

# HQIM<sup>2</sup>R<sup>2</sup>

## EVIDENCE GUIDES

HS Mathematics

# Gateway 1

## ► GUIDANCE FOR Indicator 1ai

### Focus and Coherence: Full Intent of the Mathematical Content

**Please note: In Mississippi, we have a course entitled “Advanced Math Plus”. This indicator should not be used for that course.**

#### CRITERION

The instructional materials are coherent and consistent with “the high school standards that specify the mathematics which all students should study in order to be college and career ready”

#### INDICATOR

The materials focus on the high school standards.

- i. The materials attend to the full intent of the mathematical content contained in the high school standards for all students.

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**Do the materials attend to the full intent of the non-plus high school standards? Does the evidence impact “Students won’t have enough time to fully learn the standard” (indicator 1bii) or “the content of the standard is not present” (indicator 1ai)?**

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#### WHAT IS THE PURPOSE OF THIS INDICATOR?

This indicator, along with the other indicators of Gateway 1, determines the shifts of focus and coherence. This indicator attends to the shift of focus by specifically examining those standards which do not have a plus (+) symbol (non-plus standards), and in the case of non-plus standards labeled as opportunities for modeling, this indicator examines only the **content** of those non-plus standards. This indicator attends to the shift of coherence by analyzing non-plus standards across a high school series to determine if the materials limit the aspects (see below) of non-plus standards that are addressed.



## EVIDENCE COLLECTION

- Review the MS CCRS-M to become familiar with the non-plus standards and clusters.
- For each course in the series, note what aspects of non-plus standards are addressed through any instructional materials provided, including assessments.
  - Aspects could include, but are not limited to:
    - types of mathematical objects (equation, expression, inequality, systems);
    - types of numbers;
    - families of functions/equations/inequalities (polynomial, exponential, logarithmic, rational, etc.);
    - tools used (paper and pencil, graphing calculators, software, etc.);
    - actions required by the teacher (see **Notes** in Scoring section); and
    - actions required of students (see **Notes** in Scoring section).
- For the series, determine if each aspect of the non-plus standards is completely addressed through any instructional materials provided, including assessments.
- For the series, note entire non-plus standards that are not addressed or aspects of non-plus standards that are not addressed.
  - For example, if a series only offered opportunities with the cluster A-CED that involved mathematical objects from linear or quadratic families, then the series would not be attending to the full intent of the mathematical content contained in the cluster A-CED.
  - For example, if a series allows opportunities regarding A-REI.11 for students to work solely with linear functions and not the other function types listed, then the series would not be attending to the full intent of the standard.
  - For example, standard A-SSE.3 states “Choose and produce an equivalent form of an expression...” The series would not meet the full intent of the standard if students are required to produce equivalent forms without ever having a choice as to which equivalent form. That is, if students are always directed to produce a specific equivalent form (e.g. “Rewrite in factored form”) and they are never allowed choice (e.g. “Rewrite in an equivalent form that reveals the zeros of the function.”), then the series does not meet the full intent of the standard.



### DISCUSSION POINTS FOR REVIEW TEAM MEETING

1. Have all aspects of the non-plus standards been addressed through any instructional materials provided, including assessments, by the series?
  - If yes, be sure to have evidence of where various aspects of different standards are addressed.
  - If no, be sure to have evidence of which non-plus standards are omitted or which aspects of non-plus standards are not fully addressed.
2. Are there any courses in the series that excel in addressing this indicator?
3. Are there any courses in the series that do not address this indicator as well as the others?



### SCORING

**Notes:** The parts of the materials that teachers complete can be used as evidence of attending to the full intent of the standards for this indicator. If students do not have the opportunity to attend to standards, or aspects of them, independently but teachers do, then the materials would be attending to the full intent of the standards for this indicator but not giving students the opportunity to fully learn the standard, which is 1bii.

<b>4 points</b>	<p>All aspects of all non-plus standards are addressed by the instructional materials of the series.</p> <p><b>OR</b></p> <p>There are few instances where all aspects of the non-plus standards are not addressed by the instructional materials of the series.</p>
<b>2 points</b>	<p>More than a few aspects of the non-plus standards have not been completely addressed by the instructional materials of the series.</p> <p><b>AND/OR</b></p> <p>Some non-plus standards have been entirely omitted from the instructional materials of the series.</p>
<b>0 points</b>	<p>Many aspects of the non-plus standards have not been completely addressed by the instructional materials of the series.</p> <p><b>AND/OR</b></p> <p>Many non-plus standards have been entirely omitted from the instructional materials of the series.</p>

## ► GUIDANCE FOR **Indicator 1aii**

### Focus and Coherence: Full Intent of the Modeling Process

#### CRITERION

The instructional materials are coherent and consistent with “the high school standards that specify the mathematics which all students should study in order to be college and career ready”

#### INDICATOR

The materials provide students with opportunities to work with all high school standards and do not distract students with prerequisite or additional topics.

- ii. The materials, when used as designed, allow students to spend the majority of their time on the content from CCSSM widely applicable as prerequisites for a range of college majors, postsecondary programs, and careers.

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**Do the instructional materials attend to the full intent of the modeling process when applied to the modeling standards?**

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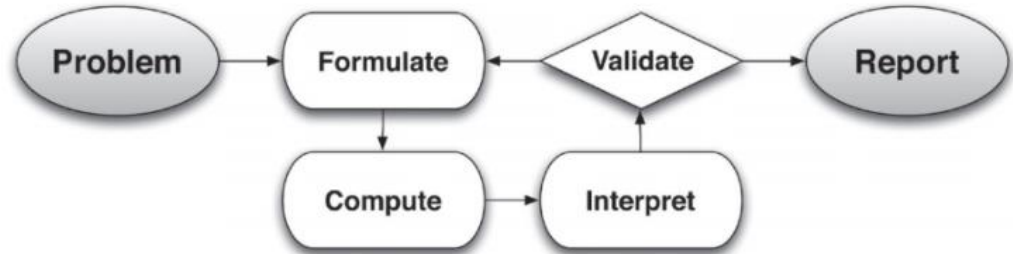
#### WHAT IS THE PURPOSE OF THIS INDICATOR?

This indicator, along with the other indicators of Gateway 1, determines the shifts of focus and coherence. This indicator attends to the shift of focus by specifically examining the use of the modeling process with those standards that have a star symbol but do not have a plus (+) symbol (modeling standards). This indicator attends to the shift of coherence by analyzing the use of the modeling process with the modeling standards across a high school series to determine if the materials limit any of the aspects (see below) of the standards in which the modeling process is used.



## EVIDENCE COLLECTION

- Review the MS CCRS-M description of the Modeling Conceptual Category on pages 89-90 of the MS CCRS-M.



- Additional resources you may want to consider: [“Modeling, High School”](#) and [“How to Identify Tasks that Engage Students in Mathematical Modeling NCTM-SIAM Committee on Modeling Across the Curriculum”](#).
- Review the tables of contents for both the student and teacher materials, any standards-alignment information in the materials, and any scope and sequence information provided by the publisher to gain a foundation of where and how often the modeling standards are addressed.
- For each course in the series, note where modeling standards are being addressed with the full intent of the modeling process through any instructional materials provided, including assessments.
- For each course in the series, note where aspects of modeling process are being addressed with the full attention to the modeling standards through any instructional materials provided, including assessments.

Aspects could include, but are not limited to:

- determination of important information;
- variable identification;
- approximation of quantities, shapes, behaviors, etc.;
- formulation of models (e.g. geometric, graphical, tabular, algebraic, statistical representations);
- analysis of relationships;
- consideration of underlying assumptions;
- interpretation of results in the context of the situation;
- validation of conclusions in light of the context;
- revision of models as needed;
- summarization of conclusions, assumptions, and methods; and

- tools used (paper and pencil, graphing calculators, software, etc.).
- For the series, determine if all aspects of the modeling process are completely addressed with full attention to the modeling standards through any instructional materials provided, including assessments.
- For the series, reviewers should note instances of descriptive modeling.
- For the series, note aspects of modeling standards that are not addressed, especially in light of the modeling standards.
- The following examples are non-conclusive guides for illustrative purpose only:
  - If the materials regularly direct students to the choice of variables to be used, then the materials do not attend to the full intent of the modeling process.
  - If the materials constantly give students the model to be used, then the materials do not attend to the full intent of the modeling process.
  - If the materials dictate what conclusions should be made, then the materials do not attend to the full intent of the modeling process.
  - If the materials do not allow for students to reflect on the appropriateness of results in light of the context and/or make adaptations to the model, then the materials do not attend to the full intent of the modeling process.



### DISCUSSION POINTS FOR REVIEW TEAM MEETING

1. Are individual aspects of the modeling process found in the materials? Do the materials focus on isolated aspects in order to build up to the fullness of the modeling process? If so, do the materials allow for multiple, culminating opportunities for students to employ the fullness of the modeling process?
  - If yes, document which aspects, or combination of aspects, of the modeling process are found. Provide evidence of how the materials allow students to grow in the modeling process.
  - If no, provide evidence for when different aspects of the modeling process are found in isolation.
2. Has the full intent of the modeling process through any instructional materials provided, including assessments, been addressed?
  - If yes, provide evidence of where the materials provide opportunities for students to employ the full modeling process.



- If no, provide evidence of where the materials interrupt the modeling cycle. Specify which aspects of the modeling process are addressed and which aspects are neglected.
3. Are there any modeling standards, clusters, domains, or conceptual categories that are addressed without consideration of the full intent of the modeling process?
  4. Do the materials allow for growth and sophistication with modeling as specified in the progression documents?



## SCORING

**4 points**

The full intent of the modeling process is used to address all, or nearly all, of the modeling standards by the instructional materials of the series.

**OR**

The instructional materials intentionally develop the full intent of the modeling process throughout the series leading to culminating experiences that address all, or nearly all, of the modeling standards.

**2 points**

Various aspects of the modeling process are present in isolation or combinations, yet opportunities for the complete modeling process are absent for the modeling standards throughout the instructional materials of the series.

**AND/OR**

The full intent of the modeling process has not been used to address more than a few modeling standards by the instructional materials of the series.

**AND/OR**

The full intent of the modeling process has been omitted for more than a few modeling standards by the instructional materials of the series.

**0 points**

Some aspects of the modeling process are altogether missing from the instructional materials of the series.

**AND/OR**

The full intent of the modeling process has not been used to address many of the modeling standards by the instructional materials of the series.

**AND/OR**

The full intent of the modeling process has been omitted for most of the modeling standards by the instructional materials of the series.

## ► GUIDANCE FOR **Indicator 1bi**

### Focus and Coherence: Widely Applicable as Prerequisites

#### CRITERION

The instructional materials are coherent and consistent with “the high school standards that specify the mathematics which all students should study in order to be college and career ready”

#### INDICATOR

The materials provide students with opportunities to work with all high school standards and do not distract students with prerequisite or additional topics.

- i. The materials, when used as designed, allow students to spend the majority of their time on the content from the MS CCRS-M widely applicable as prerequisites for a range of college majors, postsecondary programs, and careers.

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**Do the materials, when used as designed, focus on the Widely Applicable Prerequisites (WAPs) for a range of college majors, postsecondary programs, and careers?**

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#### WHAT IS THE PURPOSE OF THIS INDICATOR?

This indicator, along with the other indicators of Gateway 1, determines the shifts of focus and coherence. This indicator attends to the shift of focus by specifically examining if a majority of the instructional materials are designed to engage students in content from the MS CCRS-M widely applicable as prerequisites for a range of college majors, postsecondary programs, and careers. This indicator attends to the shift of coherence because much of the content from the MS CCRS-M widely applicable as prerequisites for opportunities after high school not only spans multiple courses at the high school level but also incorporates the application of key takeaways from grades 6 through 8.



## EVIDENCE COLLECTION

- Review Table 1 on page 8 of [High School Publishers' Criteria for the Common Core State Standards for Mathematics \(Spring 2013\)](#) to become familiar with the content from the MS CCRS-M widely applicable as prerequisites for a range of college majors, postsecondary programs, and careers (WAPs).
- Review the tables of contents for both the student and teacher editions, any standards-alignment information in the materials, and any scope and sequence information provided by the publisher to gain a foundation of where and how often the WAPs are addressed.
- Review chapters, lessons, activities, and assessments throughout the series to verify any standards-alignment information in the materials or given by the publishers.
- Review any information in the materials or given by the publishers that discuss the allocation of time to the WAPs.
- For each course in the series, note how often the WAPs are addressed through any instructional materials provided, including assessments.
- For each course in the series, document how often prerequisite or additional topics are included in a way that distracts students from the WAPs or all non-plus standards. When noting a distraction, reviewers should clearly describe how the prerequisite or additional topics are drawing students' learning away from the WAPs or all non-plus standards.

The following examples are non-conclusive guides for illustrative purpose only:

- In a first-year high school course, numerous activities, lessons, or chapters that merely review content standards from grades 6 through 8 could be distracting, prerequisite topics.
  - A unit or chapter addressing the concept of limits and the skills associated with calculating limits could be a distracting additional topic.
  - A unit on fractals or tessellations where the MS CCRS-M are not intertwined would be considered an additional, distracting topic if the unit does not strengthen, support, or introduce CCSSM.
- For the series, analyze how often the WAPs are addressed by the instructional materials, including assessments.

Analysis of how often the WAPs are addressed could include, but is not limited to:

- amount of instructional materials, including assessment items, aligned to the WAPs;
- amount of instructional materials, not including assessment items, aligned to the WAPs; and
- amount of instructional materials that include distracting prerequisite or additional topics.



### DISCUSSION POINTS FOR REVIEW TEAM MEETING

1. Do a majority of the materials in the series, when used as designed, engage students in the WAPs?
  - If yes, be able to clearly explain what evidence has been collected and how the evidence justifies your conclusion.
  - If no, be able to clearly justify with evidence how the materials fall short of having a majority. Evidence could include how the materials might be supplemented to achieve a majority.
2. Do the materials in the series, when used as designed, distract students with prerequisite or additional topics? In what ways might topics that align to standards from grades 6 through 8 or the plus standards not be considered distracting, prerequisite, or additional?



### SCORING

**2 points**

Evidence clearly describes how the materials for the **SERIES**, when used as designed, allows students to spend the majority of their time (>50%) on the content widely applicable as prerequisites (WAPs) for a range of college majors, postsecondary programs, and careers.

**OR**

The **SERIES** spends less than a majority of time on the content widely applicable as prerequisites for a range of college majors, postsecondary programs, and careers, and the majority of the rest of the materials addresses other non-plus standards.

**1 point**

The **SERIES** does not spend a majority of time on the WAPs, and some of the remaining materials address prerequisite or additional topics that are distracting.

**0 points**

The **SERIES** does not spend a majority of time on the WAPs, and the majority of the remaining materials address prerequisite or additional topics that are distracting.

## ► GUIDANCE FOR **Indicator 1bii**

### Focus and Coherence: Fully learn each standard

**Please note: In Mississippi, we have a course entitled “Advanced Math Plus”. This indicator should not be used for that course.**

#### CRITERION

The instructional materials are coherent and consistent with “the high school standards that specify the mathematics which all students should study in order to be college and career ready”

#### INDICATOR

The materials provide students with opportunities to work with all high school standards and do not distract students with prerequisite or additional topics.

- ii. The materials, when used as designed, allow students to fully learn each standard.

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**Do the materials, when used as designed, let students fully learn each non-plus standard?**

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#### WHAT IS THE PURPOSE OF THIS INDICATOR?

This indicator, along with the other indicators of Gateway 1, determines the shifts of focus and coherence. This indicator attends to the shift of focus by examining the non-plus standards. This indicator attends to the shift of coherence by determining if the materials of a series, when used as designed, enable all students to fully learn every aspect of each non-plus standard.



#### EVIDENCE COLLECTION

- Review the MS CCRS-M to become familiar with the non-plus standards and clusters.
- Review the tables of contents for both the student and teacher editions, any standards-alignment information in the materials, and any scope and sequence information provided by the publisher to gain a foundation of where and how often the non-plus standards are addressed.

- Review chapters, lessons, activities, and assessments throughout the series to verify any standards-alignment information in the materials or given by the publishers.
- For each course in the series, reviewers should note what aspects, how often those aspects, and in what ways those aspects of non-plus standards are addressed through any instructional materials provided, including assessments.

Aspects could include, but are not limited to:

- types of mathematical objects (equation, expression, inequality);
  - types of numbers;
  - families of mathematical objects (polynomial, exponential, logarithmic, rational, etc.); and
  - tools used (paper and pencil, graphing calculators, software, etc.).
- For the series, reviewers should document when **STUDENTS** are provided with sufficient opportunities to fully learn a non-plus standard, paying careful attention to each aspect of the standard.
    - For example, if students are given numerous opportunities to decide if two figures are similar by using the definition of similarity in terms of transformations, articulate the transformations required to show the similarity, and explain the meaning of similarity- all verified with formative assessments and given further opportunities if needed- then the materials allow students to fully learn standard G-SRT.2.
  - For the series, reviewers should document when aspects of non-plus standards are addressed on limited occasions through any instructional materials provided, including assessments.

The following examples are non-conclusive guides for illustrative purpose only:

- If the materials provide only one lesson where students see function notation, then the materials do not allow students to fully learn F-IF.2.
- If students are required to explain each step in solving a simple equation only a couple times within the series, then the materials do not allow students to fully learn A-REI.1.



- If students only calculate average rate of change of linear functions and all other aspects of F-IF.6 are addressed, then the materials do not allow students to fully learn F-IF.6.
- If materials provide few exercises for students to practice a fluency standard, then the materials do not allow students to fully learn the standard.
- For the series, reviewers should consider the variability of numbers, equation types, contexts, etc. that students will encounter while working with non-plus standards.

The following examples are non-conclusive guides for illustrative purpose only:

- If students solve systems of linear equations only with equations in slope-intercept form, then the materials do not allow students to fully learn A-REI.6.
- If students only factor quadratics with a leading coefficient of 1, then the materials do not allow students to fully learn A-SSE.3 or A-APR.3.
- For the series, reviewers should note where the materials employ formative assessments to help students and teachers know if students are ready to move on or if students require more work on non-plus standards. When this occurs, document how teachers and student will know what to do in order to fully learn non-plus standards.



### DISCUSSION POINTS FOR REVIEW TEAM MEETING

1. Do the materials, when used as designed, enable students to fully learn each non-plus standard?
  - If yes, be able to clearly describe the various ways in which the materials enable all students to learn all of the aspects of the non-plus standards.
  - If no, be able to clearly describe what characteristics the series is missing and how those characteristics would inhibit students from fully learning each non-plus standard.
2. If the series has not enabled all students to fully learn each non-plus standard, then what are the specific characteristics that the series is missing?
3. Would it be reasonable to believe students would have mastered the standards by the end of the series?

**SCORING**

<b>4 points</b>	Evidence clearly describes how the materials for the series, when used as designed, enable students to fully learn all or most of the non-plus standards.
<b>2 points</b>	The materials for the series, when used as designed, do not enable students to fully learn some of the non-plus standards.
<b>0 points</b>	The materials for the series, when used as designed, do not enable students to fully learn most of the non-plus standards.

**GUIDANCE FOR Indicator 1c****Focus and Coherence: Sophistication Appropriate to High School****CRITERION**

The instructional materials are coherent and consistent with “the high school standards that specify the mathematics which all students should study in order to be college and career ready”

**INDICATOR**

The materials require students to engage in mathematics at a level of sophistication appropriate to high school.

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**Do materials engage students in mathematics at a level of sophistication appropriate for high school?**

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**WHAT IS THE PURPOSE OF THIS INDICATOR?**

This indicator supports the shifts of Focus and Coherence. This indicator examines the materials to determine if students are given extensive opportunities to work with course-level problems and exercises appropriate to high school and relates new concepts to students’ prior skills and knowledge.



## EVIDENCE COLLECTION

- Review the units, chapters, lessons, and assessments in both student and teacher materials.
- Review the far right column in Table 1 on page 8 of [High School Publishers' Criteria for the Common Core State Standards for Mathematics \(Spring 2013\)](#) to become familiar with the application of key takeaways from Grades 6-8.
- Throughout the series, look for age appropriate mathematical contexts. Scenarios should consist of real-life and relevant situations appropriate for high school students. Consider also that student interests can change as they progress through high school. Document instances of contexts that are or are not appropriate for high school students.
- Throughout the series, consider the types of numbers being used. Look for opportunities where students learn new mathematics with simpler numbers and later perform operations and apply concepts using the full number system including rational, irrational, and complex numbers.
- Throughout the series, find evidence where students apply key takeaways from middle school. Including, but not limited to:

### **Ratios and Proportional Relationships** (6.RP.A; 7.RP.A; 8.EE.B)

- Applying ratios and proportional relationships
- Applying percentages and unit conversions, e.g., in the context of complicated measurement problems involving quantities with derived or compound units (such as mg/mL, kg/m<sup>3</sup>, acre-feet, etc.)

### **Functions** (8.F)

- Applying basic function concepts, e.g., by interpreting the features of a graph in the context of an applied problem
- Use functions to model relationships

### **The Number System** (6-8.NS)

- Integers, rational numbers, irrational numbers

### **Geometry** (6-8.G)

- Similarity
- Applying concepts and skills of geometric measurement e.g., when analyzing a diagram or schematic

### **Statistics and Probability** (6-8.SP)

- Applying concepts and skills of basic statistics and probability

Note: A problem in which students use reference data to determine the energy cost of different fuels might draw on proportional relationships, unit conversion, and other skills that were first introduced in the middle grades, yet still be a high-school level problem because of the strategic competence required” (p. 10 HS Publishers’ Criteria).

- If the materials provide resources for differentiated learning, consider whether lower-performing students and/or special populations still have opportunities to engage in non-plus standards experiences appropriate for high school. Note: The quality and types of the differentiation provided by the materials are examined in Gateway 3.



### DISCUSSION POINTS FOR REVIEW TEAM MEETING

1. How relevant are the contexts to typical high school students? Do the contexts throughout the series reflect changes in students as they mature through high school?
2. Do students regularly practice operations on rational and irrational numbers? Do the tasks and exercises help students grow in their procedural skills with operations on real numbers?
3. Which of the key takeaway applications (from Table 1 of the Publishers’ Criteria) are present in the series? Are the key takeaways being applied or are they merely absorbed into a procedure? Do the applications of key takeaways occur throughout the series or only within one course?



### SCORING

**2 points**

The materials regularly use age appropriate contexts, use various types of real numbers, and provide opportunities for students to apply key takeaways from grades 6-8.

**1 point**

The materials regularly use age appropriate contexts and apply key takeaways from grades 6-8, yet do not vary the types of real numbers being used.

**AND/OR**

The materials regularly use various types of real numbers and apply key takeaways from grades 6-8, yet do not use age appropriate contexts.

**AND/OR**

The materials regularly use age appropriate contexts and vary the types of real numbers being used, yet some of the key takeaways from grades 6-8 are not applied.

**0 points**

The materials regularly do not use age appropriate contexts or vary the types of real numbers being used.

**AND/OR**

The materials do not apply most of the key takeaways from grades 6-8.

## ► GUIDANCE FOR **Indicator 1d**

### Focus and Coherence: Coherence within and across courses

#### CRITERION

The instructional materials are coherent and consistent with “the high school standards that specify the mathematics which all students should study in order to be college and career ready”

#### INDICATOR

The materials are mathematically coherent and make meaningful connections in a single course and throughout the series, where appropriate and where required by the Standards.

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**Are the materials mathematically coherent? Do the materials make meaningful connections to prior learning within a course and across the series? Do the materials connect multiple standards and/or clusters in meaningful ways?**

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#### WHAT IS THE PURPOSE OF THIS INDICATOR?

This indicator supports the shifts of Focus and Coherence within and across courses throughout the series. This indicator examines the materials to determine if the materials are making meaningful connections to prior learning. Connections between and across multiple standards are made in meaningful ways to support understanding of multiple standards at the same time.



#### EVIDENCE COLLECTION

- Review the units, chapters and lessons in both student and teacher materials.
- Review the course and series scope and sequence.
- Review progression documents and standards as needed: [CCSSM Progressions documents](#)
- Look for evidence throughout the series where students build mathematical knowledge by linking and applying multiple concepts within and across courses.

- Look for lesson objectives that develop in a systematic way to meet the full depth of the high school standards.
- Identify explicit connections to prior course and series learning for teachers and students. Materials allow teachers to design lessons and units that carefully connect new content and skills to those learned earlier in the course or across the series. For example, lessons and activities that serve to connect two or more clusters in a domain, two or more domains in a conceptual category, or two or more conceptual categories.

Examples of connections between conceptual categories:

- Applying geometric concepts in modeling situations (G-MG) allows students to create equations in one variable (A-CED.1) and use units as a way to understand problems and guide the solution (N-Q.3).
- The correspondence between numerical coordinates and geometric points allows methods from algebra to be applied to geometry and vice versa. The solution set of an equation becomes a geometric curve, making visualization a tool for doing and understanding algebra.
- Functions may be used to describe data; if the data suggest a linear relationship, the relationship can be modeled with a regression line, and its strength and direction can be expressed through a correlation coefficient.

Examples of connections among standards, clusters, and domains:

- The progression from congruence to area to similarity can be used to put each of these topics on a logical footing: The basic assumptions that congruent figures have the same area and that area is invariant under finite dissection bring coherence to the formulas for calculating areas of polygonal regions. These formulas, along with results such as the fact that triangles with equal bases and heights have the same area, can be used to prove properties of dilations and similarity. The triangle similarity criteria are necessary to develop the trigonometry of right triangles.
- Study of linear associations in statistics and probability (S-ID.6c, 7) builds on students' understanding of linear relationships (cf. F-LE.1). Exploration of quadratic relationships in data on two measurement variables (S-ID.6) depends on understanding key features of a quadratic function and being able to interpret them in terms of a context (F-IF..4).





### DISCUSSION POINTS FOR REVIEW TEAM MEETING

1. How is coherence present both within and across courses in the series?
2. How are the materials using previous course concepts to develop the full depth of the high school standards?



### SCORING

<b>2 points</b>	Materials foster coherence through meaningful mathematical connections in a single course and throughout the series, where appropriate and where required by the Standards.
<b>1 point</b>	Materials partially foster coherence through meaningful mathematical connections in a single course and throughout the series, where appropriate and where required by the Standards.
<b>0 points</b>	Materials do not foster coherence through meaningful mathematical connections in a single course and throughout the series, where appropriate and where required by the Standards.

## ► GUIDANCE FOR Indicator 1e

**Focus and Coherence: Connect to Grades 6-8 prior knowledge**

### CRITERION

The instructional materials are coherent and consistent with “the high school standards that specify the mathematics which all students should study in order to be college and career ready”

### INDICATOR

The materials explicitly identify and build on knowledge from Grades 6-8 to the High School Standards.

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**How do materials explicitly identify and build knowledge from Grades 6-8 to the High School Standards?**

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### WHAT IS THE PURPOSE OF THIS INDICATOR?

This indicator supports the shifts of Focus and Coherence, looking specifically at how the non-plus standards coherently connect to and build upon standards from grades 6-8. This indicator examines the materials to determine if references to standards from grades 6-8 are for the purpose of building on students’ previous knowledge and allowing students to make connections to new learning.



### EVIDENCE COLLECTION

- Review the units, chapters and lessons in both student and teacher materials.
- Review additional documents provided by the publisher, such as scope and sequence materials.
- Review criterion 3c on page 11 of the [High School Publishers' Criteria for the Common Core State Standards for Mathematics \(Spring 2013\)](#).
- Review progression documents and standards as needed: <http://ime.math.arizona.edu/progressions/>.
- Cluster headings in the Standards sometimes signal key moments where reorganizing and extending previous knowledge is important in order to

accommodate new knowledge. At other times, the cluster headings signal key connections to grades 6-8. Look for and be mindful of such clusters.

Examples include but are not limited to:

- N-RN.A “Extend the properties of exponents to rational exponents.”
  - A-REI.C “Solve systems of equations” extends 8.EE.8 “Analyze and solve pairs of simultaneous linear equations.”
  - F-IF.A “Understand the concept of a function and use function notation” connects naturally with 8.F.A “Define, evaluate, and compare functions.”
  - G-.SRT.A “Understand similarity in terms of similarity transformations” builds on the work of 8.G.A “Understand congruence and similarity...”
  - G-GMD.A “Explain volume formulas and use them to solve problems” coheres with 8.G.9 “Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems,” 7.G.6 “Solve real-world and mathematical problems involving area, volume...,” and 6.G.A “Solve real-world and mathematical problems involving area, surface area, and volume.”
  - G-CO.A “Prove geometric theorems” extends the work of 7.G.5 “Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.”
  - S-ID.A “Summarize, represent, and interpret data on a single count or measurement variable” relates well to 6.SP.B “Summarize and describe distributions.”
- Throughout the series, look for:
    - grades 6-8 standards that are clearly identified as such in both the teacher and student materials.
    - connections between 6-8 and high school concepts that are clearly articulated for teachers but may not be explicitly named for students.
    - the design of the materials to focus on the connections to mathematics of the previous grades as referenced in the Progression documents.

- Determine if standards from grades 6-8 are addressed in an appropriate way for high school; making meaningful connections rather than materials “re-teaching” Grades 6-8 standards.

Examples of grade 6-8 to high school coherence could include, but are not limited to:

- Students work extensively with ratios and proportions in grades 6-8. In high school students work with trigonometric ratios.
- Students work with transformations in order to understand similarity and congruence. In high school, students extend their work with transformations to develop similarity and congruence proofs.
- Students in middle grades worked with measurement units, including units obtained by multiplying and dividing quantities. In high school, students apply these skills in a more sophisticated fashion to solve problems in which reasoning about units adds insight into the structure of the problem and the solutions in context (N-Q).
- Students in grade 8 extended their prior understanding of proportional relationships to begin working with functions with an emphasis on linear functions. In high school, students will master linear and quadratic functions. Students encounter other kinds of functions to ensure that general principles are perceived in generality, as well as to enrich the range of quantitative relationships considered in problems.
- As students acquire mathematical tools from their study of algebra and functions, they apply these tools in statistical contexts (e.g., S-ID.6). In a modeling context, they might informally fit a quadratic function to a set of data, graphing the data and the model function on the same coordinate axes. They also draw on skills they first learned in middle school to apply basic statistics and simple probability in a modeling context. For example, they might estimate a measure of center or variation and use it as an input for a rough calculation.
- In grades 6-8, students worked with a variety of geometric measures (length, area, volume, angle, surface area, and circumference). In high school, students apply these component skills in tandem with others in the course of modeling tasks and other substantial applications (MP4).
- In grade 8, students learned the Pythagorean theorem and used it to determine distances in a coordinate system (8.G.6–8). Early in high school, students prove theorems using coordinates

(G-GPE.4–7). Later in high school, students build on their understanding of distance in coordinate systems and draw on their growing command of algebra to connect equations and graphs of conic sections (e.g., G-GPE.1).



### DISCUSSION POINTS FOR REVIEW TEAM MEETING

1. [Are the Grade 6-8 standards explicitly identified?](#)
2. How are the materials using standards from grades 6 through 8 to develop understanding of high school content?
3. Are the grades 6-8 connections a purposeful extension or reinforcement of course-level standards, or do the connections unduly interfere with the work of the course/ series?



### SCORING

No score is given for indicator 1f. Only qualitative evidence is provided.

## ► GUIDANCE FOR Indicator 1f

### Focus and Coherence: Plus Standards

**For Mississippi: All “plus standards”, identified in the original CCSSM were indicated with the following symbol (+). Mississippi has taken all of these “plus standards” and created a separate, stand-alone, whole year course entitled Advanced Mathematics Plus.**

**This indicator is not scored for materials not aligned to the Mississippi Advanced Mathematics Plus course standards.**

#### CRITERION

The instructional materials are coherent and consistent with “the high school standards that specify the mathematics which all students should study in order to be college and career ready”

#### INDICATOR

The plus (+) standards, when included, are explicitly identified and coherently support the mathematics which all students should study in order to be college and career ready.

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**Are the plus (+) standards explicitly identified and used to coherently support the mathematics which all students should study in order to to be college and career ready?**

---



#### WHAT IS THE PURPOSE OF THIS INDICATOR?

“The high school standards specify the mathematics that all students should study in order to be college and career ready. Additional mathematics that students should learn in order to take advanced courses such as calculus, advanced statistics, or discrete mathematics is indicated by (+)” . The purpose of this indicator is to identify the plus standards in the materials, analyze their coherence with non-plus standards within the series, and determine if the materials attend to the full depth of the plus standards when they are addressed.



#### EVIDENCE COLLECTION

**Note:** This indicator is not scored for materials NOT aligned to the Mississippi Advanced Mathematics Plus course, but it is included in the report. Evidence is identified and collected to show where and how plus (+) standards are included,

and how they support coherence of the mathematics students are learning. The report for this indicator should include evidence for the plus standards similar to the evidence collected for the non-plus standards in indicators 1ai, 1aai, 1bii, 1c, 1d, and 1e.

- Review the units, chapters, and lessons in both student and teacher materials.
- Review additional documents provided by the publisher, such as scope and sequence materials.
- Determine which of the plus standards are addressed within the materials and where.
- Note if the plus standards are explicitly identified as such in the materials.
- Find evidence where the materials reach the full intent of the plus standards.
- Look to find connections between non-plus and plus standards. These should be clearly identified and explained for teachers but may not be explicitly named for students.
- Look to find connections between plus standards and advanced courses, such as calculus, advanced statistics, or discrete mathematics. These connections should be clearly identified and explained for teachers but may not be explicitly named for students.
- Determine if work with the plus standards deters from the work with the non-plus standards.
- If the plus standards are separated from non-plus standards in a course within the series, then the evidence should note if this separation is inappropriate or distracting.



### DISCUSSION POINTS FOR REVIEW TEAM MEETING

1. How are the materials incorporating the plus standards in order to prepare students sufficiently for future advanced level mathematics courses?
2. How does the treatment of a plus standard enhance the work of the lesson/unit/course?

3. If a teacher omits a plus standard in the materials, how will the flow of the lesson/unit change? Will omitting a plus standard diminish student opportunity for learning other standards in the lesson/unit?
4. In what ways do the plus standards serve as purposeful extensions of course-level standards?
5. Do the plus standards unduly interfere with the work of the course?



## SCORING

<b>2 points</b>	<p>Content from Grades 6-8 is explicitly identified and supports the progressions of the high school standards.</p> <p>Connections between grades 6-8 and high school concepts are present and allow students to extend their previous knowledge.</p>
<b>1 point</b>	<p>Content from 6-8 grades is not explicitly identified and/or does not fully support the progressions of the high school standards.</p> <p>Connections between grades 6-8 and high school concepts are partially present but may not allow students to extend their previous knowledge.</p>
<b>0 points</b>	<p>Content from 6-8 grades is not explicitly identified and does not support the progressions of the high school standards.</p> <p>Connections between grades 6-8 and high school concepts are not present and do not allow students to extend their previous knowledge.</p>



# Gateway 2

## ► GUIDANCE FOR **Indicator 2a**

### Rigor and Balance: Conceptual Understanding

#### CRITERION

The instructional materials reflect the balances in the Standards and help students meet the Standards' rigorous expectations, by giving appropriate attention to: developing students' conceptual understanding; procedural skills; and engaging applications.

#### INDICATOR

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

---

**Do the instructional materials develop conceptual understanding throughout the series?**

**Do the instructional materials provide opportunities for students to independently demonstrate conceptual understanding throughout the series?**

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#### 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 skills, 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 Mathematics as more than a set of algorithmic procedures.



#### EVIDENCE COLLECTION

- Review criterion 2a on page 9 of the [High School Publishers' Criteria for the Common Core State Standards for Mathematics \(Spring 2013\)](#).
- Look at resources that help define what conceptual understanding means for mathematics.
  - [Video: “Building Conceptual Understanding in Mathematics” \(NCTM\)](#)
  - [Video: “Conceptual Understanding Excerpt” \(The Hunt Institute\)](#)
  - Reading: “Principles To Actions”, (NCTM) p. 42-48

- Select cluster(s) or standard(s) that specifically relate to conceptual understanding. Be aware that some cluster(s) and standard(s) lend themselves to more than one aspect of rigor. In such cases, look for evidence of conceptual understanding.

Examples include, but are not limited to:

CLUSTERS/STANDARDS THAT RELATE TO CONCEPTUAL UNDERSTANDING
<b>N-RN.1</b> – Explain how the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those values, allowing for a notation for radicals in terms of rational exponents.
<b>A-APR.B</b> – Understand the relationship between zeros and factors of polynomials.
<b>A-REI.A</b> – Understand solving equations as a process of reasoning and explain the reasoning.
<b>A-REI.10</b> – Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line).
<b>A-REI.11</b> – Explain why the x-coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$ ; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where $f(x)$ and/or $g(x)$ are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.★
<b>F-IF.A</b> – Understand the concept of a function and use function notation.
<b>F-LE.1</b> – Distinguish between situations that can be modeled with linear functions and with exponential functions.
<b>G-SRT.2</b> – Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.
<b>G-SRT.6</b> – Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles.

**S-ID.7** – Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data.

- Look for the evidence in lessons, review lessons, chapter and/or unit assessments, homework assignments, concept checks (if offered), hands-on activities (if offered), investigations (if offered), simple tasks and problems, and other areas that appear to be conceptual in nature.
- Evaluate whether conceptual understanding present in lessons/chapters/units aligns to the aspect of rigor in the standard(s).
- Determine if the materials feature high-quality conceptual problems and conceptual discussion questions, including brief conceptual problems with low computational difficulty.
- Determine if the materials offer opportunities for students to engage with concrete and semi-concrete representations, as well as verbalization and writing, when developing conceptual understanding.
- Determine if the materials feature opportunities to identify correspondences across mathematical representations in order to further develop conceptual understanding.
  - Example: Through the series, the materials do not just offer opportunities for students to engage with different families of functions through equations, tables, graphs, and contexts, but the materials offer opportunities for students to make connections between the different representations for the various families of functions.
- Evidence must include specific examples from the instructional materials. Manipulatives do not necessarily indicate conceptual understanding. If evidence includes concrete and/or visual representations, explain how the representations are being used to develop conceptual understanding. If evidence is addressing clusters or standards that relate specifically to conceptual understanding, list the specific clusters/standards and explain how the evidence demonstrates conceptual understanding. If opportunities to develop conceptual understanding are missed, specifically list the clusters/standards/opportunities that are missed.
- Note whether the instructional materials include a specific section in units/chapters/lessons, etc. that are specifically designed for conceptual understanding. Include Unit, Lesson, Lesson Part and page numbers for reference for all examples.



### DISCUSSION POINTS FOR REVIEW TEAM MEETING

1. What does intentional development of conceptual understanding look like in materials?
2. What specific evidence illustrates intentional development of conceptual understanding?
3. How do the materials in the series enable students to reason in settings involving the careful application of concept definitions, relations, or representations?
4. Do the materials attend to conceptual understanding throughout the series?
5. Do the instructional materials provide opportunities for students to independently demonstrate conceptual understanding throughout the series?



### SCORING

<b>2 points</b>	<p>The instructional materials develop conceptual understanding throughout the series.</p> <p>The instructional materials provide opportunities for students to independently demonstrate conceptual understanding throughout the series.</p>
<b>1 point</b>	<p>The instructional materials have missed opportunities to develop conceptual understanding.</p> <p><b>OR</b></p> <p>The instructional materials do not provide opportunities for students to independently demonstrate conceptual understanding throughout the series.</p>
<b>0 points</b>	<p>The instructional materials have few or no opportunities to develop conceptual understanding.</p> <p>The instructional materials do not provide opportunities for students to independently demonstrate conceptual understanding.</p>

## GUIDANCE FOR Indicator 2b

### Rigor and Balance: Procedural Skill and Fluency

#### CRITERION

The instructional materials reflect the balances in the Standards and help students meet the Standards' rigorous expectations, by giving appropriate attention to: developing students' conceptual understanding; procedural skills; and engaging applications.

#### INDICATOR

The materials provide intentional opportunities for students to develop procedural skills, especially where called for in specific content standards or clusters.

---

**Do the instructional materials develop procedural skills throughout the series?  
Do the instructional materials provide opportunities for students to independently demonstrate procedural skills throughout the series?**

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#### 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 skills, and application. Procedural skills are the call for efficiency and accuracy in calculations. Students need to practice core skills in order to have access to more complex concepts and procedures.



#### EVIDENCE COLLECTION

- Review criterion 2b on page 9 of the [High School Publishers' Criteria for the Common Core State Standards for Mathematics \(Spring 2013\)](#).
- Select cluster(s) or standard(s) that specifically relate to procedural skills. Be aware that some cluster(s) and standard(s) lend themselves to more than one aspect of rigor. In such cases, look for evidence of procedural skills.

Examples include, but are not limited to:

CLUSTERS/STANDARDS THAT RELATE TO CONCEPTUAL UNDERSTANDING
<b>A-SSE.1b</b> – Interpret complicated expressions by viewing one or more of their parts as a single entity.
<b>A-SSE.2</b> – Use the structure of an expression to identify ways to rewrite it.
<b>A-APR.1</b> – Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.
<b>A-APR.6</b> – Rewrite simple rational expressions in different forms; write $a(x)/b(x)$ in the form $q(x) + r(x)/b(x)$ , where $a(x)$ , $b(x)$ , $q(x)$ , and $r(x)$ are polynomials with the degree of $r(x)$ less than the degree of $b(x)$ , using inspection, long division, or, for the more complicated examples, a computer algebra system.
<b>F-BF.3</b> – Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$ , $k f(x)$ , $f(kx)$ , and $f(x + k)$ for specific values of $k$ (both positive and negative); find the value of $k$ given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. Include recognizing even and odd functions from their graphs and algebraic expressions for them.
<b>G-GPE.4</b> – Use coordinates to prove simple geometric theorems algebraically.
<b>G-GPE.5</b> – Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).
<b>G-GPE.7</b> – Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.★

- Look for the evidence in lessons, review lessons, routine daily checks, chapter and unit assessments, homework assignments, and other sections demonstrating connections between the development of procedural skills with conceptual understanding.
- Evaluate whether aspects of rigor present in lessons/chapters/units align to the aspect of rigor in the targeted standard(s).

- Look for purely procedural problems and exercises that include cases in which opportunistic strategies are valuable, as well as generic cases that require efficient algorithms.
  - Example of problems when opportunistic strategies are valuable: solving the system  $x + y = 1$  and  $2x + 2y = 3$
  - Example of problems when generic cases require efficient algorithms: the system  $2x + 3y = -(1/2)x + 6 - y$  and  $2x + 5 = y + 2$
- Evidence must include specific examples from the instructional materials. If opportunities to develop procedural skills are missed, specifically list the clusters/standards/opportunities that are missed. Note whether the instructional materials include a specific section in units/chapters/lessons, etc. that are specifically designed for procedural skills. Include Unit, Lesson, Lesson Part and page numbers for reference for all examples.



#### DISCUSSION POINTS FOR REVIEW TEAM MEETING

1. The Publishers' Criteria for high school states, "In higher grades, algebra is the language of much of mathematics. Like learning any language, we learn by using it." Do students have sufficient practice (algebraic or otherwise) in order to be adept/skilled with the operations of mathematics?
2. How do program materials build procedural skills over a course? Over a series?



#### SCORING

<b>2 points</b>	<p>The instructional materials develop procedural skills throughout the series.</p> <p>The instructional materials provide opportunities to independently demonstrate procedural skills throughout the series.</p>
<b>1 point</b>	<p>The instructional materials have missed opportunities to develop procedural skills throughout the series.</p> <p><b>OR</b></p> <p>The instructional materials do not provide students opportunities to independently demonstrate procedural skills throughout the series.</p>



**0 points**

The instructional materials have no or few opportunities to develop procedural skills throughout the series.

The instructional materials do not provide opportunities for students to independently demonstrate procedural skills.

## ► GUIDANCE FOR **Indicator 2c**

### Rigor and Balance: Procedural Skill and Fluency

#### CRITERION

The instructional materials reflect the balances in the Standards and help students meet the Standards' rigorous expectations, by giving appropriate attention to: developing students' conceptual understanding; procedural skills; and engaging applications.

#### INDICATOR

The materials provide intentional opportunities for students to develop procedural skills, especially where called for in specific content standards or clusters.

---

**Do the instructional materials develop procedural skills throughout the series?  
Do the instructional materials provide opportunities for students to independently demonstrate procedural skills throughout the series?**

---



#### 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 skills, and application. Procedural skills are the call for efficiency and accuracy in calculations. Students need to practice core skills in order to have access to more complex concepts and procedures.



#### EVIDENCE COLLECTION

- Review criterion 2b on page 9 of the [High School Publishers' Criteria for the Common Core State Standards for Mathematics \(Spring 2013\)](#).
- Select cluster(s) or standard(s) that specifically relate to procedural skills. Be aware that some cluster(s) and standard(s) lend themselves to more than one aspect of rigor. In such cases, look for evidence of procedural skills.

Examples include, but are not limited to:

CLUSTERS/STANDARDS THAT RELATE TO CONCEPTUAL UNDERSTANDING
<b>A-SSE.1b</b> – Interpret complicated expressions by viewing one or more of their parts as a single entity.
<b>A-SSE.2</b> – Use the structure of an expression to identify ways to rewrite it.
<b>A-APR.1</b> – Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.
<b>A-APR.6</b> – Rewrite simple rational expressions in different forms; write $a(x)/b(x)$ in the form $q(x) + r(x)/b(x)$ , where $a(x)$ , $b(x)$ , $q(x)$ , and $r(x)$ are polynomials with the degree of $r(x)$ less than the degree of $b(x)$ , using inspection, long division, or, for the more complicated examples, a computer algebra system.
<b>F-BF.3</b> – Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$ , $k f(x)$ , $f(kx)$ , and $f(x + k)$ for specific values of $k$ (both positive and negative); find the value of $k$ given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. Include recognizing even and odd functions from their graphs and algebraic expressions for them.
<b>G-GPE.4</b> – Use coordinates to prove simple geometric theorems algebraically.
<b>G-GPE.5</b> – Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).
<b>G-GPE.7</b> – Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.★
<b>G-SRT.5</b> – Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

- Look for the evidence in lessons, review lessons, routine daily checks, chapter and unit assessments, homework assignments, and other sections

demonstrating connections between the development of procedural skills with conceptual understanding.

- Evaluate whether aspects of rigor present in lessons/chapters/units align to the aspect of rigor in the targeted standard(s).
- Look for purely procedural problems and exercises that include cases in which opportunistic strategies are valuable, as well as generic cases that require efficient algorithms.
  - Example of problems when opportunistic strategies are valuable: solving the system  $x + y = 1$  and  $2x + 2y = 3$
  - Example of problems when generic cases require efficient algorithms: the system  $2x + 3y = -(1/2)x + 6 - y$  and  $2x + 5 = y + 2$
- Evidence must include specific examples from the instructional materials. If opportunities to develop procedural skills are missed, specifically list the clusters/standards/opportunities that are missed. Note whether the instructional materials include a specific section in units/chapters/lessons, etc. that are specifically designed for procedural skills. Include Unit, Lesson, Lesson Part and page numbers for reference for all examples.



### DISCUSSION POINTS FOR REVIEW TEAM MEETING

1. The Publishers' Criteria for high school states, "In higher grades, algebra is the language of much of mathematics. Like learning any language, we learn by using it." Do students have sufficient practice (algebraic or otherwise) in order to be adept/skilled with the operations of mathematics?
2. How do program materials build procedural skills over a course? Over a series?



### SCORING

**2 points**

The instructional materials develop procedural skills throughout the series.

The instructional materials provide opportunities to independently demonstrate procedural skills throughout the series.

<b>1 point</b>	<p>The instructional materials have missed opportunities to develop procedural skills throughout the series.</p> <p><b>OR</b></p> <p>The instructional materials do not provide students opportunities to independently demonstrate procedural skills throughout the series.</p>
<b>0 points</b>	<p>The instructional materials have no or few opportunities to develop procedural skills throughout the series.</p> <p>The instructional materials do not provide opportunities for students to independently demonstrate procedural skills.</p>

## ► GUIDANCE FOR **Indicator 2d**

### Balance

#### CRITERION

The instructional materials reflect the balances in the Standards and help students meet the Standards' rigorous expectations, by giving appropriate attention to: developing students' conceptual understanding; procedural skills; and engaging applications.

#### INDICATOR

The three aspects of rigor are not always treated together and are not always treated separately. The three aspects are balanced with respect to the Standards being addressed.

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### Do the instructional materials balance the three aspects of rigor?

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#### 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, program materials must include a balance of conceptual understanding, procedural skills, and application. This balance should be evident in all aspects of the high school series and in each course to support students as they develop mathematical understanding.



#### EVIDENCE COLLECTION

- Review lessons, chapter/unit assessments, and homework assignments.
- Look for individual lessons/topics, as well as complete units, that include more than one aspect of rigor.
- Look at resources that help define what balance means for mathematics.
  - [Video: "The Balance Between Skills and Understanding" \(The Hunt Institute\)](#)
  - [Video: "Mathematics Fluency: A Balanced Approach" \(The Hunt Institute\)](#)
  - [Reading: "Additional Aspects of the Rigor and Balance Criterion" \(Publishers' Criteria, p. 10\)](#)

- Look for a balance of all three 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 in the series simultaneously develop conceptual understandings and procedural skills.
- Be mindful of where students are encouraged to use multiple representations and written explanations to support their work in application problems.
- For this indicator, consider the intent of the series to balance the three aspects of rigor, not the quality of the materials—indicators 2a-c focus on the quality of rigor within the materials.
- Determine if the materials consistently balance the three aspects of rigor while allowing for dedicated focus on each individual aspect.
- Determine if the materials neglect to attend to all aspects of rigor specified by the standards or clusters.

Examples may include, but are not limited to:

- With A-APR.1, the materials fully develop students adding, subtracting, and multiplying polynomials, but the materials do not engage students in understanding that polynomials form a system closed under addition, subtraction, and multiplication.
- With A-REI.11, the materials have students find solutions to systems of equations through applications, but the materials do not have students develop conceptual understanding by explaining why the  $x$ -coordinates of the points where two graphs intersect are the solutions to setting the two equations equal to each other.
- Evidence must include explicit examples of where *more than one* aspect of rigor is present (can be two or three aspects, but does not have to include all three) **and** where only *one aspect* of rigor is present. Look for lessons that call out specific components of rigor, and lessons that focus on individual aspects of rigor.

NOTE: Evidence should be different than the evidence collected for 2a, 2b, and 2c.



### DISCUSSION POINTS FOR REVIEW TEAM MEETING

1. Do the materials intentionally focus on one aspect of rigor over the others in specific units? If so, do the materials work to maintain balance throughout the course?
2. Do the materials focus on one aspect of rigor over the others in a single course?
3. Do the materials neglect one aspect of rigor throughout a course?



### SCORING

**Note: Indicator 2d is not focused on the qualitative aspects of conceptual understanding (2a), procedural fluency and skills (2b), and application (2c). In Indicator 2d we are looking for evidence of the balance among these three aspects of rigor.**

<b>2 points</b>	<p>All three aspects of rigor are present independently throughout the program materials.</p> <p>Multiple aspects of rigor are engaged simultaneously to develop students' mathematical understanding of a single topic/unit of study throughout the materials.</p>
<b>1 point</b>	<p>All three aspects of rigor are present in program materials, but there is some over/under-emphasis of 1 of the 3.</p>
<b>0 points</b>	<p>No/minimal evidence is present of one of the three aspects of rigor in program materials.</p> <p>Program materials have an overwhelming emphasis on one aspect of rigor, with little attention paid to the other aspects.</p>



## ► GUIDANCE FOR **Indicator 2e**

**Practice-Content Connections: Overarching Habits of Mind (MP1, Make sense of problems and persevere in solving them, and MP6, Attend to precision)**

### CRITERION

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

### INDICATOR

The materials support the intentional development of overarching, mathematical practices (MPs 1 and 6), in connection to the high school content standards, as required by the Standards for Mathematical Practice.

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**Across the series, are MP1 and MP6 used to enrich the mathematical content?  
Across the series, is there intentional development of MP1 and MP6 that reaches the full intent of the MPs?**

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### WHAT IS THE PURPOSE OF THIS INDICATOR?

This indicator, along with 2f, 2g, and 2h, determines the adherence to the Standards for Mathematical Practice. This indicator specifically looks at MPs 1 and 6 which address overarching, mathematical practices. It assesses whether the provided opportunities for student engagement with the math practices are a) used to enrich the mathematics content of the courses and b) fully developed across the series to meet the level of expectation of high school mathematical study.



### EVIDENCE COLLECTION

- Look at all lessons in teacher’s manuals and in the student materials to ensure that MP1 and MP6 are occurring throughout the courses.
- Look in unit overviews, scope and sequence charts, and/or other instructional guides to ensure that MP1 and MP6 are occurring throughout the courses of the series.

- Record any instances where MP1 and MP6 are misleading in the curricular materials (e.g. a lesson is marked as aligned to an MP when only a small part addresses that, or vice versa).
- To check that MP1 and MP6 are being used to enrich the mathematics content and are fully developed to meet the level of expectation for high school:

Thoroughly reexamine the practice standards [MP1](#) and [MP6](#). [This compilation document](#) and [this Mathematical Practice Message](#) might be helpful.

Look at lessons, assessments and any examples/descriptions of anticipated student work. Look for places that require students to:

- analyze and make sense of problems
- find solution pathways
- engage in problem solving
- persevere in solving problems
- monitor and evaluate their progress in solving problems
- determine if their answers make sense
- reflect on and revise their problem solving strategies
- check their answers with different methods
- use accurate, precise mathematical language (vocabulary and conventions)
- specify units of measure
- state the meaning of symbols

Look at teacher directions and how teachers are guided to carry out the lessons. In particular, look for places where teachers are expected to:

- pose rich problems
- provide time for students to make sense of problems
- provide opportunities for students to engage in problem solving
- ask clarifying and probing questions
- ensure students know and use clear definitions
- model accurate, precise mathematical language (vocabulary and conventions)

- 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.
- Verify that student engagement with the lessons and assessments would require use of the Standards for Mathematical Practice so that across the series students will develop their use of the MPs to the full intent of the standards.
- Record any instances where a MP was identified, however, engagement with the lesson or task would only require minimal or trivial use of the indicated MP.
- If 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, but also look at places where they are not identified.**



### DISCUSSION POINTS FOR REVIEW TEAM MEETING

1. When do the MPs, when used by the students, enrich the mathematical content in an authentic way and ensure a progression through high school courses to the full intent of the MPs?
2. Do expectations for students increase throughout courses and the series?
3. Do the materials provide guidance to teachers in order to develop students’ skills identified in MP1 and MP6?



### SCORING

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**Note: If the instructional materials do not identify the MPs for teachers, evidence of this will be included in the criterion summary report for Practice-Content Connections, and the lack of identification of the MPs will be reflected in the scoring for indicator 2e only.**

---

**2 points**

The majority of the time MP1 and MP6 are used to enrich the mathematical content.

**AND**

	<p>Across the series, there is intentional development of MP1 and MP6 that reaches the full intent of the MPs. (Note: If the materials implement the full intent of the MPs from the beginning of the series, then the materials do not have to also include an intentional development of the MPs across the series.)</p>
<b>1 point</b>	<p>There are a few instances where MP1 and MP6 do not enrich the content.</p> <p><b>AND/OR</b></p> <p>The materials do not develop either MP1 or MP6 to the full intent of the standards.</p> <p><b>AND/OR</b></p> <p>There are many examples of misleading identifications.</p>
<b>0 points</b>	<p>MP1 and MP6 are not used to enrich the content.</p> <p><b>AND/OR</b></p> <p>The materials do not develop both MP1 and MP6 to the full intent of the standards.</p> <p><b>AND/OR</b></p> <p>MP1 and MP6 are regularly treated as separate from the mathematical content.</p>

## ► GUIDANCE FOR **Indicator 2f**

**Practice-Content Connections: Reasoning and Explaining (MP2, Reason abstractly and quantitatively, and MP3, Construct viable arguments and critique the reasoning of others)**

### CRITERION

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

### INDICATOR

The materials support the intentional development of reasoning and explaining (MPs 2 and 3), in connection to the high school content standards, as required by the Standards for Mathematical Practice.

---

**Across the series, are MP2 and MP3 used to enrich the mathematical content?  
Across the series, is there intentional development of MP2 and MP3 that reaches the full intent of the MPs?**

---



### WHAT IS THE PURPOSE OF THIS INDICATOR?

This indicator, along with 2e, 2g, and 2h, determines the adherence to the Standards for Mathematical Practice. This indicator specifically looks at MPs 2 and 3 which address practices of reasoning and explaining. It assesses whether the provided opportunities for student engagement with the math practices are a) used to enrich the mathematics content of the courses and b) fully developed across the series to meet the level of expectation of high school mathematical study.



### EVIDENCE COLLECTION

- Look at all lessons in teacher's manuals and in the student materials to ensure that MP2 and MP3 are occurring throughout the courses.
- Look in unit overviews, scope and sequence charts, and/or other instructional guides to ensure that MP2 and MP3 are occurring throughout the courses of the series.

- Record any instances where MP2 and MP3 are misleading in the curricular materials (e.g. a lesson is marked as aligned to an MP when only a small part addresses that, or vice versa).
- To check that MP2 and MP3 are being used to enrich the mathematics content and are fully developed to meet the level of expectation for high school:

Thoroughly reexamine the practice standards [MP2](#) and [MP3](#). [This compilation document](#) and [this Mathematical Practice Message](#) might be helpful.

Look at lessons, assessments and any examples/descriptions of anticipated student work. Look for places that require students to:

- represent situations symbolically
- consider units involved in a problem and attend to the meaning of quantities
- understand the relationships between problem scenarios and mathematical representations
- explain/discuss what the numbers or symbols in an expression/equation represent
- determine if their answers make sense
- explain/justify their reasoning
- create their own conjectures
- listen or read the arguments of others, decide whether they make sense, and ask useful questions to clarify or improve the arguments

Look at teacher directions and how teachers are guided to carry out the lessons. In particular, look for places where teachers are expected to:

- ensure students make connections between mathematical representations and scenarios
  - provide opportunities for students to engage in active mathematical discourse
  - ask clarifying and probing questions
- 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.

- Verify that student engagement with the lessons and assessments would require use of the Standards for Mathematical Practice so that across the series students will develop their use of the MPs to the full intent of the standards.
- Record any instances where an MP was identified, however, engagement with the lesson or task would only require minimal or trivial use of the indicated MP.
- 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 materials, but also look at places where they are not identified.** It may help to search for keywords like conjecture, explain, justify, discuss, analyze, ask, and clarify.



### DISCUSSION POINTS FOR REVIEW TEAM MEETING

1. When do the MPs, when used by the students, enrich the mathematical content in an authentic way and ensure a progression through high school courses to the full intent of the MPs?
2. Do expectations for students increase throughout courses and the series?
3. Do the materials provide guidance to teachers in order to develop students’ skills identified in MP2 and MP3?



### SCORING

#### 2 points

The majority of the time MP2 and MP3 are used to enrich the mathematical content.

#### **AND**

Across the series, there is intentional development of MP2 and MP3 that reaches the full intent of the MPs. (Note: If the materials implement the full intent of the MPs from the beginning of the series, then the materials do not have to also include an intentional development of the MPs across the series.)

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<b>1 point</b>	<p>There are a few instances where MP2 and MP3 do not enrich the content.</p> <p><b>AND/OR</b></p> <p>The materials do not develop either MP2 or MP3 to the full intent of the standards.</p> <p><b>AND/OR</b></p> <p>There are many examples of misleading identifications.</p>
<b>0 points</b>	<p>MP2 and MP3 are not used to enrich the content.</p> <p><b>AND/OR</b></p> <p>The materials do not develop both MP2 and MP3 to the full intent of the standards.</p> <p><b>AND/OR</b></p> <p>MP2 and MP3 are regularly treated as separate from the mathematics content.</p>

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## ► GUIDANCE FOR **Indicator 2g**

**Practice-Content Connections: Modeling and Using Tools (MP4, Model with mathematics, and MP5, Use appropriate tools strategically)**

### CRITERION

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

### INDICATOR

The materials support the intentional development of modeling and using tools (MPs 4 and 5), in connection to the high school content standards, as required by the Standards for Mathematical Practice.

---

**Across the series, are MP4 and MP5 used to enrich the mathematical content?  
Across the series, is there intentional development of MP4 and MP5 that reaches the full intent of the MPs?**

---



### WHAT IS THE PURPOSE OF THIS INDICATOR?

This indicator, along with 2e, 2f, and 2h, determines the adherence to the Standards for Mathematical Practice. This indicator specifically looks at MPs 4 and 5 which address mathematical modeling and use of appropriate tools. It assesses whether the provided opportunities for student engagement with the math practices are a) used to enrich the mathematics content of the courses and b) fully developed across the series to meet the level of expectation of high school mathematical study.



## EVIDENCE COLLECTION

- Look at all lessons in teacher’s manuals and in the student materials to ensure that MP4 and MP5 are occurring throughout the courses.
- Look in unit overviews, scope and sequence charts, and/or other instructional guides to ensure that MP4 and MP5 are occurring throughout the courses of the series.
- Record any instances where MP4 and MP5 are misleading in the curricular materials (e.g. a lesson is marked as aligned to an MP when only a small part addresses that, or vice versa).
- To check that MP4 and MP5 are being used to enrich the mathematics content and are fully developed to meet the level of expectation for high school:

Thoroughly reexamine the practice standards [MP4](#) and [MP5](#). [This compilation document](#) and [this Mathematical Practice Message](#) might be helpful.

Look at lessons, assessments and any examples/descriptions of anticipated student work. Look for places that require students to:

- engage in the modeling cycle
- apply prior knowledge to new problems
- identify important relationships and map relationships with tables, diagrams, graphs, rules, etc.
- draw conclusions from solutions as they pertain to a situation
- ***choose appropriate tools***
- use multiple tools to represent information in a situation
- create and use models to represent

\*also consider whether the materials encourage opportunities for students to use technological tools to explore and deepen their understanding of concepts

Look at teacher directions and how teachers are guided to carry out the lessons. In particular, look for places where teachers are expected to:

- Pose problems connected to previous concepts
- Provide a variety of real world contexts
- Provide meaningful, real-world, authentic performance tasks
- Promote discourse and investigation
- Make a variety of tools available

- Model tools effectively, including their benefits and limitations
- Encourage the use of multiple tools for communication, calculation, investigation, sense-making, etc.
- 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.
- Verify that student engagement with the lessons and assessments would require use of the Standards for Mathematical Practice so that across the series students will develop their use of the MPs to the full intent of the standards.
- Record any instances where an MP was identified, however, engagement with the lesson or task would only require minimal or trivial use of the indicated MP.
- 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 materials, but also look at places where they are not identified.**



### DISCUSSION POINTS FOR REVIEW TEAM MEETING

1. When do the MPs, when used by the students, enrich the mathematical content in an authentic way and ensure a progression through high school courses to the full intent of the MPs?
2. Do expectations for students increase throughout courses and the series?
3. Do the materials provide guidance to teachers in order to develop students’ skills identified in MP4 and MP5?



### SCORING

**2 points**

The majority of the time MP4 and MP5 are used to enrich the mathematical content.

**AND**

	<p>Across the series, there is intentional development of MP4 and MP5 that reaches the full intent of the MPs. (Note: If the materials implement the full intent of the MPs from the beginning of the series, then the materials do not have to also include an intentional development of the MPs across the series.)</p>
<b>1 point</b>	<p>There are a few instances where MP4 and MP5 do not enrich the content.</p> <p><b>AND/OR</b></p> <p>The materials do not develop either MP4 or MP5 to the full intent of the standards.</p> <p><b>AND/OR</b></p> <p>There are many examples of misleading identifications.</p>
<b>0 points</b>	<p>MP4 and MP5 are not used to enrich the content.</p> <p><b>AND/OR</b></p> <p>The materials do not develop both MP4 and MP5 to the full intent of the standards.</p> <p><b>AND/OR</b></p> <p>MP4 and MP5 are regularly treated as separate from the mathematics content.</p>

## ► GUIDANCE FOR **Indicator 2h**

**Practice-Content Connections: Seeing Structure and Generalizing (MP7, Look for and make use of structure, and MP8, Look for and express regularity in repeated reasoning)**

### CRITERION

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

### INDICATOR

The materials support the intentional development of seeing structure and generalizing (MPs 7 and 8), in connection to the high school content standards, as required by the Standards for Mathematical Practice.

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**Across the series, are MP7 and MP8 used to enrich the mathematical content?  
Across the series, is there intentional development of MP7 and MP8 that reaches the full intent of the MPs?**

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### WHAT IS THE PURPOSE OF THIS INDICATOR?

This indicator, along with 2e, 2f, and 2g, determines the adherence to the Standards for Mathematical Practice. This indicator specifically looks at MPs 7 and 8 which support the intentional development of seeing structure and generalizing. It assesses whether the provided opportunities for student engagement with the math practices are a) used to enrich the mathematics content of the courses and b) fully developed across the series to meet the level of expectation of high school mathematical study.



### EVIDENCE COLLECTION

- Look at all lessons in teacher's manuals and in the student materials to ensure that MP7 and MP8 are occurring throughout the courses.
- Look in unit overviews, scope and sequence charts, and/or other instructional guides to ensure that MP7 and MP8 are occurring throughout the courses of the series.

- Record any instances where MP7 and MP8 are misleading in the curricular materials (e.g. a lesson is marked as aligned to an MP when only a small part addresses that, or vice versa).
- To check that MP7 and MP8 are being used to enrich the mathematics content and are fully developed to meet the level of expectation for high school:

Thoroughly reexamine the practice standards [MP7](#) and [MP8](#). [This compilation document](#) and [this Mathematical Practice Message](#) might be helpful.

Look at lessons, assessments and any examples/descriptions of anticipated student work. Look for places that require students to:

- Look for patterns and make generalizations.
- Look and explain the structure of expressions.
- Look at and decompose “complicated” into “simpler” things. E.g. seeing  $\sin^2x + 2\sin x + 1$  as  $u^2 + 2u + 1$ .
- Analyze a problem and look for more than one approach.
- Look for shortcuts and general methods when calculations/processes are repeated.
- Describe a general formula, process, or algorithm.

Look at teacher directions and how teachers are guided to carry out the lessons. In particular, look for places where teachers are expected to:

- Provide tasks/problems with patterns.
  - Prompt students to look for structure and patterns.
  - Prompt students to describe what they see in the structure/pattern. E.g. Ask a student to explain how his/her expression “ $4n + 1$ ” can be seen in the tile pattern.
  - Provide time for students to look for patterns, structure, shortcuts, generalizations, etc.
  - Ask probing questions like “Does that always work?” or “Why does that work?”
- 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.

- Verify that student engagement with the lessons and assessments would require use of the Standards for Mathematical Practice so that across the series students will develop their use of the MPs to the full intent of the standards.
- Record any instances where an MP was identified, however, engagement with the lesson or task would only require minimal or trivial use of the indicated MP.
- 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 materials, but also look at places where they are not identified.**



### DISCUSSION POINTS FOR REVIEW TEAM MEETING

1. When do the MPs, when used by the students, enrich the mathematical content in an authentic way and ensure a progression through high school courses to the full intent of the MPs?
2. Do expectations for students increase throughout courses and the series?
3. Do the materials provide guidance to teachers in order to develop students’ skills identified in MP7 and MP8?



### SCORING

#### 2 points

The majority of the time MP7 and MP8 are used to enrich the mathematical content.

#### AND

Across the series, there is intentional development of MP7 and MP8 that reaches the full intent of the MPs. (Note: If the materials implement the full intent of the MPs from the beginning of the series, then the materials do not have to also include an intentional development of the MPs across the series.)

#### 1 point

There are a few instances where MP7 and MP8 do not enrich the content.

#### AND/OR

	<p>The materials do not develop either MP7 or MP8 to the full intent of the standards.</p> <p><b>AND/OR</b></p> <p>There are many examples of misleading identifications.</p>
<b>0 points</b>	<p>MP7 and MP8 are not used to enrich the content.</p> <p><b>AND/OR</b></p> <p>The materials do not develop both MP7 and MP8 to the full intent of the standards.</p> <p><b>AND/OR</b></p> <p>MP7 and MP8 are regularly treated as separate from the mathematics content.</p>



If materials meet minimum criteria for Gateways 1 and 2, then reviewers can proceed to Indicator 3a-3ad.

## Gateway 3

- Indicators 3a-3ei: Use and Design Facilitate Student Learning
- Indicators 3f-3l: Teacher Planning and Learning for Success with MS CCR
- Indicators 3m-3q: Assessment
- Indicators 3r-3y: Differentiated Instruction
- Indicators 3z-3ad: Effective Technology Use
- Indicators 3e-3ah: Supplemental Materials

## ► GUIDANCE FOR **Indicator 3a**

### Use and Design Facilitate Learning

#### CRITERION

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

#### INDICATOR

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.



#### EVIDENCE COLLECTION

- Do the practice pages allow students to utilize the new mathematics in order to further develop their knowledge of the content?
- Do problems and exercises have a purpose toward developing the new content of the lesson?
- Are there any instances of new mathematics in the “exercises” that was not part of the “problems”?
- How do the materials distinguish between problems and exercises? Note the terminology.



#### SCORING

##### 2 points

Materials distinguish between problems and exercises within each lesson.

##### **AND**

All, or most, problems or exercises have a purpose.

<b>1 point</b>	Distinguishing between problems and exercises within lessons is confusing or difficult.  <b>OR</b>  There are some instances of problems or exercises not serving a purpose within lessons.
<b>0 points</b>	It is not possible to distinguish between problems and exercises within lessons.  <b>AND/OR</b>  Many instances exist of problems or exercises not serving a purpose within lessons.

## ► GUIDANCE FOR **Indicator 3b**

### Use and Design Facilitate Learning

#### CRITERION

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

#### INDICATOR

Design of assignments is not haphazard: tasks are given in intentional sequences.



#### EVIDENCE COLLECTION

- Is there a natural progression within student assignments leading to full understanding and mastery of new mathematics? Note any instances of unnatural sequencing within student assignments.
- Are tasks presented in an intentional sequence?
- Are there any instances where the sequencing of assignments is haphazard in development, i.e. abstract before concrete, unnatural flow of material, etc.?



#### SCORING

<b>2 points</b>	Exercises within student assignments are intentionally sequenced to build understanding and knowledge.
<b>1 point</b>	There are some exercises within the student assignments that are not intentionally sequenced to build understanding and knowledge.
<b>0 points</b>	There are many exercises within the student assignments that are not intentionally sequenced to build understanding and knowledge.

## ► GUIDANCE FOR **Indicator 3c**

### Use and Design Facilitate Learning

#### CRITERION

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

#### INDICATOR

There is variety in how students are asked to present the mathematics. For example, students are asked to produce answers and solutions, but also, arguments and explanations, diagrams, mathematical models, etc.



#### EVIDENCE COLLECTION

- Are students asked to produce many types of answers throughout the materials, including, but not limited to: produce models, practice fluency, create arguments, justify their answers, attend to mathematical practices, and make real-world connections?



#### SCORING

<b>2 points</b>	There is a variety in how students present the mathematics.
<b>1 point</b>	There is some variety in how students present the mathematics.
<b>0 points</b>	There is little to no variety in how students present the mathematics.

## GUIDANCE FOR **Indicator 3d**

### Use and Design Facilitate Learning

#### CRITERION

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

#### INDICATOR

Manipulatives, both virtual and physical, are faithful representations of the mathematical objects they represent, and when appropriate, are connected to written methods.



#### EVIDENCE COLLECTION

- Are the manipulatives consistent representations of the mathematical objects?
- Are the manipulatives connected to written methods, when appropriate?



#### SCORING

<b>2 points</b>	<p>Manipulatives are faithful representations of the mathematical objects.</p> <p><b>AND</b></p> <p>Manipulatives are connected to written methods, when appropriate.</p>
<b>1 point</b>	<p>Manipulatives are not consistently faithful representations of the mathematical objects.</p> <p><b>OR</b></p> <p>Manipulatives are not consistently connected to written methods, when appropriate.</p>
<b>0 points</b>	<p>Manipulatives do not accurately represent the mathematical objects.</p> <p><b>AND/OR</b></p> <p>Manipulatives are not connected to written methods.</p>

**GUIDANCE FOR Indicator 3e****Use and Design Facilitate Learning****CRITERION**

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

**INDICATOR**

The visual design (whether in print or digital) is not distracting or chaotic, but supports students in engaging thoughtfully with the subject.

**EVIDENCE COLLECTION**

- Do the materials maintain a consistent layout for each lesson?
- Are the pictures and models supportive of student learning and engagement without being visually distracting?

**SCORING**

No score is given for indicator 3e (visual design). Only qualitative evidence is provided.

## ► GUIDANCE FOR **Indicator 3ei**

### Use and Design Facilitate Learning

#### CRITERION

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

#### INDICATOR

The materials incorporate a glossary, footnotes, recording, pictures, and/or other features that aid students and teachers in using the book effectively.

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### Do the materials attend to the specialized language of Mathematics?

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#### EVIDENCE COLLECTION

- Is there a glossary? How is it accessed?
- What additional features are available to help students and teachers use these materials?

Note: The usability of materials is included in Gateway 3 and provides evidence on Teacher Planning for Success with Mississippi College and Career Readiness Standards; Assessment; Differentiation, Scaffolding and Support for all Learners; and Effective Use of Technology.



#### SCORING

No score is given for indicator 3ei. Only qualitative evidence is provided.



## ► GUIDANCE FOR **Indicator 3f**

### Teacher Planning and Learning for Success with MS CCR

**CRITERION** Materials support teacher learning and understanding of the Standards.

**INDICATOR** Materials support teachers in planning and providing effective learning experiences by providing quality questions to help guide students' mathematical development.



#### EVIDENCE COLLECTION

- Are there any overview sections and/or annotations that contain questions to help teachers' guide students' mathematical development?
- Are questions provided for teachers clearly identified in the materials?
- Are the questions provided to teachers designed to elicit students' mathematical understanding?
- Do the questions provided support teachers in planning learning experiences that focus on mathematical understanding?



#### SCORING

<b>2 points</b>	Questions are consistently provided to teachers to help guide students' mathematical development.
<b>1 point</b>	Questions are occasionally provided to teachers to help guide students' mathematical development.
<b>0 points</b>	Questions are never, or rarely, provided to teachers to help guide students' mathematical development.

## GUIDANCE FOR **Indicator 3g**

### Teacher Planning and Learning for Success with MS CCR

#### CRITERION

Materials support teacher learning and understanding of the Standards.

#### INDICATOR

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.



#### EVIDENCE COLLECTION

- Is the guidance provided by the teachers' materials useful for presenting the content in the student edition and ancillary documents?
- Are there overview sections and/or annotations about the math content and/or ancillary documents that will assist the teacher in presenting the content in the student material?
- If technology is embedded, is there guidance for the teacher on the use of the technology to support and enhance student learning?



#### SCORING

##### 2 points

Materials contain ample annotations/suggestions on how to present the content in the student edition and ancillary materials.

##### **AND**

Annotations/suggestions provided for teachers are useful to present the content in the student edition and ancillary materials.

##### 1 point

Materials contain ample annotations/suggestions on how to present the content in the student edition and ancillary materials.

##### **OR**

Annotations/suggestions provided for teachers are useful to present the content in the student edition and ancillary materials.

**0 points**

Materials do not contain ample annotations/suggestions on how to present the content in the student edition and ancillary documents.

**AND**

Annotations/suggestions provided for teachers are not useful to present the content in the student edition and ancillary documents.

## GUIDANCE FOR **Indicator 3h**

### Teacher Planning and Learning for Success with MS CCR

#### CRITERION

Materials support teacher learning and understanding of the Standards.

#### INDICATOR

Materials contain a teacher's edition that contains full, adult-level explanations and examples of the more advanced mathematics concepts and the mathematical practices so that teachers can improve their own knowledge of the subject, as necessary.



#### EVIDENCE COLLECTION

- Do the materials include explanations and examples of the course level mathematics for the teacher that are not designed to be used with students?
- Do the materials include explanations and examples that build the teacher's understanding of the mathematics?
- Do the materials include explanations and examples of mathematical concepts appropriate for teachers that extend beyond the current course?



#### SCORING

##### 2 points

The materials include explanations and examples of the course level mathematics specifically for teachers that can improve their own knowledge of the subject.

##### **AND**

The materials include explanations and examples appropriate for teachers of advanced mathematics concepts that extend beyond the current course that can improve their own knowledge of the subject.

##### 1 point

The materials include some explanations and examples of the course level mathematics specifically for teachers that can improve their own knowledge of the subject.

##### **AND/OR**

	<p>The materials include some explanations and examples appropriate for teachers of advanced mathematics concepts that extend beyond the current course that can improve their own knowledge of the subject.</p>
<b>0 points</b>	<p>The materials do not include explanations and examples of the course level mathematics specifically for teachers that can improve their own knowledge of the subject.</p> <p><b>AND</b></p> <p>The materials do not include explanations and examples appropriate for teachers of advanced mathematics concepts that extend beyond the current course that can improve their own knowledge of the subject.</p>

## ► GUIDANCE FOR **Indicator 3i**

### Teacher Planning and Learning for Success with MS CCR

**CRITERION** Materials support teacher learning and understanding of the Standards.

**INDICATOR** Materials contain a teacher’s edition that explains the role of the specific mathematics standards in the context of the overall series.



#### EVIDENCE COLLECTION

- Do the instructional materials provide information that explains the progression of the content within the course, and connections to prior and future courses?
- Is it clear to the teacher how the specific mathematics standards connect to other standards within the series?



#### SCORING

<b>2 points</b>	The materials explain the role of the specific mathematics Standards in the context of the overall series.
<b>1 point</b>	The materials provide information on the role of specific mathematics standards in the context of the overall series, but the explanations are general and do not assist teachers in understanding the role of the specific course-level mathematics in the context of the series.
<b>0 points</b>	The materials rarely or do not explain the role of the specific mathematics standards in the context of the overall series.

**GUIDANCE FOR Indicator 3j****Teacher Planning and Learning for Success with MS CCR****CRITERION**

Materials support teacher learning and understanding of the Standards.

**INDICATOR**

Materials provide a list of lessons in the teacher's edition, cross-referencing the Standards addressed and providing an estimated instructional time for each lesson, chapter and unit (i.e., pacing guide).

**EVIDENCE COLLECTION**

- Is there clear documentation that aligns standards to lessons/chapters/units?
- Is there clear documentation that provides estimated instructional time for lessons/chapters/units?

**SCORING**

No score is given for indicator 3j. Only qualitative evidence is provided.

**GUIDANCE FOR Indicator 3k****Teacher Planning and Learning for Success with MS CCR****CRITERION**

Materials support teacher learning and understanding of the Standards.

**INDICATOR**

Materials contain strategies for informing students, parents, or caregivers about the mathematics program and suggestions for how they can help support student progress and achievement.

**EVIDENCE COLLECTION**

- Do the materials provide strategies for informing students, parents, or caregivers about the mathematics program?
- Do the materials provide suggestions for how parents or caregivers can help support student progress and achievement?

**SCORING**

No score is given for indicator 3k. Only qualitative evidence is provided.



**GUIDANCE FOR Indicator 3I****Teacher Planning and Learning for Success with MS CCR****CRITERION**

Materials support teacher learning and understanding of the Standards.

**INDICATOR**

Materials contain explanations of the instructional approaches of the program and identification of the research-based strategies.

**EVIDENCE COLLECTION**

- Do the materials include research-based strategies? Are these strategies identified?
- Do the materials contain explanations of the instructional approaches for the program?

**SCORING**

No score is given for indicator 3I. Only qualitative evidence is provided.

## GUIDANCE FOR **Indicator 3m**

### Assessments

#### CRITERION

Materials support teacher learning and understanding of the Standards.

#### INDICATOR

Materials provide strategies for gathering information about students' prior knowledge within and across courses.



#### EVIDENCE COLLECTION

- Do the materials provide strategies for gathering information about students' prior knowledge within courses?
- Do the materials provide strategies for gathering information about students' prior knowledge across courses?
- What are the ways in which the materials assess prior knowledge?



#### SCORING

##### 2 points

The materials provide strategies for gathering information about students' prior knowledge within courses.

**AND**

The materials provide strategies for gathering information about students' prior knowledge across courses.

##### 1 point

The materials provide strategies for gathering information about students' prior knowledge within courses.

**OR**

The materials provide strategies for gathering information about students' prior knowledge across courses.

##### 0 points

The materials do not provide strategies for gathering information about students' prior knowledge within courses.

**AND**

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The materials do not provide strategies for gathering information about students' prior knowledge across courses.

---

## GUIDANCE FOR **Indicator 3n**

### Assessments

#### CRITERION

Materials support teacher learning and understanding of the Standards.

#### INDICATOR

Materials provide support for teachers to identify and address common student errors and misconceptions.



#### EVIDENCE COLLECTION

- Do materials highlight common student errors and/or misconceptions? How?
- Do materials provide strategies for addressing student errors and/or misconceptions? How?
- Are the strategies for addressing students' errors and misconceptions mathematically sound (e.g. does not rely on "tricks")?
- Do materials provide opportunities for teachers to have mathematical conversations to address student errors and misconceptions?



#### SCORING

##### 2 points

Materials highlight common student errors and/or misconceptions for teachers.

##### **AND**

Materials provide strategies to teachers that are mathematically sound for addressing common student errors and/or misconceptions.

<b>1 point</b>	<p>Materials highlight some common student errors and/or misconceptions for teachers.</p> <p><b>AND/OR</b></p> <p>Materials provide some strategies to teachers that are mathematically sound for addressing common student errors and/or misconceptions.</p>
<b>0 points</b>	<p>Materials do not highlight common student errors and/or misconceptions for teachers.</p> <p><b>AND</b></p> <p>Materials provide strategies to teachers that are not mathematically sound for addressing common student errors and/or misconceptions.</p>

## GUIDANCE FOR **Indicator 3o**

### Assessments

#### CRITERION

Materials support teacher learning and understanding of the Standards.

#### INDICATOR

Materials provide support for ongoing review and practice, with feedback, for students in learning both concepts and skills.



#### EVIDENCE COLLECTION

- Do the materials provide ongoing review and practice, with feedback?  
How?
- Do the materials provide feedback that addresses both skills and concepts?  
How?
- Do the materials provide multiple strategies for teachers to provide feedback?



#### SCORING

##### 2 points

Materials provide support for ongoing review and practice for students in learning concepts.

**AND**

Materials provide support for ongoing review and practice for students in learning skills.

**AND**

Materials provide support for teachers to provide feedback.

##### 1 point

Materials do not provide support for ongoing review and practice for students in learning concepts.

**OR**

Materials do not provide support for ongoing review and practice for students in learning skills.

**OR**

	Materials do not provide support for teachers to provide feedback.
<b>0 points</b>	<p>Materials do not provide support for ongoing review and practice for students in learning concepts.</p> <p><b>AND</b></p> <p>Materials do not provide support for ongoing review and practice for students in learning skills.</p> <p><b>AND</b></p> <p>Materials do not provide support for teachers to provide feedback.</p>

## GUIDANCE FOR **Indicator 3pi**

### Assessments

#### CRITERION

Materials support teacher learning and understanding of the Standards.

#### INDICATOR

Materials offer ongoing assessments:

- i. Assessments clearly denote which Standards are being emphasized.

---

**Do materials denote what Standard is being assessed by each item?**

---



#### EVIDENCE COLLECTION

- Do assessments clearly denote which Standards are being assessed?
- Are Standards denoted on the unit level, test level, and/or question level?



#### SCORING

<b>2 points</b>	Materials clearly denote specific Standards assessed for each question and/or each assessment.
<b>1 point</b>	Materials denote which Standards could be assessed by an assessment but do not specifically identify Standards for each question and/or each assessment.
<b>0 points</b>	Materials do not denote which Standards are being assessed.



## ► GUIDANCE FOR **Indicator 3pii**

### Assessments

#### CRITERION

Materials support teacher learning and understanding of the Standards.

#### INDICATOR

Materials offer ongoing assessments:

- ii. Assessments provide sufficient guidance to teachers for interpreting student performance and suggestions for follow-up.

---

**Do materials denote what Standard is being assessed by each item?**

---



#### EVIDENCE COLLECTION

- Do assessments provide sufficient guidance for the teacher to interpret student performance?
- Do assessments provide follow-up steps/suggestions for the teacher?



#### SCORING

##### 2 points

Materials include sufficient guidance for teachers to interpret student performance.

**AND**

Materials provide suggestions for follow-up.

##### 1 point

Materials include some guidance for teachers to interpret student performance.

**AND/OR**

Materials provide some suggestions for follow-up.

**0 points**

Materials do not include sufficient guidance for teachers to interpret student performance.

**AND**

Materials do not provide suggestions for follow-up.

## ► GUIDANCE FOR **Indicator 3piii**

### Assessments

#### CRITERION

Materials support teacher learning and understanding of the Standards.

#### INDICATOR

Materials offer ongoing assessments:

- iii. The assessment materials include embedded assessments that reflect a variety of knowledge levels.

**NOTE:** *This is a Mississippi High Quality Instructional Materials Mathematics Review Rubric specific indicator that will be scored by Mississippi reviewers as part of the review process.*

**Do materials include assessments that reflect a variety of knowledge levels?**



#### EVIDENCE COLLECTION

- Do materials assign a knowledge level (i.e. Depth of Knowledge (DOK), easy/ grade-level/ advanced) to assessment items?
- Are there a range of knowledge levels within a given assessment?



#### SCORING

No score is given for indicator 3piii. Only qualitative evidence is provided.

## ► GUIDANCE FOR **Indicator 3piv**

### Assessments

#### CRITERION

Materials support teacher learning and understanding of the Standards.

#### INDICATOR

Materials offer ongoing assessments:

- iv. Multiple types of formative and summative assessments (performance-based tasks, questions, research, investigations, and projects) are embedded into the content materials and assess the learning targets.

**NOTE:** *This is a Mississippi High Quality Instructional Materials Mathematics Review Rubric specific indicator that will be scored by Mississippi reviewers as part of the review process.*

**Do materials include multiple types of formative and summative assessments?**



#### EVIDENCE COLLECTION

- Are there a variety of item types embedded in assessments?
- Do all students engage in multiple item types?



#### SCORING

No score is given for indicator 3piv. Only qualitative evidence is provided.

**GUIDANCE FOR Indicator 3q****Assessments****CRITERION**

Materials support teacher learning and understanding of the Standards.

**INDICATOR**

Materials encourage students to monitor their own progress.

**EVIDENCE COLLECTION**

- Do materials encourage students to monitor their own progress? How?

**SCORING**

No score is given for indicator 3q. Only qualitative evidence is provided.

## ► GUIDANCE FOR **Indicator 3r**

### Differentiated Instruction

#### CRITERION

Materials support teachers in differentiating instruction for diverse learners within and across courses.

#### INDICATOR

Materials provide teachers with strategies to help sequence or scaffold lessons so that the content is accessible to all learners.



#### EVIDENCE COLLECTION

- What strategies or materials are provided for sequencing instruction? How are strategies presented?
- What strategies or materials are provided for scaffolding instruction? How are scaffolds presented?



#### SCORING

<b>2 points</b>	The materials provide specific strategies to sequence or scaffold lessons for all learners.
<b>1 point</b>	The materials provide some strategies to sequence or scaffold lessons.  <b>OR</b> Some general statements about sequencing or scaffolding are provided.
<b>0 points</b>	The materials do not provide strategies to sequence or scaffold lessons.  No general statements about sequencing or scaffolding are provided.

## ► GUIDANCE FOR **Indicator 3s**

### Differentiated Instruction

#### CRITERION

Materials support teachers in differentiating instruction for diverse learners within and across courses.

#### INDICATOR

Materials provide teachers with strategies for meeting the needs of a range of learners.



#### EVIDENCE COLLECTION

- What strategies are provided for the teacher to meet the needs of a wide range of learners? How are the strategies presented?
- For which type of learner are specific strategies provided?



#### SCORING

<b>2 points</b>	Specific strategies for teachers to meet the needs of all learners are included.
<b>1 point</b>	The materials provide some strategies for teachers to meet the needs of all learners.  <b>OR</b> Some general statements for the teacher about meeting the needs of all learners are included.
<b>0 points</b>	The materials do not provide strategies for teachers to meet the needs of all learners.  <b>AND</b> No general statements for the teacher about meeting the needs of all learners are included.

## GUIDANCE FOR **Indicator 3t**

### Differentiated Instruction

#### CRITERION

Materials support teachers in differentiating instruction for diverse learners within and across courses.

#### INDICATOR

Materials embed tasks with multiple entry-points that can be solved using a variety of solution strategies or representations.



#### EVIDENCE COLLECTION

- Do materials include tasks with multiple entry-points? If so, provide examples.
- Do materials include tasks that can be solved using a variety of solution strategies or representations? If so, provide examples.
- How often do the materials include tasks with multiple entry points?
- What guidance is provided to the teacher to encourage students to solve tasks with a variety of strategies or representations?



#### SCORING

<b>2 points</b>	Teachers are provided guidance to help students solve problems with multiple entry points and problems with multiple solutions or representations consistently throughout the instructional materials.
<b>1 point</b>	Teachers are provided guidance to help students solve problems with multiple entry points <u>or</u> problems with multiple solutions or representations throughout the instructional materials.  <b>OR</b> Teachers are inconsistently provided with guidance to help students solve problems with multiple entry points and problems with multiple solutions or representations in the instructional materials.
<b>0 points</b>	Teachers are provided with little or no guidance to help students solve problems with multiple entry points or problems with multiple solutions or representations.



## GUIDANCE FOR **Indicator 3u**

### Differentiated Instruction

#### CRITERION

Materials support teachers in differentiating instruction for diverse learners within and across courses.

#### INDICATOR

Materials provide 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).



#### EVIDENCE COLLECTION

- What specific strategies for support, accommodations, and/or modifications within the lesson or the problems are provided for the teacher?
- How frequent is teacher guidance provided such that ELL and other special populations can regularly and actively participate in learning mathematics?
- For which type of learner are specific strategies provided (ELL, other special populations)?



#### SCORING

<b>2 points</b>	Materials include teacher guidance to provide support for ELL students and other special populations.
<b>1 point</b>	Materials include teacher guidance to provide some support for ELL students and other special populations.  <b>OR</b> Some general statements about ELL students and other special populations are provided.
<b>0 points</b>	Materials include little, if any, teacher guidance to provide support for ELL students and other special populations.

## ► GUIDANCE FOR **Indicator 3v**

### Differentiated Instruction

#### CRITERION

Materials support teachers in differentiating instruction for diverse learners within and across courses.

#### INDICATOR

Materials provide support for advanced students to investigate mathematics content at greater depth.

**Do materials provide opportunities for advanced students to investigate mathematics content at greater depth?**



#### EVIDENCE COLLECTION

- What specific guidance is provided for teachers to support advanced students to investigate mathematics content at greater depth?
- Are there examples of advanced students working at a greater depth with a Standard—not just more problems or problems from higher-level courses?



#### SCORING

##### 2 points

Materials provide multiple opportunities for advanced students to investigate the course-level mathematics at a greater depth.

There are no instances of advanced students simply doing more problems than their classmates.

##### 1 point

Materials provide some opportunities for advanced students to investigate the course-level mathematics at a greater depth.

Materials provide course level problems — problems are not at a greater depth for advanced students.

There are some instances of advanced students simply doing more problems than their classmates.

**0 points**

Materials provide very few, if any, opportunities for advanced students to investigate the course-level mathematics at a greater depth.

There are many instances of advanced students simply doing more problems than their classmates.

**GUIDANCE FOR Indicator 3w****Differentiated Instruction****CRITERION**

Materials support teachers in differentiating instruction for diverse learners within and across courses.

**INDICATOR**

Materials provide a balanced portrayal of various demographic and personal characteristics.

**EVIDENCE COLLECTION**

- Collect examples of various demographic and personal characteristics throughout the chapters.
- How do the materials balance demographics and personal characteristics?

**SCORING**

No score is given for indicator 3w. Only qualitative evidence is provided.

**GUIDANCE FOR Indicator 3x****Differentiated Instruction****CRITERION**

Materials support teachers in differentiating instruction for diverse learners within and across courses.

**INDICATOR**

Materials provide opportunities for teachers to use a variety of grouping strategies.

**EVIDENCE COLLECTION**

- Provide examples of the grouping strategies and ways the materials provide for interaction among students.

**SCORING**

No score is given for indicator 3x. Only qualitative evidence is provided.

**GUIDANCE FOR Indicator 3y****Differentiated Instruction****CRITERION**

Materials support teachers in differentiating instruction for diverse learners within and across courses.

**INDICATOR**

Materials encourage teachers to draw upon home language and culture to facilitate learning.

**EVIDENCE COLLECTION**

- 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.

**SCORING**

No score is given for indicator 3y. Only qualitative evidence is provided.

**GUIDANCE FOR Indicator 3z****Effective Technology Use****CRITERION**

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

**INDICATOR**

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

**EVIDENCE COLLECTION**

- Are videos, virtual manipulatives, interactive tools, and/or games available to students?
- How do the materials use technology to engage students in “doing” mathematics?
- Do the materials use technology to engage students in content standards and Standards for Mathematical Practices?

**SCORING**

No score is given for indicator 3z. Only qualitative evidence is provided.

**GUIDANCE FOR Indicator 3aa****Effective Technology Use****CRITERION**

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

**INDICATOR**

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.

**EVIDENCE COLLECTION**

- Are any instructional technology resources web-based and compatible with multiple Internet browsers?
- Are materials platform neutral (accessible on any platform, for example Windows and Apple)?
- Do student resources (including assistive technology for students with disabilities) work on mobile devices as well as PCs?

**SCORING**

No score is given for indicator 3aa. Only qualitative evidence is provided.



## ► GUIDANCE FOR **Indicator 3ab**

### Effective Technology Use

#### CRITERION

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

#### INDICATOR

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



#### EVIDENCE COLLECTION

- Are online assessments available? If so, what kind of assessments are used? (For example, computer adaptive testing, fixed form, etc.)?
- Are teachers able to create their own assessments?
- Do assessment items assess both mathematical understanding and procedural skill/fluency? How?



#### SCORING

No score is given for indicator 3ab. Only qualitative evidence is provided.

**GUIDANCE FOR Indicator 3aci****Effective Technology Use****CRITERION**

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

**INDICATOR**

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.

**EVIDENCE COLLECTION**

- Are teachers able to manipulate or construct learning experiences for students?
- Do digital materials include adaptive or other technological innovations for teachers to personalize learning for students?
- Can digital materials be differentiated based on individual students' needs?

**SCORING**

No score is given for indicator 3aci. Only qualitative evidence is provided.

**GUIDANCE FOR Indicator 3acii****Effective Technology Use****CRITERION**

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

**INDICATOR**

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

**EVIDENCE COLLECTION**

- Are teachers able to customize digital materials for local use (student and/or community interests)?

**SCORING**

No score is given for indicator 3acii. Only qualitative evidence is provided.

**GUIDANCE FOR Indicator 3ad****Effective Technology Use****CRITERION**

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

**INDICATOR**

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

**EVIDENCE COLLECTION**

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

**SCORING**

No score is given for indicator 3ad. Only qualitative evidence is provided.

## ► GUIDANCE FOR **Indicator 3ae**

### Supplemental Materials

#### CRITERION

Supplemental materials reinforce core instruction and provide ample and a variety of resources to support student learning.

#### INDICATOR

Supplemental materials employ a variety of reading levels and is grade/level appropriate.

**NOTE:** *This is a Mississippi High Quality Instructional Materials Mathematics Review Rubric specific indicator that will be scored by Mississippi reviewers as part of the review process.*

**Do supplemental materials use a variety of reading levels that are grade-level appropriate?**



#### EVIDENCE COLLECTION

- Do supplemental materials offer students, at a variety of reading levels, access to the grade-level mathematics?
- Are the contexts and situations at an appropriate reading level to engage all students with the mathematical problems?
- Do materials provide opportunities to differentiate reading levels based on individual students' needs?



#### SCORING

No score is given for indicator 3ae. Only qualitative evidence is provided.

## ► GUIDANCE FOR **Indicator 3af**

### Supplemental Materials

#### CRITERION

Supplemental materials reinforce core instruction and provide ample and a variety of resources to support student learning.

#### INDICATOR

Supplemental materials provide ample resources that reinforce student learning through practice.

**NOTE:** *This is a Mississippi High Quality Instructional Materials Mathematics Review Rubric specific indicator that will be scored by Mississippi reviewers as part of the review process.*

**Do supplemental materials reinforce student learning through practice?**



#### EVIDENCE COLLECTION

- Do supplemental materials provide additional practice for students?
- When used as designed, do supplemental materials support students' engagement with grade-level tasks?
- Are specific Standards targeted by supplemental materials?



#### SCORING

No score is given for indicator 3af. Only qualitative evidence is provided.

## ► GUIDANCE FOR **Indicator 3ag**

### Supplemental Materials

#### CRITERION

Supplemental materials reinforce core instruction and provide ample and a variety of resources to support student learning.

#### INDICATOR

Supplemental materials provide ample resources that reinforce student learning through practice.

**NOTE:** *This is a Mississippi High Quality Instructional Materials Mathematics Review Rubric specific indicator that will be scored by Mississippi reviewers as part of the review process.*

**Are supplemental materials aligned to the core instructional materials?**



#### EVIDENCE COLLECTION

- Do the supplemental materials include alignment to core instructional materials?
- Is there guidance for the teacher in the core instructional materials and the supplemental materials on how the two work together?
- Are supplemental materials aligned to the Standards identified in the core instructional materials?



#### SCORING

No score is given for indicator 3ag. Only qualitative evidence is provided.

## ► GUIDANCE FOR **Indicator 3ah**

### Supplemental Materials

#### CRITERION

Supplemental materials reinforce core instruction and provide ample and a variety of resources to support student learning.

#### INDICATOR

Supplemental materials provide a variety of resources for student learning activities (e.g. journals/writing, cooperative group work, graphic organizers, etc.)

**NOTE:** *This is a Mississippi High Quality Instructional Materials Mathematics Review Rubric specific indicator that will be scored by Mississippi reviewers as part of the review process.*

**Are there a variety of resources for student learning activities in supplemental materials?**



#### EVIDENCE COLLECTION

- Do the supplemental materials provide students with access to the tools needed to engage with grade-level mathematics? What tools are available to students?
- Do the supplemental materials provide students with opportunities to work independently, with partners, and/or in groups? Do the materials embed strategies to foster communication and collaboration?
- Are there a variety of resources employed on how students could engage with and respond to the content of the supplemental materials?



#### SCORING

No score is given for indicator 3ah. Only qualitative evidence is provided.