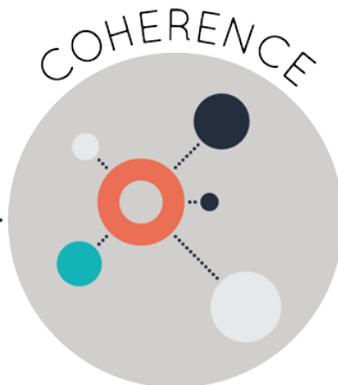


Strong mathematics instruction contains the following elements:



Focus strongly where the standards focus.



Think across grades, and link to major topics within grades.



In major topics, pursue conceptual understanding, procedural skill and fluency, and application with equal intensity.

Title: **Math Interim Assessments**

Grade: **3-5**

Publisher: **Achievement Network**

Copyright: **2016**

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. Assessing Supporting Content	
7. Calling for Variety in Item Type, Student Work	
8. Constructing Forms Without Cueing Solution Proc	
9. 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 – 9.

Tier 2 ratings receive a “Yes” in Column 1 for all non-negotiable criteria (Criteria 1 – 4), 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.			
<p>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)</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>1a) 90% of items and/or sets of items exhibit alignment to the full intent of the LSSM for that grade/course.</p>	<p>Yes</p>	<p>The Achievement Network has a robust bank of items through which they are able to create assessments that assess the full intent of the LSSM. The items provided for review, either individually or as a set of items, assess the full intent of the LSSM for each grade. For example, there is a set of items aligned to 3.MD.B.3 that assess students' ability to create a scaled graph to represent data and solve problems using the data presented in graphs, which are each an explicit expectation of the target standard.</p>
	<p>1b) Items and/or sets of items adhere to content limitations outlined in the LSSM and the Assessment Guides. All limitations for all grade K-HS provided in footnotes of the LSSM are also followed.</p>	<p>Yes</p>	<p>100% of items on the Grades 3-5 assessments adhere to the content limitations outlined in the LSSM and the Assessment Guides. For example, in Grade 3, fractions should be limited to those with denominators of 2, 3, 4, 6, and 8, according to Standards 3.NF.A.1-3. All items on the Grade 3 interim assessment and in the sample item packet that use fractions adhere to this content limitation. For example, Problem 12 asks students to recognize equivalent fractions with denominators of 2, 3, 4, 6 and 8.</p> <p>In Grade 4, Standards 4.NBT.A.1-4.NBT.B.4 limit use of multi-digit whole numbers to numbers less than or equal to 1,000,000. All items on the Grade 4 interim assessment and in the sample item packet use numbers that adhere to this content limitation. For example, Problem 9 on the interim assessment asks students to round 687,433 round to the nearest hundred thousand. This number is less than 1,000,000, and therefore, adheres to this content limitation.</p> <p>In Grade 5, 5.NF.B.7 requires students to divide unit fractions by whole numbers and whole numbers by unit fractions. In the Grade 5 sample item packet, Problems 53, 54, 55, 56,</p>

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
	<p>1c) Items and/or sets of 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.</p>	Yes	<p>57, and 58 adhere to this content limit by having students only use unit fractions to divide.</p> <p>All items use the number system appropriate to the grade.</p> <p>In Grade 3, students should encounter fractions greater than 1. Problem 6 on the Grade 3 sample items asks students to identify the point $\frac{5}{3}$ on a number line. Problem 7 asks students to plot the point $\frac{4}{3}$ on a number line, and Problem 8 asks students to plot a point on the number line that is equivalent to the point $\frac{4}{3}$.</p> <p>In Grade 4, Standard 4.NBT.B.4 requires that students fluently add and subtract multi-digit whole numbers with sums less than or equal to 1,000,000, using the standard algorithm, as compared with the Grade 3 Standard 3.NBT.A.2, which requires students to fluently add and subtract numbers within 1000. Problems 1, 5, 8, 16, and 22 on the Grade 4 interim assessment require students to add or subtract multi-digit whole numbers greater than 1000 and less than 1,000,000.</p> <p>In Grade 5, Standard 5.NBT.A.3 requires students to read, write, and compare decimals to thousandths, as compared to Grade 4 Standard 4.NBT.C.7, which requires students to compare decimals to hundredths. On the Grade 5 interim assessment Problem 1, Problem 12 and Problem 25 ask students to compare decimals to the thousandths.</p>
<p>Non-Negotiable 2. FOCUS ON MAJOR WORK: The large majority of points in each grade/course are devoted to the</p>	<p>2a) Each grade/course’s assessments meet or exceed the following score-point distributions for the major work of the grade.</p> <ul style="list-style-type: none"> 85% of the total points in grades K–2 align exclusively to 	Yes	<p>Interim assessments and sample assessment items combined for Grades 3-5 exceed the score-point distributions for the major work of each grade.</p>

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
<p>major work of the grade.</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>the major work of the grade.</p> <ul style="list-style-type: none"> • 75% of the total points in grades 3–5 align exclusively to the major work of the grade. • 65% of the total points in grades 6–12 align exclusively to the major work of the grade. 		<p>In Grade 3, 87% (104 out of 120 score-points) of the total points align to the major work of the grade. For example, Problem 17 of the Grade 3 interim assessment requires students to use multiplication to solve a word problem. This assessment item specifically addresses Standard 3.OA.A.3, where students "use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem." In grade 3, Standard 3.OA.A.3 is considered major work.</p> <p>In Grade 4, 83% (109 out of 131 score-points) of the total points align to the major work of the grade. For example, Problem 4 of the Grade 4 interim assessment requires students to use place value understanding to round multi-digit whole numbers. This assessment item specifically addresses Standard 4.NBT.A.3, where students "use place value understanding to round multi-digit whole numbers, less than or equal to 1,000,000, to any place." In Grade 4, Standard 4.NBT.A.3 is considered major work.</p> <p>In Grade 5, approximately 88% (114 out of 130 score-points) of the total points align to the major work of the grade. For example, Problem 4 of the Grade 5 interim assessment requires students to multiply multi-digit whole numbers. This assessment item specifically addresses Standard 5.NBT.B.5, where students "fluently multiply multi-digit whole numbers using the standard algorithm." In Grade 5, Standard 5.NBT.B.7 is considered major work.</p>

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
<p>Non-Negotiable 3. FOCUS: No item assesses topics directly or indirectly before they are introduced in the LSSM.</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>3a) 100% of items on an assessment address only knowledge of topics found in the LSSM in the specified grade/course.</p>	<p>Yes</p>	<p>100% of items on the interim assessments and in the sample item packets address only knowledge of topics found in the LSSM in the specified grade. For example, Problem 11 on the Grade 3 interim assessment requires students to divide using the relationship between multiplication and division. This assessment item specifically addresses Standard 3.OA.C.7, where students are expected to “fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations.” Problem 2 on the Grade 4 interim assessment requires students to find an expression equal to 403×9. This aligns with Standard 4.NBT.B.5, which requires students to multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Problem 19 on the Grade 5 interim assessment requires students to find an expression that shows 0.019 written in expanded form. This aligns with Standard 5.NBT.A.3a, which requires students to read and write decimals to thousandths using base-ten numerals, number names, and expanded form.</p>
<p>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.</p>	<p>4a) For Conceptual Understanding: K–High School: At least 20% of the total score-points on the assessment(s) for each grade or course explicitly require students to demonstrate conceptual understanding especially where called for in specific content standards.</p>	<p>Yes</p>	<p>At least 20% of the total score-points on the assessment for each grade explicitly require students to demonstrate conceptual understanding especially where called for in specific content standards.</p> <p>In Grade 3, 58% (70 out of 120 score-points) of the total score-points on the interim assessment and sample item packet explicitly require students to demonstrate conceptual understanding, especially where called for in the standards. For example, Standard 3.NF.A.3a calls specifically for conceptual</p>

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			<p>understanding: Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line. Problem 10 in the sample item packet requires students to demonstrate conceptual understanding by choosing the pair of shaded rectangles that represents equivalent fractions.</p> <p>In Grade 4, 69% (90 out of 131 score-points) of the total score-points on the interim assessment and sample item packet explicitly require students to demonstrate conceptual understanding, especially where called for in the standards. For example, Standard 4.NF.A.2 specifically calls for conceptual understanding: Compare two fractions with different numerators and different denominators; recognize the comparisons are valid only when the two fractions refer to the same whole; record the results of the comparisons with symbols $>$, $=$, or $<$ and justify the conclusions. Problem 21 gives students two fraction models that are drawn with different wholes. They are to explain if the models can be used to compare the two fractions and why. Then students must write a number sentence to correctly compare the two fractions and justify their answers. This problem allows students to demonstrate their understanding that fractions can only be compared when referring to the same-size whole and their understanding of comparing fractions.</p> <p>In Grade 5, 62% (81 out of 130 score-points) of the total score-points on the interim assessment and sample item packet explicitly require students to demonstrate conceptual understanding, especially where called for in the standards. For example, 5.NBT.A.4 requires students to use place value understanding to round decimals to any place. Problems 5, 11, 17, and 23 of the interim assessment ask</p>

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			<p>students to round given numbers to various place values, including nearest whole number, nearest tenth, and nearest hundredth. Problem 17 includes an added component of requiring students to explain their reasoning in terms of place value.</p> <p>It should be noted that Standard 5.NBT.B.7 specifically calls for conceptual understanding. While this standard is assessed on 8 different problems, none of the problems require students to demonstrate conceptual understanding of adding, subtracting, multiplying, and dividing decimals. All of the problems focus on calculation and do not allow for students to demonstrate their understanding. The portion of the standard that requires students to justify the reasoning used with a written explanation is not included.</p>
	<p>4b) For Procedural Skill and Fluency: K–High School: At least 20% of the total score-points on the assessment(s) for each grade or course explicitly require students to demonstrate procedural skill and fluency, especially where called for in specific content standards.</p>	<p>Yes</p>	<p>While having a large number of items that require and assess conceptual understanding along with an adequate amount of real-world, non-routine application items, there also exists items that assess students' ability perform mathematical procedures required at each grade as well as the explicit fluency expectations in Grades 3, 4, and 5.</p>
	<p>4c) For Applications</p> <ul style="list-style-type: none"> • K–5: At least 20% of the total score-points on the assessment(s) for each grade explicitly assess solving single- or multi-step word problems. • 6–8: At least 25% of the total score points on the assessment(s) for each grade explicitly assess solving single- and multi-step word problems and simple models. • High School: At least 30% of the total score-points on the assessment(s) for each high school course explicitly assess single- and multi-step word problems, simple models, and substantial modeling/application problems. 	<p>Yes</p>	<p>At least 20% of the Grade 3, Grade 4, and Grade 5 total score-points on the interim assessment and sample items packet explicitly assess solving single- or multi-step word problems.</p> <p>In Grade 3, approximately 29% (35 out of 120 score-points) of the total score-points on the interim assessment and the sample items packet require students to solve single and multi- step word problems, especially where called for in the standards. For example, Standard 3.OA.D.8 specifically calls for application and requires students to solve two-step word problems using the four operations.</p>

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			<p>Problem 38 in the sample item packet requires students to solve a two-step word problem using multiplication and division.</p> <p>In Grade 4, approximately 20% (26 out of 131 score-points) of the total score-points on the interim assessment and the sample items packet require students to solve single- and multi-step word problems. For example, Standard 4.OA.A.3 specifically calls for application and requires students to solve multi-step word problems with the four operations. Problem 53 in the sample item packet requires students to solve a multi-step word problem using multiplication and division.</p> <p>Several items on the interim assessment and the sample items packet require students to solve single- and multi-step word problems. For example, Standard 5.NF.A.2 specifically calls for application and requires students to solve word problems involving addition and subtraction of fractions. Problems 35 and 36 in the sample item packet require students to solve word problems involving addition and subtraction of fractions.</p>
SECTION II: ADDITIONAL INDICATORS OF QUALITY			
<p>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.</p>		<p>Yes</p> <p>Of the items provided for review, several items meaningfully connect Math Practices 1, 3, and 4 to the content standards, requiring students to engage in real-world problem solving by solving and explaining their solutions to non-routine problems. Furthermore, the scoring guides for such items show teachers how to hold students accountable for Math Practice 6, attending to precision, by providing exemplar answers that use precise mathematical language.</p>	
<p>6. Assessing Supporting Content. Supporting content and major work are not always be assessed together and not always assessed separately. There exists Items and/or sets of items assessing</p>		<p>Yes</p> <p>While the Major Work was the focus of most items, Supporting and Additional content was assessed in a meaningful way, enhancing the</p>	

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
	supporting content that enhance focus and coherence simultaneously by engaging students in the major work of the grade or course.		focus on Major Work. For example, assessment of 4.MD.A.2, supporting, was well connected to 4.OA.A.3, major.
	7. 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	Of the items provided for review, there existed a wide array of item types including multiple choice, multiple select, numeric response, and contracted response. Furthermore, there was a variety in what students were expected to produce, providing teachers with a more clear picture of the students' mastery of the targeted standards.
	8. 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	On the sample assessment provided for review, the items were arranged in such a way as to not scaffold the mathematical concepts/topics being assessed in a way that would make progressing through the later portion of the assessment easier based on the earlier portion of the assessment.
	9. Quality Materials. The assessment items, answer keys, and documentation are free from mathematical errors.	Yes	All provided answer keys and scoring guides were free from mathematical errors. Moreover, the use of precise mathematical language was both consistent and grade appropriate.
FINAL EVALUATION			
<i>Tier 1 ratings</i> receive a “Yes” in Column 1 for Criteria 1 – 4 and a “Yes” for all additional indicators 5 – 11.			
<i>Tier 2 ratings</i> receive a “Yes” in Column 1 for all non-negotiable criteria (Criteria 1 – 4), but at least one “No” for additional indicators 5 – 9.			
<i>Tier 3 ratings</i> 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	Greater than 90% of the test items exhibited alignment to the full intent of the LSSM for the targeted grades. Items do adhere to content limitations of the grades and the correct number systems of the grades.
	2. Focus on Major Work	Yes	At least 75% of items at each grade level align exclusively to the major work of that grade.
	3. Focus	Yes	100% of items only assess concepts in the LSSM for that grade level.
	4. Rigor and Balance	Yes	The components of rigor were well balanced, and points fairly distributed across the

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			components of rigor.
II: Additional Indicators of Quality	5. Practice-Content Connections	Yes	Connections to the Standards for Mathematical Practice were consistent and meaningful.
	6. Assessing Supporting Content	Yes	While the Major Work was the focus of most items, Supporting and Additional content was assessed in a meaningful way, enhancing the focus on Major Work.
	7. Calling for Variety in Item Type and Student Work	Yes	There existed a wide array of items calling for a variety in what students were asked to produce.
	8. Constructing Forms Without Cueing Solution Processes	Yes	The forms were well constructed and sequenced to allow for a fair and accurate assessment.
	9. Quality Materials	Yes	The materials were free from error.
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.