Instructional Materials Evaluation - Student Standards Review

Louisiana educators engaged in a professional review of the state's academic standards for English language arts (ELA) and mathematics to ensure they continue to maintain strong expectations for teaching and learning aligned with college and workplace demands. The new ELA and math standards will be effective beginning with the 2016-2017 school year. As part of the Louisiana Department of Education's support for a seamless transition to these new standards, the LDOE identified the major changes of the standards and their potential impact upon criteria used to review instructional materials.

Title: **HMH Analyze, Connect, Explore, Algebra 1** Grade: **9**

Publisher: **Houghton Mifflin Harcourt** Copyright: **2014**

Overall Rating: **Tier III, Not representing quality**

This Mathematics review has been examined for the following major shifts in alignment resulting from the Louisiana Student Standards Review:

- Include standards for money in grades K, 1, and 3 to ensure connections that provide smooth transitions from one grade to the next
- Provide developmentally appropriate content for all grades or courses while maintaining high expectations:
    - Additive area is moved to grade 4 from grade 3
    - The Statistics - Conditional Probability and the Rules of Probability (S-CP) domain is moved from Algebra II to Geometry
    - The standards provide extra clarity around the distinction between Algebra I and II

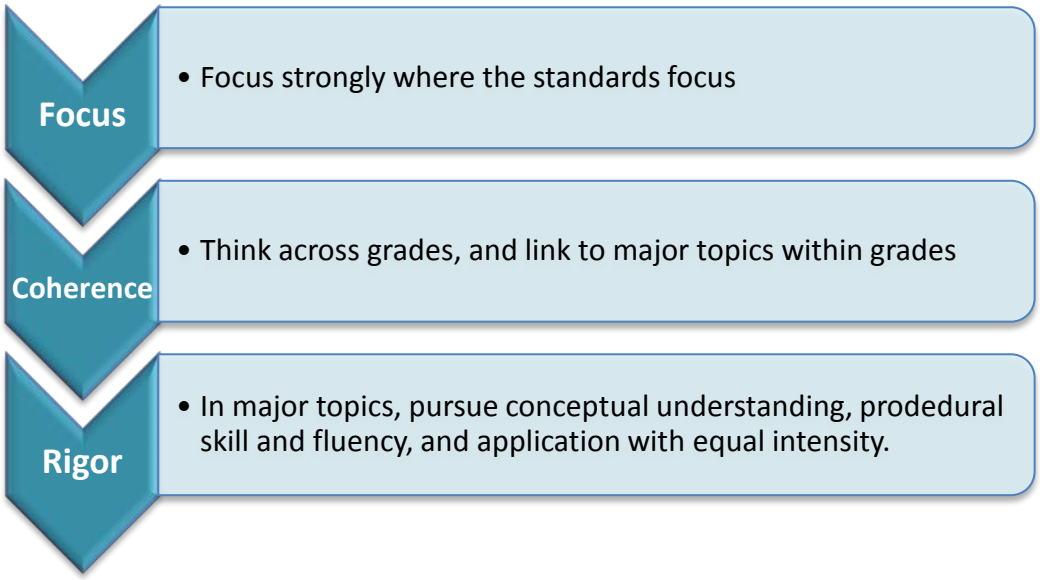
The following two indicators may be impacted:

- Focus on Major Work (Non-Negotiable)
- Consistent, Coherent Content (Non-Negotiable)

This review remains a Tier 3 rating. As a result of these changes, the following chart identifies the potential impact on specific elements in the current review. The LDOE recommends that district curriculum staff, principals, and teachers take these findings into consideration when using these instructional materials.

Criteria	Currently in the Rubric	Next Steps for Educators
Focus on Major Work (Non-Negotiable)	This program currently is reviewed as "Yes" for these criteria because the materials devote the majority of class time completing work widely applicable as prerequisites for postsecondary education.	Make sure to review all assessment materials to ensure alignment to new clarifications/limitations and the revised, as well as, the placement of standards by grade/course.
Consistent, Coherent Content (Non-Negotiable)	This program currently is reviewed as "No" for these criteria because the material does not specifically and clearly identify material that is from previous grades or courses. Each model has a tracking chart that details what information students previously learned, what they currently learn, and what they will be expected to know in the future, but it is not clear what standards are linked to this learning.	Since these materials received a "No" for this indicator, the current weakness will likely remain and should be addressed by adjusting or supplementing with stronger programs.

Strong mathematics instruction contains the following elements:



Title: **HMH Analyze, Connect, Explore, Algebra 1** **Grade:** **9**

Publisher: **Houghton Mifflin Harcourt** **Copyright:** **2014**

Overall Rating: **Tier III, Not representing quality**

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

STRONG	WEAK
Focus on Major Work (Non-Negotiable)	Consistent, Coherent Content (Non-Negotiable)
Practice-Content Connections (Non-Negotiable)	Rigor and Balance (Non-Negotiable)

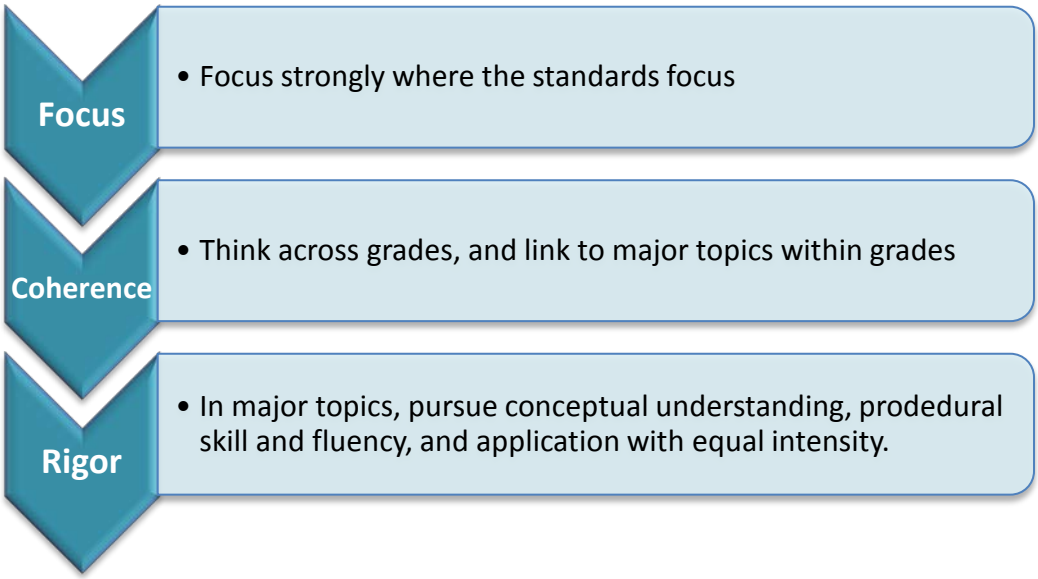
Each set of submitted materials was evaluated for alignment with the standards beginning with a review of the indicators for the non-negotiable criteria. If those criteria were met, a review of the other criteria ensued.

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

Click below for complete grade-level reviews:

Grade 9 (Tier 3)

Strong mathematics instruction contains the following elements:



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STRONG	WEAK
Focus on Major Work (Non-Negotiable)	Consistent, Coherent Content (Non-Negotiable)
Practice-Content Connections (Non-Negotiable)	Rigor and Balance (Non-Negotiable)

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 (Y/N)	JUSTIFICATION/ COMMENTS
SECTION I: NON-NEGOTIABLE CRITERIA: Submissions must meet all of the non-negotiable criteria to move to tier 2.			
Non-Negotiable 1. FOCUS IN HIGH SCHOOL: In any single course, students and teachers using the materials as designed spend the majority of their time developing knowledge and skills that are widely applicable as prerequisites for postsecondary education.[1, 2] For courses that do not include Geometry standards, metrics 1a and 1b must be met. For courses including Geometry standards, all three of the metrics must be met. ☐ Yes ☐ No	**REQUIRED** **1a)** In any single course, students spend at least 50% of their time on **Widely Applicable Prerequisites** for postsecondary education.[3]	**Yes**	Student work corresponds to standards written for high school math. Students spend the majority of their time completing work widely applicable as prerequisites for postsecondary education. In the student book and teacher's resources, at the front of each chapter, the standards are listed for that chapter and each lesson.
	REQUIRED **1b)** There are problems at a level of sophistication appropriate to high school (beyond mere review of middle school topics) that involve the application of knowledge and skills from grades 6-8 including[4]: • Applying ratios and proportional relationships. • Applying percentages and unit conversions, e.g., in the context of complicated measurement problems involving quantities with derived or compound units (such as mg/mL, kg/m^3, acre-feet, etc.). • Applying basic function concepts, e.g., by interpreting the features of a graph in the context of an applied problem. • Applying concepts and skills of geometric measurement e.g., when analyzing a diagram or schematic. • Applying concepts and skills of basic statistics and probability (see 6–8.SP). • Performing rational number arithmetic fluently.	**Yes**	Skills used surpass the prerequisites required for 9th grade. For example, in 8th grade students are expected to create and solve linear equations. In Module 9, students are expected to create and solve a system of linear equations as an extension of solving and creating one linear equation.
	REQUIRED (as applicable) **1c)** For courses that include standards from the Geometry conceptual category, student work in Geometry significantly involves applications/modeling as well as geometry applications that use algebra skills.[5]	**N/A**	Not Applicable – Only standards related to Algebra are in Algebra 1, Geometry standards are designated with a G, and none are assigned to Algebra 1

[1] Refer also to criterion #1 in the High School Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).
[2] If materials show time in both block and standard 'days,' choose either but remain consistent.
[3] For more information on the Widely Applicable Prerequisites, see Table 1 on Page 8 of the High School Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).
[4] Information excerpted from Table 1 on Page 8 of the High School Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).
[5] Since the Geometry category itself contains relatively fewer Widely Applicable Prerequisites, this criterion is important to help foster students' college and career readiness.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (Y/N)	JUSTIFICATION/ COMMENTS
SECTION I (continued): NON-NEGOTIABLE CRITERIA			
Non-Negotiable 2. CONSISTENT, COHERENT CONTENT Each course's instructional materials are coherent and consistent with the content in the standards.[6] ☐ Yes ☐ No	**REQUIRED** **2a) *Giving 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.	**No**	Material does not specifically and clearly identify material that is from previous grades or courses. For example, in Lesson 9.1, linear systems are taught as a new topic that students have never seen before, but in eighth grade, students learn to analyze and solve pairs of simultaneous linear equations (8.EE.C.8).
	REQUIRED **2b) *Relating 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**	Each model has a "Tracking Your Learning Progression" chart that details what information students previously learned, what they will currently learn, and what they will be expected to know in the future, , but it is not clear what standards are linked to this learning.
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.[7] ☐ Yes ☐ No	**REQUIRED** **3a) *Attention to Conceptual Understanding:*** Materials develop conceptual understanding of key mathematical concepts, especially where called for in specific content standards or cluster headings by amply featuring high-quality conceptual problems and questions.	**Yes**	Students are asked to explain understanding and reasoning throughout the coursework. After each introduced concept, students are expected to practice for understanding as the next step. Students are asked to reason by explanations.
	REQUIRED **3b) *Attention to Procedural Skill and Fluency:*** Materials give attention throughout the year to individual standards that set an expectation of procedural skill and fluency. In higher grades, sufficient practice with algebraic operations is provided in order for students to meet all of the expectations set in the Standards as a whole.	**No**	Materials include mnemonics or tricks instead of focusing exclusively on principles of mathematics (e.g., Lesson 14.4, FOIL is taught as a method of multiplying binomials; however, alternative methods for multiplying binomials are mentioned such as using algebra tiles and the distribution property).
	REQUIRED **3c) *Attention to Applications:*** Materials are designed so that teachers and students spend sufficient time working with engaging applications/modeling. While modeling is a mathematical practice at every grade, it is more prominent and enhanced in high school with more elements of the modeling cycle present.	**Yes**	Materials attend thoroughly to those places in the content standards where expectations for multi-step and real-world problems are explicit. Lessons contain examples of application problems associated with the content of the lesson to be modeled during instruction.
	REQUIRED **3d) *Balance:*** The three aspects of rigor are not always treated together, and	**Yes**	Lessons align to the three components of rigor: Conceptual understanding, procedural skills and

[6] Refer also to criterion #3 in the High School Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).
[7] Refer also to criterion #2 in the High School Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).

	are not always treated separately		fluency, and application as needed in each lesson based on the standard's need for each particular aspect of rigor. The student book contains mostly application and conceptual understanding; however, two additional practice sets are included for each lesson that covers procedural skills and fluency.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (Y/N)	JUSTIFICATION/ COMMENTS
SECTION I (continued): NON-NEGOTIABLE CRITERIA			
Non-Negotiable 4. PRACTICE-CONTENT CONNECTIONS: Materials meaningfully connect the Standards for Mathematical Content and the Standards for Mathematical Practice.[8] ☒ Yes ☐ No	**REQUIRED** **4a)** The materials connect the Standards for Mathematical Practice and the Standards for Mathematical Content.	**Yes**	Mathematical practices are listed in each lesson and problems are identified that exemplify mathematical practices. Materials connect the standards for mathematical practice to the standards for mathematical content throughout the text.
	REQUIRED **4b)** The developer provides a description or analysis, aimed at evaluators, which shows how materials meaningfully connect the Standards for Mathematical Practice to the Standards for Mathematical Content within each applicable course.	**Yes**	The material does provide a justification when Mathematical Practices are used and how it relates the lesson content.

[8] Refer also to criterion #5 in the High School Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (Y/N)	JUSTIFICATION/ COMMENTS
SECTION II: ADDITIONAL ALIGNMENT CRITERIA AND INDICATORS OF QUALITY			
Additional Criterion 5. ALIGNMENT CRITERIA FOR STANDARDS FOR MATHEMATICAL CONTENT: Materials foster focus and coherence by linking topics within grades (across domains and clusters). Courses are designed based on the content in the standards. ☐ Yes ☐ No	**REQUIRED** **5a)** Materials base courses on the content specified in the standards (Algebra I, Geometry, and Algebra II). [9]		Not evaluated. Non-negotiable criteria were not met.
	REQUIRED **5b)** Materials include problems and activities that serve to connect two or more clusters in a domain, or two or more domains in a category, or two or more categories, in cases where these connections are natural and important. [10, 11]		Not evaluated. Non-negotiable criteria were not met.
	5c) Materials include learning objectives that are visibly shaped by CCSSM cluster and domain headings.[10]		Not evaluated. Non-negotiable criteria were not met.
	5d) Materials preserve the focus, coherence, and rigor of the Standards even when targeting specific objectives.[10]		Not evaluated. Non-negotiable criteria were not met.
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)** Careful Attention to Each Practice Standard: Materials attend to the full meaning of each practice standard.[12]		Not evaluated. Non-negotiable criteria were not met.
	REQUIRED **6b)** Materials provide sufficient opportunities for students to construct viable arguments and critique the arguments of other concerning key course-level mathematics that is detailed in the content standards (cf. MP.3). [13]		Not evaluated. Non-negotiable criteria were not met.
	REQUIRED **6c)** 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.[13]		Not evaluated. Non-negotiable criteria were not met.
	6d) Materials explicitly attend to the specialized language of mathematics.[13]		Not evaluated. Non-negotiable criteria were not met.

[9] Refer also to criterion #3 in the HS Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).
[10] Refer also to criterion #4 in the HS Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).
[11] Refer to the standards for each course found in the Teacher Support Library.
[12] Refer also to criterion #7 in the HS Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).
[13] Refer also to criterion #8 in the HS Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (Y/N)	JUSTIFICATION/ COMMENTS
SECTION II (continued): ADDITIONAL ALIGNMENT CRITERIA AND INDICATORS OF QUALITY			
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)** Materials support the uses of technology as called for in the standards.		Not evaluated. Non-negotiable criteria were not met.
	REQUIRED **7b)** 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.		Not evaluated. Non-negotiable criteria were not met.
	REQUIRED **7c)** Design of assignments is not haphazard: exercises are given in intentional sequences.		Not evaluated. Non-negotiable criteria were not met.
	REQUIRED **7d)** 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.		Not evaluated. Non-negotiable criteria were not met.
	REQUIRED **7e)** 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 students responses, guidance on lesson flow, guidance on questions that prompt students thinking, and discussion of desired mathematical behaviors being elicited among students.		Not evaluated. Non-negotiable criteria were not met.
	REQUIRED **7f)** 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.		Not evaluated. Non-negotiable criteria were not met.
	7g) There is variety in the pacing and grain size of content coverage. [14]		Not evaluated. Non-negotiable criteria were not met.
	7h) Lessons are thoughtfully structured and support the teacher in leading the class through the learning paths at hand, with active participation by all students in their own learning and in the learning of their classmates.		Not evaluated. Non-negotiable criteria were not met.
	7i) Manipulatives are faithful representations of the mathematical objects they represent and are connected to written methods.		Not evaluated. Non-negotiable criteria were not met.

[14] Refer also to page 16 in the High School Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).

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.

FINAL EVALUATION			
Compile the results for Sections I and II to make a final decision for the material under review.			
Section	**Criteria**	**Y/N**	**Final Justification/Comments**
I: Non-Negotiables	1. Focus on Major Work	**Yes**	Course materials contain applicable content for the subject matter.
	2. Consistent, Coherent Content	**No**	Review material is not addressed within the text
	3. Rigor and Balance	**No**	Although most materials use an appropriate balance of conceptual understanding, procedural skill, and application; they include mnemonics or tricks instead of focusing exclusively on principles of mathematics.
	4. Practice-Content Connections	**Yes**	Mathematical practices are listed and identified in each lesson.
II: Additional Alignment Criteria and Indicators of Quality	5. Alignment Criteria for Standards for Mathematical Content		Not evaluated. Non-negotiable criteria were not met.
	6. Alignment Criteria for Standards for Mathematical Practice		Not evaluated. Non-negotiable criteria were not met.
	7. Indicators of Quality		Not evaluated. Non-negotiable criteria were not met.
FINAL DECISION FOR THIS MATERIAL: <u>Tier III, Not representing quality</u>			