

CCSS Assessment Evaluation Tool (AET) – MATHEMATICS GRADES K–High School

To evaluate each grade/course's assessments for alignment with the Common Core State Standards (CCSS), analyze the assessments against the non-negotiable criteria on the following pages. Each grade/course's assessments and item banks must meet all of the non-negotiable criteria and associated metrics to align with the CCSSM.

BEFORE YOU BEGIN

ALIGNMENT TO THE COMMON CORE STATE STANDARDS

Evaluators of assessments should understand that at the heart of the Common Core State Standards there are substantial shifts in mathematics that require the following:

- 1) Focus strongly where the Standards focus
- 2) Coherence: Think across grades and link to major topics within grade
- 3) Rigor: In major topics, pursue conceptual understanding, procedural skill and fluency, and application with equal intensity.

Evaluators of assessments must be well versed in the CCSS for the grade level of the materials in question, including understanding the major work of the grade¹ vs. the supporting and additional work, how the content fits into the progressions in the Standards, and the expectations of the Standards with respect to conceptual understanding, procedural skill and fluency, and application. It is also recommended that evaluators refer to the Spring 2013 K–8 Publishers' Criteria for Mathematics and the Spring 2013 High School Publishers' Criteria for the Common Core State Standards for Mathematics while using this tool (achievethecore.org/publisherscriteria).

ORGANIZATION

SECTION 1: NON-NEGOTIABLE ALIGNMENT CRITERIA

All grade or course assessments must meet all of the non-negotiable criteria at each grade/course level to be aligned to CCSS.

SECTION 2: INDICATORS OF QUALITY.

Indicators of quality are scored differently from the non-negotiable criteria; a higher score in Section 2 indicates that assessments are more closely aligned.

REVIEW

Evaluator: _____ Assessments: _____ Grade: _____ Date: _____

¹ For more on the major work of each grade, see achievethecore.org/emphases.

SECTION I	METRICS	
Non-Negotiable 1. FOCUS ON MAJOR WORK: The large majority of points in each grade K–8 are devoted to the major work of the grade, and the majority of points in each High School course are devoted to widely applicable prerequisites.² <i>This criterion applies to fixed form or CAT assessments, whether summative assessments or a set of interim/benchmark assessments. Item banks also should reflect the proportions in the metrics.</i>	For grades K–8, each grade/course’s assessments meet or exceed the following percentages for the major work of the grade. 85% or more of the total points in each grade Kindergarten, 1, and 2 align exclusively to the major work of the grade.³ 75% or more of the total points in each grade 3, 4, and 5 align exclusively to the major work of the grade. 65% or more of the total points in each grade 6, 7, and 8 align exclusively to the major work of the grade. For high school, aligned assessments or sets of assessments meet or exceed the following percentages: 50% or more of the total points in each high school course align to widely applicable prerequisites for postsecondary work.⁴	
Non-Negotiable 1. FOCUS ON MAJOR WORK <i>To be aligned to the CCSSM, each grade/course’s assessments should meet or exceed the percentages in the metrics.</i>	Meet (Y/N)	Evidence

² Refer also to criterion #1 in the K–8 Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013) and criterion #1 in the High School Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).

³ The major work of each grade is listed at <http://achievethecore.org/focus>.

⁴ The widely applicable prerequisites for postsecondary work is listed at <http://achievethecore.org/prerequisites>.

SECTION I	METRICS	
Non-Negotiable 2. FOCUS IN K–8: No item assesses topics directly or indirectly before they are introduced in the CCSSM.⁵ <i>This criterion applies to fixed form or CAT assessments, whether a summative assessment or a set of interim/benchmark assessments. All items also should reflect the metric.</i>	100% of items on the assessment(s) do not assess knowledge of topics before the grade level they are introduced in the CCSSM. Commonly misaligned topics include, but are not limited to: • Probability, including chance, likely outcomes, probability models. (Introduced in the CCSSM in grade 7) • Statistical distributions, including center, variation, clumping, outliers, mean, median, mode, range, quartiles; and statistical association or trends, including two-way tables, bivariate measurement data, scatter plots, trend line, line of best fit, correlation. (Introduced in the CCSSM in grades 6–8; see CCSSM for specific expectations by grade level.) • Similarity, congruence, or geometric transformations. (Introduced in the CCSSM in grade 8) • Symmetry of shapes, including line/reflection symmetry, rotational symmetry. (Introduced in the CCSSM in grade 4)	
Non-Negotiable 2. FOCUS IN K–8: <i>To be aligned to the CCSSM, each grade/course’s assessments do not assess topics directly or indirectly before they are introduced in the CCSSM.</i>	Meet (Y/N)	Evidence

⁵ Refer also to criterion #2 in the K–8 Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).

SECTION I	METRICS	
Non-Negotiable 3. 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.⁶ <i>This criterion applies to fixed form or CAT assessments, whether summative assessments or a set of interim/benchmark assessments. Item banks also should reflect the proportions in the metrics.</i>	For Conceptual Understanding: Standards requiring student “understanding” (e.g., 3.NF.A.1, 6.RP.A.2, 7.NS.A.1, A-REI.D.10) are explicitly listed in the blueprint(s) and assessed to ensure students have met these expectations. • 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 of key mathematical concepts, especially where called for in specific content standards or cluster headings. For Procedural Skill and Fluency: Standards requiring students to “fluently” compute (e.g., 3.OA.C.7, 4.NBT.B.4, 5.NBT.B.5, 6.NS.B.2) are explicitly listed in the blueprint(s) and assessed to ensure students have met these expectations. • K–6: At least 20% of the score-points on the assessment(s) for each grade explicitly assess procedural skill and fluency requirements in the Standards. • 7–8 and High School: At least 20% of the score-points on the assessment(s) for each grade or course explicitly assess procedural skill and fluency. For Applications: Standards requiring students to “solve” “real-life and mathematical problems” (e.g., 1.OA.A.2, 4.OA.A.3, 7.EE.B.3, A-REI.B.4) are explicitly listed in the blueprint(s) and assessed to ensure students have met these expectations. • 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.	
Non-Negotiable 3. RIGOR AND BALANCE <i>To be aligned to the CCSSM, each grade/course’s assessments meet or exceed the percentages in the metrics.</i>	Meet (Y/N)	Evidence

⁶ Refer also to criterion #4 in the K-8 Publishers’ Criteria for the Common Core State Standards for Mathematics (Spring 2013) and criterion #2 in the High School Publishers’ Criteria for the Common Core State Standards for Mathematics (Spring 2013).

SECTION I	METRICS	
Non-Negotiable 4. 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.⁷ <i>This criterion applies to fixed form or CAT assessments, whether summative assessments or a set of interim/benchmark assessments. Item banks also should reflect the metrics.</i>	All assessments or sets of assessments include accompanying analysis, aimed at evaluators, which describes: • how the Standards for Mathematical Practice meaningfully connect to the Standards for Mathematical Content assessed. • how each item that assesses one or more Standards for Mathematical Practice also aligns to one or more Standards for Mathematical Content. • how the Standards for Mathematical Practice enhance the focus on major content, rather than detracting from focus. • how the demands of the Standards for Mathematical Practice are grade-appropriate, • how items assess the Standards for Mathematical Practice with an arc of growing sophistication, beginning in an elementary way in grades K–5.	
Non-Negotiable 4. PRACTICE-CONTENT CONNECTIONS <i>To be aligned to the CCSSM, a grade/course’s assessments must meaningfully connect the Standards for Mathematical Practice and the Standards for Mathematical Content and include a narrative that describes how they are meaningfully connected.</i>	Meet (Y/N)	Evidence

⁷ Refer also to criterion #7 in the K-8 Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013) and criteria #5 High School Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).

SECTION I	METRICS	
Non-Negotiable 5. ALIGNMENT OF TEST ITEMS: Test items elicit direct, observable evidence of the degree to which a student can independently demonstrate the targeted standard(s), adhering to the full intent of the CCSSM. <i>This criterion applies to fixed form or CAT assessments, whether summative assessments or a set of interim/benchmark assessments. All items and/or sets of items should reflect the metric.</i>	100% of items and/or sets of items exhibit alignment to the full intent of the CCSSM for that grade or course⁸⁹: • Directly reflecting the language of individual standards. ○ For example, 6.EE.3 puts the emphasis on applying properties of operations and generating equivalent expressions, not just mechanically simplifying. ○ Most items aligned to a single standard should assess the central concern of the standard in question. • Reflecting the progressions in the Standards. ○ For example, multiplication and division items in grade 3 emphasize equal groups, with no rate problems (grade 6 in CCSS). • Assessing all levels of the content hierarchy. ○ For example, by including some items that assess clusters. • Using the number system appropriate to the grade level. ○ 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.	
Non-Negotiable 5. ALIGNMENT OF TEST ITEMS <i>To be aligned with the CCSSM, each grade/course's assessments only include items that align with the CCSSM.</i>	Meet (Y/N)	Evidence
Each grade/course's assessments must meet all five of the non-negotiable criteria to be aligned to the CCSS and to continue to the evaluation in Section II.		# Criteria Met:

⁸ Refer also to the K–8 Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013) and the High School Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).

⁹ See the Quality Criteria Checklist for Mathematics Items created by Student Achievement Partners:
<http://www.ccsmitemdevelopment.org/downloads/Quality%20Criteria%20Checklists%20for%20Items.pdf>

SECTION II: INDICATORS OF QUALITY

Each grade/course's assessments must meet all five of the non-negotiable criteria to be aligned to the CCSS and to continue to the evaluation in Section II.

Section 2 includes indicators of quality. *Indicators of quality are scored differently from the non-negotiable criteria; a higher score in Section 2 indicates that assessments are more closely aligned.*

Consider this guidance when evaluating:

- 2 – (meets criteria): A score of 2 means that the assessments meet the full intention of the criterion in a grade/course.
- 1 – (partially meets criteria): A score of 1 means that the assessments meet the criterion in many aspects but not the full intent of the criterion.
- 0 – (does not meet criteria): A score of 0 means that the materials do not meet many aspects of the criterion.

SECTION II INDICATORS OF QUALITY	SCORE			JUSTIFICATION/NOTES
1. Assessing Supporting Content. Assessment of supporting content enhances focus and coherence simultaneously by engaging students in the major work of the grade or course. ¹⁰	2	1	0	
2. Addressing Every Standard for Mathematical Practice. Every Standard for Mathematical Practice is represented on the assessment(s) for each grade or course.	2	1	0	
3. Expressing Mathematical Reasoning. There are sufficiently many points on the assessment(s) for each grade or course that explicitly assess expressing and/or communicating mathematical reasoning.	2	1	0	
4. Constructing Forms Without Cueing Solution Processes. Item sequences do not cue the student to use a certain solution process during problem solving and assessment(s) include problems requiring different types of solution processes within the same section.	2	1	0	
5. Calling for Variety in Student Work. Items 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, diagrams, mathematical models, etc. ¹¹	2	1	0	
6. Utilizing a Variety in Presentation of the Content. Items present mathematical content in a variety of ways so that students must thoughtfully engage with various application contexts, mathematical representations, and structures of equations.	2	1	0	
7. Using Grade-Appropriate Presentation. The graphics, diagrams, vocabulary, and sentence structure in each item are appropriate for students at that grade level.	2	1	0	

¹⁰ Refer also to criterion #3 in the K-8 Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).

¹¹ Refer also to criterion #9 in the K-8 Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013) and criteria #7 High School Publishers' Criteria for the CCSSM (Spring 2013).

8. Providing Quality Materials. The assessment items, answer keys, and documentation are free from mathematical errors.	2 1 0	
9. Offering Coherent Representations. Where specific features of the standards do not vary strongly across the grades, consistent, coherent representations are used (e.g., area models are used for multiplication of whole numbers and fractions in grades 3–5, number line models are used for representing order and magnitude of numbers in grades 2–8, and similar situation types are used for word problems in grades K–6).	2 1 0	
10. Generating Focused Score Reports. All score report information, including subscores, supporting texts, and performance level descriptors, highlight the focus of the assessment(s). They give instructionally valuable information and provide information about progress toward college and career readiness.	2 1 0	
ADD UP TOTAL POINTS EARNED	Total _____	Notes/Justification: