "No" for any required indicators in Column 2, then the materials receive a "No" in Column 1.

Tier 1 ratings receive a "Yes" in Column 1 for Criteria 1 – 7.
Tier 2 ratings receive a "Yes" in Column 1 for all non-negotiable criteria (Criteria 1 – 4), but at least one "No" in Column 1 for the remaining criteria.
Tier 3 ratings receive a "No" in Column 1 for at least one of the non-negotiable criteria.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
SECTION I: NON-NEGOTIABLE CRITERIA: Submissions must meet all of the non-negotiable criteria in order for the review to continue.			
Non-Negotiable **1. FOCUS ON MAJOR WORK[1]:** Students and teachers using the materials as designed devote the large majority[2] of time to the major work of the grade/course. ☒ Yes ☐ No	**REQUIRED** **1a)** Materials should devote the large majority of class time to the major work of each grade/course. Each grade/course must meet the criterion; do not average across two or more grades.	**Yes**	According to the publisher's pacing guide, 23 of the 35 weeks (66%) are devoted to major work of Geometry. While many of the 23 weeks include supporting work, the focus is moving students towards the major work of Geometry; thus, those weeks are included in the calculation of time spent on major work.
	REQUIRED **1b)** In any one grade/course, instructional materials should spend minimal time on content outside of the appropriate grade/course. Previous grade/course content should be used only for scaffolding instruction. In assessment materials there are no chapter tests, unit tests, or other such assessment components that make students or teachers responsible for any topics before the grade/course in which they are introduced in the Standards.	**Yes**	Some time is spent on standards that are not part of the Louisiana State Standards for Mathematics (LSSM) for Geometry. Items from these standards are included in the assessment materials for these lessons but are identified as optional for the teacher. Specifically, Unit 2, Quiz 3, Questions 18 - 23 cover G-SRT.D.9 and G-SRT.D.10. These standards are not found in the LSSM for any grade level/course and, as such, are clearly marked as optional.
Non-Negotiable **2. CONSISTENT, COHERENT CONTENT** Each course's instructional materials are coherent and consistent with the content in the Standards. ☒ Yes ☐ No	**REQUIRED** **2a)** Materials connect supporting content to major content in meaningful ways so that focus and coherence are enhanced throughout the year.	**Yes**	Supporting content is connected to major content in meaningful ways. The materials begin with a transformational approach starting with Unit 1-Congruence and building from there. Unit 5 is all supporting content and covers all GM: G-C standards. The Objectives document states that GM: G-C.A.1 is connected to Unit 2 and similarity. The questions in the worksheet requires students to use dilations (GM: G-SRT.1) in order to prove two circles are similar. The materials also use transformations to map the center of one circle onto another circle. It should be noted that these connections are not clearly visible in the pacing guides, overview, teacher materials, and/or the student materials. For example, Unit 5, GM: G-C.A.1 (supporting standard), is connected to GM: G-SRT.1 (major standard), but

[1] For more on the major work of the grade, see Focus by Grade Level.
[2] The materials should devote at least 65% and up to approximately 85% of class time to the major work of the grade with Grades K–2 nearer the upper end of that range, i.e., 85%.

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			there is not a correlation document to make those connections between supporting and major content evident.
	REQUIRED **2b)** Materials include problems and activities that serve to connect two or more clusters in a domain, or two or more domains in a grade/course, in cases where these connections are natural and important.	**Yes**	Materials do serve to connect two or more clusters in a domain and connect two or more domains in Geometry. Every unit is broken down by domain and has all of the standards for that domain included; this inherently makes clusters in each domain connected. For example, Unit 4 - Coordinate includes all of the standards in GM: G-GPE domain. An example of domains being connected is found in Unit 3 - Volume, GM: G-GMD.A.1 Worksheet 2 includes problems in which students have to know special right triangles, Pythagorean Theorem, and/or trigonometric ratios in order to solve them (GM: G-SRT.C.6 and GM: G-SRT.C.8). The same is true in GM: G-C.A.2 Worksheet 5 where students are required to use special right triangles and Pythagorean Theorem to solve. Another example is found in Unit 4 - Coordinate. GM: G-GPE.B.5 notes uses triangle similarity (GM: G-SRT.B.4) to illustrate that the slopes of parallel lines are equal. It should be noted that these connections are not clearly visible in the pacing guides, overview, teacher materials, and/or student notes. Initially, it appears that each standard is taught in isolation when looking at the introductory materials for each unit.
Non-Negotiable **3. RIGOR AND BALANCE:** Each grade's instructional materials reflect the balances in the Standards and help students meet the Standards' rigorous expectations, by helping students develop conceptual understanding, procedural skill and fluency, and application.	**REQUIRED** **3a)** ***Attention to Conceptual Understanding:*** Materials develop conceptual understanding of key mathematical concepts, especially where called for explicitly in specific content standards or cluster headings by amply featuring high-quality conceptual problems and discussion questions.	**Yes**	Materials develop conceptual understanding of key mathematical concepts. GM: G-CO.C.11 is a major content standard that requires conceptual understanding. There are 5 worksheets for this standard that include opportunities for students to demonstrate conceptual understanding. For example, on Activity #2, students must explain what things they noticed that helped them determine if a shape was in fact a specific quadrilateral. Additionally, students have to explain how they know angles are supplementary, not just indicate which are. Another example occurs with GM: GSRT.A.1 which also calls for conceptual understanding. In worksheet #1 students have to

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☒ Yes ☐ No			make conjectures about relationships between a pre-image and a dilated image as well as indicate what they notice and what they can infer from this evidence. In worksheet #2 students are required to determine if a dilation represents a reduction or an enlargement, and they must explain their answer. Lastly, GM: G-C.A.1, Student Notes Worksheet 1 allows for students to develop conceptual understanding that all circles are similar by having them map the center of one circle onto the center of another circle to prove they are similar.
	REQUIRED **3b)** ***Attention to Procedural Skill and Fluency:*** The materials are designed so that students attain the fluencies and procedural skills required by the Standards. Materials give attention throughout the year to individual standards that set an expectation of procedural skill and fluency. In grades K-6, materials provide repeated practice toward attainment of fluency standards. In higher grades, sufficient practice with algebraic operations is provided in order for students to have the foundation for later work in algebra.	**Yes**	The materials are designed so that students have ample opportunity to practice procedural skills required by the standards in Geometry. Each standard in Unit 4 requires procedural skill as a component of rigor. These standards are GM: G-GPE.A.1, GM: G-GPE.B.4, GM: G-GPE.B.5, GM: G-GPE.B.6, GM: G-GPE.B.7. The worksheets and assessments provided for these corresponding standards have procedural skill required. For example, GM: G.GPE.B.6 states, "Determine the ratio of the directed line segment when partitioned by point P." Another example is found in G.GPE.B.4 Assessment, "Determine the location of the point A (2,0) in relation to the circle." In Unit 2, GM: G-SRT.B.4 requires the use of procedural skill by proving and applying theorems about triangles. The student notes for the lesson give students 9 guided practice problems to practice applying triangle theorems. The lesson worksheets give 3 problems where students are required to prove theorems, and 23 more problems to practice application of triangle theorems. A last example occurs with GM: G-GPE.B.4, which calls for fluency in using coordinates to prove theorems algebraically. In addition to the examples and guided practice opportunities provided in the student notes of the lesson for this standard in Unit 4, the lesson's worksheet #5 provides 8 multi-part problems that allow students sufficient practice to develop the required skills necessary.
	REQUIRED	**Yes**	Materials provide students with opportunities to

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	3c) *Attention to Applications:* Materials are designed so that teachers and students spend sufficient time working with engaging applications, including ample practice with single-step and multi-step contextual problems, including non-routine problems, that develop the mathematics of the grade/course, afford opportunities for practice, and engage students in problem solving. The problems attend thoroughly to those places in the content Standards where expectations for multi-step and real-world problems are explicit.		practice the application of geometrical concepts in real-world scenarios. Major modeling standards, GM: G-MG.A.1, GM: G-MG.A.2, and GM: G-MG.A.3, are included in the curriculum; although, the publisher states the following: "These materials are not designed to be taught as lessons. These materials provide you with meaningful modeling questions to integrate throughout the year." As an example, the publisher indicated that modeling Standard GM: G-MG.A.3 would be seen in worksheets in Unit 2 (GM: G-C) as the modeling problems of circles. While the curriculum does provide students opportunities to engage with modeling/application, it should be noted that this is not a strength of the program and some supplementing is to be expected.
	REQUIRED **3d) *Balance:*** The three aspects of rigor are not always treated together and are not always treated separately.	**Yes**	The three aspects of rigor are balanced throughout the curriculum. For example, GM: S-CP.A.4 requires students to "construct and interpret two-way tables...as a sample space to decide if events are independent and to approximate conditional probabilities." Throughout the materials related to the given standard, students do each of the conceptual, procedural, and application portions of the standard. Another example is with GM: G-C.A.1 where students conceptually develop the idea that all circles are similar.
Non-Negotiable **4. FOCUS AND COHERENCE VIA PRACTICE STANDARDS:** Materials promote focus and coherence by connecting practice standards with content that is emphasized in the Standards. ☒ Yes ☐ No	**REQUIRED** **4a)** Materials address the practice standards in such a way as to enrich the content standards of the grade/course; practices strengthen the focus on the content standards instead of detracting from them, in both teacher and student materials.	**Yes**	The materials address the practice standards in a way as to enrich the content standards. The Mathematical Practices are evident throughout the lessons. The lessons have activities that require students to use MP.1, make sense of problems and persevere in solving them. For example, GM: GCO.B.8 activity, students are given criteria for making triangles and using them to see if the triangles are congruent, thus proving triangle congruence.
SECTION II: ADDITIONAL ALIGNMENT CRITERIA AND INDICATORS OF QUALITY			

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
Additional Criterion **5. ALIGNMENT CRITERIA FOR STANDARDS FOR MATHEMATICAL CONTENT:** Materials foster focus and coherence by linking topics (across domains and clusters) and across grades/courses by staying consistent with the progressions in the Standards. ☒ Yes ☐ No	**REQUIRED** **5a)** Materials provide all students extensive work with course-level problems. Review of material from previous grades and courses is clearly identified as such to the teacher, and teachers and students can see what their specific responsibility is for the current year.	**Yes**	Extensive work with course level material is present throughout the curriculum as specific grade-level expectations for the teacher and students are clearly identified. Each unit includes Teacher and Student Notes, Worksheets, Videos, Quizzes, an additional Question Bank, Technology Activities, and an Assessment to build and enhance student learning. On the Overview found in the Teacher Notes, there is a Past & Future Connections portion so that teachers are aware of the prior knowledge needed to assist students in gaining the full understanding of the concepts for the upcoming materials.
	REQUIRED **5b)** Materials relate course-level concepts explicitly to prior knowledge from earlier grades and courses. The materials are designed so that prior knowledge becomes reorganized and extended to accommodate the new knowledge.	**Yes**	Throughout the materials, the reorganization of prior knowledge from previous grades is explicitly related to course-level concepts in a manner that extends and accommodates new knowledge. For example, the Teacher and Student Notes for Standard GM: G.CO.A.2, found in Unit 1, begins with a "Quick Algebra Review" that emphasizes function notation (A1: F-IF.A.2). This previous concept is extended as students use function notation to determine the pre-image and image of points along a coordinate plane (GM: G.CO.A.2). Each unit of study is broken down into specific standard focus topics. Each of these sections provides a "Past and Future Connections" section to guide concept development relative to the standard of focus. The Past & Future Connections portion on the Teacher Notes for Standard GM: G.GMD.A.1, found in Unit 3, states that "the student needs to have had experience with perimeter and area from earlier years." The Student Notes for this section begins with students finding the perimeter of a square, rectangle, triangle, regular pentagon, and circle.
	5c) Materials include learning objectives that are visibly shaped by LSSM cluster headings and/or standards.	**Yes**	Learning objectives align directly to LSSM cluster headings. Each Unit features the LSSM defined objective, an Interpretation of the Objective, and Essential Skills. For example, Unit 4, Coordinate Geometry, provides Teacher Notes aligned to G.GPE.B.7, "Use coordinates to compute perimeters of polygons and areas of triangles and rectangles,

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			e.g., using the distance formula." The Essential Skills obtained from this lesson are stated as follows: "1. The student will be able to determine the perimeter and area of various shapes on the coordinate grid. 2. The student will be able to use a variety of techniques to determine the area of a shape." The second Essential Skill for LSSM GM-G.SRT.C.8 in Unit 3 aligns with the standard as "the student will be able to solve trigonometry and Pythagorean Theorem problems based on written descriptions." Additionally, the first Essential Skills for LSSM GM: S-CP.B.7 aligns with the standard as "the student will be able to calculate probabilities using the Addition Rule of probability."
	5d) Materials preserve the focus, coherence, and rigor of the Standards even when targeting specific objectives.	**Yes**	Materials preserve the focus, coherence, and rigor of the LSSM. This is evident through the flow of materials, including the Teacher and Student Notes, Worksheets, Videos, Quizzes, an additional Question Bank, Technology Activities, and an Assessment.
Additional Criterion **6. ALIGNMENT CRITERIA FOR STANDARDS FOR MATHEMATICAL PRACTICE:** Aligned materials make meaningful and purposeful connections that enhance the focus and coherence of the Standards rather than detract from the focus and include additional content/skills to teach which are not included in the Standards. ☒ Yes ☐ No	**REQUIRED** **6a)** Materials attend to the full meaning of each practice standard. Over the course of any given year of instruction, each mathematical practice standard is meaningfully present in the form of assignments, activities, or problems that stimulate students to develop the habits of mind described in the practice standard. Alignments to practice standards are accurate.	**Yes**	Materials attend to the full meaning of each practice standard. Under the Organize Tab on the website, there is a Teacher Methodology section. Here, each of the eight Mathematical Practice Standards are found and explained. On GM: G-CO.B.8 worksheet # 2, found in Unit 1, students must prove triangle similarity using a two-way proof (MP.1, MP.6, and MP.7). On the Unit 5 GM: G-C.A.3 Assessment, students must "explain why if the triangle is obtuse, that the circumcenter is outside the triangle" (MP. 3).
	REQUIRED **6b)** Materials provide sufficient opportunities for students to construct viable arguments and critique the arguments of others concerning key grade-level mathematics that is detailed in the content standards (cf. MP.3). Materials engage students in problem solving as a form of argument, attending thoroughly to places in the Standards that explicitly set expectations for multi-step problems.	**Yes**	Materials provide sufficient opportunities for students to construct viable arguments and critique the arguments of others concerning key grade-level mathematics, especially in the problem-solving of multi-step problems. Question 7 on the Unit 1 GM-G.CO.B.8 Assessment, students must analyze the two given triangles in order to determine and explain which student which student has provided the proper triangle similarity theorem is correct. Question 7 on the Unit 6 GM:S-CP.A.2 Assessment requires students to analyze a teacher question in order to critique a student response with an

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			explanation. In Quiz 1 provided for Unit 1, students are asked to critique the reasoning and strategy used by a student in Questions 8 and 9. Questions 35 and 39 in Unit 1, Quiz 2 also addresses this practice standard by requiring students to determine if statements are correct and construct viable arguments to defend their answer.
	6c) There are teacher-directed materials that explain the role of the practice standards in the classroom and in students' mathematical development.	**Yes**	After our initial review where we found this information to be lacking, the vendor created a new document for every lesson. The new METHODS documents now provide the teacher with explicit instruction on the role of the practice standards within each lesson. This new tool will help teachers recognize opportunities to develop the math practices in his/her students in a manner that also enhances the instruction of the content standards.
	6d) Materials explicitly attend to the specialized language of mathematics.	**Yes**	Materials explicitly attend to the specialized language of mathematics. Under the Resources Tab on the course webpage, there is a Geometry Glossary that provides teachers and students with visual and verbal descriptions for each geometric term in the curriculum.
Additional Criterion **7. INDICATORS OF QUALITY:** Quality materials should exhibit the indicators outlined here in order to give teachers and students the tools they need to meet the expectations of the Standards. ☒ Yes ☐ No	**REQUIRED** **7a)** There is variety in what students produce. For example, students are asked to produce answers and solutions, but also, in a grade-appropriate way, arguments and explanations, diagrams, mathematical models, etc.	**Yes**	There is variety in what students produce. Throughout the materials, there are opportunities for students to solve mathematical problems, critique arguments of others and defend their own reasoning, create models, etc. Course materials aligned to GM: G-GMD.B.4 provide students the opportunity to identify 3-dimensional figures given a cross section, sketch cross sections of 3-dimensional figures, determine rotational cross sections, and connect the rotational cross sections to volumes of 3-dimensional solids by interpreting key information. Question e on Worksheet #6 GM: G-GMD.A.3, found in Unit 3, requires students to determine the volume of the air in a cylindrical can with two tennis balls inside of it. Question 2 on Worksheet #6 GM: S-CP.A.1 requires students to create a Venn diagram given a die rolling event; then, students must determine the probability of specific events.
	REQUIRED	**Yes**	After our initial review where we found the teacher

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	7b) There are separate teacher materials that support and reward teacher study including, but not limited to: discussion of the mathematics of the units and the mathematical point of each lesson as it relates to the organizing concepts of the unit, discussion on student ways of thinking and anticipating a variety of student responses, guidance on lesson flow, guidance on questions that prompt students thinking, and discussion of desired mathematical behaviors being elicited among students.		materials to be lacking, the vendor created a new document for every lesson. The new METHODS documents now reward the teacher for spending additional time studying/planning. In these documents teachers will find valuable information around the objectives, the mathematical point and overall progressions of the mathematical point, desired student outcomes, student thinking and potential misconceptions, and more. Studying the METHODS documents will help teachers have a better understanding of the mathematics as well as a better understanding on how to enact the lessons in the best possible manner, leading to increased student outcomes.
	7c) Support for English Language Learners and other special populations is thoughtful and helps those students meet the same standards as all other students. The language in which problems are posed is carefully considered.	**Yes**	Support for English Language Learners and other special populations is thoughtful and helps those students meet the same standards as all other students. Under the Resources Tab, there is a Geometry Glossary that provides students with visual aids to assist where language gaps may exist. It is important to note that there is no specific support provided to teachers on how to explicitly close the grammatical gaps.
	7d) The underlying design of the materials distinguishes between problems and exercises. In essence, the difference is that in solving problems, students learn new mathematics, whereas in working exercises, students apply what they have already learned to build mastery. Each problem or exercise has a purpose.	**Yes**	The underlying design of the materials distinguishes between problems and exercises. Each Unit provides Teacher Notes to assist in the explanations and presentations of the concepts as students follow with the Student Notes. Student notes provide direct and guided instruction, followed by a similar problem of the newly discussed content through a section labeled “NYTS (Now You Try Some)”.
	7e) Lessons are appropriately structured and scaffolded to support student mastery.	**Yes**	Lessons are appropriately structured and scaffolded to support student mastery. Each Unit includes Teacher and Student Notes, Worksheets, Videos, Quizzes, an additional Question Bank, Technology Activities, and an Assessment. In the Teacher and Student Notes, there are problems that bridge previous knowledge to new information through conceptual, procedural, and application skills. The Worksheets, Videos, Question Bank, and Technology Activities provide students with many opportunities

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			to hone their newly learned concepts. The Quizzes and Assessment serves as a summative closure to determine student mastery. Practice problems are offered through a series of worksheets and GeoGebra lessons.
	7f) Materials support the uses of technology as called for in the Standards.	**Yes**	Materials address and support the use of technology as called for in the Standards. LSSM GM: G-CO.A.2 states that students are to "represent transformations in the plane using, e.g., transparencies, tracing paper, or geometry software." The materials feature a Technology Activities bank in Unit 1 to provide students with ample opportunities to use GeoGebra to explore symmetry, reflections, rotations, and the congruence of transformations. LSSM GM: G-CO.A.5 states the following: "Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software." Unit 1 materials provided allow for utilization of a series of GeoGebra activities aligned specifically to developing understanding of rotations, reflections, and translations on the coordinate plane.

FINAL EVALUATION

Tier 1 ratings receive a "Yes" in Column 1 for Criteria 1 – 7.

Tier 2 ratings receive a "Yes" in Column 1 for all non-negotiable criteria (Criteria 1 – 4), but at least one "No" in Column 1 for the remaining criteria.

Tier 3 ratings receive a "No" in Column 1 for at least one of the non-negotiable criteria.

Compile the results for Sections I and II to make a final decision for the material under review.

Section	Criteria	Yes/No	Final Justification/Comments
I: Non-Negotiables	1. Focus on Major Work	**Yes**	Major content is covered in 66% of the curriculum. Materials spend minimal time on content outside of the curriculum, and, when included, assessment items that are beyond the scope are clearly noted as optional.
	2. Consistent, Coherent Content	**Yes**	Materials are connect supporting content to major content in meaningful ways. Also, domains are connected as well as clusters in a domain.
	3. Rigor and Balance	**Yes**	The three aspects of rigor are not always treated together or separately within the Geometry instructional materials provided.

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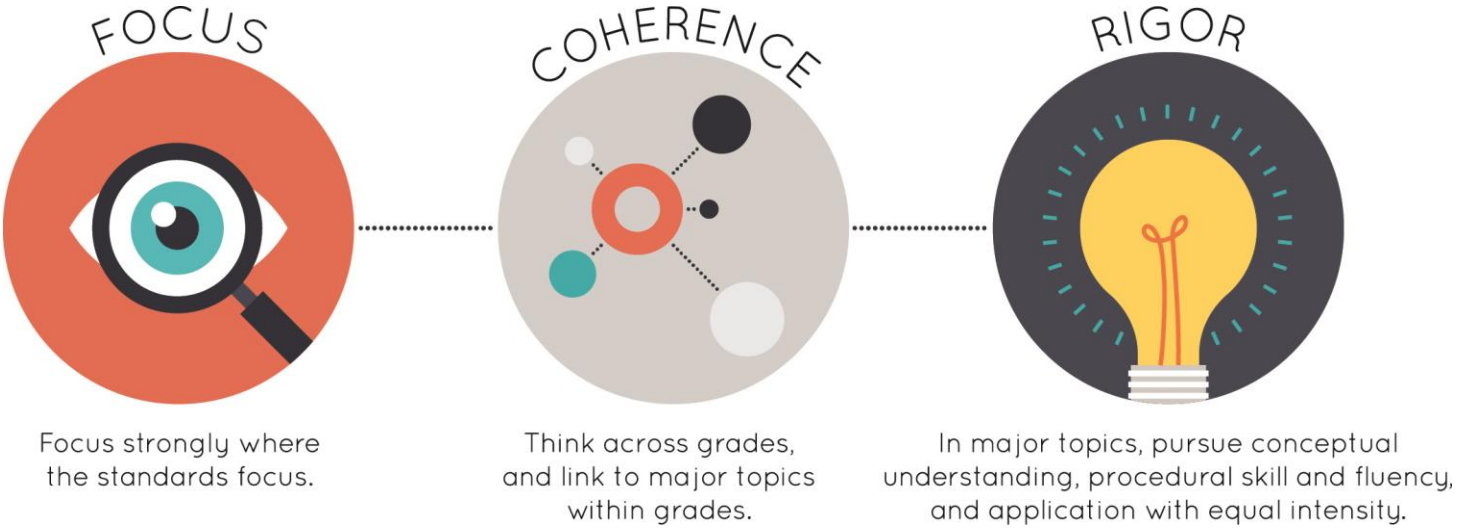
	4. Focus and Coherence via Practice Standards	**Yes**	The materials address the practice standards in a way as to enrich the content standards. The Mathematical Practices are evident throughout the lessons.
II: Additional Alignment Criteria and Indicators of Quality	5. Alignment Criteria for Standards for Mathematical Content	**Yes**	Materials foster focus and coherence by staying consistent with the progression within the Standards throughout the curriculum.
	6. Alignment Criteria for Standards for Mathematical Practice	**Yes**	Materials attend to the full meaning of each practice standard and provide sufficient opportunities for students to construct viable arguments and critique the arguments of others concerning key grade-level mathematics.
	7. Indicators of Quality	**Yes**	There exists separate and useful teacher materials necessary to meet the expectations of the LSSM including supplemental videos and Teacher Notes relative to the content of each lesson. Additionally, there now exists information that will aid teachers in preparing for the delivery of each lesson.
FINAL DECISION FOR THIS MATERIAL: **Tier I, Exemplifies quality**			

Appendix I.

Publisher Response

Strong mathematics instruction contains the following elements:



Title: **Geometry Common Core**

Grade/Course: **Geometry**

Publisher: **geometrycommoncore.com**

Copyright: **2016**

Overall Rating: **Tier II, Approaching quality**

Tier I, Tier II, Tier III Elements of this review:

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SECTION I: NON-NEGOTIABLE CRITERIA: Submissions must meet all of the non-negotiable criteria in order for the review to continue.				
Non-Negotiable **1. FOCUS ON MAJOR WORK[1]:** Students and teachers using the materials as designed devote the large majority[2] of time to the major work of the grade/course. ☒ Yes ☐ No	**REQUIRED** **1a)** Materials should devote the large majority of class time to the major work of each grade/course. Each grade/course must meet the criterion; do not average across two or more grades.	**Yes**	According to the publisher's pacing guide, 23 of the 35 weeks (66%) are devoted to major work of Geometry. While many of the 23 weeks include supporting work, the focus is moving students towards the major work of Geometry; thus, those weeks are included in the calculation of time spent on major work.	
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[2] The materials should devote at least 65% and up to approximately 85% of class time to the major work of the grade with Grades K–2 nearer the upper end of that range, i.e., 85%.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES	PUBLISHER RESPONSE
			there is not a correlation document to make those connections between supporting and major content evident.	
	REQUIRED **2b)** Materials include problems and activities that serve to connect two or more clusters in a domain, or two or more domains in a grade/course, in cases where these connections are natural and important.	**Yes**	Materials do serve to connect two or more clusters in a domain and connect two or more domains in Geometry. Every unit is broken down by domain and has all of the standards for that domain included; this inherently makes clusters in each domain connected. For example, Unit 4 - Coordinate includes all of the standards in GM: G-GPE domain. An example of domains being connected is found in Unit 3 - Volume, GM: G-GMD.A.1 Worksheet 2 includes problems in which students have to know special right triangles, Pythagorean Theorem, and/or trigonometric ratios in order to solve them (GM: G-SRT.C.6 and GM: G-SRT.C.8). The same is true in GM: G-C.A.2 Worksheet 5 where students are required to use special right triangles and Pythagorean Theorem to solve. Another example is found in Unit 4 - Coordinate. GM: G-GPE.B.5 notes uses triangle similarity (GM: G-SRT.B.4) to illustrate that the slopes of parallel lines are equal. It should be noted that these connections are not clearly visible in the pacing guides, overview, teacher materials, and/or student notes. Initially, it appears that each standard is taught in isolation when looking at the introductory materials for each unit.	
Non-Negotiable **3. RIGOR AND BALANCE:** Each grade's instructional materials reflect the balances in the Standards and help students meet the Standards' rigorous expectations, by helping students develop conceptual understanding, procedural skill and fluency, and application.	**REQUIRED** **3a)** ***Attention to Conceptual Understanding:*** Materials develop conceptual understanding of key mathematical concepts, especially where called for explicitly in specific content standards or cluster headings by amply featuring high-quality conceptual problems and discussion questions.	**Yes**	Materials develop conceptual understanding of key mathematical concepts. GM: G-CO.C.11 is a major content standard that requires conceptual understanding. There are 5 worksheets for this standard that include opportunities for students to demonstrate conceptual understanding. For example, on Activity #2, students must explain what things they noticed that helped them determine if a shape was in fact a specific quadrilateral. Additionally, students have to explain how they know angles are supplementary, not just indicate which are. Another example occurs with GM: GSRT.A.1 which also calls for conceptual understanding. In worksheet #1 students have to	

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES	PUBLISHER RESPONSE
☒ Yes ☐ No			make conjectures about relationships between a pre-image and a dilated image as well as indicate what they notice and what they can infer from this evidence. In worksheet #2 students are required to determine if a dilation represents a reduction or an enlargement, and they must explain their answer. Lastly, GM: G-C.A.1, Student Notes Worksheet 1 allows for students to develop conceptual understanding that all circles are similar by having them map the center of one circle onto the center of another circle to prove they are similar.	
	REQUIRED **3b) *Attention to Procedural Skill and Fluency:*** The materials are designed so that students attain the fluencies and procedural skills required by the Standards. Materials give attention throughout the year to individual standards that set an expectation of procedural skill and fluency. In grades K-6, materials provide repeated practice toward attainment of fluency standards. In higher grades, sufficient practice with algebraic operations is provided in order for students to have the foundation for later work in algebra.	**Yes**	The materials are designed so that students have ample opportunity to practice procedural skills required by the standards in Geometry. Each standard in Unit 4 requires procedural skill as a component of rigor. These standards are GM: G-GPE.A.1, GM: G-GPE.B.4, GM: G-GPE.B.5, GM: G-GPE.B.6, GM: G-GPE.B.7. The worksheets and assessments provided for these corresponding standards have procedural skill required. For example, GM: G.GPE.B.6 states, “Determine the ratio of the directed line segment when partitioned by point P.” Another example is found in G.GPE.B.4 Assessment, “Determine the location of the point A (2,0) in relation to the circle.” In Unit 2, GM: G-SRT.B.4 requires the use of procedural skill by proving and applying theorems about triangles. The student notes for the lesson give students 9 guided practice problems to practice applying triangle theorems. The lesson worksheets give 3 problems where students are required to prove theorems, and 23 more problems to practice application of triangle theorems. A last example occurs with GM: G-GPE.B.4, which calls for fluency in using coordinates to prove theorems algebraically. In addition to the examples and guided practice opportunities provided in the student notes of the lesson for this standard in Unit 4, the lesson’s worksheet #5 provides 8 multi-part problems that allow students sufficient practice to develop the required skills necessary.	
	REQUIRED	**Yes**	Materials do not provide students with	

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	3c) *Attention to Applications:* Materials are designed so that teachers and students spend sufficient time working with engaging applications, including ample practice with single-step and multi-step contextual problems, including non-routine problems, that develop the mathematics of the grade/course, afford opportunities for practice, and engage students in problem solving. The problems attend thoroughly to those places in the content Standards where expectations for multi-step and real-world problems are explicit.		opportunities to practice the application of geometrical concepts in real-world scenarios. Major modeling standards, GM: G-MG.A.1, GM: G-MG.A.2, and GM: G-MG.A.3, are not emphasized in the curriculum. The publisher states the following: "These materials are not designed to be taught as lessons. These materials provide you with meaningful modeling questions to integrate throughout the year." As an example, the publisher indicated that modeling Standard GM: G-MG.A.3 would be seen in worksheets in Unit 2 (GM: G-C) as the modeling problems of circles. While the curriculum does provide students opportunities to engage with modeling/application, it should be noted that this is not a strength of the program and some supplementing is to be expected.	
	REQUIRED **3d) *Balance:*** The three aspects of rigor are not always treated together and are not always treated separately.	**Yes**	The three aspects of rigor are balanced throughout the curriculum. For example, GM: S-CP.A.4 requires students to "construct and interpret two-way tables...as a sample space to decide if events are independent and to approximate conditional probabilities." Throughout the materials related to the given standard, students do each of the conceptual, procedural, and application portions of the standard. Another example is with GM: G-C.A.1 where students conceptually develop the idea that all circles are similar.	
Non-Negotiable **4. FOCUS AND COHERENCE VIA PRACTICE STANDARDS:** Materials promote focus and coherence by connecting practice standards with content that is emphasized in the Standards. ☒ Yes ☐ No	**REQUIRED** **4a)** Materials address the practice standards in such a way as to enrich the content standards of the grade/course; practices strengthen the focus on the content standards instead of detracting from them, in both teacher and student materials.	**Yes**	The materials address the practice standards in a way as to enrich the content standards. The Mathematical Practices are evident throughout the lessons. The lessons have activities that require students to use MP.1, make sense of problems and persevere in solving them. For example, GM: GCO.B.8 activity, students are given criteria for making triangles and using them to see if the triangles are congruent, thus proving triangle congruence.	
SECTION II: ADDITIONAL ALIGNMENT CRITERIA AND INDICATORS OF QUALITY				

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES	PUBLISHER RESPONSE
Additional Criterion **5. ALIGNMENT CRITERIA FOR STANDARDS FOR MATHEMATICAL CONTENT:** Materials foster focus and coherence by linking topics (across domains and clusters) and across grades/courses by staying consistent with the progressions in the Standards. ☒ Yes ☐ No	**REQUIRED** **5a)** Materials provide all students extensive work with course-level problems. Review of material from previous grades and courses is clearly identified as such to the teacher, and teachers and students can see what their specific responsibility is for the current year.	**Yes**	Extensive work with course level material is present throughout the curriculum as specific grade-level expectations for the teacher and students are clearly identified. Each unit includes Teacher and Student Notes, Worksheets, Videos, Quizzes, an additional Question Bank, Technology Activities, and an Assessment to build and enhance student learning. On the Overview found in the Teacher Notes, there is a Past & Future Connections portion so that teachers are aware of the prior knowledge needed to assist students in gaining the full understanding of the concepts for the upcoming materials.	
	REQUIRED **5b)** Materials relate course-level concepts explicitly to prior knowledge from earlier grades and courses. The materials are designed so that prior knowledge becomes reorganized and extended to accommodate the new knowledge.	**Yes**	Throughout the materials, the reorganization of prior knowledge from previous grades is explicitly related to course-level concepts in a manner that extends and accommodates new knowledge. For example, the Teacher and Student Notes for Standard GM: G.CO.A.2, found in Unit 1, begins with a "Quick Algebra Review" that emphasizes function notation (A1: F-IF.A.2). This previous concept is extended as students use function notation to determine the pre-image and image of points along a coordinate plane (GM: G.CO.A.2). Each unit of study is broken down into specific standard focus topics. Each of these sections provides a "Past and Future Connections" section to guide concept development relative to the standard of focus. The Past & Future Connections portion on the Teacher Notes for Standard GM: G.GMD.A.1, found in Unit 3, states that "the student needs to have had experience with perimeter and area from earlier years." The Student Notes for this section begins with students finding the perimeter of a square, rectangle, triangle, regular pentagon, and circle.	
	5c) Materials include learning objectives that are visibly shaped by LSSM cluster headings and/or standards.	**Yes**	Learning objectives align directly to LSSM cluster headings. Each Unit features the LSSM defined objective, an Interpretation of the Objective, and Essential Skills. For example, Unit 4, Coordinate Geometry, provides Teacher Notes aligned to G.GPE.B.7, "Use coordinates to compute perimeters of polygons and areas of triangles and rectangles,	

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			e.g., using the distance formula." The Essential Skills obtained from this lesson are stated as follows: "1. The student will be able to determine the perimeter and area of various shapes on the coordinate grid. 2. The student will be able to use a variety of techniques to determine the area of a shape." The second Essential Skill for LSSM GM-G.SRT.C.8 in Unit 3 aligns with the standard as "the student will be able to solve trigonometry and Pythagorean Theorem problems based on written descriptions." Additionally, the first Essential Skills for LSSM GM: S-CP.B.7 aligns with the standard as "the student will be able to calculate probabilities using the Addition Rule of probability."	
	5d) Materials preserve the focus, coherence, and rigor of the Standards even when targeting specific objectives.	**Yes**	Materials preserve the focus, coherence, and rigor of the LSSM. This is evident through the flow of materials, including the Teacher and Student Notes, Worksheets, Videos, Quizzes, an additional Question Bank, Technology Activities, and an Assessment.	
Additional Criterion **6. ALIGNMENT CRITERIA FOR STANDARDS FOR MATHEMATICAL PRACTICE:** Aligned materials make meaningful and purposeful connections that enhance the focus and coherence of the Standards rather than detract from the focus and include additional content/skills to teach which are not included in the Standards. ☒ Yes ☐ No	**REQUIRED** **6a)** Materials attend to the full meaning of each practice standard. Over the course of any given year of instruction, each mathematical practice standard is meaningfully present in the form of assignments, activities, or problems that stimulate students to develop the habits of mind described in the practice standard. Alignments to practice standards are accurate.	**Yes**	Materials attend to the full meaning of each practice standard. Under the Organize Tab on the website, there is a Teacher Methodology section. Here, each of the eight Mathematical Practice Standards are found and explained. On GM: G-CO.B.8 worksheet # 2, found in Unit 1, students must prove triangle similarity using a two-way proof (MP.1, MP.6, and MP.7). On the Unit 5 GM: G-C.A.3 Assessment, students must "explain why if the triangle is obtuse, that the circumcenter is outside the triangle" (MP. 3).	
	REQUIRED **6b)** Materials provide sufficient opportunities for students to construct viable arguments and critique the arguments of others concerning key grade-level mathematics that is detailed in the content standards (cf. MP.3). Materials engage students in problem solving as a form of argument, attending thoroughly to places in the Standards that explicitly set expectations for multi-step problems.	**Yes**	Materials provide sufficient opportunities for students to construct viable arguments and critique the arguments of others concerning key grade-level mathematics, especially in the problem-solving of multi-step problems. Question 7 on the Unit 1 GM-G.CO.B.8 Assessment, students must analyze the two given triangles in order to determine and explain which student which student has provided the proper triangle similarity theorem is correct. Question 7 on the Unit 6 GM:S-CP.A.2 Assessment requires students to analyze a teacher question in order to critique a student response with an	

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES	PUBLISHER RESPONSE
			explanation. In Quiz 1 provided for Unit 1, students are asked to critique the reasoning and strategy used by a student in Questions 8 and 9. Questions 35 and 39 in Unit 1, Quiz 2 also addresses this practice standard by requiring students to determine if statements are correct and construct viable arguments to defend their answer..	
	6c) There are teacher-directed materials that explain the role of the practice standards in the classroom and in students' mathematical development.	**No**	Under the Organize Tab on the website, there is a Teacher Methodology section. Here, each of the eight Mathematical Practice Standards are found. However, there are no specific teacher-directed materials that explain the significance of these standards relative to Geometry and expectations within the curriculum.	The new METHODS documents that have been added to the materials directly address the mathematics practice standards for each worksheet/lesson. The methods document also provides the teachers with a number of other needed guidelines for a successful delivery of the material. This will be of immense help for the teacher. *The methods documents have been completed for Unit #1 and within 3 weeks the rest will be completed for the entire course. I have provided a new unit one folder to allow you to download that portion and preview its design and impact while I complete the rest of the documents. You could review based on that the others are completed in a similar way. https://www.dropbox.com/sh/y1miomqw8y2tme3/AABDt9rt-NKi3F22_3EAG8O6a?dl=0
	6d) Materials explicitly attend to the specialized language of mathematics.	**Yes**	Materials explicitly attend to the specialized language of mathematics. Under the Resources Tab on the course webpage, there is a Geometry Glossary that provides teachers and students with visual and verbal descriptions for each geometric term in the curriculum.	
Additional Criterion **7. INDICATORS OF QUALITY:** Quality materials should exhibit the indicators outlined here in order to give teachers and students the tools they need to meet the	**REQUIRED** **7a)** There is variety in what students produce. For example, students are asked to produce answers and solutions, but also, in a grade-appropriate way, arguments and explanations, diagrams, mathematical models, etc.	**Yes**	There is variety in what students produce. Throughout the materials, there are opportunities for students to solve mathematical problems, critique arguments of others and defend their own reasoning, create models, etc. Course materials aligned to GM: G-GMD.B.4 provide students the opportunity to identify 3-dimensional figures given a	

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES	PUBLISHER RESPONSE
expectations of the Standards. ☐ Yes ☒ No			cross section, sketch cross sections of 3-dimensional figures, determine rotational cross sections, and connect the rotational cross sections to volumes of 3-dimensional solids by interpreting key information. Question e on Worksheet #6 GM: G-GMD.A.3, found in Unit 3, requires students to determine the volume of the air in a cylindrical can with two tennis balls inside of it. Question 2 on Worksheet #6 GM: S-CP.A.1 requires students to create a venn diagram given a die rolling event; then, students must determine the probability of specific events.	
	REQUIRED **7b)** There are separate teacher materials that support and reward teacher study including, but not limited to: discussion of the mathematics of the units and the mathematical point of each lesson as it relates to the organizing concepts of the unit, discussion on student ways of thinking and anticipating a variety of student responses, guidance on lesson flow, guidance on questions that prompt students thinking, and discussion of desired mathematical behaviors being elicited among students.	**No**	The separate teacher materials do not support and reward teacher study. Each Unit begins with an overview that provides teachers with the Core Objectives (LSSM standards), Flow of Ideas (weekly standards), a video of the objectives for the Unit, and a Summary of the focus for each week. In addition, teachers also have access to a Unit overview that features each specific LSSM, an interpretation of the objective, Essential Skills, the Big Idea, Past and Future Connections, Traps & Pitfalls (errors that may potentially occur), and reflections. However, In the standard "Overview" materials provided for each topic within each unit, teachers receive minimal preparation for instruction (objectives, organization of the concepts in the topic, past and future connections etc.), and the supplemental videos provided to discuss key components of delivery are more instructional relative to the content, rather than methods to deliver the content. Additionally, the "Teacher Notes" provided within each set of unit materials do not focus on delivery of instruction, but more of the content being delivered.	The new METHODS documents address the following for every worksheet (lesson): -- objective covered -- mathematical point of lesson -- desired student outcomes -- content connections -- student thinking and misconceptions -- the flow of ideas -- guidance on questions -- mathematical practice When you match this to the immense amount of content support that is already present you will see that these materials reward the teacher for their study. *The methods documents have been completed for Unit #1 and within 3 weeks the rest will be completed for the entire course. I have provided a new unit one folder to allow you to download that portion and preview its design and impact while I complete the rest of the documents. You could review based on that the others are completed in a similar way. https://www.dropbox.com/sh/y1miomqw8y2tme3/AABDt9rt-NKi3F22_3EAG8O6a?dl=0
	7c) Support for English Language Learners and other special populations is thoughtful and helps those	**Yes**	Support for English Language Learners and other special populations is thoughtful and helps those	

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	students meet the same standards as all other students. The language in which problems are posed is carefully considered.		students meet the same standards as all other students. Under the Resources Tab, there is a Geometry Glossary that provides students with visual aids to assist where language gaps may exist. It is important to note that there is no specific support provided to teachers on how to explicitly close the grammatical gaps..	
	7d) The underlying design of the materials distinguishes between problems and exercises. In essence the difference is that in solving problems, students learn new mathematics, whereas in working exercises, students apply what they have already learned to build mastery. Each problem or exercise has a purpose.	**Yes**	The underlying design of the materials distinguishes between problems and exercises. Each Unit provides Teacher Notes to assist in the explanations and presentations of the concepts as students follow with the Student Notes. Student notes provide direct and guided instruction, followed by a similar problem of the newly discussed content through a section labeled “NYTS (Now You Try Some)”.	
	7e) Lessons are appropriately structured and scaffolded to support student mastery.	**Yes**	Lessons are appropriately structured and scaffolded to support student mastery. Each Unit includes Teacher and Student Notes, Worksheets, Videos, Quizzes, an additional Question Bank, Technology Activities, and an Assessment. In the Teacher and Student Notes, there are problems that bridge previous knowledge to new information through conceptual, procedural, and application skills. The Worksheets, Videos, Question Bank, and Technology Activities provide students with many opportunities to hone their newly learned concepts. The Quizzes and Assessment serves as a summative closure to determine student mastery. Practice problems are offered through a series of worksheets and Geogebra lessons.	
	7f) Materials support the uses of technology as called for in the Standards.	**Yes**	Materials address and support the use of technology as called for in the Standards. LSSM GM: G-CO.A.2 states that students are to “represent transformations in the plane using, e.g., transparencies, tracing paper, or geometry software.” The materials feature a Technology Activities bank in Unit 1 to provide students with ample opportunities to use GeoGebra to explore symmetry, reflections, rotations, and the congruence of transformations. LSSM GM: G-CO.A.5 states the following: “Given a geometric figure and a	

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			rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software." Unit 1 materials provided allow for utilization of a series of Geogebra activities aligned specifically to developing understanding of rotations, reflections, and translations on the coordinate plane.	
FINAL EVALUATION ***Tier 1 ratings*** receive a "Yes" in Column 1 for Criteria 1 – 7. ***Tier 2 ratings*** receive a "Yes" in Column 1 for all non-negotiable criteria (Criteria 1 – 4), but at least one "No" in Column 1 for the remaining criteria. ***Tier 3 ratings*** receive a "No" in Column 1 for at least one of the non-negotiable criteria.				
Compile the results for Sections I and II to make a final decision for the material under review.				
Section	**Criteria**	**Yes/No**	**Final Justification/Comments**	
I: Non-Negotiables	1. Focus on Major Work	**Yes**	Major content is covered in 66% of the curriculum. Materials spend minimal time on content outside of the curriculum, and, when included, assessment items that are beyond the scope are clearly noted as optional.	
	2. Consistent, Coherent Content	**Yes**	Materials are connect supporting content to major content in meaningful ways. Also, domains are connected as well as clusters in a domain.	
	3. Rigor and Balance	**Yes**	The three aspects of rigor are not always treated together or separately within the Geometry instructional materials provided.	
	4. Focus and Coherence via Practice Standards	**Yes**	The materials address the practice standards in a way as to enrich the content standards. The Mathematical Practices are evident throughout the lessons.	
II: Additional Alignment Criteria and Indicators of Quality	5. Alignment Criteria for Standards for Mathematical Content	**Yes**	Materials foster focus and coherence by staying consistent with the progression within the Standards throughout the curriculum.	
	6. Alignment Criteria for Standards for Mathematical Practice	**Yes**	Materials attend to the full meaning of each practice standard and provide sufficient opportunities for students to construct viable arguments and critique the arguments of others concerning key grade-level mathematics.	
	7. Indicators of Quality	**No**	While there are separate and useful teacher materials necessary to meet the expectations of the LSSM, they do not support and reward teacher study. There is minimal information on the	The new METHODS documents address the following for every worksheet (lesson): -- objective covered -- mathematical point of lesson

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES	PUBLISHER RESPONSE
			preparation for student instruction. Supplemental videos and Teacher Notes are instructional relative to the content rather than to methods for delivery.	-- desired student outcomes -- content connections -- student thinking and misconceptions -- the flow of ideas -- guidance on questions -- mathematical practice When you match this to the immense amount of content support that is already present you will see that these materials reward the teacher for their study. *The methods documents have been completed for Unit #1 and within 3 weeks the rest will be completed for the entire course. I have provided a new unit one folder to allow you to download that portion and preview its design and impact while I complete the rest of the documents. You could review based on that the others are completed in a similar way. https://www.dropbox.com/sh/y1miomqw8y2tme3/AABDt9rt-NKi3F22_3EAG8O6a?dl=0
FINAL DECISION FOR THIS MATERIAL: **Tier II, Approaching quality**				

Appendix II.

Public Comments

There were no public comments submitted.