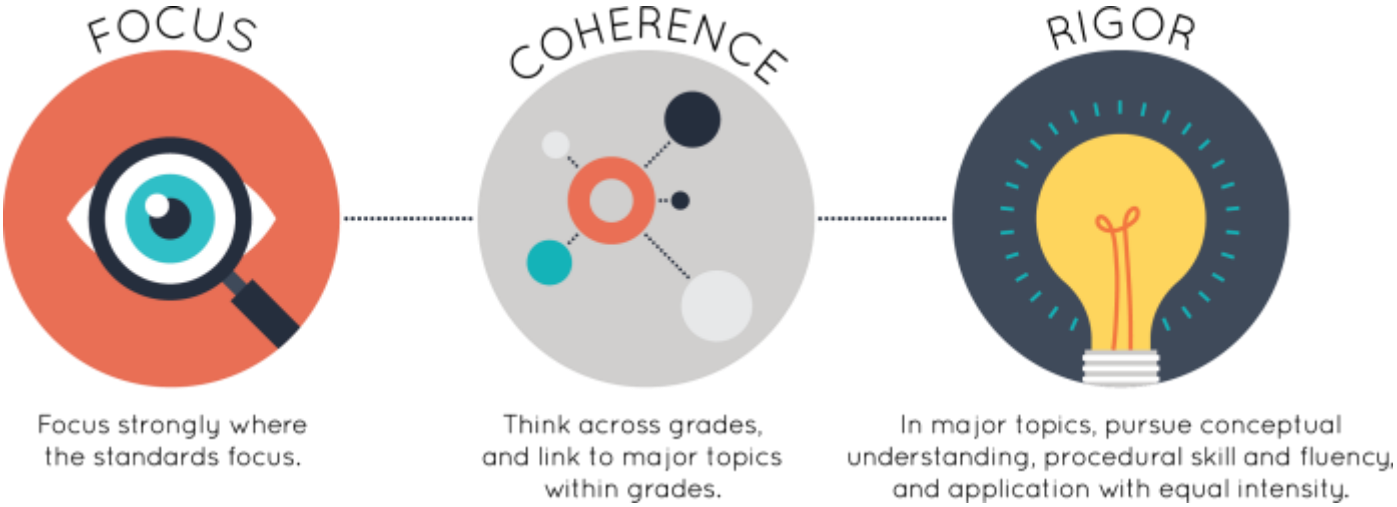
DEPARTMENT of EDUCATION
Louisiana Believes

Assessment Evaluation Tool for Alignment in Mathematics Grades K – HS (AET)

BENCHMARK ASSESSMENTS

Strong mathematics instruction contains the following elements:



Title: **CASE Benchmark Assessments, Math**

Grade/Course: **8**

Publisher: **TE21, Inc.**

Copyright: **2017**

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

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

STRONG	WEAK
1. Alignment of Test Items (Non-Negotiable)	
2. Focus on Major Work (Non-Negotiable)	
3. Focus (Non-Negotiable)	
4. Rigor and Balance (Non-Negotiable)	
5. Practice-Content Connections	
6. Calling for Variety in Item Type, Student Work	
7. Constructing Forms Without Cueing Solution Proc	
8. Quality Materials	

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. In Section II, review each indicator individually.

Tier 1 ratings receive a "Yes" in Column 1 for Criteria 1 – 8.
Tier 2 ratings receive a "Yes" in Column 1 for all non-negotiable criteria but at least one "No" in Section II.
Tier 3 ratings receive a "No" in Column 1 in Section I.

** The criteria in Section I apply to fixed form or CAT assessments, whether summative assessments or a set of interim/benchmark assessments. Item banks also should reflect the full intent of the indicators.*

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
SECTION I: NON-NEGOTIABLE CRITERIA: Submissions must meet all non-negotiable criteria in order for the review to continue.			
Non-Negotiable **1. ALIGNMENT OF TEST ITEMS**: Test items and/or sets of items elicit direct, observable evidence of the degree to which a student can independently demonstrate the targeted Standard(s) ☒ Yes ☐ No	**1a)** Items exhibit alignment to the full intent of the LSSM for that grade/course.	**Yes**	Items exhibit alignment to the full intent of the LSSM for the 8th grade mathematics course. Throughout the material, with the exception of the benchmark assessment, items are grouped together with the intention of exhibiting alignment to the full intent of the standard. In the Number Sense/Expressions and Equations portion of the sample items, items 47 - 49 are related to LSSM 8.EE.C.8b. The standard reads as such: "Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. For example, 3x + 2y = 5 and 3x + 2y = 6 have no solution because 3x + 2y cannot simultaneously be 5 and 6." Item 47 provides students with opportunity to solve the system of equations to find the solution point. Item 48 asks students to find the solution to a system and can be done from analyzing the two equations. Item 49 requires students to analyze a Cartesian plane to estimate the solution, or the point of intersection.
	1b) Items adhere to content limitations outlined in the LSSM and the Assessment Guides. All limitations for all grades K-HS provided in footnotes of the LSSM are also followed.	**Yes**	While the authoring vendor has items aligned to national standards, where the expectations of the LSSM differ from those of national standards, the vendor takes that into account and revises accordingly. For example, Item 12 of the Functions and Statistics assessment, aligned to LSSM 8.F.A.3, utilizes function notation to describe attributes of the graph. While students are not required to evaluate or write a function using this notation, it is explicitly stated in LSSM 8.F.A.1 "Function notation is not required in this grade level". As a result, this item will be removed from the Grade 8 bank.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
	1c) Items use the number system appropriate to the grade/course. For example, in grade 3 there are some items involving fractions greater than 1; in the middle grades, arithmetic and algebra use the rational number system, not just the integers.	**Yes**	All items use the number system appropriate for 8th grade mathematics. Questions include varying rational numbers, including fractions and decimals, as well as irrational numbers. In addition, numbers written in scientific notation account for major work in the 8th grade math curriculum. In the Number Sense/Expressions and Equations sample items, item 3 requires students to convert a fraction to a repeating decimal, item 9 has students list the given irrational numbers from least to greatest, and item 25 has students multiply an expression of numbers written in scientific notation format.
Non-Negotiable **2. FOCUS ON MAJOR WORK:** The large majority of items in each grade/course are devoted to the major work of the grade. ☒ Yes ☐ No	**2a)** Each grade/course's item set **meets or exceeds** the following distributions for the major work of the grade. • 85% of the items in grades K–2 align exclusively to the major work of the grade. • 75% of the items in grades 3–5 align exclusively to the major work of the grade. • 65% of the items in grades 6–12 align exclusively to the major work of the grade.	**Yes**	Greater than 65% of the total points align exclusively to the major work of 8th grade mathematics. The benchmark assessment provides an answer key with the accompanying standard for each question. Based on this alignment document provided by the publisher, the focus is on the major work of Grade 8.
Non-Negotiable **3. FOCUS:** No item assesses topics directly or indirectly before they are introduced in the LSSM. ☒ Yes ☐ No	**3a)** 100% of items address only knowledge of topics found in the LSSM in the specified grade/course.	**Yes**	While the authoring vendor has items aligned to national standards, where the expectations of the LSSM differ from those of national standards, the vendor takes that into account and revises accordingly.
Non-Negotiable **4. RIGOR AND BALANCE:** Each grade/course's assessments reflect the balances in the Standards and help students meet the Standards' rigorous expectations by helping students develop conceptual	**4a)** ***For Conceptual Understanding:*** ***K–High School*:** At least 20% of the items for each grade or course explicitly require students to demonstrate conceptual understanding especially where called for in specific content standards.	**Yes**	At least 20% of the total score-points found on the TE21 Grade 8 Benchmark Assessment require students to demonstrate conceptual understanding. Multi-select item 11, aligned to LSSM 8.F.A.1, requires students to analyze each given set of coordinate pairs in order to identify the relations that represents a function. Item 43 entails the analysis of the proper type of association of a scatter plot

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
understanding, procedural skill and fluency, and application. ☒ Yes ☐ No			along with the proper reasoning for the correct answer choice (8.SP.A.1).
	4b) ***For Procedural Skill and Fluency:*** ***K–High School*:** At least 20% of the items for each grade or course explicitly require students to demonstrate procedural skill and fluency, especially where called for in specific content standards.	**Yes**	At least 20% of the total score-points found on the TE21 Grade 8 Benchmark Assessment require students to demonstrate procedural skill and fluency. Item 1, aligned to LSSM 8.EE.B.7, requires students to determine the solution to a multi-step equation by utilizing procedural skill and fluency required to solve equations of this nature. Item 5 emphasizes LSSM 8.G.B.8 as students use the Pythagorean Theorem to find the length of a line segment on a coordinate plane. Item 42 requires students to use the laws of exponents to find the solution, focusing on LSSM 8.EE.A.1
	4c) ***For Applications*** • ***K–5:*** At least 20% of the items for each grade explicitly assess solving single- or multi-step word problems. • ***6–8:*** At least 25% of the items for each grade explicitly assess solving single- and multi-step word problems and simple models. • ***High School:*** At least 30% of the items for each high school course explicitly assess single- and multi-step word problems, simple models, and substantial modeling/application problems.	**Yes**	At least 25% of the total score-points on the provided eighth grade benchmark assessment explicitly assesses solving single- and multi-step word problems and simple models.
SECTION II: ADDITIONAL INDICATORS OF QUALITY			
5. Practice-Content Connections. Each grade/course's assessments include items that meaningfully connect the Standards for Mathematical Content and Standards for Mathematical Practice. However, not all items need to align to a Standard for Mathematical Practice, and there is no requirement to have an equal balance among the Standards for Mathematical Practice in any set of items or test forms.		**Yes**	Submitted assessment items aligned to the 8th grade LSSM include connections between the Standards for Mathematical Content and Standards for Mathematical Practice. Question 19 (8.SP.A.2) asks students to critique the given reasoning (MP.3) of a line-of-best fit model (MP.4). Question 39 (8.NS.A.2) requires students to precisely determine (MP.6) where a square root would be located on a number line. The connection between 8th grade LSSM and Math Practices 2, 3 and 4 is also evident in the provided Performance Task, where students justify responses through reasoning

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			and models.
6. Calling for Variety in Item Type and Student Work. Assessments include a variety of item types (e.g., multiple choice, multiple select, numeric response, constructed response) that require a variety in what students produce. For example, items require students to produce answers and solutions, but also, in a grade-appropriate way, arguments and explanations (including items that explicitly assess expressing and/or communicating mathematical reasoning), diagrams, mathematical models, etc.		**Yes**	The bank of items submitted for review provided ample opportunity for students to demonstrate mastery of the 8th grade LSSM through multiple choice, multiple select, numeric response, and constructed response item types. Question 3 (8.EE.A.2) and question 47 (8.F.B.5) both require students to choose each correct answer in a multi-select format. Question 5 (8.G.B.8) and question 35 (8.SP.A.2) each require students to choose the sole answer in a multiple-choice format. Question 2 on the gridded response section requires students to provide a numeric response after solving a linear equation (8.EE.C.7). The given Performance Task, aligned to LSSM 8.G.A.1, 8.G.A.2, and 8.G.A.3, provides opportunity to explicitly assess student ability to express and/or communicate mathematical reasoning through a series of tasks and guiding questions, in addition to allowing students to model conceptual understanding of transformations of figures on the coordinate plane. Additionally, examples of technology enhanced items are provided to represent "drag and drop" items, categorizing using checkboxes, and "drop-down menu" items.
7. Constructing Forms Without Cueing Solution Processes. Item sequences do not cue the student to use a certain solution process during problem solving and assessments include problems requiring different types of solution processes within the same section.		**Yes**	Items found on the TE21 Grade 8 Benchmark Assessment do not cue students to use a certain solution process during problem solving. In addition, the assessment requires different types of solution processes within the same section. The benchmark is divided into a calculator section, a non-calculator section, and a gridded response section. The sections cover the domains of the 8th grade curriculum in a random fashion. For example, questions 11 - 13 focus on Standards 8.F.A.1, 8.SP.A.3, and 8.G.A.4, ensuring that students are not using the previous as a cue for the upcoming material. Items 21 through 26 found in the Geometry

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			items portion of the submitted materials, focus on LSSM 8.G.B.7 which requires students to "Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions". Each of the provided items aligned to this content standard assess knowledge using a different strategy, such as, real world problems, 3 dimensional figures, and procedural skill assessment to calculate missing side and hypotenuse lengths.
8. Quality Materials. The assessment items, answer keys, and documentation are free from mathematical errors.		**Yes**	All provided assessment items, answer keys, and documentation are free from mathematical errors.

FINAL EVALUATION

Tier 1 ratings receive a "Yes" in Column 1 for Criteria 1 – 4 and a "Yes" for all additional indicators 5 – 8.

Tier 2 ratings receive a "Yes" in Column 1 for all non-negotiable criteria (Criteria 1 – 4), but at least one "No" for additional indicators 5 – 8.

Tier 3 ratings receive a "No" in Column 1 for at least one criteria in Section I.

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. Alignment of Test Items	**Yes**	Items do exhibit alignment to the full intent of all standards assessed, and items do adhere to the content limitations of the LSSM and use numbers appropriate to Grade 8.
	2. Focus on Major Work	**Yes**	The item set has a focus on major work.
	3. Focus	**Yes**	100% of items address only knowledge of topics found in the LSSM in Grade 8.
	4. Rigor and Balance	**Yes**	The Grade 8 Benchmark Assessment reflects a balance of items assessing conceptual understanding, procedural skill and fluency, and application.
II: Additional Indicators of Quality	5. Practice-Content Connections	**Yes**	The Grade 8 assessments include items that meaningfully align with the Standards for Mathematical Practice.
	6. Calling for Variety in Item Type and Student Work	**Yes**	The assessments provided for Grade 8 include a variety of item types that require a variety in what students produce.
	7. Constructing Forms Without Cueing Solution Processes	**Yes**	Item sequences do not cue the student to use a certain solution process during problem

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			solving, and assessments include problems requiring different types of solution processes within the same section.
	8. Quality Materials	**Yes**	The assessment items, answer keys, and documentation are free from mathematical errors.
FINAL DECISION FOR THIS MATERIAL: **Tier I, Exemplifies quality**			

Appendix I.

Publisher Response

The publisher had no response.

Appendix II.

Public Comments

There were no public comments submitted.