

Grades K-5

Instructional Materials Evaluation Tool (IMET)

Mathematics, Grades K–8

Introduction

What Are the Purposes of the IMET?

This Math IMET is designed to help educators determine whether instructional materials are aligned to the Shifts and major features of the Common Core State Standards (CCSS). The substantial instructional Shifts (www.corestandards.org/other-resources/key-shifts-in-mathematics/) at the heart of the Common Core State Standards are:

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

Traditionally, judging alignment has been approached as a crosswalking exercise. But crosswalking can result in large percentages of “aligned content” while obscuring the fact that the materials in question align not at all to the letter or the spirit of the standards being implemented. The IMET is designed to sharpen the alignment question and make alignment and misalignment more clearly visible. The IMET draws from the Common Core State Standards for Mathematics (www.corestandards.org/Math).

For materials passing the IMET, educators can make use of more detailed instruments available in the Materials Alignment Toolkit (www.achievethecore.org/materials-alignment-toolkit) developed collaboratively by the Council of the Great City Schools, the Council of Chief State School Officers, and Achieve to enable further analysis of individual grade-level alignment, supports for special populations, and other aspects of quality in aligned materials.

When to Use the IMET

1. Evaluating materials currently in use: The IMET can be used to analyze the degree of alignment of existing materials and help to highlight specific, concrete flaws in alignment. Even where materials and tools currently in use fail to meet one or more of these criteria, the pattern of failure is likely to be informative. States and districts can use the evaluation to create a thoughtful plan to modify or combine existing resources in such a way that students’ actual learning experiences approach the focus, coherence, and rigor of the Standards.
2. Purchasing materials: Many factors go into local purchasing decisions. Alignment to the Standards is a critical factor to consider. This tool is designed to evaluate alignment of instructional materials to the Shifts and the major features of the CCSS. It also provides suggestions of additional indicators to consider in the materials evaluation and purchasing process.
3. Developing programs: Those developing new programs can use this tool as guidance for creating aligned curricula.

Please note that this tool was designed for evaluating comprehensive curricula (including their supplemental or ancillary materials), but it was not designed for the evaluation of standalone supplemental materials.

Who Uses the IMET?

Evaluating instructional materials requires both subject-matter and pedagogical expertise. Evaluators should be well versed in the Standards (www.corestandards.org/Math) for all grades in which materials are being evaluated. This includes understanding not only the individual standards statements, but also the overall structure of CCSSM itself (see www.achievethecore.org/progressions and www.achievethecore.org/file/2530), as well as the expectations of the Standards with respect to conceptual understanding, procedural skill and fluency, and application.

Getting Started

Prior to Evaluation

Assemble all of the materials necessary for the evaluation. It is essential for evaluators to have materials for all grades covered by the program, as some criteria cannot be rated without having access to each grade. In addition, each evaluator should have a reference copy of the Common Core State Standards for Mathematics (www.corestandards.org/Math). Reviewers may also choose to reference the K-8 Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013), for additional support and guidance. (www.achievethecore.org/content/upload/Math_Publishers_Criteria_K-8_Spring_2013_FINAL.pdf).

Before conducting the evaluation itself, it is important to develop a protocol for the evaluation process. The protocol should include having evaluators study the IMET. It will also be helpful for evaluators to get a sense of each program overall before beginning the process. At a minimum, this would include reading the front matter of the text, looking at the table of contents, and paging through multiple chapters.

Sections 1–3 below should be completed to produce a comprehensive picture of the strengths and weaknesses of the materials under evaluation. Information about areas in need of improvement or supplementation should be shared with internal and external stakeholders.

Navigating the Tool

Step 1: Non-Negotiable Alignment Criteria (p. 4)

- The Non-Negotiable Alignment Criteria must each be met in full for materials to be considered aligned to the Shifts and the major features of the Common Core State Standards. Each Non-Negotiable Alignment Criterion has one or more metrics associated with it; every one of these metrics must be met in order for the criterion as a whole to be met.

- Examine the relevant materials and use evidence to rate the materials against each criterion and its associated metric(s).
- Record and explain the evidence upon which the rating is based.

Step 2: Alignment Criteria (p. 17)

- The Alignment Criteria must each be met for materials to be considered aligned to the Shifts and the major features of the Common Core State Standards. For each Alignment Criterion, a specified number of the associated metrics must be met or partially met in order for the criterion as a whole to be met.
- Examine the materials in relation to these criteria, assigning each metric a point value. Rate the criterion as “Meets” or “Does Not Meet” based on the number of points assigned. The more points the materials receive on the Alignment Criteria, the better they are aligned.
- Record and explain the evidence upon which the rating is based.

Step 3: Evaluation Summary (p. 37)

- Compile all of the results from Sections 1 and 2 to determine if the instructional materials are aligned to the Shifts and major features of the CCSS.

Step 4: Indicators of Quality (p. 39)

- Indicators of Quality are important considerations that will help evaluators better understand the overall quality of instructional materials. These considerations are not criteria for alignment to the CCSS, but they provide valuable information about additional program characteristics. Evaluators may want to add their own indicators to the examples provided.

Directions for Non-Negotiable 1

Freedom from Obstacles to Focus

Non-Negotiable 1: Materials must reflect the content architecture of the Standards by not assessing the specific topics named in Metric 1A* before the grade level where they first appear in the Standards.

The Standards foster students' progress to algebra by focusing strongly on arithmetic. Consistent with this design, certain topics from outside of arithmetic appear in the Standards only in later grades. Thus, to be aligned, materials must reflect the content architecture of the Standards by not assessing the specific topics named in the metric before the grade level where they first appear in the Standards.

Materials to Assemble

- Common Core State Standards for Mathematics (www.corestandards.org/wp-content/uploads/Math_Standards.pdf)
- From the materials being evaluated: teacher guides and all assessment components

It will also be helpful for reviewers to consult the K-8 Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013). (www.corestandards.org/wp-content/uploads/Math_Publishers_Criteria_K-8_Spring_2013_FINAL1.pdf).

Metrics to Review

- **NN Metric 1A:** Materials reflect the basic architecture of the Standards by not assessing the topics listed below* before the grade level indicated.

- 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 grade 6)
- Coordinate transformations or formal definition of congruence or similarity. (Introduced in the CCSSM in grade 8)
- Symmetry of shapes, including line/reflection symmetry, rotational symmetry. (Introduced in the CCSSM in grade 4)

Rating this Criterion

Non-Negotiable 1 is rated as Meets or Does Not Meet.

To rate Non-Negotiable 1, begin by rating Metric 1A. Since Metric 1A is the only metric for Non-Negotiable 1, the rating for Non-Negotiable 1 is the same as the rating for Metric 1A.

If Metric 1A is rated as Does Not Meet, include evidence of when the named topic(s) is/are assessed. If the metric is rated as Meets, list the grade(s) examined in the evaluation.

*No other topics should be added to the list in Metric 1A. [Note that other topics in the standards are addressed in criterion NN2.]

Non-Negotiable 1

Freedom from Obstacles to Focus

Metric

NN Metric 1A:

Materials reflect the basic architecture of the Standards by not assessing the topics listed below* before the grade level indicated.

- 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 grade 6)
- Coordinate transformations or formal definition of congruence or similarity. (Introduced in the CCSSM in grade 8)
- Symmetry of shapes, including line/reflection symmetry, rotational symmetry. (Introduced in the CCSSM in grade 4)

How to Find the Evidence

Evaluate the table of contents, all chapter tests, all unit tests, and other such assessment components (including rubrics).

For context, read Criterion #2 from the K-8 Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).

Evidence

The *Investigations 3* program reflects the basic architecture of the Standards. In grades K-4, the topic of symmetry is first introduced in grade 4.

Grade 4: Unit 4, Sessions 4.1, 4.2, 4.3

Rating



Meets



Does Not Meet

*No other topics should be added to the list in Metric 1A. [Note that other topics in the standards are addressed in criterion NN2.]

Non-Negotiable 1

Freedom from Obstacles to Focus

Non-Negotiable 1: Materials must reflect the content architecture of the Standards by not assessing the specific topics named in Metric 1A* before the grade level where they first appear in the Standards.

Rating for Non-Negotiable 1

If Metric 1A was rated as Meets, then rate Non-Negotiable 1 as Meets. If Metric 1A was rated as Does Not Meet, then rate Non-Negotiable 1 as Does Not Meet. Check the final rating.

Then, briefly describe the strengths and weaknesses of these materials in light of the above Criterion.

Rating

Meets

Does Not Meet

Strengths / Weaknesses:

Investigations 3 introduces the topic of symmetry in a clear and interactive way. Students learn how to integrate the topics of symmetry and area as they build a strong foundation of the topic.

*No other topics should be added to the list in Metric 1A. [Note that other topics in the standards are addressed in criterion NN2.]

Before moving to Non-Negotiable 2, record the final Meets or Does Not Meet rating in the Evaluation Summary on Page 37.

Directions for Non-Negotiable 2

Focus and Coherence

Non-Negotiable 2: Materials must focus coherently on the Major Work of the grade in a way that is consistent with the progressions in the Standards.

Focus and coherence are the two major evidence-based design principles of the Common Core State Standards for Mathematics (CCSSM, p. 3). Focus is necessary in order to fulfill the ambitious promise the states have made to their students by adopting the Standards: greater achievement at the college- and career-ready level, greater depth of understanding of mathematics, and a rich classroom environment in which reasoning, sense-making, applications, and a range of mathematical practices flourish. In simpler terms, a mile-wide, inch-deep curriculum translates to less time per topic. Less time means less depth and moving on without many students. Thus, materials must focus coherently on the Major Work of the grade in a way that is consistent with the progressions in the Standards.

Materials to Assemble

- Common Core State Standards for Mathematics (www.corestandards.org/wp-content/uploads/Math_Standards.pdf)
- From the materials being evaluated: teacher guides, student texts and workbooks
- Focus by Grade Level for the grade being evaluated (www.achievethecore.org/focus)

It will also be helpful for reviewers to consult the K-8 Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013). (www.corestandards.org/wp-content/uploads/Math_Publishers_Criteria_K-8_Spring_2013_FINAL1.pdf).

Metrics to Review

- **NN Metric 2A:** In each grade K–8, students and teachers using the materials as designed devote the large majority of time to the Major Work of the grade.

- **NN Metric 2B:** Supporting Work enhances focus and coherence simultaneously by also engaging students in the Major Work of the grade.
- **NN Metric 2C:** Materials base content progressions on the grade-by-grade progressions in the Standards. Content from previous or future grades does not unduly interfere with or displace on-grade-level content.
- **NN Metric 2D:** Materials are designed to support all students in doing grade-level mathematics.
- **NN Metric 2E:** Materials relate on-grade-level concepts explicitly to prior knowledge from earlier grades.
- **NN Metric 2F:** Review of material from previous grades is clearly identified as such to the teacher, and teacher and students can see what their specific responsibility is for the current year.
- **NN Metric 2G:** Materials include learning objectives that are visibly shaped by CCSSM cluster headings.
- **NN Metric 2H:** Materials include problems and activities that serve to connect two or more clusters in a domain, or two or more domains in a grade, in cases where these connections are natural and important.

Rating this Criterion

Non-Negotiable 2 is rated as Meets or Does Not Meet.

To rate Non-Negotiable 2, first rate metrics 2A–2H. Each of these eight metrics must be rated as Meets in order for Non-Negotiable 2 to be rated as Meets. Rate each metric 2A–2H as Meets or Does Not Meet/Insufficient Evidence. If the evidence examined shows that the Criterion is met, then mark the Criterion Meets. If the evidence examined shows that the Criterion is not met—or if there is insufficient evidence to make a determination—then mark the Criterion as Does Not Meet/Insufficient Evidence. Support all ratings with evidence.

Non-Negotiable 2

Focus and Coherence

Metric

NN Metric 2A:

In each grade K–8, students and teachers using the materials as designed devote the large majority of time to the Major Work of the grade.

How to Find the Evidence

Familiarize yourself with the Major Work of the grade being evaluated (see the Focus by Grade Level documents).

Evaluate the table of contents and any pacing guides. Do not stop there; also evaluate units, chapters and lessons. (Evaluate both student and teacher materials.)

Because calculating percentage in instructional materials is difficult, reviewers should not set a precise percentage threshold for meeting Metric 2A. Instead, consider time spent on the Major Work of the grade and judge qualitatively whether students and teachers using the materials as designed will devote the large majority of time to the Major Work of the grade.

NOTE: Evaluating this metric can include considering how Supporting Work is used to enhance focus on Major Work (see NN Metric 2B).

For context, read Criterion #1 in the K-8 Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).

Evidence

Investigations 3 integrates multiple mathematical concepts in each unit to help students gain a full understanding of the topics. The Major Works of each grade are fully represented and woven into the curriculum, helping students to build a strong conceptual foundation.

Examples of Major Works used within each grade:

Kindergarten:

Unit 1: Sessions 1.1, 1.2, 1.3, 2.2, 2.3, 2.4, 3.3, 3.4 Unit 6: Sessions 1.1, 1.2, 1.5, 1.6, 2.5, 2.7, 2.8, 3.1, 3.2, 3.3 Unit 8: Sessions 3.1, 3.2, 3.3, 3.4, 3.5

Grade 1

Unit 1: Sessions 1.1, 1.2, 1.3, 1.4, 2.1, 2.3, 2.4, 2.6, 2.7, 3.1, 3.3, 3.4, 3.6 Unit 3: Sessions 1.1, 1.3, 1.4, 2.6, 2.7, 2.8, 3.1, 3.3, 3.5 Unit 4: Sessions 1.1, 1.2, 1.3, 1.4, 2.1, 2.5

Grade 2:

Unit 1: Sessions 1.1, 1.3, 1.5, 1.6, 2.2, 2.3, 2.8, 3.1, 3.3, 3.6 Unit 6: Sessions 1.1, 1.3, 1.5, 1.6, 2.1, 2.3, 2.4, 2.5 Unit 8: Sessions 1.3, 1.6, 1.7, 1.10, 2.1, 2.2, 2.4, 2.7, 2.8

Grade 3:

Unit 5: Sessions 1.1, 1.2, 2.1, 2.2, 2.6, 3.2, 3.3, 3.4 Unit 6: Sessions 1.1, 1.2, 1.4, 1.6, 1.8, 2.1, 2.2, 2.4, 2.5 Unit 8: Sessions 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 2.1, 2.2, 2.5, 3.1, 3.3, 3.4, 3.5

Grade 4:

Unit 1: Sessions 1.1, 1.2, 1.3, 1.6, 1.7, 1.8, 2.1, 2.2, 2.3, 2.4 Unit 3: Sessions 1.1, 1.2, 1.3, 1.5, 2.1, 2.2, 2.4, 2.5, 3.2, 3.3, 3.4 Unit 6: Sessions 1.1, 1.2, 1.3, 1.5, 2.1, 2.2, 2.4, 2.7

Grade 5:

Unit 2: Sessions 1.2, 1.3, 1.5, 1.6, 2.1, 2.2, 2.3, 2.4 Unit 4: Sessions 1.2, 1.4, 1.5, 2.1, 2.2, 2.3, 2.4, 3.1, 3.2, 3.5 Unit 7: Sessions 1.1, 1.2, 1.3, 1.4, 1.5, 1.7, 1.11, 3.9, 3.10, 3.11

Rating



Meets



Does Not Meet / Insufficient Evidence

Non-Negotiable 2

Focus and Coherence

Metric

NN Metric 2B:

Supporting Work enhances focus and coherence simultaneously by also engaging students in the Major Work of the grade.

How to Find the Evidence

Familiarize yourself with the Major Work and Supporting Work of the grade being evaluated (see the Focus by Grade Level documents).

Evaluate chapters and lessons that focus on Supporting Work.

NOTE: Examples of evaluating this metric might include looking at whether materials for K–5 generally treat data displays as an occasion for solving grade-level word problems using the four operations, or whether materials for grade 7 take advantage of opportunities to use probability to support ratios, proportions, and percentages.

For context, read Criterion #3 in the K-8 Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).

Evidence

The Supporting Work of each grade is evident as it enhances focus and coherence during the learning process. *Investigations 3* uses concepts in data, measurement, shapes, and other supporting works to build a concrete understanding of the Major Works as well.

Kindergarten:

Unit 2: Sessions 1.3, 1.9, 2.1, 2.2, 2.3, 2.4, 2.5, 2.8, 2.12

Unit 3: Sessions 1.1, 1.2, 1.3, 1.4, 1.5, 2.1, 2.2, 2.3, 2.5, 2.7

Grade 1:

Unit 6: Sessions 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.9, 2.1, 2.2, 2.3

Grade 2:

Unit 4: Sessions 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 2.1, 2.2, 2.3, 2.4

Unit 7: Sessions 2.1, 2.2, 2.3, 2.4, 2.5, 2.6

Grade 3:

Unit 2: Sessions 1.1, 1.2, 1.4, 1.5, 1.7, 1.8, 1.9, 2.1, 2.3, 2.5

Unit 4: Sessions 2.1, 2.2, 2.3, 2.7, 3.1, 3.2, 3.3, 3.4, 3.5

Grade 4:

Unit 1: Sessions 1.1, 1.2, 1.3, 1.6, 1.7, 1.8, 2.1, 2.2, 2.3, 2.4

Unit 2: Sessions 1.1, 1.2, 1.3, 1.4, 1.5, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6

Grade 5:

Unit 3: Sessions 2.3, 2.4, 2.5, 3.1, 3.2

Unit 8: Sessions 1.1, 1.2, 1.3, 1.4, 1.5, 2.2, 2.3, 2.4, 2.5

Rating



Meets



Does Not Meet / Insufficient Evidence

Non-Negotiable 2

Focus and Coherence

Metric

NN Metric 2C:

Materials base content progressions on the grade-by-grade progressions in the Standards. Content from previous or future grades does not unduly interfere with or displace on-grade-level content.

How to Find the Evidence

Evaluate the table of contents and any pacing guides. Evaluate units, chapters, and lessons in student and teacher materials to ensure that the content progressions in the materials are based on the grade-by-grade progressions in the Standards. Consider how off-grade-level content, if present, is addressed.

As part of this metric, check to see that every cluster in the grade-level standards is reflected in the materials. If any grade-level clusters are absent for the grade being evaluated, then Metric 2C is Not Met.

NOTE: Exact matching of grade levels between the Standards and the materials is not required to meet this metric. In some cases, it may be possible that aligned materials might address some aspects of a topic in a strategic way before or after the grade in which the topic is central in the Standards; for example, a curriculum author might purposefully explore adding fractions with unlike denominators in a way appropriate to grade 4, recognizing that this is not really required until grade 5. However, any such purposeful discrepancies should enhance the required learning in each grade, not unduly interfere with or displace grade-level content, and be clearly aimed at helping students meet the Standards as written rather than effectively rewriting the progressions in the Standards. And in all cases, note that Non-Negotiable 1 must be met for materials to be aligned.

For context, read Criterion #5a in the K-8 Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).

Evidence

The content in *Investigations 3* follows grade-by-grade progressions in the Standards. Students build upon their knowledge as the mathematical concepts progress in complexity in each grade.

For example, in Kindergarten, students gain a basic understanding of addition and subtraction as adding to and taking from. Then in Grade 1, students build upon their knowledge of addition and subtraction as they understand the concept of the equation as well as the relationship between addition and subtraction. Moving into Grades 2, 3, 4 and 5, students add to their number operational skills with place value and the concepts of multiplication and division.

Kindergarten:

Unit 6: Sessions 1.3, 1.4, 1.5, 1.6, 2.1, 2.3, 2.5, 2.7, 2.8, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6

Grade 1:

Unit 5: Sessions 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 2.1, 2.2, 2.4, 2.5, 2.7, 2.8, 3.1, 3.2, 3.3, 3.5, 3.7

Grade 2:

Unit 5: Sessions 1.1, 1.3, 1.5, 1.6, 2.3, 2.5, 2.6, 3.1, 3.4, 3.5, 3.6, 3.7, 3.8

Grade 3:

Unit 5: Sessions 1.1, 1.2, 1.4, 1.5, 2.1, 2.3, 2.4, 2.6, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6

Grade 4:

Unit 3: Sessions 1.1, 1.4, 2.1, 2.2, 2.3, 2.5, 3.1, 3.2, 3.6, 3.7

Grade 5:

Unit 1: Sessions 1.1, 1.2, 1.3, 1.4, 1.5, 2.2, 2.4, 2.6, 2.7, 3.1, 3.4, 3.5, 3.6, 3.7

Rating

Meets

Does Not Meet / Insufficient Evidence

Non-Negotiable 2

Focus and Coherence

Metric

NN Metric 2D:

Materials are designed to support all students in doing grade-level mathematics.

How to Find the Evidence

Evaluate both student and teacher materials.

Consider whether struggling students are supported to work extensively with grade-level mathematics. Also consider whether higher-performing students are supported to engage with grade-level mathematics in greater depth.

For context, read Criterion #5b in the K-8 Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).

Evidence

Each unit in Investigations 3 includes interventions and extensions for "Supporting the Range of Learners." This feature is located in the teacher materials within applicable sessions. Each intervention and extension is labeled with a strategy to support students with the content of the session. Strategies include: Adapt the Learning Situation, Adapt the Problem, Adapt a Material, Clarify the Problem, Vary the Problem, Scaffold a Solution, Extending Thinking, and Suggest a Tool.

Examples:

Kindergarten:

Unit 1: Sessions 1.1, 2.1, 2.3, 2.4, 2.5, 3.1, 3.2, 3.4, 3.5

Unit 4: Sessions 1.2, 1.3, 1.4, 1.5, 1.7, 1.10, 2.1, 2.2, 2.4, 2.5, 3.1, 3.2, 3.3

Grade 1:

Unit 3: Sessions 1.2, 1.3, 1.4, 2.2, 2.3, 2.4, 2.6, 3.1, 3.2, 3.5, 4.2, 4.3, 4.5, 4.6 Unit 7:

Sessions 1.1, 1.2, 1.4, 1.7, 1.8, 2.1, 2.2, 2.3, 2.5, 3.1, 3.2, 3.5

Grade 2:

Unit 2: Sessions 1.1, 1.2, 1.3, 1.5, 2.1, 2.2, 2.4, 2.5, 2.6, 3.1, 3.2, 3.4, 3.6, 3.8 Unit 5:

Sessions 1.1, 1.2, 1.4, 1.5, 1.6, 2.1, 2.2, 2.3, 2.5, 2.6, 3.1, 3.4, 3.5, 3.7, 3.8

Grade 3:

Unit 5: Sessions 1.1, 1.2, 1.4, 2.2, 2.3, 2.4, 2.5, 3.1, 3.3, 3.4, 3.5 Unit 8: Sessions 1.1, 1.2, 1.4, 1.5, 2.1, 2.2, 2.3, 3.1, 3.2, 3.4

Grade 4:

Unit 1: Sessions 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 2.1, 2.2, 2.3 Unit 5: Sessions 1.2, 1.3, 1.4, 1.5, 2.4, 2.5, 2.6, 3.3, 3.4, 3.5

Grade 5:

Unit 2: Sessions 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 2.1, 2.2, 2.3, 2.4 Unit 6: Sessions 1.1, 1.3, 1.5, 1.6, 1.8, 2.1, 2.3, 2.5, 2.7, 2.8, 2.9

Rating



Meets



Does Not Meet / Insufficient Evidence

Non-Negotiable 2

Focus and Coherence

Metric

NN Metric 2E:

Materials relate on-grade-level concepts explicitly to prior knowledge from earlier grades.

How to Find the Evidence

Evaluate both student and teacher materials.

NOTE: Examples of evaluating this metric might include looking at how the materials extend place value for whole numbers to place value for decimal numbers, or the role that properties of operations play when the materials extend arithmetic beyond whole numbers to fractions, variables, and expressions. More generally, cluster headings in the Standards sometimes signal key moments where reorganizing and extending previous knowledge is important in order to accommodate new knowledge (e.g., see cluster headings that use the phrase “Apply and extend previous understanding”).

For context, read Criterion #5c in the K-8 Publishers’ Criteria for the Common Core State Standards for Mathematics (Spring 2013).

Evidence

The progression of each concept is evident as students recall knowledge from concepts discussed in previous grades. For example, in Kindergarten, students build an understanding of numbers from 0 to 100. Then in the following grades, students expand their knowledge to the concept of place value, using place value to perform operations, and using place value to understand decimal numbers. Each subsequent grade builds upon the previous concepts.

Examples:

Kindergarten:

Unit 2: Sessions 1.1, 1.2, 1.3, 1.5, 1.7, 1.8, 2.3, 2.4, 2.7, 2.8

Grade 1:

Unit 3: Sessions 4.2, 4.3, 4.4, 4.5, 4.6, 4.8

Unit 7: Sessions 1.8, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8

Grade 2:

Unit 5: Sessions 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 3.1, 3.3, 3.4, 3.5, 3.8 Unit 8: Sessions 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 2.9

Grade 3:

Unit 3: Session 2.1, 2.2, 2.3, 3.3, 3.5

Unit 7: Session 1.4, 1.5, 2.1, 2.2, 2.3, 2.4, 3.4, 3.5, 3.6

Grade 4:

Unit 5: Session 3.1, 3.2, 3.3, 3.4, 3.5, 3.6

Unit 6: Session 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6

Grade 5:

Unit 6: Sessions 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 2.1, 2.3, 2.4, 2.5, 2.6, 2.8, 2.9 Unit 7:

Sessions 2.3, 2.4, 3.1, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8, 3.9, 3.10, 3.11

Rating



Meets



Does Not Meet / Insufficient Evidence

Non-Negotiable 2

Focus and Coherence

Metric

NN Metric 2F:

Review of material from previous grades is clearly identified as such to the teacher, and teacher and students can see what their specific responsibility is for the current year.

How to Find the Evidence

Evaluate the table of contents, but do not stop there; also evaluate units, chapters, lessons, homework assignments, and assessments. (Evaluate both student and teacher materials.) Identify any content from previous grades and check whether it is identified as such.

For context, read Criterion #5a in the K-8 Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).

Evidence

In each of the 8 units that make up each grade, teachers are made aware of how the concepts are building upon previous knowledge acquired in previous units and grades. Each unit of the teacher's guide contains a section called "Unit Focus" which has a sub-section titled "Connections: Looking Back." Teachers have a clear picture of what students have already learned, and where they are about to go. The teacher's guide also contains "Assessing the Benchmarks" for each unit, so that teacher and students know what level of achievement is expected.

Kindergarten:

Unit 1: Teacher Guide, p. 4 "Unit Focus", p. 12-13 "Assessing the Benchmarks" Unit 5: Teacher Guide, p. 4 "Unit Focus", p. 10-11 "Assessing the Benchmarks"

Grade 1:

Unit 2: Teacher Guide, p. 4 "Unit Focus", p. 10-11 "Assessing the Benchmarks" Unit 6: Teacher Guide, p. 4 "Unit Focus", p. 12-13 "Assessing the Benchmarks"

Grade 2:

Unit 5: Teacher Guide, p. 4 "Unit Focus", p. 12-13 "Assessing the Benchmarks" Unit 8: Teacher Guide, p. 4 "Unit Focus", p. 12-13 "Assessing the Benchmarks"

Grade 3:

Unit 3: Teacher Guide, p. 4 "Unit Focus", p. 12-13 "Assessing the Benchmarks" Unit 7: Teacher Guide, p. 4 "Unit Focus", p. 12-13 "Assessing the Benchmarks"

Grade 4:

Unit 1: Teacher Guide, p. 4 "Unit Focus", p. 12-13 "Assessing the Benchmarks" Unit 8: Teacher Guide, p. 4 "Unit Focus", p. 12-13 "Assessing the Benchmarks"

Grade 5:

Unit 6: Teacher Guide, p. 4 "Unit Focus", p. 12-13 "Assessing the Benchmarks" Unit 7: Teacher Guide, p. 4 "Unit Focus", p. 14-15 "Assessing the Benchmarks"

Rating



Meets



Does Not Meet / Insufficient Evidence

Non-Negotiable 2

Focus and Coherence

Metric

NN Metric 2G:

Materials include learning objectives that are visibly shaped by CCSSM cluster headings.

How to Find the Evidence

Select several clusters from the grade being evaluated. Evaluate teacher materials in relation to these clusters.

For context, read Criterion #6a in the K-8 Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).

Evidence

Each session in *Investigations 3* begins with "Math Focus Points" that serve as the objectives for the day's instruction. Students and teachers have a clear understanding of what concepts will be practiced and mastered during each session. Examples of objectives:

Kindergarten Unit 2: Session 2.2

- Directly comparing two objects to determine which is longer
- Developing language to describe and compare lengths
- Developing strategies for accurately counting and keeping track of quantities up to 12

Grade 1 Unit 6: Session 1.4

- Choosing a survey question with two possible answers
- Making a plan for gathering data
- Collecting and keeping track of survey data

Grade 2 Unit 3: Session 1.5

- Using a place value model to represent a 2-digit number as tens and ones
- Determining the difference between a 2-digit number and a multiple of 10 up to 100
- Using standard notation to represent addition and subtraction situations

Grade 3 Unit 8: Session 3.5

- Solving multi-step problems involving more than one operation Using letters to stand for unknown quantities
- Connecting the steps of a general method or rule to the parts of the situation they represent

Grade 4 Unit 7: Session 1.6

- Solving 2-digit multiplication problems by breaking a problem into smaller parts and combining the subproducts
- Multiplying multiples of 10
- Identifying factors of a number

Grade 5 Unit 2: Session 2.4

- Determining the volume, in cubic centimeters, of a small rectangular prism
- Considering how the dimensions of a box change when the volume is changed (doubled or halved)

Rating



Non-Negotiable 2

Focus and Coherence

Metric

NN Metric 2H:

Materials include problems and activities that serve to connect two or more clusters in a domain, or two or more domains in a grade, in cases where these connections are natural and important.

How to Find the Evidence

In the grade being evaluated, identify two or more clusters or two or more domains for which connections are natural and important.

Evaluate the units, chapters, and lessons that deal with the chosen topics, looking for problems and activities that serve to connect the chosen clusters or domains.

NOTE: An example of evaluating this metric might include looking at whether problems in grade 4 sometimes or often involve students applying their developing computation skills (detailed in domain NBT) in the context of solving word problems (detailed in domain OA).

For context, read Criterion #6b in the K-8 Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).

Evidence

Investigations 3 is designed to combine mathematical concepts to create a concrete experience for students as they learn the new material. Each unit includes activities that connects two or more clusters or domains. Examples:

Kindergarten:

Unit 2: Session 2.1 - Connects K.CC.A, K.CC.B and K.MD.A as students compare classroom objects to a tower of 10 cubes to determine which is longer. Students also focus on the skills of counting and comparing.

Grade 1:

Unit 4: Session 2.1 - Connects 1.MD.B.3 and 1.G.A.3 as students work with fractions as equal parts of a whole. They partition circles into halves and are introduced to telling time to the half hour.

Grade 2:

Unit 4: Session 1.4 - Connects 2.OA.B.1, 2.OA.B.2 and 2.MD.D.10 as students work with bar graphs to solve mathematical problems.

Grade 3:

Unit 4: Session 3.5 - Connects 3.MD.C.7d, 3.MD.D.8, 3.G.A.1 as students explore characteristics of triangles and quadrilaterals by constructing shapes with different attributes. Students then measure the perimeter of the shapes that they create.

Grade 4:

Unit 4: Session 1.4 - Connects 4.OA.A.3, 4.MD.A.1, and 4.MD.A.2 as students measure lengths, find perimeters of objects and convert lengths. They also solve problems about perimeters of rectangles.

Grade 5:

Unit 7: Session 2.2 - Connects 5.NBT.A.4, 5.NBT.B.7, and 5.NF.B.3 as students apply their understanding of division to fractions, as well as identifying decimal and fraction equivalents.

Rating



Meets



Does Not Meet / Insufficient Evidence

Non-Negotiable 2

Focus and Coherence

Non-Negotiable 2: Materials must focus coherently on the Major Work of the grade in a way that is consistent with the progressions in the Standards.

Rating for Non-Negotiable 2

If all Metrics 2A–2H were rated as Meets, then rate Non-Negotiable 2 as Meets. If one or more metrics were rated Does Not Meet/Insufficient Evidence, then rate Non-Negotiable 2 as Does Not Meet. Check the final rating.

Then, briefly describe the strengths and weaknesses of these materials in light of the above Criterion.

Rating

Meets

Does Not Meet

Strengths / Weaknesses:

Investigations 3 utilizes all the Major Works of each grade in a way that is interactive and engaging. As students transition from one grade to the next, they are led through a comprehensive experience of the Common Core State Standards. The activities outlined in each unit intentionally build upon each other to give students a solid understanding of the mathematical concepts.

No noticeable weaknesses.

Before moving to Alignment Criterion 1, record the final Meets or Does Not Meet rating in the Evaluation Summary on Page 37.

Now continue by evaluating Alignment Criterion 1: Rigor and Balance

Directions for Alignment Criterion 1

Rigor and Balance

Alignment Criterion 1: Materials must reflect the balances in the Standards and help students meet the Standards' rigorous expectations.

The Standards set expectations for all three aspects of rigor: conceptual understanding, procedural skill and fluency, and applications. Thus, materials must reflect the balances in the Standards and help students meet the Standards' rigorous expectations.

Materials to Assemble

- Common Core State Standards for Mathematics (www.corestandards.org/wp-content/uploads/Math_Standards.pdf)
- From the materials being evaluated: teacher guides, student texts and workbooks
- Focus by Grade Level for the grade being evaluated (www.achievethecore.org/focus)
- Situation Types in Word Problems (www.achievethecore.org/situation-types)

It will also be helpful for reviewers to consult the K-8 Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013). (www.corestandards.org/wp-content/uploads/Math_Publishers_Criteria_K-8_Spring_2013_FINAL1.pdf).

Metrics to Review

- **AC Metric 1A:** The materials support the development of students' conceptual understanding of key mathematical concepts, especially where called for in specific content standards or cluster headings.

- **AC Metric 1B:** The materials are designed so that students attain the fluencies and procedural skills required by the Standards.
- **AC Metric 1C:** The materials are designed so that teachers and students spend sufficient time working with applications, without losing focus on the Major Work of each grade.

Rating this Criterion

Alignment Criterion 1 is rated as Meets or Does Not Meet.

To rate Alignment Criterion 1, first rate metrics 1A, 1B, and 1C. Rate each metric as Meets (2 points), Partially Meets (1 point), or Does Not Meet (0 points). For each metric, guiding questions are provided to aid in gathering evidence.

Since there are three metrics, and each metric is worth up to 2 points, the maximum possible rating across all three metrics is 6 points. Ideally, aligned materials will earn all 6 points; materials are judged to have met Alignment Criterion 1 if the materials rate 5 or 6 points. This threshold recognizes that evaluators sometimes differ in how they assess features such as rigor and balance, while at the same time ensuring that no single metric can receive a rating of zero and be aligned to the Shifts and major features of the CCSSM.

Alignment Criterion 1

Rigor and Balance

Use the questions on this page to evaluate Metric 1A. On page 19, record evidence for each question and rate Metric 1A.

Metric

AC Metric 1A:

The materials support the development of students' conceptual understanding of key mathematical concepts, especially where called for in specific content standards or cluster headings.

How to Find the Evidence

Identify clusters or standards from the Major Work for the grade being evaluated that relate specifically to conceptual understanding to use throughout the questions associated with this metric.

NOTE: Some examples of clusters or standards that call for conceptual understanding include: K.OA.A.1, (1.NBT.B, 1.NBT.C), (2.NBT.A, 2.NBT.B), (3.OA.A.1, 3.OA.A.2), 4.NF.A, (4.NBT.A, 4.NBT.B), 5.NF.B, (5.NBT.A, 5.NBT.B), 6.RP.A, 6.EE.A.3, 7.NS.A, 7.EE.A, 8.EE.B, 8.F.A, 8.G.A. Clusters or standards grouped by parentheses are closely connected and could be analyzed together.

For context, read Criterion #4a in the K-8 Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).

Evidence

Is conceptual understanding attended to thoroughly where the Standards set explicit expectations for understanding or interpreting? Evaluate lessons, chapter/unit assessments and homework assignments, paying attention to work aligned to standards that explicitly call for understanding or interpreting. NOTE: Examples of evaluating this metric might include looking at how well the multi-digit addition and subtraction algorithms are developed and explained on the basis of place value and properties of operations; or how well the multi-digit multiplication and division algorithms are developed and explained on the basis of place value and properties of operations; or how well solving equations is presented and explained as a process of reasoning.

Do the materials feature high-quality conceptual problems and conceptual discussion questions? Evaluate lessons, chapter/unit assessments, and homework assignments. NOTE: Examples of conceptual problems might include such questions as "Find a number greater than $\frac{1}{5}$ and less than $\frac{1}{4}$," or "If the divisor does not change and the dividend increases, what happens to the quotient?"

Do the materials feature opportunities to identify correspondences across mathematical representations? Evaluate lessons, chapter/unit assessments, and homework assignments. NOTE: Examples of evaluating this metric might include looking at whether students are supported in identifying correspondences among:

- The verbal description of a situation, the diagrams that distill its mathematical features, and the equations that model it
- Equivalent forms of numbers (e.g., 3 and $\frac{6}{2}$) and the number line
- Rational number operations and representations of them via models such as the vector model
- The expression that defines a function and the graph that shows the relationship

Alignment Criterion 1

Rigor and Balance

Metric

AC Metric 1A:

The materials support the development of students' conceptual understanding of key mathematical concepts, especially where called for in specific content standards or cluster headings.

Evidence

Is conceptual understanding attended to thoroughly where the Standards set explicit expectations for understanding or interpreting?

Kindergarten: Unit 2: Sessions 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 1.10 - As students learn the concept of counting, Investigations 3 leads them through a path of activities, discussions, problems, and interactions to fully understand the idea of counting.

Grade 3: Unit 6: Sessions 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8 - Students learn the concept of fractions by partitioning shapes, writing fractions, ordering fractions, measuring in fractions.

Grade 5: Unit 7: Sessions 1.3, 1.4, 1.5, 1.6, 1.9, 1.10, 1.11 - Students integrate the idea of scaling into what they already know about multiplication.

Do the materials feature high-quality conceptual problems and conceptual discussion questions?

Grade 1: Unit 4: Session 1.3 - Students discuss how measurements of the same lengths should be the same when they are measured twice or by different people using the same unit. Students then work in groups to measure objects to solidify their understanding of the discussion.

Grade 2: Unit 5: Session 1.5 - Students discuss strategies for combining two numbers, how to model it and compare the numbers to each other.

Grade 4: Unit 8: Session 1.3 - Students discuss "Using letters in equations to represent unspecified quantities," and then work together to write equations that satisfy a specific rule for the Penny Jar Game.

Do the materials feature opportunities to identify correspondences across mathematical representations?

Kindergarten: Unit 1: Session 1.5 - The class counts the number of students in two different ways and then uses connecting cubes to make a tower to represent the total number of students in the class.

Grade 4: Unit 6: Session 1.4 - Students are introduced to reading and writing tenths and hundredths. They relate these numbers to equivalent fractions.

Grade 5: Unit 7: Session 2.4 - Students integrate their understanding of fractions to equivalent decimal numbers

Rating



Meets (2)



Partially Meets (1)



Does Not Meet (0)

Alignment Criterion 1

Rigor and Balance

Use the questions on this page to evaluate Metric 1B. On page 21, record evidence for each question and rate Metric 1B.

Metric

AC Metric 1B:

The materials are designed so that students attain the fluencies and procedural skills required by the Standards.

How to Find the Evidence

Identify clusters or standards from the Major Work for the grade being evaluated that relate specifically to fluency and procedural skill to use throughout the questions associated with this metric.

NOTE: Some examples of standards that call for procedural skill and fluency include: K.OA.A.5, 1.OA.C.6, 2.OA.B.2, 2.NBT.B.5, 3.OA.C.7, 3.NBT.A.2, 4.NBT.B.4, 5.NBT.B.5, 6.NS.B.2, and 6.NS.B.3, 6.EE.A, 7.NS.A, 7.EE.A.1, 7.EE.B.4a, 8.EE.C.7, 8.EE.C.8b

For context, read Criterion #4b in the K-8 Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).

Evidence

Is progress toward fluency and procedural skill interwoven with students' developing conceptual understanding of the operations in question? Evaluate lessons, chapter/unit assessments, daily routines, and homework assignments for evidence that the development of fluency and procedural skill is supported by conceptual understanding.

Do the materials in grades K–6 provide repeated practice toward attainment of fluency standards? Evaluate lessons, daily routines, and homework assignments for evidence of repeated practice toward attainment of the following K–6 standards that set an explicit expectation of fluent (accurate and reasonably fast) computation: K.OA.A.5, 1.OA.C.6, 2.OA.B.2, 2.NBT.B.5, 3.OA.C.7, 3.NBT.A.2, 4.NBT.B.4, 5.NBT.B.5, 6.NS.B.2, 6.NS.B.3.

Alignment Criterion 1

Rigor and Balance

Metric

AC Metric 1B:

The materials are designed so that students attain the fluencies and procedural skills required by the Standards.

Evidence

Is progress toward fluency and procedural skill interwoven with students' developing conceptual understanding of the operations in question?

Students develop fluency and procedural skill as they participate in countless activities, discussions, and problem solving opportunities.

Kindergarten: Unit 8: Sessions 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7 - Developing Fluency in adding and subtracting within 5

Grade 2: Unit 5: Sessions 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8 - Developing Fluency Adding within 100

Grade 4: Unit 5: Sessions 1.1, 1.2, 1.3, 1.4, 1.5, 1.6 - Developing Fluency in adding multi-digit whole numbers

Do the materials in grades K–6 provide repeated practice toward attainment of fluency standards?

Investigations 3 allows students to practice mathematical skills and master the standards in a multitude of ways. Each unit includes anywhere from one to five different investigations where the content is developed over multiple sessions within the investigation.

Grade 1: Unit 1: Sessions 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8 - Developing Fluency in Addition

Grade 3: Unit 5: Sessions 3.1, 3.2, 3.3, 3.4, 3.5, 3.6 - Developing Fluency in Multiplication and Division

Grade 5: Unit 4: Sessions 1.1, 1.2, 1.3, 1.4, 1.5, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7 - Developing fluency in Multiplication and Division

Rating

Meets (2)

Partially Meets (1)

Does Not Meet (0)

Alignment Criterion 1

Rigor and Balance

Use the questions on this page to evaluate Metric 1C. On page 23, record evidence for each question and rate Metric 1C.

Metric

AC Metric 1C:

The materials are designed so that teachers and students spend sufficient time working with applications, without losing focus on the Major Work of each grade.

How to Find the Evidence

Identify clusters or standards from the Major Work for the grade being evaluated that relate specifically to application to use throughout the questions associated with this metric.

NOTE: Some examples of clusters or standards that call for application include: K.OA.A.2, 1.OA.A, 2.OA.A, 3.OA.A.3, 3.OA.D.8, 4.OA.A.3, 4.NF.B.3d, 4.NF.B.4c, 5.NF.B.6, 5.NF.B.7c, 6.RPA.3, 6.NS.A.1, 6.EE.B.7, 6.EE.C.9, 7.RPA, 7.NS.A.3, 7.EE.B.3, 8.EE.C.8c, 8.F.B

For context, read Criterion #4c in the K-8 Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).

Evidence

Are there single- and multi-step contextual problems that develop the mathematics of the grade, afford opportunities for practice, and engage students in problem solving? Do the problems attend thoroughly to those places in the content standards where expectations for multi-step and real-world problems are explicit? Evaluate lessons, chapter/unit assessments, and homework assignments.

Do application problems particularly stress applying the Major Work of the grade? Evaluate lessons, chapter/unit assessments, and homework assignments. NOTE: Examples of evaluating this metric might include looking at: how well, by the end of grade 2, students using the materials as designed can represent and solve a full range of one-step addition and subtraction word problems; or how well, by the end of grade 3, students using the materials as designed can represent and solve a full range of one-step multiplication and division word problems; or how well these basic situation types for each operation are carried coherently across the grades (e.g., with fractions and algebraic expressions); or, in all grades, whether the problems connect topics in ways that are natural and important. For a list of situation types for one-step addition, subtraction, multiplication, and division problems, see Situation Types in Word Problems.

Does modeling build slowly across K–8, with applications that are relatively simple in earlier grades and when students are encountering new content? In grades 6–8, do the problems begin to provide opportunities for students to make their own assumptions or simplifications in order to model a situation mathematically? Read Standard for Mathematical Practice 4, Model with Mathematics. Evaluate lessons, chapter/unit assessments, and homework assignments.

Alignment Criterion 1

Rigor and Balance

Metric

AC Metric 1C:

The materials are designed so that teachers and students spend sufficient time working with applications, without losing focus on the Major Work of each grade.

Evidence

Are there single- and multi-step contextual problems that develop the mathematics of the grade, afford opportunities for practice, and engage students in problem solving? Do the problems attend thoroughly to those places in the content standards where expectations for multi-step and real-world problems are explicit?

Each session includes contextual problems that help develop the mathematical topics. Students engage in problem-solving activities as they solve problems in groups and individually.

Grade 1: Unit 5: Sessions 2.6, 3.2, 3.5, 3.6, 3.7 - Solving addition and subtraction problems with unknown change

Grade 4: Unit 7: Sessions 3.4, 3.5, 3.6 - Solving Multi-Step Multiplication and Division Problems

Grade 5: Unit 1: Sessions 2.4, 2.5, 2.6, 3.1, 3.3, 3.5 - Solving multiplication and division cluster problems

Do application problems particularly stress applying the Major Work of the grade?

Investigations 3 weaves the Major Works of each grade into discussion, activities, and application problems.

Kindergarten: Unit 6: Sessions 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8 - Understanding and solving addition and subtraction problems

Grade 3: Unit 4: Sessions 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7 - Relating the concept of area to multiplication and division

Grade 5: Unit 3: Sessions 2.1, 2.2, 2.3, 2.4, 2.5, 2.5, 2.6, 2.7 - Students solve word problems involving addition and subtraction of fractions.

Does modeling build slowly across K–8, with applications that are relatively simple in earlier grades and when students are encountering new content? In grades 6–8, do the problems begin to provide opportunities for students to make their own assumptions or simplifications in order to model a situation mathematically?

Students learn from the appropriate level of modeling for each grade.

Kindergarten: Unit 5: Sessions 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9 - Modeling, comparing, building, describing shapes.

Grade 2: Unit 7: Sessions 2.1, 2.2, 2.3, 2.4, 2.5, 2.6 - Exploring Equal Groups as a foundation for multiplication

Grade 3: Unit 4: Sessions 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7 - Modeling and finding perimeter and area of shapes.

Rating



Meets (2)



Partially Meets (1)



Does Not Meet (0)

Alignment Criterion 1

Rigor and Balance

Alignment Criterion 1: Materials must reflect the balances in the Standards and help students meet the Standards' rigorous expectations.

Points Assigned for Alignment Criterion 1

Materials must earn at least 5 out of 6 points to meet this Alignment Criterion. If materials earn fewer than 5 points, the Criterion has not been met. Check the final rating.

Then, briefly describe the strengths and weaknesses of these materials in light of the above Criterion.

Rating

6 Total (6 points possible)

Meets

Does Not Meet

Strengths / Weaknesses:

Investigations 3 curriculum is designed to help students meet the rigorous expectations of the standards for each grade. It is balanced with hands-on activities, discussions, and individual problem solving that focus on the Major Works of each grade. Students develop fluency and enhance their understanding of each topic from the fully integrated design of the curriculum.

No weaknesses found.

Before moving to Alignment Criterion 2, record the final Meets or Does Not Meet rating in the Evaluation Summary on Page 37.

Directions for Alignment Criterion 2

Standards for Mathematical Practice

Alignment Criterion 2: Materials must authentically connect content standards and practice standards.

The Standards require that designers of instructional materials connect the mathematical practices to mathematical content in instruction (CCSSM, p. 8). Thus, materials must demonstrate authentic connections between content standards and practice standards.

- **AC Metric 2B:** Materials attend to the full meaning of each practice standard.
- **AC Metric 2C:** Materials support the Standards' emphasis on mathematical reasoning.

Materials to Assemble

- Common Core State Standards for Mathematics (www.corestandards.org/wp-content/uploads/Math_Standards.pdf)
- From the materials being evaluated: teacher guides, student texts and workbooks
- Focus by Grade Level for the grade being evaluated (www.achievethecore.org/focus)

It will also be helpful for reviewers to consult the K-8 Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013). (www.corestandards.org/wp-content/uploads/Math_Publishers_Criteria_K-8_Spring_2013_FINAL1.pdf).

Metrics to Review

- **AC Metric 2A:** Materials address the practice standards in such a way as to enrich the Major Work of the grade; practice standards strengthen the focus on Major Work instead of detracting from it, in both teacher and student materials.

Rating this Criterion

Alignment Criterion 2 is rated as Meets or Does Not Meet.

To rate Alignment Criterion 2, first rate metrics 2A, 2B, and 2C. Rate each metric as Meets (2 points), Partially Meets (1 point), or Does Not Meet (0 points). For metrics 2B and 2C, guiding questions are provided to aid in gathering evidence.

Since there are three metrics, and each metric is worth up to 2 points, the maximum possible rating across all three metrics is 6 points. Ideally, aligned materials will earn all 6 points; materials are judged to have met Alignment Criterion 2 if the materials earn 5 or 6 points. This threshold recognizes that evaluators sometimes differ in how they assess features such as mathematical practices, while at the same time ensuring that no single metric can receive a rating of zero and be aligned to the Shifts and major features of the CCSSM.

Alignment Criterion 2

Standards for Mathematical Practice

Metric

AC Metric 2A:

Materials address the practice standards in such a way as to enrich the Major Work of the grade; practice standards strengthen the focus on Major Work instead of detracting from it, in both teacher and student materials.

How to Find the Evidence

Familiarize yourself with the Major Work of the grade being evaluated (see the Focus by Grade Level documents).

Evaluate teacher and student materials for evidence that the mathematical practices enrich and connect to Major Work.

NOTE: Examples of evaluating this metric might include looking at whether, in grades K–5, students using the materials are supported to look for and express regularity in repeated reasoning about the addition table, the multiplication table, the properties of operations, the relationship between addition and subtraction or multiplication and division, and the place value system; or whether, in grades 6–8, students using the materials are supported to look for and express regularity in repeated reasoning about proportional relationships and linear functions.

For context, read Criterion #8 in the K-8 Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).

Evidence

Mathematical practices are clearly marked within each unit and session. They enhance the learning process and deepen student involvement with the content.

Examples:

Kindergarten:

Unit 5: Sessions: 1.1 (MP1 - Make sense of problems and persevere in solving them), 1.6 (MP3 - Construct viable arguments and critique the reasoning of others), 1.7 (MP4 - Model with Mathematics)

Grade 2:

Unit 6: Sessions 1.1 (MP6 - Attend to precision), 1.4 (MP5 - Use appropriate tools strategically), 2.3 (MP3 - Construct viable arguments and critique the reasoning of others)

Grade 4:

Unit 7: Sessions: 1.4 (MP2 - Reason abstractly and quantitatively), 2.3 (MP6 - Attend to precision), 3.5 (Look for and express regularity in repeated reasoning)

Rating



Meets (2)



Partially Meets (1)



Does Not Meet (0)

Alignment Criterion 2

Standards for Mathematical Practice

Use the questions on this page to evaluate Metric 2B. On page 28, record evidence for each question and rate Metric 2B.

Metric

AC Metric 2B:

Materials attend to the full meaning of each practice standard.

How to Find the Evidence

For context, read Criterion #7 and Criterion #9 in the K-8 Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).

Evidence

Over the course of any given year of instruction, is each practice standard meaningfully present in the form of assignments, activities, or problems that stimulate students to develop the habits of mind described in the practice standard? Evaluate lessons, chapter/unit assessments, and homework assignments for evidence of each practice standard being meaningfully present in instruction.

Do the materials treat the practice standards as developing across grades or grade bands? Are the practice standards in early grades appropriately simple? Do they display an arc of growing sophistication across the grades? Evaluate lessons, chapter/unit assessments, and homework assignments.

Are there teacher-directed materials that explain the role of the practice standards in the classroom and in students' mathematical development? Are alignments to practice standards accurate? Evaluate teacher materials, paying attention to explanations of the role of the practice standards in the classroom and in students' mathematical development. Evaluate documents aligning lessons to practice standards for accuracy. NOTE: Examples to look for when evaluating this metric might include the following: a highly scaffolded problem should not be aligned to MP.1; or a problem that directs a student to use a calculator should not be aligned to MP.5; or a problem about merely extending a pattern should not be aligned to MP.8.

Alignment Criterion 2

Standards for Mathematical Practice

Metric

AC Metric 2B:

Materials attend to the full meaning of each practice standard.

Evidence

Over the course of any given year of instruction, is each practice standard meaningfully present in the form of assignments, activities, or problems that stimulate students to develop the habits of mind described in the practice standard?

Practice Standards are present throughout each grade level, helping students to develop skills and habits in solving mathematical content. Practice Standards are indicated and described within each session in the Teacher's Guide.

Grade 1: MP3 - Unit 1: Sessions 1.3, 3.2, 3.6; Unit 5: Sessions 1.1, 1.4, 2.3, 2.4, 2.6, 3.1, 3.5; Unit 7: Sessions 2.1, 2.4

Grade 3: MP4 - Unit 2: Sessions 1.1, 1.5, 1.6, 1.9, 2.1, 2.5; Unit 4: Session 2.5; Unit 8: Sessions 1.1, 3.4

Grade 5: MP1 - Unit 1: Sessions 1.1, 1.3, 2.2, 2.4, 2.5, 3.2, 3.5; Unit 7: Sessions 1.1, 1.4, 1.7, 1.11, 2.1, 2.3, 3.2, 3.4, 3.5, 3.6, 3.8, 3.10; Unit 8: Sessions 2.3

Do the materials treat the practice standards as developing across grades or grade bands? Are the practice standards in early grades appropriately simple? Do they display an arc of growing sophistication across the grades?

Mathematical Practice Standards progress in sophistication as grade levels increase. Examples of how the practices develop from Kindergarten to Grade 4:

MP4 - Kindergarten: Unit 2: Session 2.6 - Students build a cube stick to compare the length to various objects.

MP4 - Grade 2: Unit 4: Session 2.3 - Students create a model to represent data of the number of teeth lost. Students use this model to make predictions about teeth lost in other classrooms.

MP4 - Grade 4: Unit 4: Session 1.4 - Students write in algebraic notation the formula for the perimeter of a rectangle.

Are there teacher-directed materials that explain the role of the practice standards in the classroom and in students' mathematical development? Are alignments to practice standards accurate?

Practice Standards are noted in the margin of each session and explained throughout the teacher's guide. Teachers have a clear picture of how each standard is woven into the activities, workshops, discussions, and practice problems.

Grade 1: Unit 5: Sessions 1.2, 1.4, 2.1, 2.2, 3.1, 3.5

Grade 3: Unit 4: Sessions 2.3, 2.4, 2.5, 3.2, 3.3

Grade 5: Unit 4: Sessions 2.2, 2.4, 2.6, 2.7, 3.2, 3.5

Rating



Meets (2)



Partially Meets (1)



Does Not Meet (0)

Alignment Criterion 2

Standards for Mathematical Practice

Use the questions on this page to evaluate Metric 2C. On page 30, record evidence for each question and rate Metric 2C.

Metric

AC Metric 2C:

Materials support the Standards' emphasis on mathematical reasoning.

How to Find the Evidence

For context, read Criterion #10 in the K-8 Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).

Evidence

Do the materials support students in constructing viable arguments and critiquing the arguments of others concerning grade-level mathematics that is detailed in the content standards? Read Standard for Mathematical Practice 3. Evaluate teacher and student materials to ensure that students are given opportunities to reason with grade-level mathematics.

Do the materials support students in producing not only answers and solutions, but also, in a grade-appropriate way, arguments, explanations, diagrams, mathematical models, etc., especially in the Major Work of the grade? Familiarize yourself with the Major Work of the grade being evaluated (see the Focus by Grade Level documents). Evaluate teacher and student materials to understand the types of work students are expected to produce.

Do materials explicitly attend to the specialized language of mathematics? Is the language of argument, problem solving, and mathematical explanations taught rather than assumed? Evaluate teacher and student materials, paying attention to how mathematical language is taught. NOTE: Examples of evaluating this metric might include looking at whether students are supported in: basing arguments on definitions, using the method of providing a counterexample, or recognizing that examples alone do not establish a general statement.

Alignment Criterion 2

Standards for Mathematical Practice

Metric

AC Metric 2C:

Materials support the Standards' emphasis on mathematical reasoning.

Evidence

Do the materials support students in constructing viable arguments and critiquing the arguments of others concerning grade-level mathematics that is detailed in the content standards?

Students learn to communicate their own approach to a task, and they learn to understand the approach of their classmates. Students become more sophisticated in their approach to constructing and critiquing arguments as they move through more complicated mathematical ideas and higher grade levels.

Kindergarten: Unit 6: Sessions 1.1, 1.4, 1.5, 2.2, 2.6, 3.2 (more in depth understanding of how this concept is used on p. 6 of the Teacher's Guide)
Grade 3: Unit 4: Sessions 2.2, 2.3, 2.5, 2.6, 3.2, 3.3 (more in depth understanding of how this concept is used on pp. 10-11 of the Teacher's Guide)
Grade 5: Unit 8: Sessions 1.1, 1.3, 1.5, 2.1, 2.3, 2.4, 2.5 (more in depth understanding of how this concept is used on pp. 8-9 of the Teacher's Guide)

Do the materials support students in producing not only answers and solutions, but also, in a grade-appropriate way, arguments, explanations, diagrams, mathematical models, etc., especially in the Major Work of the grade?

Each session includes multiple ways for students to engage in the mathematical topic. Students participate in discussions, games, and other hands-on activities to help students develop a complete understanding of the concepts.

Grade 1: Unit 1: Session 3.1 - Students use Dot Cards, One or Two Less Gameboards, Connecting cubes, number lines, and fingers to explain and model the topic of one or two less.

Grade 4: Unit 6: Session 1.1 - Students represent fractions of an area by filling in portions of rectangles, cutting sandwiches, and discussing equivalent fractions.

Grade 5: Unit 6: Session 1.4 - Students use a number line to represent and compare decimals as they understand the concept of tenths and hundredths.

Do materials explicitly attend to the specialized language of mathematics? Is the language of argument, problem solving, and mathematical explanations taught rather than assumed?

Each session is designed to build the student's use of mathematical language in each activity and discussion. Sessions begin with a list of vocabulary words that are used throughout the discussion and activity portion of the lesson.

Kindergarten: Unit 6: Session 1.1 Vocabulary - length, measure, how long, longer, longer than, shorter, shorter than

Grade 2: Unit 7: Session 1.1 Vocabulary - greater than/less than notation, equal groups, even, odd

Grade 3: Unit 2: Session 1.4 Vocabulary - bar graph, double-bar graph, key, scale, interval

Rating



Meets (2)



Partially Meets (1)



Does Not Meet (0)

Alignment Criterion 2

Standards for Mathematical Practice

Alignment Criterion 2: Materials must authentically connect content standards and practice standards.

Points Assigned for Alignment Criterion 2

Materials must earn at least 5 out of 6 points to meet this Alignment Criterion. If materials earn fewer than 5 points, the Criterion has not been met. Check the final rating.

Then, briefly describe the strengths and weaknesses of these materials in light of the above Criterion.

Rating

6 Total (6 points possible)



Meets



Does Not Meet

Strengths / Weaknesses:

Investigations 3 uses a multitude of opportunities to enhance the habits of the mathematical practices in clear and creative ways, beginning in Kindergarten and building through each grade.

No weaknesses found.

Before moving to Alignment Criteria 3, record the final Meets or Does Not Meet rating in the Evaluation Summary on Page 37.

Directions for Alignment Criterion 3

Access to the Standards for All Students

Alignment Criterion 3: Materials must provide supports for English Language Learners and other special populations.

Because the Standards are for all students, evaluation requires that careful attention be paid to ensure that all students, including English Language Learners and those with different learning needs, have access to high-quality, aligned materials. The IMET is designed primarily to help educators determine whether instructional materials are aligned to the Shifts and major features of the CCSS. The IMET also allows room for local considerations to ensure that selected materials provide access for the specific set of students who will be using those materials.

Materials to Assemble

- Common Core State Standards for Mathematics (www.corestandards.org/wp-content/uploads/Math_Standards.pdf)
- From the materials being evaluated: teacher guides, student texts and workbooks

Metrics to Review

- **AC Metric 3A:** 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.
- **AC Metric 3B:** Materials provide appropriate level and type of scaffolding, differentiation, intervention, and support for a broad range of learners with gradual removal of supports, when needed, to allow students to demonstrate their mathematical understanding independently.

- **AC Metric 3C:** Design of lessons recommends and facilitates a mix of instructional approaches for a variety of learners (e.g., using multiple representations, asking a range of questions, checking for understanding, flexible grouping, pair-share, deconstructing/reconstructing the language of problems).

Rating this Criterion

Alignment Criterion 3 is rated as Meets or Does Not Meet.

To rate Alignment Criterion 3, first rate metrics 3A, 3B, and 3C. Rate each metric as Meets (2 points), Partially Meets (1 point), or Does Not Meet (0 points).

Since there are three metrics, and each metric is worth up to 2 points, the maximum possible rating across all three metrics is 6 points. Ideally, aligned materials will earn all 6 points; materials are judged to have met Alignment Criterion 3 if the materials earn 5 or 6 points. This threshold recognizes that evaluators sometimes differ in how they assess features such as support for special populations, while at the same time ensuring that no single metric can receive a rating of zero and be aligned to the Shifts and major features of the CCSSM. (If reviewers notice that materials have strong supports for some populations but weak supports for others, then reviewers can consider disaggregating scores for this Alignment Criterion to ensure that the selected materials provide access for the specific students who will be using the materials.)

Alignment Criterion 3

Access to the Standards for All Students

Metric

AC Metric 3A:

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.

How to Find the Evidence

Evaluate teacher and student materials, paying attention to supports offered for special populations. Supports provided should ensure that all students are engaging with grade-level standards. For example, supports for English Language Learners include attention to and analysis of the language of mathematical problems.

Evidence

Each unit in the Curriculum Unit Teacher's Guide in *Investigations 3* includes a section called, "Supporting English Language Learners." This section in specific sessions includes strategies to aid ELL students. These strategies include: Model Thinking Aloud, Partner Talk, Provide Vocabulary Support, Provide Sentence Stems, Repeat and Clarify, Provide a Sequence, Provide Opportunities for Practice, Allow Varied Responses.

Examples of ELL support:

Kindergarten:

Unit 3: Sessions 1.1, 1.2, 1.3, 1.4, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7

Grade 3:

Unit 6: Sessions 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 2.1, 2.2, 2.3, 2.5

Grade 5:

Unit 5: Sessions 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7

Rating



Meets (2)



Partially Meets (1)



Does Not Meet (0)

Alignment Criterion 3

Access to the Standards for All Students

Metric

AC Metric 3B:

Materials provide appropriate level and type of scaffolding, differentiation, intervention, and support for a broad range of learners with gradual removal of supports, when needed, to allow students to demonstrate their mathematical understanding independently.

How to Find the Evidence

Evaluate teacher and student materials, paying attention to whether materials provide differentiation that will lead all learners to engage with on-grade-level content. For example, materials may offer suggestions for distinguishing between difficulties in conceptual understanding versus developing English proficiency and should offer suggestions for supporting learners in both circumstances.

Evidence

The *Investigations 3* program is designed to engage and support the range of learners. Throughout each unit, there are session-specific suggestions for intervention, extension, and English Language Learners in the "Differentiation: Supporting the Range of Learners" feature.

Examples:

Grade 1:

Unit 3: Teacher's Guide pp.16-17; Sessions 2.1, 2.4, 3.6, 4.2

Grade 2:

Unit 7: Teacher's Guide pp. 14-15; Sessions 1.2, 1.3, 1.4, 2.2, 2.3, 2.5

Grade 4:

Unit 5: Teacher's Guide pp. 16-17; Sessions 1.1, 1.5, 2.2, 2.4

Rating



Meets (2)



Partially Meets (1)



Does Not Meet (0)

Alignment Criterion 3

Access to the Standards for All Students

Metric

AC Metric 3C:

Design of lessons recommends and facilitates a mix of instructional approaches for a variety of learners (e.g., using multiple representations, asking a range of questions, checking for understanding, flexible grouping, pair-share, deconstructing/reconstructing the language of problems).

How to Find the Evidence

Evaluate teacher materials, noting instructional approaches suggested for whole class and differentiated lessons and activities.

Evidence

Investigations 3 provides opportunities for all different types of learners. Students work individually, in pairs, and with groups. They engage in discussion, work with manipulatives and tools, play games, review concepts, and solve real-world problems. The learning experience is enhanced with such a variety of activities. See "Today's Plan" at the beginning of each session for examples of a variety of learning activities.

Kindergarten:

Unit 6: Sessions 1.1, 1.3, 1.4, 1.5, 1.6

Grade 2:

Unit 8: Sessions 1.2, 1.6, 1.11, 2.5, 2.6, 2.8, 2.9

Grade 4:

Unit 5: Sessions 1.1, 1.2, 1.3, 1.4, 1.5, 1.6

Rating



Meets (2)



Partially Meets (1)



Does Not Meet (0)

Alignment Criterion 3

Access to the Standards for All Students

Alignment Criterion 3: Materials must provide supports for English Language Learners and other special populations.

Points Assigned for Alignment Criterion 3

Materials must earn at least 5 out of 6 points to meet this Alignment Criterion. If materials earn fewer than 5 points, the Criterion has not been met. Check the final rating.

Then, briefly describe the strengths and weaknesses of these materials in light of the above Criterion.

Rating

6 Total (6 points possible)

Meets

Does Not Meet

Strengths / Weaknesses:

Investigations 3 provides differentiation in activities and teaching strategies to adapt to many different types of learners. Teachers are provided with clear direction in aiding and engaging different types of learners.

No weaknesses found.

Move to the Evaluation Summary on the following page to record the final Meets or Does Not Meet rating.

IMET Evaluation Summary 1 of 2

Investigations 3 in Number, Data And Space © ©2017
Program: _____
Publisher: Pearson Education
Date of Publication: 2017

Name of Evaluator(s): _____
Date of Evaluation: September 2016
Signature of Each Evaluator(s): _____

Non-Negotiable Criteria

Each Non-Negotiable must be met in order for the Non-Negotiable Alignment Criteria to be met overall.

Non-Negotiable 1: Freedom from Obstacles to Focus

- Meets
- Does Not Meet

Non-Negotiable 2: Focus and Coherence

- Meets
- Does Not Meet

Non-Negotiables Overall

- Meets
- Does Not Meet

Alignment Criteria

Each Alignment Criterion must be met with a sufficient number of points in order for Alignment Criteria to be labeled as “Meets” overall. The more points the materials receive on the Alignment Criteria, the better they are aligned.

Alignment Criterion 1: Rigor and Balance

Points: 6 of 6 possible.
(Materials must receive at least 5 of 6 points to align.)

- Meets
- Does Not Meet

Alignment Criterion 2: Standards for Mathematical Practice

Points: 6 of 6 possible.
(Materials must receive at least 5 of 6 points to align.)

- Meets
- Does Not Meet

Alignment Criterion 3: Access to Standards for All Learners

Points: 6 of 6 possible.
(Materials must receive at least 5 of 6 points to align.)

- Meets
- Does Not Meet

Alignment Criteria Overall

- Meets
- Does Not Meet

IMET Evaluation Summary 2 of 2

Program: Investigations 3 in Number, Data And Space ® ©2017
Publisher: Pearson Education
Date of Publication: 2017

Name of Evaluator (s): _____
Date of Evaluation: September 2017
Signature of Each Evaluator (s): _____

Summary

If the materials meet both Non-Negotiables and relevant Alignment Criterion, they are aligned to the Shifts and major features of the CCSS.

Do the materials meet every Non-Negotiable and Alignment Criterion?

- Yes
 No

What are the specific areas of strength and weakness based on this evaluation?

Publishers or those implementing curricula can use this information in order to modify the materials or use them differently to improve alignment.

Investigations 3 is an interactive, comprehensive, and engaging program that supports both teacher and student. Age appropriate activities and applications are evident throughout each grade. Students learn to apply mathematical concepts in creative ways. Teachers are directed in guiding students through each activity for maximum impact on student learning at different levels of development and comprehension.

All alignment and non-negotiable criterion are met in this program. No evidence of weaknesses are found.

Indicators of Quality

Once an evaluation for alignment to the Shifts and major features of the CCSS has been conducted using Sections 1–3, it’s important to evaluate for overall quality and best practices. A starting list of Indicators of Quality is suggested below. States, districts, and others evaluating instructional materials are encouraged to add to this list to ensure materials reflect local contexts. For background information on some of the Indicators of Quality in this section, refer to pp.18–21 in the K-8 Publishers’ Criteria for the Common Core State Standards for Mathematics (Spring 2013).

Indicators	Evidence	Rating (Y/N)
<p>1. 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.</p>	<p>Each session begins with a "Classroom Routine" (10 minute review and practice), followed by numerous activities, Math Workshops, Discussions, and concludes with Session Follow-up and practice.</p>	<p>Y</p>
<p>2. The underlying design of the materials includes both problems and exercises. (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.</p> <p>NOTE: This indicator does not require that the problems and exercises be labeled as such.</p>	<p>Problems and exercises are evident throughout Investigations3. Students learn and apply the mathematics in countless activities and real-world problems. Kindergarten: Unit 6: Sessions 2.3, 2.5, 3.1 Grade 2: Unit 5: Sessions 3.1, 3.4, 3.5, 3.7, 3.8 Grade 4: Unit 5: Sessions 1.1, 1.4, 2.2, 2.4</p>	<p>Y</p>
<p>3. 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 of 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 from students.</p>	<p>The Curriculum Unit Teacher's Guide is divided into the 8 units that make up each grade. These include additional information and strategies pertaining to the unit content, a "Professional Development" section with more information and support for enhancing the educational experience for students.</p>	<p>Y</p>

Indicators of Quality

Indicators	Evidence	Rating (Y/N)
4. Manipulatives suggested in the materials are faithful representations of the mathematical objects they represent and are connected to written methods.	Each session includes hands-on activities and use of objects to enhance the learning experience. Grade 1: Unit 3: 1.1, 1.3, 2.1, 2.5, 3.1, 3.2 Grade 3: Unit 2: 1.1, 1.2, 2.2, 2.3, 2.4 Grade 5: Unit 8: 1.1, 1.2, 1.4, 1.5, 2.1, 2.4, 2.5	Y
5. Materials include a variety of curriculum-embedded assessments. Examples include pre-, formative, summative, and self-assessment resources.	Investigations 3 includes assessment materials and benchmark expectations for each unit. These can be found in the front materials of the Curriculum Unit Teacher's Guide for each unit. These assessments include written assessments, quizzes, opportunities for observing students at work... etc.	Y
6. Assessments contain aligned rubrics, answer keys, and scoring guidelines that provide sufficient guidance for interpreting student performance.	The Curriculum Unit Teacher's Guide includes answers to online assessment materials, quizzes, and student activity book pages. It also indicates guidelines for assessing student progress.	Y
7. Materials assess student proficiency using methods that are accessible and unbiased, including the use of grade-level language in student prompts.	Student proficiency is assessed using benchmarks that are developed for each individual unit. A list of benchmarks for each unit can be found in the beginning material of the Teacher's Guide as well as within the individual sessions.	Y
8. Materials are carefully evaluated by qualified individuals, whose names are listed, in an effort to ensure freedom from mathematical errors and grade-level appropriateness.	Senior authors, supporting authors, collaborating teachers, reviewers, and other qualified individuals who developed this material are noted in the beginning of the Curriculum Unit Teacher's Guide for each unit.	Y
9. The visual design supports students in engaging thoughtfully with the subject. Navigation through the text is clear.	<i>Investigations 3</i> has a clean layout, engaging design with appropriate graphics and print.	Y
10. The materials engage parents in appropriate ways. For example, homework assignments in elementary grades consist of routine problems, practice with getting answers, and fluency-building exercises that parents can easily support.	The Student Activity Book contains a Family Letter for each unit to give parents the opportunity to engage their student in conversation and interactions about the topic. Kindergarten Student Activity Book: pp. 1, 21, 49, 53, 65, 77, 93, 107, 117	Y