K-8 Mathematics
Quality Instructional Materials Tool

Evidence Guides

Updated 7/13/2016

Guidance for Indicator 1a: Focus: assessment

Criterion: Materials do not **assess** topics **before** the grade level in which the topic should be introduced.

Indicator 1a: The instructional material **assesses** the grade-level content **and, if applicable**, content from earlier grades. Content from future grades may be introduced but students should not be held accountable on assessments for future expectations.

What is the purpose of this indicator?

This indicator, along with 1b, determines the shift of Focus. In order to maintain Focus, materials concentrate on grade-level standards. Items on summative assessments indicate the scope of mathematics taught during the unit. This could include unit tests, mid-year, and end-of-year tests, but this will not likely include quizzes, exit tickets, and items defined as formative assessments.

Evidence Collection Part 1 (applies to reviews in Grades K-5 only):

- Look at all summative assessments.
- Look at scoring rubrics, if available, to determine acceptable responses for the items.
- These topics do not appear in CCSS elementary grades K-5 at all:
  - (i). **Probability**, including chance, likely outcomes, probability models.
  - (ii). **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.
  - (iii). **Similarity, transformations, and congruence**.
- Record all summative assessment items **explicitly assessing** these topics.

Evidence Collection Part 2 (applies to reviews in Grades K-8)

- **Look at all summative assessments.**
- **Look at scoring rubrics, if applicable, to determine acceptable responses to the items.**
- **Identify ALL items assessing above-grade level standards and record standards associated with these items.**
- **Look at the lessons and activities associated with the above-grade level items.**
- **Record all evidence including span of instructional time regarding associated lessons/activities and record the above-grade level standards for ALL of these questions.**

Team discussion:

Part One: Questions to think about as you prepare for the team discussion:

- **Is this assessment at the end of the school year?**
- **Are the standards being assessed in the next grade level or several grades beyond? Is it still in the grade band? (K-2, 3-5, 6-8) Are the assessment items clearly identified as above grade level?**
- **Would skipping these items (and, therefore, the associated lessons and activities) still maintain the integrity of the grade level standards being taught?**

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- **Is this a small or large part of the unit?**
- **Is this a full mathematical topic in the unit or just an introduction to a concept?**
- **Is the inclusion of this topic mathematically reasonable within the context of the math in the grade?**

Part Two: During Team Discussion

- **Verify with team that the assessment items assess the topics that are concerns.**
- **Discuss all applicable questions from above.**
- **Determine evidence to be included in the final report.**

Scoring:

2 points:

- **No topics explicitly assessed and taught from (i), (ii), or (iii) above in K-5**
- **Materials assess grade level standards OR include above-grade assessment items that could be removed or modified without impacting the structure or intent of the materials**
- **Above-grade items are mathematically reasonable**

0 points:

- **Topics explicitly assessed and taught from (i), (ii), or (iii) above in K-5**
- **Many above-grade items on assessments that would require major modifications to fix.**
- **Structural items – items whose removal or modification would *CHANGE* the *APPEARANCE AND* impact the underlying *STRUCTURE* or intent of the materials**

Guidance for Indicator 1b: Focus: major clusters

Criterion: Students and teachers using the materials as designed devote the large majority of class time in each grade K – 8 to the major work of the grade.

Indicator 1b: Instructional material spends the majority of class time on the major clusters of each grade.

What is the purpose of this indicator? This indicator, along with 1a, determines the shift of Focus. In order to maintain Focus, materials concentrate on grade-level standards, and a large majority of class time is dedicated to lessons or activities from the materials that align to the major clusters of standards for the grade level being reviewed. The definition of "large majority of class time" is outlined in the "Scoring" section below, and major clusters are identified in the chart on page 10 of the Instructional Materials Review Tool for K-8 Mathematics. NOTE: ALL standards in CCSSM are accounted for in evidence gathering between indicators 1b, 1c, 1e, and 1f.

Evidence Collection:

- Become familiar with the major clusters of standards indicated on page 10 of the Review Tool. In addition to the notation used in the chart on page 10, a reviewer should also be familiar with the wording used in the major cluster headings along with the wording of the standards in those major clusters ("Where to Focus" charts from Student Achievement Partners can be used to determine exact wording of the cluster headings).
- **Reviewers should examine more than just a table of contents for alignment to major clusters of the grade in both the teacher and student materials. Individual lessons or activities that are aligned to non-major clusters should be examined to determine how supportive of major clusters they are.**
- All materials provided to reviewers should be considered for this and all subsequent indicators. This includes textbooks, online activities, supplemental materials, etc.
- Reviewers should, if possible, calculate what percentage of the materials are devoted to major work of the grade from **each of the following three** perspectives:
  - units/ chapters or parts of them;
  - lessons/ activities or parts of them; and
  - amount of instructional time as indicated by the materials.
- If it is not possible for a reviewer to use each of the three perspectives, then the reviewer should provide an explanation of why one perspective was not feasible. (For example, a set of materials is not divided into units/ chapters, so a calculation from that perspective is not possible.)
- If another perspective than the three already given is a better representation for the materials, then the reviewer should clearly explain why the other perspective is better and include evidence and calculations to accompany the additional perspective.
- For those materials where calculations fall below the desired range of 65% to 85% (as outlined in the "Scoring" section below), reviewers should revisit all aspects of the materials aligned to non-major clusters of the grade level to determine if any non-major aspects should count as major work because of how strongly they support major work of the grade.
  - For example, 7th grade lessons or activities aligned to Geometry standards (7.G.A or 7.G.B) could be counted as major work depending on how strongly they infuse concepts and skills from 7.NS.A, 7.RP.A, or 7.EE). If at least 50% of the problems from lessons/ activities aligned to Geometry standards have students solving 2-step equations that involve all rational numbers (and not just positive integers), then those lessons/ activities could be counted toward instructional time on major clusters of the grade.

Prepare for team discussion:

Guidance for Indicator 1b: Focus: major clusters

Criterion: Students and teachers using the materials as designed devote the large majority of class time in each grade K – 8 to the major work of the grade.

Indicator 1b: Instructional material spends the majority of class time on the major clusters of each grade.

- Be able to clearly state how calculations were performed during evidence collection and from where the evidence was collected (examples: tables of contents, lesson guides, pacing charts, etc.). Calculations, and numbers involved in them, should be easily replicable by other review team members.
- Be able to clearly explain why evidence used and calculations made adequately represent the materials on this indicator. (For example, if a set of materials doesn't have a large number of lessons/ activities aligned to major work of the grade, the number of instructional days per lesson could be more representative if the smaller number of lessons is given a large majority of instructional time. This example could be contrasted to a set of materials that allocates the same number of days to each of its lessons or activities.)
- Be able to discuss and quantify how support from lessons/ activities aligned to non-major clusters of standards would impact calculations made based only on lessons/ activities aligned to major clusters.
- If calculations are based on lessons/activities aligned to non-major clusters of standards, then a reviewer should be able to clearly describe how it was determined to include this broader range of lessons/ activities.

Scoring:

4 points:

- The materials should devote at least 65% and up to approximately 85% of class time to the major work of the grade with Grades K–2 nearer the upper end of that range, i.e., 85%. For those materials on the borderline (e.g., 60% - 64%), evidence should clearly explain how non-major work supports the major work of the grade and increases the materials' attention to Focus.

0 points:

- The materials do not devote at least 65% of class time to the major work of the grade. For those materials on the borderline (e.g., 60% - 64%), evidence should clearly explain how non-major work does not support the major work of the grade and does not increase the materials' attention to Focus.

Guidance for Indicator 1c: Coherence: Supporting Content Enhances Focus and Coherence

Criterion: Each grade's instructional materials are coherent and consistent with the Standards.

Indicator 1c: Supporting content enhances focus and coherence simultaneously by engaging students in the major work of the grade.

What is the purpose of this indicator? This indicator along with indicators 1d, 1e, 1f determines the shift of coherence. In order to maintain coherence materials should link across grades and within grades. The chapters and lessons should show how the learning is building on previous learning and will build toward future learning. Within the grade level, supporting work is linked to major work. NOTE: ALL standards in CCSSM are accounted for in evidence gathering between indicators 1b, 1c, 1e, and 1f.

Evidence Collection

Finding the Evidence:

- Familiarize yourself with the major work and supporting work of the grade being reviewed. (See the Focus by Grade Level documents from Achieve the Core.)
- Review the table of contents for chapters and lessons focusing on supporting work.
- Review chapters and lessons focusing on supporting work.
- Review problems within these lessons and chapters to see if connections are truly being made. Note when they are superficially being made, when they are made but are not called out, and when no connections occur.
- It is not enough to simply count the chapters and lessons based on a title. Evidence should explain the connections made between content within the lessons.

Connection Examples: This document is not a complete list. Other examples may be found.

Kindergarten	
Big Ideas: Counting, Cardinality, comparing numbers.	
K.MD.3 ***K.CC.5** ***K.OA.3** **Using objects to classify and count in different arrangements, and decompose using objects**	K.MD.3 offers a context in which to decompose 10 in more than one way (see K.OA.3). For example, given a collection of 10 buttons, children could classify by color and size to answer (K.CC.5) questions such as "how many small buttons do you have," "how many blue buttons do you have" or "how many large gray buttons do you have?" Such a decomposition of objects can show both that 10 = 7 + 3 and that 10 = 6 + 4. (See figure.)

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	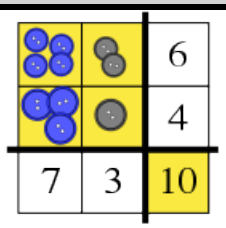
***K.CC.5** ***K.CC.6** **K.G.2** **K.G.4** **Name and count attributes of shapes, compare size of groups of objects by counting**	Students can count (see K.CC.5) vertices as a strategy for recognizing shapes in different orientations (see K.G.2) and can use shapes as a setting in which to compare numbers (see K.CC.6; e.g., count to see which has more vertices, an octagon or a hexagon — see K.G.4)
First Grade	
Big Ideas: **Addition and subtraction – concepts, skills, and problem solving; place value**	
Standard Group **1.MD.4** ***1.OA** **Using data to practice adding and subtracting**	When students work with organizing, representing and interpreting data, the process includes practicing using numbers and adding and subtracting to answer questions about the data (see the part of 1.MD.4 after the semicolon, and see the K–5 MD Progression document, especially Table 1 on page 4 and the discussion of categorical data on pages 5 and 6).
Standard Group **1.MD.3** ***1.NBT.1** **Telling and writing time to practice reading numbers.**	Telling and writing time on digital clocks (1.MD.3) is a context in which one can practice reading numbers (1.NBT.1), a kind of "application," but no more. Relating those times to meanings — events during a day — is not part of 1.MD.3, but making sense of what one is doing (MP.1) and contextualizing (MP.2) are essential elements of good mathematical practice and should be part of the instructional foreground at all times.

Second Grade	
Big Ideas: **Addition and subtraction – concepts, skills, and problem solving; place value**	
2.MD.C	When students work with time and money (2.MD.C), their work with

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***2.NBT.A, B** **Time and money are used to develop place value understanding.**	dollars, dimes and pennies should support their understanding and skill in place value (2.NBT). Their work with nickels, with telling time to the nearest five minutes on analog clocks, with counting by 5s (2.NBT.2), and with arrays of five rows and/or five columns (cluster 2.OA.C) should be taken together.
2.MD.10 ***2.OA** **Using data to solve addition and subtraction problems.**	2.MD.10 particularly represents an opportunity to link to the major work of grade 2. Picture graphs and bar graphs can add variety as contexts for solving addition and subtraction problems. The language in 2.MD.10 mentions word problems (2.OA) explicitly. See the Progression document for K–5 Measurement and Data for more on the connections between data work and arithmetic in the early grades.
2.MD.9 ***2.MD.1** **Generate measurement data as a way to teach standard unit measurement.**	2.MD.9 is a potential context for 2.MD.1 and gives students a first taste of visual comparison of numerical information (though the fact that this numerical information was derived from length makes the representation more about scaling the information than about visualizing it).

Third Grade	
Big Ideas: Multiplication and division of whole numbers and fractions.	
***3.OA.A** **3.MD.3** **Scaled bar graphs; multiplication and division**	Represent and interpret data: Students multiply and divide to solve problems using information presented in scaled bar graphs (3.MD.3). Pictographs and scaled bar graphs are a visually appealing context for one- and two-step word problems.
3.G.2 ***3.NF.A** ***3.MD.C** **3.MD.4** **Measurement, area, and fractions**	Reason with shapes and their attributes: Work toward meeting 3.G.2 should be positioned in support of area measurement and understanding of fractions.

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Fourth Grade	
Big Ideas: Multi-digit arithmetic; fraction equivalence; add/sub fractions	
4.OA.4 ***4.NBT.B** ***4.NF.A** **Factors and multiples; fraction equivalence**	Gain familiarity with factors and multiples: Work in this cluster supports students' work with multi-digit arithmetic as well as their work with fraction equivalence.
4.MD.4 ***4.NF.A, B** **add/sub fractions; measurements in fractions of a unit**	Represent and interpret data: The standard in this cluster requires students to use a line plot to display measurements in fractions of a unit and to solve problems involving addition and subtraction of fractions, connecting it directly to the Number and Operations — Fractions clusters.

Fifth Grade	
Big Ideas: Computation with decimals; operations on fractions	
5.MD.1 ***5.NBT.B** **convert measurement units; computation with decimals**	Convert like measurement units within a given measurement system: Work in these standards supports computation with decimals. For example, converting 5 cm to 0.05 m involves computation with decimals to hundredths.
5.MD.B ***5.NF.A, B** **data sets in fractions; operations on fractions**	Represent and interpret data: The standard in this cluster provides an opportunity for solving real-world problems with operations on fractions, connecting directly to both Number and Operations — Fractions clusters.

Sixth Grade	
Big Ideas: Ratio and proportional reasoning, connecting arithmetic to expressions and equations	
6.NS.4 ***6EE.3**	Identifying greatest common factor and least common multiple. Recognizing common factors will allow students to represent expressions in different forms.

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Factors and multiples; equivalent expressions	
6.G.A ***6.EE.A** ***6.EE.B** **surface area and volume; expressions, equations and inequalities**	Writing, reading, evaluating, and transforming variable expressions (6.EE.1-4) and solving equations and inequalities (6.EE.7-8) can be combined with use of the volume formulas V = lwh and V = Bh (6.G.2).

Seventh Grade	
Big Ideas: **Ratio and proportional reasoning, operations with rational numbers**	
7.G.A.1 ***7.RP.A** **Scale drawings, proportional reasoning**	Students use proportional reasoning when they analyze scale drawings.
7.SP.C ***7.RP.A** **Sampling and probability, proportional reasoning**	Students use proportional reasoning and percentages when they extrapolate from random samples and use probability.

Eighth Grade	
Big Ideas: **Linear equations and functions**	
***8.EE.B** **8.SP.A** **Proportional relationships and linear equations; association in bivariate data**	Students' work with proportional relationships, lines, linear equations, and linear functions can be enhanced by working with scatter plots and linear models of association in bivariate measurement data.

Prepare for team discussion:

- What supporting work has natural connections to the major work for the grade level?
- What examples did you find of the supporting work supporting the major work of the grade? Cite the chapter, lesson, and page numbers.

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- What examples did you find of the supporting work only partially supporting the major work of the grade? Cite the chapter, lesson, and pages numbers.
- What natural connections are missed? Cite the chapter, lesson, and page numbers.
- Are the standards treated as separate events? Cite the chapter, lesson, and page numbers.
- Do the materials connect the supporting work with the major work within the problems but not explicitly state the connections? (either for the teacher or the student) Cite examples.

Scoring:

2 points:

- Supporting content is used to enhance focus on major work when appropriate.
- Math is interwoven throughout the year for a grade-level picture, which fits into the K-12 progression.

1 point:

- Some natural connections are missed.
- Connections which are present are not fully explored.

0 points:

- Supporting content are treated separately and do not include natural connections to major work.
- The math is treated as a list of disconnected topics.
- No visible connections are present; each standard is treated as a separate event.

Guidance for Indicator 1d: Coherence: amount of content

Criterion: Each grade's instructional materials are coherent and consistent with the Standards.

Indicator 1d: The amount of content designated for one grade level is viable for one school year in order to foster coherence between grades.

What is the purpose of this indicator? This indicator along with indicators 1c, 1e, and 1f determines the shift of coherence. This indicator examines the materials to determine if the amount of time suggested by the materials is appropriate for a school year and if the expectations of the materials are reasonable for both teachers and students to complete in the suggested timeframe.

Evidence Collection

- The guiding question for this indicator is: "Will this material provide enough instruction and at the depth required for all grade level standards, especially the major work, so students are prepared for the next grade level by the end of the school year?"
- Review the table of contents, any pacing guides, and scope and sequence provided by the publisher.
  - Consider the days spent on lessons/activities versus assessment.
  - Examine the number of days recommended for re-teaching or extensions.
  - Are some lessons marked as optional or supplementary?
- Does this material fit in a standard school year (approximately 140-190 days of instruction)?
  - Examine the lessons to see if the timing suggested by the publisher is viable.
- What is the length of the lesson according to the publisher? (For example, 60 minutes)
  - Do the requirements of the lessons seem reasonable for teachers and students to complete in the suggested amount of time?

Prepare for team discussion

- This metric requires qualitative judgment; there is no exact number of days that is needed. (e.g., every book does not need 180 lessons).
- Keep in mind that in a normal school year, instruction will not take place on each day due to re-teaching, assessment, field trips, etc.
- Consider if there is too much material or too little. Students should be able to master ALL the grade level standards by the end of the course.
- Be prepared to explain and justify your conclusion.
- Was there any information you learned from the publisher's orientation that was valuable for this indicator? If so, include this information in the report.

Scoring

2 points:

- The suggested amount of time and expectations for teachers and students of the materials are viable for one school year as written and would not require significant modifications. For those

Guidance for Indicator 1d: Coherence: amount of content

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materials on the borderline (e.g., approximately 130 or 200 days), evidence should clearly explain how students would be able to master ALL the grade level standards within one school year.

1 point:

- Some concern exists for the time frame of the materials and/ or the expectations for teachers and students. A few significant modifications would be necessary for materials to be viable for one school year.

0 points:

- The suggested amount of time for the materials is not viable for one school year, and/ or the expectations for teachers and students are unreasonable. Several significant modifications would be necessary for the materials to be viable for one school year.

Guidance for Indicator 1e: Coherence: Materials Consistent with Progressions

Criterion: Each grades' instructional materials are coherent and consistent with the Standards.

Indicator 1e: Materials are consistent with the progressions in the Standards.

i. Materials develop according to the grade-by-grade progressions in the Standards. Content from prior or future grades is clearly identified and related to grade-level work.
ii. Materials give all students extensive work with grade-level problems.
iii. Materials relate grade-level concepts explicitly to prior knowledge from earlier grades.

What is the purpose of this indicator? This indicator along with indicators 1c, 1d, and 1f determines the shift of coherence. The indicator examines the coherence across grade-levels (vertical). NOTE: ALL standards in CCSSM are accounted for in evidence gathering between indicators 1b, 1c, 1e, and 1f.

Evidence Collection

Finding the Evidence:

1.e.i

- Review the units, chapters and lessons in both student and teacher materials.
- If off-grade level content is present, it needs to be clearly identified as such in the materials. Is it a plausible extension or reinforcement of grade-level standards? Does it unduly interfere with the work of the grade?
- The design of the materials concentrates on the mathematics of the grade as referenced in the Progression documents.
- Do the materials reach the full depth of the standards for the grade-level by the end of the school year?

1.e.ii

- Review the units, chapters, and lessons in both student and teacher materials.
- Will all students have the opportunity to engage deeply with problems related to grade-level standards?
- Are there only a few opportunities for grade-level work in one domain, but many opportunities in another domain?
- If the materials provide resources for differentiated learning, consider whether lower-performing students and/or special populations have opportunities to engage with grade-level problems.
- For the problems provided for students needing intervention: Would students who are using these problems still get to engage with the full depth of the grade-level standards?
- For the problems provided for students for extension: Would students who are using these problems get to engage deeply with grade-level standards?
- This may include simple tasks, performance tasks, independent practice, fluency work, etc. but materials should encourage appropriate additional material for all students to work with grade-level standards. Note how often material suggests students work with below and above grade-level material.

1.e.iii

- Review the units, chapters, and lessons in both student and teacher materials.
- Are connections to prior learning explicit and include an explanation for teachers?
    - An example of evaluating this indicator includes looking at the way the materials extend basic ideas of place value across the decimal point; or the role that properties of operations play when the materials extend arithmetic beyond whole numbers to fractions, variables and expressions.
    - Cluster headings in the Standards sometimes signal key moments where reorganizing and extending

Guidance for Indicator 1e: Coherence: Materials Consistent with Progressions

Criterion: Each grades' instructional materials are coherent and consistent with the Standards.

Indicator 1e: Materials are consistent with the progressions in the Standards.

i. Materials develop according to the grade-by-grade progressions in the Standards. Content from prior or future grades is clearly identified and related to grade-level work.

ii. Materials give all students extensive work with grade-level problems.

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

previous knowledge is important in order to accommodate new knowledge (e.g., see cluster headings that use the phrase “apply and extend previous understanding”).

Prepare for team discussion:

- Review progression documents and standards as needed: http://ime.math.arizona.edu/progressions/
- Is grade-level material reaching the full depth of the standards? If not, how does that impact the progression of the mathematics?
- **This indicator is not about the quality of differentiated materials (Gateway 3), but about the grade level of materials used when differentiating.**
- “Extensive work” may require professional judgment. Are they spending a good portion of time on all areas of major work? Are there only a few opportunities for grade-level work in one domain, but many opportunities in another domain?
- How was 1.e.ii taken into account in the scoring? Be able to justify why the materials do or do not provide extensive work and how it was decided.

Scoring:

Guidance for Indicator 1e: Coherence: Materials Consistent with Progressions

Criterion: Each grades' instructional materials are coherent and consistent with the Standards.

Indicator 1e: Materials are consistent with the progressions in the Standards.

i. Materials develop according to the grade-by-grade progressions in the Standards. Content from prior or future grades is clearly identified and related to grade-level work.

ii. Materials give all students extensive work with grade-level problems.

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

1.e.i, 1.e.ii, and 1.e.iii are scored together as one item.

2 points:

- All criteria are met for 1.e.i, 1.e.ii, and 1.e.iii. Content from prior and future grade-levels are clearly identified and support the progressions of the grade. Materials meet the full depth of the grade-level standards. All students are given extensive work with grade-level problems. Connections between concepts are clearly articulated.

1 point:

- Criteria are partially met for 1.e.i, 1.e.ii, or 1.e.iii. Prior or future grade-level content may not be clearly identified or may not support the progressions of the grade. Materials generally meet the depth of the grade level standards. Few students may not be given extensive work with grade-level problems. Connections between concepts may not be clearly articulated.

0 points:

- No criteria are met for 1.e.i, 1.e.ii, or 1.e.iIi. Prior and future grade-level content is not clearly identified and does not support the progressions of the grade. Materials do not meet the full depth of the grade level standards. All students are not given extensive work with grade-level problems. Connections between concepts are not clearly articulated.

Guidance for Indicator 1f: Coherence: Foster Coherence through Connections

Criterion: Each grade's instructional materials are coherent and consistent with the Standards.

Indicator 1f: Materials foster coherence through connections at a single grade, where appropriate and required by the Standards.

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

ii. 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.

What is the purpose of this indicator? This indicator along with indicators 1c, 1d, and 1e determines the shift of coherence. This indicator examines coherence within the grade-level (horizontal). NOTE: ALL standards in CCSSM are accounted for in evidence gathering between indicators 1b, 1c, 1e, and 1f.

Evidence Collection

Finding the Evidence:

1.f.i

- Review any alignment document provided by the publisher. Then review the units and lessons to determine if the alignment to the cluster level is truly present.
- Review unit cluster headings in materials. This does not have to be a verbatim restatement of the CCSSM cluster headings, but shouldn't require too much interpretation.
- Review objectives for evidence of alignment to cluster-level headings.
- If there are not lessons aligned at the cluster level, reviewers should look for lesson names that may signal they are focusing on larger ideas and look at the objectives in those lessons.

1.f.ii

- 1.f.ii is looking for natural connections between any clusters, domain, and standards. This indicator is not limited to connections between major and supporting work.
- Begin by looking for connections that have been identified. re the connections natural? Do they truly support each other, or are they superficial? Are they mathematically important?
- Choose two or more clusters or two or more domains for which connections are natural and mathematically important. Review 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.

Examples for 1.f.ii: This is not a complete list. Reviewers may find other connections.

Kindergarten **Big Ideas**: **Counting, Cardinality, comparing numbers.**	
***K.NBT** ***K.CC.5** ***K.CC.3**	In addition to laying the groundwork for place value in grade 1, working with numbers 11–19 (K.NBT) provides opportunities for cardinal counting beyond 10 (see K.CC.5) and for writing two-digit numbers (see K.CC.3).

Guidance for Indicator 1f: Coherence: Foster Coherence through Connections

Criterion: Each grade's instructional materials are coherent and consistent with the Standards.

Indicator 1f: Materials foster coherence through connections at a single grade, where appropriate and required by the Standards.

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

ii. 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.

K.MD.3 ***K.CC.5** ***K.CC.6** ***K.OA.3**	K.MD.3 provides opportunities for cardinal counting (see K.CC.5) and for comparing numbers (see K.CC.6). K.MD.3 also offers a context in which to decompose 10 in more than one way (see K.OA.3).
K.G.2 **K.G.4**	K.G.2 and K.G.4 offer some opportunities for counting and comparing numbers.

First Grade **Big Ideas**: **Addition and subtraction – concepts, skills, and problem solving; place value**	
	A thorough understanding of how place value language and notation represent number (cluster 1.NBT.A) serves calculation (cluster 1.NBT.B) in many ways — not just pencil-and-paper calculation, but mental calculation as well. It is valuable for purposes of calculation to know that numbers are named so that "twenty-eight" is 20 + 8 and "forty-one" is 40 + 1. That is, the names are designed to make such calculations easy so that we can base calculations like 28 + 41 on it using properties of the operations (1.OA.4). This kind of flexible mental arithmetic is a sign of mastery and complements fluency with more algorithmic methods.
***1.OA.1 & 2** ***1.OA.6** ***1.NBT**	The study of word problems in grade 1 (1.OA.1, 1.OA.2) can be coordinated with students' growing proficiency with addition and subtraction within 20 (1.OA.6) and their growing proficiency with multi-digit addition and subtraction (1.NBT).
***1.OA.A** ***1.OA.B**	problems can also be linked to students' growing understanding of properties of addition and the relationship between addition and subtraction. For example, put together/take apart problems with addend unknown can show subtraction as finding an unknown addend.
***1.NBT** ***1.MD.A**	re a connection between place value (1.NBT) and measurement (1.MD). Working with place value depends on having a sense of the sizes of the base ten units and being able to see a larger unit as composed of smaller units within the system. As measurement develops through the grades, it also depends on having a sense of the sizes of units and being able to see a larger unit as composed of smaller units within the system. Grade 1 is when students first encounter the concept of a tens unit, and it is also when they first encounter the concept of a length unit.
***1.MD.1,2** ***1.OA.1** ***1.NBT.3**	Measurement standards 1.MD.1 and 1.MD.2 together support and provide a context for the 1.OA.1 goal of solving subtraction problems that involve comparing. To meet standard 1.MD.1, students compare the lengths of two objects by means of a third object, e.g., a length of string that allows a "copy" of the length of one immovable object to be moved to another location to compare with the length of another movable object. When students cannot find the exact difference because of the magnitude of the numbers that arise from measurement — as may occur in comparing two students' heights — they may still compare the measurements to know which is greater (1.NBT.3).

Guidance for Indicator 1f: Coherence: Foster Coherence through Connections

Criterion: Each grade's instructional materials are coherent and consistent with the Standards.

Indicator 1f: Materials foster coherence through connections at a single grade, where appropriate and required by the Standards.

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

ii. 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.

1.G.3 **1.MD.3**	students are dealing with the limited precision of only whole and half-hours, they can distinguish the position of the hour hand and connect this to geometry standard 1.G.3, partitioning circles into halves and quarters.
1.G.2,3 ***1.MD.2**	Composing shapes to create a new shape (1.G.2) is the spatial analogue of composing numbers to create new numbers. This is also connected to length measurement (1.MD.2) since students must visualize an object to be measured as being built up out of equal-sized units (see also 1.G.3). Though assembling two congruent right triangles into a rectangle does not use the same facts or reasoning that assembling two 5s into a 10 uses, the idea of looking at how objects in some domain (numbers or shapes) can be combined to make other objects in that domain and looking for new true statements one can make about these combinations is a big idea that is common across mathematics.

Second Grade **Big Ideas**: **Addition and subtraction – concepts, skills, and problem solving; place value**	
***2.MD.6** ***2.MD.4** ***2.OA.1**	Representing whole numbers as lengths (2.MD.6) and comparing measurements (2.MD.4) can build a robust and flexible model for fluent subtraction (2.OA.1). For example, a good way to see the "distance" from 6 to 20 is to see the distance from 6 to 10 joined with the distance from 10 to 20.
2.MD.8 ***2.NBT.1**	Problems involving dollars, dimes and pennies (2.MD.8) should be connected with the place value learning of 100s, 10s and 1s (2.NBT.1). Though the notation is different, a dollar is 100 cents or a "bundle" of 10 dimes, each of which is a "bundle" of 10 pennies. Work with dollars, dimes and pennies (without the notation) can support methods of whole-number addition (e.g., dimes are added to dimes). Addition that is appropriate with whole numbers can be explored in the new notation of money contexts (though fluency with that notation is not a standard at this grade).
***2.OA.1** ***2.OA.2** ***2.NBT.B**	Students' work with addition and subtraction word problems (2.OA.1) can be coordinated with their growing skill in multi-digit addition and subtraction (2.OA.2, cluster 2.NBT.B).
2.MD.8 **2.MD.7** ***2.NBT.2** ***2.OA.4**	Work with nickels (2.MD.8) and with telling time to the nearest five minutes on analog clocks (2.MD.7) should be taken together with counting by 5s (2.NBT.A.2) as contexts for gaining familiarity with groups of 5 (2.OA.4). Recognizing time by seeing the minute hand at 3 and knowing that is 15 minutes; recognizing three nickels as 15¢; and seeing the 15-ness of a 3-by-5 rectangular array held in any position at all (including with neither base horizontal) will prepare for understanding, in grade 3, what the new operation of multiplication means.
***2.MD.6**	The number line (2.MD.6) connects numbers, lengths and units. The number line increases in

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***2.MD.A**	prominence across the grades.

Third Grade **Big Ideas: Multiplication and division of whole numbers and fractions.**	
3.G.2 ***3.NF.A**	Students' work with partitioning shapes (3.G.2) relates to visual fraction models (3.NF).
***3.MD.3** ***3.OA.7**	Scaled picture graphs and scaled bar graphs (3.MD.3) can be a visually appealing context for solving multiplication and division problems.

Fourth Grade **Big Ideas: Multi-digit arithmetic; fraction equivalence; add/sub fractions**	
4.MD.1,2 ***4.NF.4** ***4.OA.1**	The work that students do with units of measure (4.MD.1–2) and with multiplication of a fraction by a whole number (4.NF.4) can be connected to the idea of "times as much" in multiplication (4.OA.1).
***4.NF.3** **4.MD.5,7**	n of fractions (4.NF.3) and concepts of angle measure (4.MD.5a and 4.MD.7) are connected in that a one-degree measure is a fraction of an entire rotation and that adding angle measures together is adding fractions with a denominator of 360.

Fifth Grade **Big Ideas: Computation with decimals; operations on fractions**	
***5.NF.B** ***5.NBT.5**	rk that students do in multiplying fractions extends their understanding of the operation of multiplication. For example, to multiply $^{a}/_{b} \times q$ (where q is a whole number or a fraction), students can interpret $^{a}/_{b} \times q$ as meaning a parts of a partition of q into b equal parts (5.NF.4a). This interpretation of the product leads to a product that is less than, equal to or greater than q depending on whether $^{a}/_{b} \bullet 1$, $^{a}/_{b} = 1$ or $^{a}/_{b} \bullet 1$, respectively (5.NF.5).
5.MD.B ***5.NF.A,B**	sions within the metric system represent an important practical application of the place value system. Students' work with these units (5.MD.1) can be connected to their work with place value (5.NBT.1).

Sixth Grade **Big Ideas**: **Ratio and proportional reasoning, connecting arithmetic to expressions and equations**	
***6.RP.A** ***6.EE.C**	Students' work with ratios and proportional relationships (6.RP) can be combined with their work in representing quantitative relationships between dependent and independent variables (6.EE.9).

Guidance for Indicator 1f: Coherence: Foster Coherence through Connections

Criterion: Each grade's instructional materials are coherent and consistent with the Standards.

Indicator 1f: Materials foster coherence through connections at a single grade, where appropriate and required by the Standards.

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ii. 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.

***6.NS.8** ***6.RP.3a**	Plotting rational numbers in the coordinate plane (6.NS.8) is part of analyzing proportional relationships (6.RP.3a, 7.RP.2) and will become important for studying linear equations (8.EE.8) and graphs of functions (8.F)

Seventh Grade **Big Ideas**: **Ratio and proportional reasoning, operations with rational numbers**	
***7.NS.A** ***7.EE.B**	Students' work with algebraic expressions and equations should include the full range of rational numbers.

Eighth Grade **Big Ideas**: **Linear equations and functions**	
***8.EE.6** ***8.G.A**	Work should connect the concept of similarity to work in defining slope.
***Denotes Major Work of the Grade**	

Prepare for team discussion:

- How did the materials shape their work around the cluster headings of the CCSSM?
- Where were lessons and problems connected across clusters headings?
- Were there natural and mathematically important connections missed? If so, where?

Scoring:

1.f.i and 1.f.ii are scored together as one item.

2 points:

- All criteria are met for 1.f.i and 1.f.ii. The materials are visibly shaped by the CCSSM cluster headings. Lessons and problems connect across domains and clusters in natural ways and when mathematically important.

1 point:

- Criteria are partially met for 1.f.i or 1.f.ii or one of the two is fully met but not the other. Important connections may be missed. The materials may not be visibly shaped by the CCSSM cluster heading. Lessons and problems may not connect in natural and mathematically important ways.

0 points:

- No criteria are met for 1.f.i and 1.f.ii. Materials are not shaped by the CCSSM cluster headings. Natural and mathematically important connections are not made in the materials.

Guidance for Indicator 1f: Coherence: Foster Coherence through Connections

Criterion: Each grade's instructional materials are coherent and consistent with the Standards.

Indicator 1f: Materials foster coherence through connections at a single grade, where appropriate and required by the Standards.

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

ii. 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.

Guidance for Indicator 2a: Rigor and Balance: Conceptual Understanding

Criterion: Each grade's instructional materials 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.

Indicator 2a: Materials develop conceptual understanding of key mathematical concepts, especially where called for in specific content standards or cluster headings.

Indicator: What is the purpose of this indicator?

This indicator, along with 2b, 2c, and 2d, determines the shift of Rigor. In order to obtain rigor, there needs to be a balance among conceptual understanding, procedural skill and fluency, and application. Conceptual understanding of key concepts will allow students to be able to access concepts from a number of perspectives in order to see math as more than a set of algorithmic procedures.

Evidence Collection

Finding the Evidence:

- Select cluster(s) or standard(s) from the grade level that specifically relate to conceptual understanding.
    - Some examples of clusters or Standards that call for conceptual understanding include: K.OA.1, K.NBT.A, (1.NBT.B, 1.NBT.C), 2.MD.A, (2.NBT.A, 2.NBT.B), (3.OA.1, 3.OA.2), 3.NF.A, 4.NF.A, (4.NBT.A, 4.NBT.B), 5.NF.B, (5.NBT.A, 5.NBT.B), 6.RP.A, 6.EE.3, 7.NS.A, 7.EE.A, 8.EE.B, 8.F.A, 8.G.A
    Note: Clusters or Standards grouped by parentheses are closely connected and could be analyzed together.
- Look for the evidence in lessons, review lessons, chapter and/or unit assessments, homework assignments, "Hands-on Activities" (if offered), "investigations" (if offered), and other areas that appear to be conceptual in nature.
- Evaluate whether aspects of rigor present in lessons/chapters/units align to the aspect of rigor in the targeted standard(s).
- Materials amply feature high-quality conceptual problems and conceptual discussion questions, including brief conceptual problems with low computational difficulty.
    - Example: Find a number greater than $\frac{11}{55}$ and less than $\frac{1}{1}\frac{1}{1}$.
    - Example: If the divisor does not change and the dividend increases, what happens to the quotient?
- Do program materials call for students to use concrete and/or visual representations, as well as verbalization, when developing conceptual understanding?
- Is conceptual understanding attended to thoroughly where the Standards set explicit expectations for understanding or interpreting?
    - Example: Are place value and properties of operations used to explain how well the multi-digit addition and subtraction or multi-digit multiplication and division algorithms are developed and explained?
- Do the materials feature opportunities to identify correspondences across mathematical representations?
    - Example: Are students supported in identifying correspondences among: the verbal description of a situation, the diagrams that distill its mathematical features, and the equations that model it.

Guidance for Indicator 2a: Rigor and Balance: Conceptual Understanding

Criterion: Each grade's instructional materials 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.

Indicator 2a: Materials develop conceptual understanding of key mathematical concepts, especially where called for in specific content standards or cluster headings.

Team discussion:

Preparing for discussion—questions to ask yourself:

- What does conceptual understanding look like in materials? What are some examples I can share with the cluster to illustrate my interpretation?

During discussion:

- Discussion and specific evidence that illustrates the attention to conceptual understanding?
- Does the work reflect a student's ability to reason in settings involving the careful application of concept definitions, relations, or representations?
- Does the conceptual understanding being asked for in the resource truly lead to a deeper understanding and ability to communicate that understanding?

Scoring:

2 points:

- The cluster(s) or standard(s) from the grade level that specifically relate to conceptual understanding meet all of the requirements asked for in the Evidence Collection selection multiple times and allow students to develop a conceptual understanding of the explored content.

1 point:

- The requirements asked for in the Evidence Collection selection are only minimally met and/or not thoroughly met.
- The lessons/units have some missed opportunities to develop conceptual understanding.
- The materials include whole-group opportunities for exploration or demonstration of conceptual understanding, but students aren't given opportunities to independently demonstrate understandings.

0 points:

- The material has many missed opportunities for the students to develop conceptual understanding, when it is specifically called for in the standards or cluster headings.

Guidance for Indicator 2b: Rigor and Balance: Procedural Skill and Fluency

Criterion: Each grade's instructional materials 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.

Indicator 2b: Materials give attention throughout the year to individual standards that set an expectation of procedural skill and fluency.

Indicator: What is the purpose of this indicator?
This indicator, along with 2a, 2c, and 2d, determines the shift of Rigor. In order to obtain rigor, there needs to be a balance among conceptual understanding, procedural skill and fluency, and application. Procedural skill and fluency is the call for speed and accuracy in calculations. Students need to practice core skills in order to have access to more complex concepts and procedures.
Evidence Collection

Finding the Evidence:
● Select cluster(s) or standard(s) from the grade level that specifically relate to procedural skill and fluency.
  o Some examples of clusters or Standards that call for procedural skill and fluency include: K.OA.5, 1.OA.6, 2.OA.2, 2.NBT.5, 3.OA.7, 3.NBT.2, 4.NBT.4, 5.NBT.5, 6.NS.2, 6.NS.3, 7.NS.A, 7.EE.1, 7.EE.4, 8.EE.7, 8.G.9.
● Look for the evidence in lessons, review lessons, routine daily checks, chapter and/or unit assessments, homework assignments, and other sections that show evidence that the development of fluency and procedural skills is supported by a conceptual understanding.
● Evaluate whether the rigor present in lessons/chapters/units align to the true meaning of rigor in the targeted standard(s).
● Attention throughout the year to individual standards that set an expectation of procedural skill and fluency.
● Progress toward fluency and procedural skill is interwoven with students' developing conceptual understanding of the properties of operations.
● Purely procedural problems and exercises are present that include cases in which opportunistic strategies are valuable, as well as generic cases that require efficient algorithms.
  o Example of Problems when Opportunistic Strategies are Valuable: The sum 698 + 240 or the system $x + y = 1$, $2x + 2y = 3$
  o Example of Problems when Generic Cases Require Efficient Algorithms: The sum 8767 + 2286 or the system $6y + x = x + 3$, $-x = 1 + 2y$
● Materials in grades K-6 provide repeated practice toward attainment of fluency standards.

Team discussion:
Preparing for discussion—questions to ask yourself: ● Procedural fluency extends students' computational fluency. How would this look in a text?

Guidance for Indicator 2b: Rigor and Balance: Procedural Skill and Fluency

Criterion: Each grade's instructional materials 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.

Indicator 2b: Materials give attention throughout the year to individual standards that set an expectation of procedural skill and fluency.

During discussion:

- What does fluency mean at this grade level and does the material adequately prepare a student for it?
- How do program materials build procedural skill and fluencies over the course of an academic year?

Scoring:

2 points:

- The two or more cluster(s) or Standard(s) from the grade level that specifically relate to fluency and procedural skill meet all of the requirements asked for in the Evidence Collection section multiple times and allows the student to obtain fluency of the skill.

1 point:

- The requirements asked for in the Evidence Collection selection are met, but not thoroughly enough for all students to obtain fluency of the skill.
- The lessons/units have some missed opportunities to develop procedural skill and fluency.

0 points:

- The material does not give enough opportunities for the students to develop fluency and procedural skill throughout the text and especially where it is specifically called for in the standards or cluster headings.

Guidance for Indicator 2c: Rigor and Balance: Applications

Criterion: Each grade's instructional materials 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.

Indicator 2c: Materials are designed so that teachers and students spend sufficient time working with engaging applications of the mathematics, without losing focus on the major work of each grade.

What is the purpose of this indicator?
This indicator, along with 2a, 2b and 2d, determines the shift of Rigor. In order to obtain rigor, there needs to be a balance among conceptual understanding, procedural skill and fluency, and application. To engage in application, students need opportunities to apply mathematical knowledge and/or skills in a real-world context. Materials should promote problem solving activities that call for using math flexibly in a variety of contexts, along with routine and non-routine applications.
Evidence Collection):

Guidance for Indicator 2c: Rigor and Balance: Applications

Criterion: Each grade's instructional materials 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.

Indicator 2c: Materials are designed so that teachers and students spend sufficient time working with engaging applications of the mathematics, without losing focus on the major work of each grade.

- Review lessons, chapter/unit assessments, and homework assignments.
- Select cluster(s) or standard(s) from the grade level that specifically relate to application.
    - Some examples of clusters or standards that call for application include: K.OA.2, 1.OA.A, 2.OA.A, 3.OA.3, 3.OA.8, 4.OA.3, 4.NF.3d, 4.NF.4c, 5.NF.6, 5.NF.7c, 6.RP.3, 6.NS.1, 6.EE.7, 6.EE.9, 7.RP.A, 7.NS.3, 7.EE.3, 8.EE.8c, 8.F.B
    - In materials where these clusters/standards are identified, evaluate whether students are engaging in application of content and skills as described in the clusters or standards.
- Use the questions below to gather evidence to inform the rating of this indicator.
    - Are there a variety of single- and multi-step contextual problems, including non-routine problems, that develop the mathematics of the grade?
    - Do the problems attend thoroughly to those places in the content standards where expectations for multi-step and real-world problems are explicit?
    - Do application problems particularly stress applying the major work of the grade? An example of evaluating this indicator includes looking at:
        - *By the end of Grade 2, how well students using the materials as designed can represent and solve a full range of one- and two-step addition and subtraction word problems (2.OA.1); OR*
        - *By the end of Grade 3, how well students using the materials as designed can represent and solve a full range of one-step multiplication and division word problems (3.OA.3); OR*
    - 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?

Team discussion:

Preparing for discussion—questions to ask yourself:

- What are the non-routine problems?
- How do the materials encourage students to apply mathematics to contextual situations, particularly in the major work of the grade?

During discussion:

- Explain the strategy/reasoning used as you collected evidence for this indicator.
- Share any generalizations that you noted as you looked at materials over the course of a grade level, with specific examples (page numbers noted) to support the generalizations.

Guidance for Indicator 2c: Rigor and Balance: Applications

Criterion: Each grade's instructional materials 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.

Indicator 2c: Materials are designed so that teachers and students spend sufficient time working with engaging applications of the mathematics, without losing focus on the major work of each grade.

- Identify clusters/standards targeted during evidence collection.

Scoring:

2 points:

- Materials include multiple opportunities for students to engage in application of mathematical skills and knowledge in new contexts.
- Students are consistently engaged in learning through problem solving during the year.

1 point:

- Attention to application is included in lessons/units/assessments, but is not purposeful.
- There is little variety in situational contexts/problem types when students are presented with word problems.
- The lessons/units/assessments have some missed opportunities to engage in thoughtful application.
- The requirements outlined in Evidence Collection are met minimal times and/or not thoroughly.

0 points:

- No/minimal opportunities for students to apply learning in context.

Guidance for Indicator 2d: Rigor and Balance: Balance

Criterion: Each grade's instructional materials 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.

Indicator 2d: The three aspects of rigor are not always treated together and are not always treated separately. There is a balance of the 3 aspects of rigor within the grade.

What is the purpose of this indicator?

This indicator, along with 2a, 2b, and 2c, determines the shift of Rigor. In order to be considered rigorous, as defined by CCSS-M Instructional Shifts, program materials must include a balance of conceptual understanding, procedural skill and fluency, and application. This balance should be evident in all aspects of the grade level program to support students as they develop deep mathematical understanding.

Evidence Collection

- Look for a balance of all 3 aspects of rigor, considering the program materials as a whole and as individual units of study.
    - Consider whether the content/topic is being introduced to students for the first time, or is an extension of previous learning.
    - Consider whether materials use conceptual understanding to develop procedural skill and fluency, or whether students are encouraged to use visual models and written explanations to support their work in application problems
- For this indicator, consider the intent of the program to balance the three aspects of rigor, not the quality of the materials—indicators 2a-c focus on the quality of materials.
- Review lessons, chapter/unit assessments, and homework assignments.
- Look for individual lessons/topics that include more than one aspect of rigor.

Team discussion:

Preparing for discussion—Questions to ask yourself:

- How did I determine "balance"?
- What are places in grade level materials where specific aspects of rigor are called for?
- Which topics/units of study did I focus on in my evidence collection?
- If I was unsure about something, what helped me make my decision?

During discussion:

- Explain the strategy/reasoning used to collect evidence for this indicator.
- Share any generalizations that noted in materials over the course of a grade level, with specific examples (page numbers noted) to support the generalizations.
- Identify clusters/standards targeted during evidence collection.

Guidance for Indicator 2d: Rigor and Balance: Balance

Criterion: Each grade's instructional materials 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.

Indicator 2d: The three aspects of rigor are not always treated together and are not always treated separately. There is a balance of the 3 aspects of rigor within the grade.

Scoring:

2 points:

- Clear evidence of all three aspects of rigor are present in program materials.
- Multiple aspects of rigor are engaged in to develop students' mathematical understanding of a single topic/unit of study.

1 point:

- All three aspects of rigor are present in program materials, but there is some over/under-emphasis on 1 of the 3.
    - Example: 3.OA.A: Students are introduced to concept of multiplication with only 1-2 lessons on concrete modeling of equal groups; program then jumps to multiplication tables and numerous fill-in-the-blank equations.
- Cases are noted where clusters/standards call for emphasis on one aspect of rigor, but program's lessons target different aspect.
    - Example: 4.NBT.5: Lessons focusing on multi-digit multiplication focus on use of algorithmic procedures, rather than engaging students in exploration of strategies based on place value and properties of operations.
    - Example: 6.RP.A: Students are given word problems that call for use of ratio and rate reasoning, but lessons focus on explanation of rates/ratios, rather than actually solving problems.
- The requirements asked for in Evidence Collection are met only occasionally and/or not thoroughly.

0 points:

- No/minimal evidence is present of one of the three aspects of rigor in program materials.
- Program materials have an overwhelming emphasis on one aspect of rigor, with little attention paid to the other aspects.

Guidance for Indicator 2e: Practice-Content Connections: Identification and Enrichment

Criterion: Materials meaningfully connect the Standards for Mathematical Content and the Standards for Mathematical Practice.

Indicator 2e: The Standards for Mathematical Practice are identified and used to enrich mathematics content within and throughout each applicable grade.

What is the purpose of this indicator?

This indicator determines two things related to the Standards for Mathematical Practice (MPs). First, it examines if the MPs have been identified in the curricular materials. Second, it assesses whether the MPs have been used to enrich the mathematics content of the grade level.

Evidence Collection:

To check that MPs are identified:

- Look at all lessons in teacher's manuals to ensure that the MPs are clearly identified throughout the grade.
- Look in unit overviews and grade level scope and sequence charts to ensure that the MPs are clearly identified throughout the grade.
- Record any instances where MPs are over- or under-identified in the curricular materials (e.g. a lesson is marked as aligned to a standard when only a small part addresses that, or vice versa).
- Ensure that each of the eight MPs is identified in the curricular materials (record any that are missing).

To check that MPs are being used to enrich the mathematics content:

- Look at lessons, assessments and student work.
- Look at teacher directions; how teachers are guided to carry out the lessons.
- Check to see if any materials focus only on the Standards for Mathematical Practice (therefore, they are not being used to enrich the mathematical content).
- Record any instances where the Standards for Mathematical Practice are not being used to enrich the mathematics content.
- If you found that MPs are only located in a specific part of the teacher's manuals (e.g. the teacher-led portion of the lesson), you will need to look at other sections (e.g. independent work, homework, assessments) to ensure that the MPs are intentionally used to enrich the content. Look not only where the MPs are identified in the text, but also look at places where they are not identified

Prepare for team discussion:

Guidance for Indicator 2e: Practice-Content Connections: Identification and Enrichment

Criterion: Materials meaningfully connect the Standards for Mathematical Content and the Standards for Mathematical Practice.

Indicator 2e: The Standards for Mathematical Practice are identified and used to enrich mathematics content within and throughout each applicable grade.

- Verify with the team the manner in which the MPs are identified throughout the materials, and that all MPs are present.
- Discuss any other places where the MPs might be used to enrich the content but are not clearly identified.
- Verify that the MPs, when used by the students, enrich the mathematical content in an authentic way.

Scoring:

2 points:

- All 8 MPs are clearly identified throughout the materials, with few or no exceptions.
- The majority of the time the MPs are used to enrich the mathematical content
- The MPs are not treated individually.

1 point:

- MPs are identified, but there are many examples of over- or under-identification.
- There are a few instances where the MPs do not enrich the content.

0 points:

- MPs are not identified
- MPs are not used to enrich the content.
- MPs are regularly treated as separate from the mathematics content.

Additional notes

Here are the possible outcomes (we'll assume all outcomes use the MPs to enrich the curriculum):

Identify all MPs	**Used to enrich the math content**	**2**
	Not used to enrich the math content	1
Fail to identify all MPs	Used to enrich the math content	1
	Not used to enrich the math content	0
Identify MPs, but get one or more totally wrong	Used to enrich the math content	1

Guidance for Indicator 2e: Practice-Content Connections: Identification and Enrichment

Criterion: Materials meaningfully connect the Standards for Mathematical Content and the Standards for Mathematical Practice.

Indicator 2e: The Standards for Mathematical Practice are identified and used to enrich mathematics content within and throughout each applicable grade.

	Not used to enrich the math content	0

Guidance for Indicator 2f: Practice-Content Connections: Attention to Full Meaning

Criterion: Materials meaningfully connect the Standards for Mathematical Content and the Standards for Mathematical Practice.

Indicator 2f: Materials carefully attend to the full meaning of each practice standard.

What is the purpose of this indicator?

This indicator determines if the materials treat each Standard for Mathematical Practice (MPs) in a complete, accurate, meaningful way. This indicator requires that SMPs are not just treated superficially, or focusing only on a part of the practice standard.

Evidence Collection:

To check that materials carefully attend to the full meaning of each practice standard:

- Look for any overarching ways in which the MP are discussed in places like unit overviews or introductions.
- Look for lessons that are somehow identified as dealing with a particular MP.
- Look for specific instances (e.g. teacher script, explanatory notes, student materials) where the practice standards are identified and described.
- Look for places where the MPs are being used even if they are not explicitly identified.
- When a material identifies an instance where an MP is used, ensure full meaning. Some specific things to search for:
  - For instances where MP.1 is marked, ensure that students are actually having to make sense of problems and persevere in solving them. For example, a worksheet of routine word problems assigned for homework that have the same form as ones done in class is not an example of meeting MP.1.
  - For instances where MP.2 is marked, ensure that students have opportunities to reason both abstractly and quantitatively in a grade-appropriate manner. A place in the materials where MP.2 is marked does not require both abstract and quantitative reasoning, but there should be evidence that the materials as a whole require both.
  - For instances where MP.3 is marked, ensure that students are both constructing viable arguments and critiquing the (plausible) reasoning of others. A place where MP.3 is marked does not have to do both things, but there should be evidence that the materials as a whole require both.
  - For instances where MP.4 is marked, ensure that students are actually using mathematics to model a real world context. Materials should not confuse the verb “model” with the noun “model”; a student is rarely modeling just because they are using pictures. Modeling with mathematics should focus on students applying mathematics to real-world situations. For example, having students draw a picture to understand multiplication of fractions is not modeling, but having students solve a real-world problem where students could multiply fractions (drawing a picture could be a part of creating this model, but the true modeling is when students realize the relevant mathematics present in the real-world situation, and then use mathematics to solve a real-world problem).
  - For instances where MP.5 is marked, ensure that students are not simply using tools that are chosen by the text or the teacher. Lessons specifically addressing learning to use certain tools are appropriate, especially at the younger grades, but if MP.5 is marked for these kinds of lessons, then the full meaning is not attended to. If the students aren’t given the opportunity to choose tools, the full meaning is not attended to.
  - For instances where MP.6 is marked, ensure that students are given opportunity to use mathematical symbols, language, and definitions accurately, and that materials always use precision (for example, the equal sign is exclusively used for statements of mathematical equality).
  - For instances where MP.7 is marked, students are given explicit instruction in how to look for and make

use of structure, and non-explicit opportunities that call for recognition of mathematical structure.
    - For instances where MP.8 is marked, ensure that each word of the standard is present in the mathematical work: “regularity,” “repeated,” and “reasoning.”

Prepare for team discussion:

- A red flag is an overabundance of identification for MPs. For example, if a particular lesson is marked as meeting six MPs, it is unlikely that material is carefully attending to the full meaning of each MP.
- Teams may need to discuss the full meaning of an MP at a particular grade level. For example, writing an addition equation that models a single-step word problem could qualify as MP.4 for a 1st grader, but that same exercise is too simple to be considered MP.4 for a 5th grader.
- Record examples of where the material is either fully attending or failing to attend to the full meaning of each practice standard.
- Every instance of an MP being marked does not necessarily have to encompass the full meaning of an MP, but taken together there should be evidence that the materials carefully attend to the full meaning of each practice standard.

Scoring:

2 points:

- There is evidence that the materials carefully attend to the full meaning of each of the 8 MPs. Variation in the amount of evidence is okay, as long as there is documentation that each MP is carefully attended to.
- Identifications of the MP are neither over- nor under-identifications. Misidentifications are very rare.

1 point:

- Taken as a whole, the materials attend to the full meaning of each of the 8 MPs. However, there are instances where the MPs are identified that attend very superficially to a standard (e.g. the first lesson about how to use a protractor is marked as MP.5).
- The materials partially, but not fully, attend to the meaning of one or two MPs.

0 points:

- The materials do not attend to the full meaning of three or more MPs.
- The materials misinterpret an MP (e.g., MP.1 is consistently identified whenever students solve routine word problems, and students never have to make sense of non-routine problems)
- The MPs are so frequently marked that a teacher cannot reliably use the materials to know when an MP is being carefully attended to (e.g. a lesson that treats MP.4 fully is also identified with MP.1-3 and 5-7).

Additional notes

Here are the possible outcomes (we'll assume all outcomes use the MPs to enrich the curriculum):

MPs are marked and where they are marked... MPs are not marked, but where students engage in them... Some MPs are marked and sometimes students engage with the MPs where they aren't marked, but in all places (marked and unmarked)...	they attend to the full meaning of the MPs	2

MPs are marked and where they are marked... MPs are not marked, but where students engage in them... Some MPs are marked and sometimes students engage with the MPs where they aren't marked, but in all places (marked and unmarked)...	they attend to the full meaning of most of the MPs, but sometimes they do not for some of the MPs	1

MPs are marked and where they are marked...	they do not attend to the full meaning of many or all the MPs	0
MPs are not marked, but where students engage in them...		
Some MPs are marked and sometimes students engage with the MPs where they aren't marked, but in all places (marked and unmarked)...		

Guidance for Indicator 2gi: Practice-Content Connections: Students Construct and Analyze

Criterion: Materials meaningfully connect the Standards for Mathematical Content and the Standards for Mathematical Practice.

Indicator 2gi. Materials prompt students to construct viable arguments and analyze the arguments of others concerning key grade-level mathematics detailed in the content standards.

What is the purpose of this indicator?

This indicator is part of reviewing the materials' emphasis on mathematical reasoning, specifically how the materials prompt students to reason by constructing viable arguments and analyzing the arguments of others. The materials should have a balance of prompting students to construct viable arguments and prompting students to analyze the arguments of others. Students should be prompted to reason while engaging with math content.

Evidence Collection:

- Look at student books, student practice pages, assessments, and homework. Pay particular attention to units aligned to major work of the grade, but look in all student materials.
- Look at the specific questions students are asked in the student pages and items students are given on assessments, practice pages, and homework.
- Look for questions or problems in the student materials where students are asked to justify, explain, or show their thinking.
    - There could be questions in the student materials that ask students to not only solve a problem but to also explain the method they used and why it works.
- Look for questions in the student materials where they are asked to evaluate someone else's explanation, work, or thinking.
    - The materials might show the work of another "student" and ask the students to decide where the error in the thinking is, explain why the error occurred, and what the "student" should have done differently.
    - The materials might present two conflicting arguments and ask students to determine which one is correct and why.

Prepare for team discussion:

- Look throughout the materials to identify a body of evidence.
- Note places in the student materials where opportunities are missed to prompt students to construct viable arguments and analyze the arguments of others.
- Make sure there is evidence of both asking students to explain/justify their reasoning and asking students to analyze the reasoning of others. Analyze the reasoning of others should include more than just deciding

Guidance for Indicator 2gi: Practice-Content Connections: Students Construct and Analyze

Criterion: Materials meaningfully connect the Standards for Mathematical Content and the Standards for Mathematical Practice.

Indicator 2gi. Materials prompt students to construct viable arguments and analyze the arguments of others concerning key grade-level mathematics detailed in the content standards.

right or wrong.

Scoring:

2 points:

- Student materials consistently prompt students to both construct viable arguments and analyze the arguments of others, specifically throughout the units aligned with the mathematics content standards for the grade.

1 point:

- Materials sometimes prompt students to both construct viable arguments and/or analyze the arguments of others
- There are missed opportunities where the materials could prompt students to both construct viable arguments and/or analyze the arguments of others
- There is prompting to construct viable arguments, but few instances that prompt students to analyze the arguments of others. OR There are places that prompt students to analyze the arguments of others, but few instances that prompt students to construct viable arguments.

0 points:

- Materials do not often, or not at all, prompt students to both construct viable arguments and/or analyze the arguments of others

Guidance for Indicator 2gii: Practice-Content Connections: Assist Teachers Engaging Students

Criterion: Materials meaningfully connect the Standards for Mathematical Content and the Standards for Mathematical Practice.

Indicator 2gii. Materials assist teachers in engaging students in constructing viable arguments and analyzing the arguments of others concerning key grade-level mathematics detailed in the content standards.

What is the purpose of this indicator?

This indicator is part of reviewing the materials' emphasis on mathematical reasoning, specifically how the materials assist the teacher in engaging students in constructing viable arguments and analyzing the arguments of others. The materials should have a balance of assisting the teacher in engaging students in constructing viable arguments and assisting the teacher in analyzing the arguments of others. Materials should assist teachers in engaging students in reasoning while working with math content.

Evidence Collection:

- Look at directions for the teacher, in teacher's guides, and lesson and unit overviews. Look at the directions to the teacher in lessons.
- Look at the directions to the teacher in lessons for:
  - prompts,
  - sample questions to ask,
  - guidance on leading student discussions, and
  - problems to pose to students.
- Look for teacher prompts and suggested questions:
  - The materials might guide teachers to ask students to explain their thinking or justify their solutions.
  - The materials might prompt teachers to have students look at a solution and decide if it is correct or incorrect and explain why.
- Look for directions to the teacher that suggest asking students to evaluate, justify, explain, or show their thinking.

Prepare for team discussion:

- Look throughout the materials to identify a body of evidence.
- Note places in the teacher materials where opportunities are missed to assist teachers in engaging students in constructing viable arguments and analyzing the arguments of others.
- Record specific examples and evidence of where in the teacher materials and of how the materials assist teachers in engaging students in constructing viable arguments and analyzing the arguments of others.

Guidance for Indicator 2gii: Practice-Content Connections: Assist Teachers Engaging Students

Criterion: Materials meaningfully connect the Standards for Mathematical Content and the Standards for Mathematical Practice.

Indicator 2gii. Materials assist teachers in engaging students in constructing viable arguments and analyzing the arguments of others concerning key grade-level mathematics detailed in the content standards.

Scoring:

2 points:

- Teacher materials assist teachers in engaging students in both constructing viable arguments and analyzing the arguments of others, frequently throughout the program, specifically throughout the units aligned with the grade level content standards

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1 point:

- Materials sometimes assist teachers in engaging students in both constructing viable arguments and analyzing the arguments of others.
- There are some missed opportunities where the materials could assist teachers in engaging students in both constructing viable arguments and analyzing the arguments of others.
- There is more assistance for the teacher in engaging students in constructing viable arguments, but not many instances assisting teachers in engaging students in analyzing the arguments of others. OR There is more assistance for the teacher in engaging students in analyzing the arguments of others, but not as many instances of prompting the teacher to engage students in constructing viable arguments.

0 points:

- Materials do not often, or not at all, assist teachers in engaging students in both constructing viable arguments and analyzing the arguments of others.
- There are many missed opportunities to assist teachers in engaging students in both constructing viable arguments and analyzing the arguments of others.

Guidance for Indicator 2g.iii: Practice-Content Connections: Specialized Language of Mathematics

Criterion: Materials meaningfully connect the Standards for Mathematical Content and the Standards for Mathematical Practice.

Indicator 2g.iii: Materials explicitly attend to the specialized language of mathematics.

What is the purpose of this indicator?

This indicator determines whether students are supported in using and understanding the specialized language of mathematics. This includes accurate definitions as well as the accurate use of numbers, symbols, and words to conduct mathematics, communicate mathematical thinking, and construct mathematical arguments.

Evidence Collection:

- To check that materials explicitly attend to the specialized language of mathematics:
  - Look at instances where definitions are introduced (e.g. lessons) and recorded (e.g. glossaries).
  - Look at mathematical vocabulary explanations for students.
  - Look at lessons geared towards using language to write or speak about mathematics.
- If you found lessons where students are explicitly taught about using the specialized language of mathematics, ensure that students have opportunities to receive feedback on how they use words, graphics, and symbols to make arguments and solve problems.
- Ensure that mathematical definitions and terminology are precise and accurate, and not watered-down (e.g. "commutative property" versus "flip-flop"; using rate/ratio/fraction/proportion precisely; using accurate geometric terminology, even at young ages).

Prepare for team discussion:

- Verify that the team has found that the materials promote the use of the specialized language of mathematics, not just the precise definitions of terms (e.g. once definitions have been introduced, the vocabulary is used regularly in student materials).
- The progression of student language is supported; students are given reasonable supports and time to acquire and use new terminology (materials for teachers, including teacher scripts, always use precise terminology).

Scoring:

2 points:

- The materials provide explicit instruction in how to communicate mathematical thinking using words, diagrams, and symbols.

Guidance for Indicator 2g.iii: Practice-Content Connections: Specialized Language of Mathematics

Criterion: Materials meaningfully connect the Standards for Mathematical Content and the Standards for Mathematical Practice.

Indicator 2g.iii: Materials explicitly attend to the specialized language of mathematics.

- The materials use precise and accurate terminology and definitions when describing mathematics, and support students in using them.

1 point:

- There is some explicit instruction provided in how to communicate mathematical thinking, but there are also instances where it is assumed that students have facilities that have not yet been taught.

0 points:

- There is little to no explicit instruction on how to use the language of mathematics.
- There are instances where using precise and accurate mathematical language is avoided.

Guidance for Indicators 3a-3e: Use and Design Facilitate Student Learning

Criterion: Materials are well designed and take into account effective lesson structure and pacing.

Indicators 3a – 3e:

3a. The underlying design of the materials distinguishes between problems and exercises. In essence, the difference is that 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.
3b. Design of assignments is not haphazard: exercises are given in intentional sequences.
3c. There is a variety in what students are asked to produce. For example, students are asked to produce answers and solutions, but also, in a grade-appropriate way, arguments and explanations, diagrams, mathematical models, etc.
3d. Manipulatives are faithful representations of the mathematical objects they represent and when appropriate are connected to written methods.
3e. The visual design (whether in print or online) is not distracting or chaotic, but supports students in engaging thoughtfully with the subject.

Evidence Collection:

3a and 3b

- Review lessons, sample problems, student practice pages, and homework assignments.
- Review any teacher information provided on lesson purpose.
- Review selection of, sequence of, and use of manipulatives with problems/student exercises.
- Focus on the coherence between the sample problems within each lesson and the student practice/ assignments that follow.
- Use the questions below to gather evidence to inform the rating of these indicators.
  - Do the problems within the lesson allow students to learn new mathematics at an appropriate pace for the given grade level?
  - Do the practice pages that follow allow students to utilize the new mathematics in order to further develop their knowledge of the new content?
  - Do all problems and exercises have a purpose toward developing the new content of the lesson?
  - Are there any instances of new mathematics in the "student exercises" that was not part of the "lesson practice problems"? (3a)
  - Are there any instances where the sequencing of assignments is haphazard in development, i.e. abstract before concrete, unnatural flow of material, etc.? (3b)

3c

- Review lessons, sample problems, practice problems, homework problems and assessment questions for types of student products.
- Focus on the variety of ways students are asked to demonstrate mathematical learning.
- Use the questions below to gather evidence to inform the rating of this indicator.
  - Are students asked to produce many types of answers throughout the work they do?
  - Are students asked to: produce models, practice fluency, create arguments, justify their answers, attend to mathematical practices and make real-world connections?

3d

- Review student edition, teacher edition and online/additional components.
- Focus on whether manipulatives are appropriately used and explained.

Guidance for Indicators 3a-3e: Use and Design Facilitate Student Learning

Criterion: Materials are well designed and take into account effective lesson structure and pacing.

- Use the questions below to gather evidence to inform the rating of this indicator.
  - Are the manipulatives consistent representations of the mathematical objectives?
  - Are the manipulatives connected to written models?

3e

- Examine the visual design and layout of teacher and student edition.
- Focus on the text's visual appearance and ability to support student engagement.
- Use the questions below to gather evidence to inform the rating of this indicator.
  - Does the text maintain a consistent layout for each lesson?
  - Are the pictures and models supportive of student learning and engagement without being visually distracting?

Team discussion:

Preparing for discussion—questions to ask yourself:

3a

- What is the difference between "lesson practice problems" and "student exercises" within the materials?
- How do the materials encourage students to apply new mathematics learned in the practice exercises?
- Is there a natural progression from the "lesson practice problems" to "student assignments"?

3b

- Is there a natural progression from the "lesson practice problems" to "student assignments"?
- Is there a natural progression within student assignments leading to full understanding and mastery of new mathematics?

3c

- What are the different types of products students must provide?
- Do student products range from fluency to higher level thinking?

3d

- Are manipulatives presented? If so, do they represent mathematical objectives while connecting to written models?

3e

- What visual designs distract students? What visual designs create student engagement?

During discussion:

3a

- Discuss the difference between problems and exercises within the structure of the materials. Note the terminology the series uses to differentiate.
- Discuss the effectiveness of lesson problems in allowing students to learn new mathematics at an appropriate pace. Note specific instances where these problems do not serve the purpose intended within the lesson.
- Discuss the effectiveness of the student exercises in allowing students to apply learned mathematics in order to build knowledge. Note specific instances where these problems do not serve the purpose intended within the lesson.
- Note any instances of new mathematics being presented within the student exercises

3b

- Note any instances of unnatural sequencing within student assignments.

3c

Guidance for Indicators 3a-3e: Use and Design Facilitate Student Learning

Criterion: Materials are well designed and take into account effective lesson structure and pacing.

- Discuss the types of products students are asked to create and determine if there is variety. Note if students are asked to create products at various thinking levels.

3d

- Discuss the effectiveness of manipulatives as faithful representations of the mathematical objectives. Note if manipulatives connect to written models.

3e

- Discuss whether the visual design has a consistent layout in both the teacher and student edition. Note if the design is distracting or chaotic.

Scoring:

2 points:

3a

- Materials distinguish between problems and exercises within each lesson.
- Students are learning new mathematics within each lesson and then applying what they have learned in order to build knowledge.
- All problems or exercises have a purpose.

3b

- Exercises within student assignments are intentionally sequenced to build understanding and knowledge.

3c

- Students are asked to demonstrate their learning using a variety of products.

3d

- Manipulatives are present and are faithful representations of mathematical objects.

1 point:

3a

- Distinguishing between problems and exercises within lessons is confusing or difficult.
- A lack of cohesiveness sometimes exists between the problems and exercises within lessons.
- Few instances exist of new mathematics being presented in the student exercises.
- Few instances exist of problems or exercises not serving a purpose within lessons.

3b

- Few instances of confusion in student assignment sequencing and design.

3c

- Students are asked to demonstrate their learning using products with minimal variety.

3d

- Manipulatives are present but do not consistently represent mathematical objects and/or not attached to written models.

0 points:

3a

- It is not possible to distinguish between problems and exercises within lessons.
- There is a consistent lack of cohesiveness between the problems and exercises within lessons.
- Several instances exist of new mathematics being presented in the student exercises.
- Several instances exist of problems or exercises not serving a purpose within lessons.

3b

Guidance for Indicators 3a-3e: Use and Design Facilitate Student Learning

Criterion: Materials are well designed and take into account effective lesson structure and pacing.

- Several instances of confusion in student assignment sequencing and design exist.

3c

- There is no variety in what students are asked to produce.

3d

- Manipulates are not present or do not accurately represent mathematical objects.

Note: No score is given for indicator 3e (visual design).

Guidance for Indicators 3f-3l: Teacher Planning and Learning for Success with CCSS

Criterion: Materials support teacher learning and understanding of the Standards.

Indicators 3f – 3l:

3f. Materials support teachers in planning and providing effective learning experiences by providing quality questions to help guide students' mathematical development.
3g. Materials contain a teacher's edition with ample and useful annotations and suggestions on how to present the content in the student edition and in the ancillary materials. Where applicable, materials include teacher guidance for the use of embedded technology to support and enhance student learning.
3h. Materials contain a teacher's edition (in print or clearly distinguished/accessible as a teacher's edition in digital materials) that contains full, adult-level explanations and examples of the more advanced mathematics concepts in the lessons so that teachers can improve their own knowledge of the subject, as necessary.
3i. Materials contain a teacher's edition (in print or clearly distinguished/accessible as a teacher's edition in digital materials) that explains the role of the specific grade-level mathematics in the context of the overall mathematics curriculum for kindergarten through grade twelve.
3j. Materials provide a list of lessons in the teacher's edition (in print or clearly distinguished/accessible as a teacher's edition in digital materials), cross-referencing the standards covered and providing an estimated instructional time for each lesson, chapter and unit (i.e., pacing guide).
3k. Materials contain strategies for informing parents or caregivers about the mathematics program and suggestions for how they can help support student progress and achievement.
3l. Materials contain explanations of the instructional approaches of the program and identification of the research-based strategies.

Evidence Collection:

Look at both print and digital (if accessible) teacher's edition for:

3f

- any overview sections and/or annotations that contain narrative information about the math content and/or quality questions to help guide students' mathematical development.

3g

- any overview sections and/or annotations that contain narrative information about the math content and/or ancillary documents that will assist the teacher in presenting the student material. Also look for embedded technology links that will enhance the learning for all students.

3h

- annotations on how to present the information in the student editions to assist in full understanding of the standards and other supports that will assist a teacher in developing their own understanding allowing for seamless transitions of that knowledge to student learning.

3i

- chapter or lesson overviews that explain the progression of the content and how this specific grade connects to previous and upcoming grades.

3j – 3l

- beginning sections of the entire book, unit, chapter, lesson that contains overview sections, teacher instruction pages, or ancillary supports that contain:
  - a narrative mathematical explanation of the math content in each topic paying attention to key instruction that will inform others that may be assisting the child in their progress at school.

Guidance for Indicators 3f-3l: Teacher Planning and Learning for Success with CCSS

Criterion: Materials support teacher learning and understanding of the Standards.

- teacher instruction pages for any identified research-based strategies.
- pacing guides with number of days of instruction and how many minutes of instruction are contained in each of those days.

After you have located the needed materials in the teacher's edition and/or digital materials:

3f

- Read the guiding questions to ensure that they would truly lead to a students' mathematical development and would allow for deeper thinking.

3g

- If technology support is embedded, it is overarching and accessible to most.
- Knowledge of content that is included is accurate and understandable and gives true assistance to all educators using the text.

3i

- There is information given to allow for coherence, not just a single grade above or below, but there are multiple grade levels, if applicable, to allow a teacher to make prior connections and teach for connections to future content.

3j – 3l

- Looking at the standards being taught in the lesson, chapter, unit and the timeline given to teach those standards, ensure that it is reasonable and useful for the educator.

Team discussion:

During discussion:

- Discuss where all reviewers found their evidence and compare the data for any discrepancies.
- If discrepancies occur, to what level are the discrepancies, and should this be a red flag that needs to be addressed? Or, is it just a minor issue that can just be noted or overlooked?
- Discuss the ease of finding the needed resources and the time commitment it would require to gather these resources to ensure that they would be useful.
- Discuss the level of support needed in questioning, timeline, content assistance, etc. to ensure the teacher has the needed material to prepare students for the upcoming grade's mathematics.

Scoring:

2 points:

3f

- Guiding questions are consistently provided to assist in students' mathematical development.
- All questions are of high quality and encourage deep thinking, not just knowledge retrieval.

3g

- Content knowledge is included, where needed, and is accurate, understandable and gives true assistance to all educators using the text.
- When applicable and would enhance student learning, technology support is embedded, overarching and accessible to most. **If technology support is never included, this indicator cannot get full points.**

3h

- More advanced mathematics concepts are always explained and will improve a teacher's deeper understanding of the content.

Guidance for Indicators 3f-3l: Teacher Planning and Learning for Success with CCSS

Criterion: Materials support teacher learning and understanding of the Standards.

- Explanations are accessible to all educators.

3i

- Explanations of the role of the specific grade-level mathematics in the context of the overall mathematics curriculum is offered, at a minimum, in each unit/module.
- Explanations are not **always** given as just one grade level below or above but give connections among multiple grade levels.

1 point:

3f

- Guiding questions are occasionally provided to assist in students' mathematical development.
- Most questions are of high quality and encourage deep thinking, not just knowledge retrieval.

3g

- Content knowledge is included, however, it is not always where needed and is not always accurate and understandable to give true assistance to all educators using the text.
- When applicable and would enhance student learning, technology support is embedded and is overarching and accessible to most. However, sometimes technology supports are missed and would have enhanced the student learning.

3h

- More advanced mathematics concepts are often explained and will improve a teacher's deeper understanding of the content, but some major explanations are missing or not able to assist an educator in their own knowledge level of the mathematics.
- Explanations are accessible to all educators.

3i

- Explanations of the role of the specific grade-level mathematics in the context of the overall mathematics curriculum is offered, but the explanations are general and too overarching to assist an educator in truly understanding the role of the specific grade-level mathematics in the context of the overall curriculum.
- Explanations are given, but often as just one grade level below or above.

0 points:

3f

- Guiding questions are never or rarely provided to assist in students' mathematical development.
- Questions that are provided require no analysis, all or most all are at the knowledge-retrieval level.

3g

- Content knowledge is not included, or if it is, the content knowledge is not often accurate or helpful.
- No technology supports are included.

3h

- More advanced mathematics concepts aren't explained in the Teacher's Edition, or they are explained at a level that would not deepen a teacher's understanding of the content.
- Explanations are given, but they are difficult to access or use to deepen teachers' knowledge.

3i

- There are few to no explanations of the role of the specific grade-level mathematics in the context of the overall mathematics curriculum, and/or the explanations are too general for teachers to see the connections.

Guidance for Indicators 3f-3l: Teacher Planning and Learning for Success with CCSS

Criterion: Materials support teacher learning and understanding of the Standards.

- Explanations, if given, are only addressing within grade level connections or as just one grade level below or above.

Note: No score is given for indicators 3j (list of lessons), 3k (strategies for informing parents), and 3l (explanations of instructional approaches).

Guidance for Indicators 3m-3q: Assessment

Criterion: Materials offer teachers resources and tools to collect ongoing data about student progress on the Standards.

Indicators 3m – 3q:
3m. Materials provide strategies for gathering information about students' prior knowledge within and across grade levels. **3n. Materials provide strategies for teachers to identify and address common student errors and misconceptions.** **3o. Materials provide opportunities for ongoing review and practice, with feedback, for students in learning both concepts and skills.** **3p. Materials offer ongoing formative and summative assessments:** **i. Assessments clearly denote which standards are being emphasized.** **ii. Assessments include aligned rubrics and scoring guidelines that provide sufficient guidance to teachers for interpreting student performance and suggestions for follow-up.** **3q. Materials encourage students to monitor their own progress.**
Evidence Collection:
3m • Review the materials to see if they provide a clear path to assess and monitor students' prior knowledge both within and across grades. • Review the materials to see if they offer supports that might be necessary to ensure students are able to meet the expectations of the grade. **3n** • Review the materials for highlighting common student errors or misconceptions. • Review the materials for providing pathways for addressing student errors and misconceptions. • Review the pathways for addressing students' errors and misconceptions for being mathematically sound (e.g. does not rely on "tricks"). • Review the materials to see if they provide opportunities to have mathematical conversations to address errors and misconceptions. **3o** • Review materials to see if they provide for ongoing review, practice, and feedback. • Review materials to see if feedback address both skills and concepts. • Review materials to see if the amount of ongoing review and practice is reasonable. • Review materials to see if there are there multiple strategies for providing feedback. **3pi** • Review materials to see if they clearly denote which standards are being assessed. • Review materials to see if it is clear which assessments are intended to be formative and which are intended to be summative. **3pii** • Review materials to see if the rubric and scoring guide can be used to assess the full meaning of the Standards being assessed. • Review materials to see if they provide enough information for the teacher to fully interpret the students' performance. • Review materials to see if they provide follow-up steps/suggestions for the teacher. • Review materials to see if rubrics and scoring guides are easily understood. **3q** • Review materials to see if/ how they encourage students to monitor their own progress.

Guidance for Indicators 3m-3q: Assessment

Criterion: Materials offer teachers resources and tools to collect ongoing data about student progress on the Standards.

Team discussion:

Preparing for discussion—questions to ask yourself:

3m

- Where did I find examples to show assessment of prior knowledge?
- Are there key topics missing from prior knowledge assessments?

3n

- Where are examples that show common misconceptions or errors in students' work/understanding?
- How do the materials provide opportunities for the instructor to address common errors or misconceptions?
- Were there opportunities for mathematical discussions when an error or misconception was discovered?
- Were there common misconceptions not addressed in the materials?

3o

- Where did I find examples in the materials to show opportunities to provide productive feedback?
- How do the materials provide opportunities for the instructor to provide quality feedback?
- How do the materials address ongoing review and practice?
- Were there opportunities for the instructor to use multiple strategies for providing feedback?

3pi

- Where did I find examples in the materials to show how Standards were denoted on assessments?
- How were formative and summative assessments denoted in the materials?

3pii

- Where did I find examples in the materials to show how scoring rubrics or scoring guides were used to grade assessments?
- Where did I find information on how to interpret the information gathered from scoring rubrics and guides?
- Were there suggestions for follow-up with students in the materials?
- How can I show how I know rubrics and scoring guides can be easily understood and are specific enough to show true understanding and learning?

3o

- What examples/ strategies can I provide to show that the materials encourage students to monitor their own progress?

During discussion:

- Explain the strategy/reasoning used as you collected evidence for this indicator.
- Share any generalizations that you noted as you looked at materials over the course of a grade level, with specific examples (page numbers noted) to support the generalizations.
- Identify clusters/standards targeted during evidence collection.

Scoring:

2 points:

3m

- Materials include multiple opportunities for instructors to assess/apply students' prior knowledge and connect it to the new learning.
- Students are appropriately monitored to assess key prior knowledge in order to continue with learning or to provide interventions.

Guidance for Indicators 3m-3q: Assessment

Criterion: Materials offer teachers resources and tools to collect ongoing data about student progress on the Standards.

- There are no key topics missing from prior knowledge assessments.

3n

- Materials include multiple opportunities for instructors to notice and correct errors or misconceptions.
- Students are consistently monitored to assess common errors and misconceptions and provide interventions.
- There are opportunities for mathematical discussions to help address common errors and misconceptions.
- No major errors/misconceptions were left unaddressed.

3o

- Materials include regular opportunities for instructors to provide the student with ongoing review and practice of both concepts and skills.
- Materials include regular opportunities for the instructor to provide feedback.
- Materials provide multiple feedback strategies.
- Students are regularly monitored in order for the instructor to provide feedback.

3pi

- Materials include denotations of the standards being assessed in both types of assessments.

3pii

- Materials include quality rubrics and scoring guides.
- Materials provide quality suggestions for follow-up.
- Rubrics and scoring guides can be used to assess the Standards to their full intent.
- Quality guidance for the teacher to interpret assessment data is provided.

1 point:

3m

- Attention to students' prior knowledge is included in some lessons/units/assessments, but does not make the connection to the new learning.
- There is some opportunity for the instructor to apply prior knowledge to the students' new learning.
- The lessons/units/assessments have some missed opportunities to remediate on errors in prior knowledge.
- The requirements outlined in Evidence Collection are met sometimes and/or not thoroughly.

3n

- Attention to common errors and misconceptions are included in some lessons/units/assessments, but a path for intervening is not provided.
- There are some opportunities for the instructor to identify common errors and misconceptions.
- There are some opportunities for mathematical discussions to address common errors and misconceptions.
- The lessons/units/assessments have missed some opportunities to intervene where common errors or misconceptions occur.
- The requirements outlined in Evidence Collection are met sometimes and/or not thoroughly.

3o

- Attention to ongoing review and practice of concepts and skills is included in some lessons/units/assessments, but does not provide a path for productive feedback.

Guidance for Indicators 3m-3q: Assessment

Criterion: Materials offer teachers resources and tools to collect ongoing data about student progress on the Standards.

- Attention to feedback is included in some lessons/units/assessments, but feedback strategies are limited.
- The lessons/units/assessments have missed some opportunities to provide feedback about concepts and skills, such as providing feedback only on skills, but not concepts.

3pi

- Some standards are clearly denoted on the assessments.
- Standards are denoted for one type of assessment, but not the other.

3pii

- Some rubrics and scoring guides are too broad and lead to multiple interpretations of the work.
- Some rubrics and scoring guides are provided, but some topics that would benefit from rubrics and scoring guides do not have them.
- Some follow-up guidance is provided.
- Some guidance for interpretation of scoring guides and rubrics is provided.

0 points:

3m

- No/minimal opportunities for instructors to assess students' prior knowledge.

3n

- No/minimal opportunities for instructors to identify students' common errors and misconceptions.

3o

- No/minimal opportunities for instructors to provide ongoing review and practice or feedback.

3pi

- No/minimal standards are denoted on assessments.

3pii

- No/minimal rubrics and scoring guides are present.
- No/minimal guidance for teachers to interpret assessment data and/or follow-up.
- Rubrics and scoring guides are so vague or overly broad that they are not helpful.

Note: No score is given for indicator 3q (monitor own progress).

Guidance for Indicators 3r-3y: Differentiated Instruction

Criterion: Materials support teachers in differentiating instruction for diverse learners within and across grades.

Indicators 3r – 3y:

3r. Materials provide strategies to help teachers sequence or scaffold lessons so the content is accessible to all learners.
3s. Materials provide teachers with strategies meeting the needs of a range of learners.
3t. Materials embed tasks with multiple entry points that can be solved using a variety of solution strategies or representations.
3u. Materials suggest support, accommodations, and modifications for English Language Learners and other special populations that will support their regular and active participation in learning mathematics (e.g., modifying vocabulary words within word problems).
3v. Materials provide opportunities for advanced students to investigate mathematics content at greater depth.
3w. Materials provide a balanced portrayal of various demographic and personal characteristics.
3x. Materials provide opportunities for teachers to use a variety of grouping strategies.
3y. Materials encourage teachers to draw upon home language and culture to facilitate learning.

Evidence Collection:

3r – 3t

- Be specific about strategies or materials provided for differentiated instruction. There must be more than a statement at the beginning of the chapter or lesson that is generic or states that the same strategy could be used with every lesson.
- Variance in presenting the lessons is noted as it would apply to meeting the needs of a range of learners.
- Collect evidence of multiple entry points for lessons, and/or specific problems with multiple entry points are provided and balanced with problems with one solution or one entry point.
- Collect evidence of problems with multiple solutions, and representations are provided for teachers and students.

3u

- Include evidence of differentiation for all special populations (ELL, other special populations).
- Materials should included specific strategies for support, accommodations or modifications within the lesson or the problems.
- Vocabulary or concepts may include scaffolding for teachers to present the materials

3v

- Collect examples of advanced students working at a greater depth with a standard—not just more problems or higher grade level problems. (ie. 3rd grade students should not be given 4th grade problems instead of enriched 3rd grade problems.)
- Note any areas in the lessons or problems where advanced work is substituted for the on-grade level work (where advanced students are not doing more problems—but problems with greater depth)

3w

- Collect examples of various demographic and personal characteristics throughout the chapters.

3x – 3y

- Provide examples of the grouping strategies and ways the materials provide for interaction among students.
- Provide examples of home language connections and connections to culture of students to facilitate learning. This may be at the beginning of each chapter or throughout the materials.

Team discussion:

Guidance for Indicators 3r-3y: Differentiated Instruction

Criterion: Materials support teachers in differentiating instruction for diverse learners within and across grades.

Preparing for and during discussion:

3r – 3t

- What is differentiated instruction, and what does it look like in lessons or in problems?
- Review teacher's guide, assessments, and other materials to find all possible places for noted instructional supports.
- What is difference between provided materials that are specific for differentiated instruction or the materials that are general notes about what "could be" implemented?

3u

- What are the needs of special populations? How can problems be modified to ensure work is on grade level but accessible to special populations of students?
- What materials would help teachers provide lessons and concepts to help support these students?

3v

- What are the needs of advanced populations of students?
- How can on grade level concepts/problems be investigated at a greater depth and not above grade level work?

3w

- How would curriculum balance demographics and personal characteristics in textbooks?

3x – 3y

- What grouping strategies would you expect to find in math curriculum?
- How could a curriculum balance the whole group, small group, and individual instruction?
- Do materials demonstrate home language connections and cultural connections?

Scoring:

2 points:

3r

- The materials provide strategies or differentiation at grade level for the noted lessons or chapters while maintaining rigor, coherence and focus.

3s

- Specific strategies to meet the needs of all learners are included.

3t

- Structure of lessons is flexible and balanced and it would be easy to adjust the order or to scaffold presentation for learners.
- Many examples of multiple entry point problems and problems with multiple solutions or representations ae present.

3u

- Materials provide support for ELL students or other populations.
- General statements about ELL students or few strategies noted at the beginning of a chapter or at one place in the book are then implemented by the materials throughout the curriculum.

3v

- Materials provide multiple opportunities for advanced students to investigate the grade-level mathematics at a greater depth.
- Materials provide on grade level problem at greater depth of the standard—problems are not above grade level for advanced students.
- No instances of advanced students simply doing more problems than their classmates.

3w

Guidance for Indicators 3r-3y: Differentiated Instruction

Criterion: Materials support teachers in differentiating instruction for diverse learners within and across grades.

- Balanced demographics AND personal characteristics are represented in the curriculum.

1 point:

3r

- The materials somewhat provide strategies or differentiation at grade level for the noted lessons or chapters while maintaining rigor, coherence and focus.
- Some general statements or strategies about differentiation are noted.

3s

- Some general strategies to meet the needs of all learners are included.

3t

- Rigid structure of lessons makes it difficult to adjust the order or to scaffold presentation for learners.
- There are some examples of multiple entry point problems or problems with multiple solutions or representations.

3u

- Materials provide some support for ELL students or other populations.
- Some general statements about ELL students, or few strategies noted at the beginning of a chapter or at one place in the book.

3v

- Materials provide some opportunities for advanced students to investigate the grade-level mathematics at a greater depth.
- Materials provide grade level problems — problems are not at a greater depth for advanced students.
- There are few instances of advanced students simply doing more problems than their classmates.

3w

- Balanced demographics OR personal characteristics are represented in the curriculum but not both

0 points

3r

- The materials do not provide for differentiated instruction**.**
- The materials give lower grade level lessons or provide the same strategy for each lesson.

3s

- There are few, or no, general strategies to meet the needs of all learners included.

3t

- Rigid structure of lessons prohibits adjusting the order or scaffolding presentation for learners.
- There are few, or no, examples of multiple entry point problems or problems with multiple solutions or representations.

3u

- Materials do not provide support for ELL students or other populations.
- There are few, if any, general statements about ELL students, or few strategies noted at the beginning of a chapter or at one place in the book.

3v

- Materials provide very few, if any, opportunities for advanced students to investigate the grade-level mathematics at a greater depth.
- There are many instances of advanced students simply doing more problems than their classmates.

3w

Guidance for Indicators 3r-3y: Differentiated Instruction

Criterion: Materials support teachers in differentiating instruction for diverse learners within and across grades.

- Unbalanced demographics or personal characteristics are represented in the curriculum

Note: No score is given for indicators 3x (grouping strategies) and 3y (home language and culture).

Guidance for Indicators 3z-3ad: Effective Technology Use

Criterion: Materials support effective use of technology to enhance student learning. Digital materials are accessible and available in multiple platforms.

What is the purpose of these indicators?

These indicators determine instructional supports in the area of instructional technology. Materials should offer supports to enrich instruction through the integration of technology, and allow for differentiated instruction for diverse learners. Materials should be available in multiple platforms to ensure ease of accessibility.

Evidence Collection

- Review all instructional materials in the core grade-level program, including teacher's guide(s), assessments, and any supplemental materials to find all integrations of instructional technology.
- Review both professional resources for teachers and resources and materials for students.
- Consider how technology is integrated with program materials to enhance student learning.
- Use the questions below to gather evidence to inform the rating of these indicators:

3z: Materials integrate technology such as interactive tools, virtual manipulatives/objects, and/or dynamic mathematics software in ways that engage students in the Mathematical Practices.

- Are there videos, virtual manipulatives, interactive tools, and/or games available to students? How do any relevant materials engage students in "doing" math? (3z)
  - Determine alignment to the grade-level content standards and Mathematical Practices.

3aa: Digital materials are web-based and compatible with multiple internet browsers. In addition, materials are "platform neutral" and allow the use of tablets and mobile devices.

- Are any instructional technology resources web-based and compatible with multiple internet browsers? Are materials accessible on both Windows and Apple platforms? (3aa)
- Do student resources (including assistive technology for students with disabilities) work on tablets and other mobile devices as well as PCs? (3aa)

3ab: Materials include opportunities to assess student mathematical understandings and knowledge of procedural skills using technology.

- Determine if online assessments are available. Are these adaptive (questions change based on student answers) or fixed form (same questions for all students)?
- Are teachers able to create own assessments (i.e., selecting from a bank of items and/or objectives)?
- Do assessment items assess both mathematical understanding and procedural skill/fluency? How?

3ac: Materials can be easily customized for individual learners.

i. Digital materials include opportunities for teachers to personalize learning for all students, using adaptive or other technological innovations.

ii. Materials can be easily customized for local use. For example, materials may provide a range of lessons to draw from on a topic.

- Are teachers able to manipulate or construct learning experiences for students?
- Can digital materials be differentiated based on individual students' needs?
- Are teachers able to customize digital materials for local use (student and/or community interests)?

3ad: Materials include or reference technology that provides opportunities for teachers and/or students to collaborate with each other (e.g. websites, discussion groups, webinars, etc.).

- Do the digital materials provide opportunities for online collaboration? Is this collaboration between teacher and student? Or student to student? (i.e., discussion groups, webinars, e-mail, messaging)

Guidance for Indicators 3z-3ad: Effective Technology Use

Criterion: Materials support effective use of technology to enhance student learning. Digital materials are accessible and available in multiple platforms.

Prepare for team discussion:
• Be able to explain the strategy/reasoning used as you collected evidence for this indicator. • Be able to share any generalizations formulated while reviewing grade-level materials, with specific examples (resources/page numbers noted) to support the generalizations.
Scoring:
Note: None of these indicators are scored. Only qualitative evidence is provided.