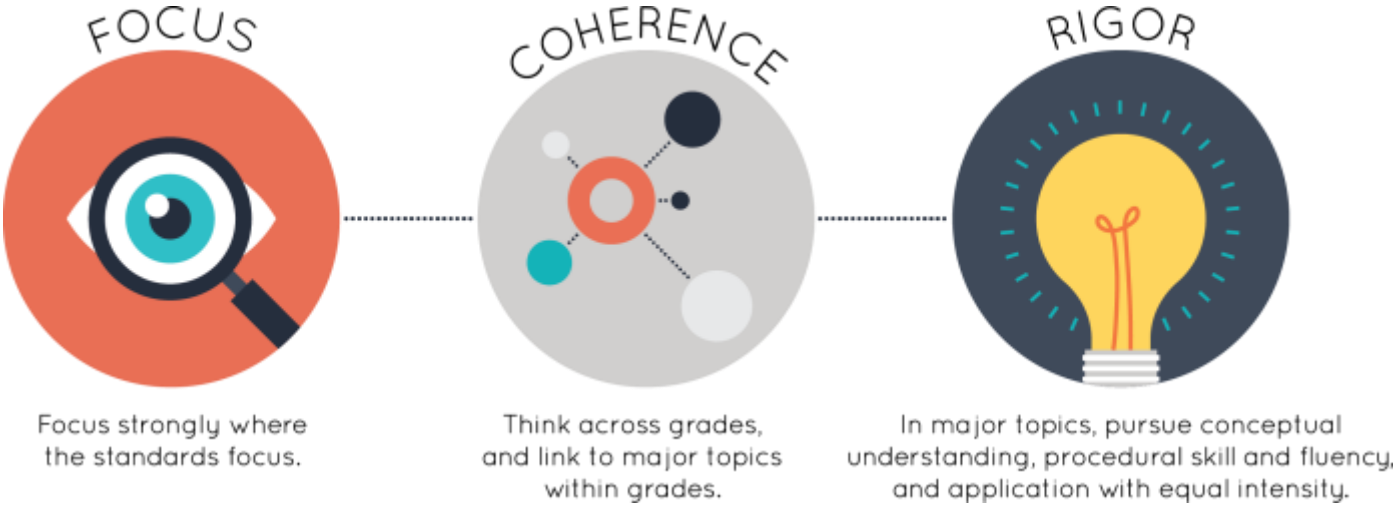
DEPARTMENT of EDUCATION
Louisiana Believes

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: **Algebra 1**

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 the full intent of the Algebra I LSSM.
	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**	Items adhere to the content limitations outlined in the LSSM and the Assessment Guides. The functions and equations students use in the items are within the content limitations as outlined in the LSSM. Item 41 on the Benchmark Assessment emphasizes function domain Standard A1: F-LE.A.1 as students must distinguish between linear and exponential functions. In addition, item 81 on the Algebra I sample items focuses on LSSM A1: A-REI.B.4b; here, students solve a quadratic equation by inspection and find an answer of no solution when the result yields a complex solution. However, Items 31, 41 and 45 in the Number and Quantity/Statistics and Probability bank of items require students to calculate the correlation coefficient of a given set of data. LSSM S-ID.C.8 states the use of technology when calculating this value, therefore, these items would need to be placed in the calculator section of any given assessment, or a statement of calculator use should be added to the items.
	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**	Items use the number system appropriate to Algebra 1. Items use a plethora of rational number types as well as irrational numbers. LSSM A1: A-CED.A.4 is emphasized in item 56 and item 58 of the Algebra sample items, Here, students solve literal equations, resulting in a square root solution and a fractional coefficient, respectively. Item 34 on the Benchmark Assessment has students describe the sum and product of a rational and irrational number (LSSM N-RN.B.3). Item 46 on the Functions assessment, aligned to LSSM F-IF.B.5, also require students to identify an appropriate domain of a given function utilizing

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			conceptual understanding of components of the Real Number System.
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**	On the Algebra I Benchmark Assessment, 34 out of 52 items (65%) focus on the major LSSM for Algebra 1. The answer key states that item 16 is related to major LSSM A-REI.B.3. This standard states the following: "Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters". Item 16 does not require students to solve the given equation and inequality. Instead, students are expected to explain how the equation and inequality should be solved; therefore, excluding Item 16 as a major work component.
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. For example, item 30 of the Functions sample items requires students to write out a recursive formula to describe the given sequence. While aligned to national standards for Algebra I, this topic is not found within the Algebra I LSSM and, therefore, would not be included in the Algebra I bank.
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 understanding, procedural skill and fluency, and application.	**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 on the provided Benchmark assessment for Algebra 1 explicitly require students to demonstrate conceptual understanding, especially where called for in specific content standards. Item 24 calls for students to describe the term "correlation" as it relates to the curriculum (A1: S-ID.C.9). Item 26 on the Algebra I Benchmark assessment, aligned to LSSM A1: A-CED.A.1, requires students to utilize conceptual understanding of context to create an equation and identify key components of those equations. Item 34 aligns to LSSM A1: N-RN.B.3, and requires students to make

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☐ Yes ☒ No			inferences about the sum and product of a rational and irrational number based on their conceptual understanding relative to number sense. Item 46 requires students to choose the graph that best represents the given solution of a system of equations (A1: A-REI.D.11).
	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 items on the provided Benchmark assessment for Algebra 1 explicitly require students to demonstrate procedural skill and fluency, especially where called for in specific content standards. Item 2 emphasizes LSSM A1: A-REI.B.3 as students must solve the linear equation in order to determine the value of x. Item 31, aligned to LSSM A1: F-IF.A.2, assesses procedural skill and fluency by requiring students to evaluate a function for a given input. Item 49 requires students to determine perfect square binomials and solutions of a quadratic equation by completing the square as emphasized in LSSM A1: A-REI.B.4a.
	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 30% of the items provided on the Algebra I Benchmark assessment explicitly assess single- and multi-step word problems, simple models, and substantial modeling/application problems.
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 LSSM Algebra I include connections between the Standards for Mathematical Content and Standards for Mathematical Practice. Question 2 (A-REI.B.3) requires students to solve a linear equation in order to determine the correct value for x (MP.6). Question 44 (A1: F-IF.C.7a)

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			asks students to choose the graph (MP.5) and description that represents the given quadratic function with the appropriate intercepts (MP.2). Items throughout the materials provided frequently align to Math Practices 1, 3, and 6, by requiring students to identify true statements, select those statements that best describe a situation, and to determine reasoning behind these selections. In addition, the connection between Algebra I LSSM and Math Practices 2, 3, 4, and 5 is also evident in the provided Constructed Response items and the Performance Task, where students justify responses through the use of appropriate tools, providing mathematical reasoning, and demonstrating understanding through mathematical 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 Algebra I LSSM through multiple choice, multiple select, numeric response, and constructed response item types. Question 10 (A1: F-IF.B.4) and question 35 (A1: F-BF.B.3) both require students to choose each correct answer in a multi-select format. Question 7 (A1: A-CED.A.2) and question 40 (A1: A-REI.D.10) each require students to choose the sole answer in a multiple-choice format. Question 1 on the constructed response section requires students to provide a numeric response and explanation of the approximate point of intersection given two functions (A1: A-REI.D.11). The given Performance Task, aligned to LSSM A-CED.A.2-3, A-REI.C.6, and F-IF.B.4-5 requires students to explain responses, show work to support responses, as well as, create a system of equations and graph to represent a real-world situation. Additionally, examples of technology enhanced items are provided to represent “drag and drop” items, utilizing a coordinate

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			plane to draw a line, 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 Algebra I 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 Algebra I curriculum in a random fashion. For example, questions 44 - 46 focus on Standards A1: F-IF.C.7a, A1: N-Q.A.3, A1: A-REI.D.11, ensuring that students are not using the previous as a cue for the upcoming material. items 67 through 76 in the Algebra bank of assessment items are all aligned to major LSSM A-REI.B.3, which requires students to "Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters". Each aligned item provides opportunity for students to demonstrate procedural skill and fluency through solving given equations/inequalities, creating and solving equations to determine missing side lengths of figures, as well as, solving equations that represent real life values without specific cues to use a specific solution process.
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 assess the full intent of the Standards, stay within the content limitations, and use the

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			number system appropriate to Algebra I.
	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 3.
	4. Rigor and Balance	**Yes**	The Algebra I 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 Algebra I 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 Algebra I 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 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.