



**Evidence Guide**  
**Mathematics**  
**High School**

v1.5

# Gateway 1

[Criterion 1.1: 1ai, 1aii, 1bi, 1bii, 1c, 1d, 1e, 1f](#)

# Gateway 2

[Criterion 2.1: 2a, 2b, 2c, 2d](#)

[Criterion 2.2: 2e, 2f, 2g, 2h](#)

# Gateway 3

[Criterion 3.1: 3a, 3b, 3c, 3d, 3e, 3f, 3g, 3h](#)

[Criterion 3.2: 3i, 3j, 3k, 3l](#)

[Criterion 3.3: 3m, 3n, 3o, 3p, 3q, 3r, 3s, 3t, 3u, 3v](#)

[Criterion 3.4: 3w, 3x, 3y, 3z](#)

# Gateway 1: Focus & Coherence

## Criterion 1.1

### Focus and Coherence

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” (p. 57 CCSSM).

### What is the purpose of this Criterion?

Criterion 1 considers how well the materials focus on college and career ready standards.

### Research Connection

- [Common Core State Standards for Mathematics \(CCSSM\)](#)
- [Student Achievement Partners \(SAP\) Instructional Materials Evaluation Tool for High School Mathematics](#)
- [Achieve EQulP Rubric for Lessons & Units](#)

### Scoring:

#### Meets Expectations

- 14-18 points

#### Partially Meets Expectations

- 10-13 points

#### Does Not Meet Expectations

- <10 points

# Gateway 1: Focus & Coherence

<b>Criterion 1.1</b>	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” (p. 57 CCSSM).
<b>Indicator 1a.i</b>	Materials focus on the high school standards.  1a.i. Materials attend to the full intent of the mathematical content contained in the high school standards for all students.

## 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> <ul style="list-style-type: none"> <li>All aspects of all non-plus standards are addressed by the instructional materials of the series.</li> </ul> <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> <li>There are few instances where all aspects of the non-plus standards are not addressed by the instructional materials of the series.</li> </ul>	<b>2 points</b> <ul style="list-style-type: none"> <li>More than a few aspects of the non-plus standards have not been completely addressed by the instructional materials of the series.</li> </ul> <p style="text-align: center;">AND/OR</p> <ul style="list-style-type: none"> <li>Some non-plus standards have been entirely omitted from the instructional materials of the series.</li> </ul>	<b>0 points</b> <ul style="list-style-type: none"> <li>Many aspects of the non-plus standards have not been completely addressed by the instructional materials of the series.</li> </ul> <p style="text-align: center;">AND/OR</p> <ul style="list-style-type: none"> <li>Many non-plus standards have been entirely omitted from the instructional materials of the series.</li> </ul>
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## About this indicator:

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.

Research or Standards connection:

- [Common Core State Standards for Mathematics \(CCSSM\)](#)
- [High School Publishers' Criteria for the CCSSM \(Spring 2013\)](#)
- [Student Achievement Partners \(SAP\) Instructional Materials Evaluation Tool for High School Mathematics](#)
- [Achieve EQUIP Rubric for Lessons & Units](#)

- [CCSS Mathematics Curriculum Materials Analysis Project](#)

Resources:

- [SAP Coherence Map](#)
- [Institute for Mathematics Education Progressions Documents](#)

## Indicator 1a.i Guiding Questions:

Do the materials attend to the full intent (all aspects) of the non-plus high school standards? In other words, are all aspects of all non-plus standards present?

### Evidence Collection

Review the HS CCSSM 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, examples include:

- 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.
- If a series included opportunities addressing A-REI.11 for students to work with linear functions and not the other function types listed, then the series would not be attending to the full intent of the 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.

### Cluster Meeting

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.

Are there any courses in the series that excel in addressing this indicator?

Are there any courses in the series that do not address this indicator as well as the others?

# Gateway 1: Focus & Coherence

<b>Criterion 1.1</b>	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” (p. 57 of CCSSM).
<b>Indicator 1a.ii</b>	Materials focus on the high school standards.  1a.ii. Materials attend to the full intent of the modeling process when applied to the modeling standards.

Scoring:		
<p>2 points</p> <ul style="list-style-type: none"> <li>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.</li> </ul> <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> <li>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.</li> </ul>	<p>1 point</p> <ul style="list-style-type: none"> <li>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.</li> </ul> <p style="text-align: center;">AND/OR</p> <ul style="list-style-type: none"> <li>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.</li> </ul> <p style="text-align: center;">AND/OR</p> <ul style="list-style-type: none"> <li>The full intent of the modeling process has been omitted for more than a few modeling standards by the instructional materials of the series.</li> </ul>	<p>0 points</p> <ul style="list-style-type: none"> <li>Some aspects of the modeling process are altogether missing from the instructional materials of the series.</li> </ul> <p style="text-align: center;">AND/OR</p> <ul style="list-style-type: none"> <li>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.</li> </ul> <p style="text-align: center;">AND/OR</p> <ul style="list-style-type: none"> <li>The full intent of the modeling process has been omitted for most of the modeling standards by the instructional materials of the series.</li> </ul>

## About this indicator:

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

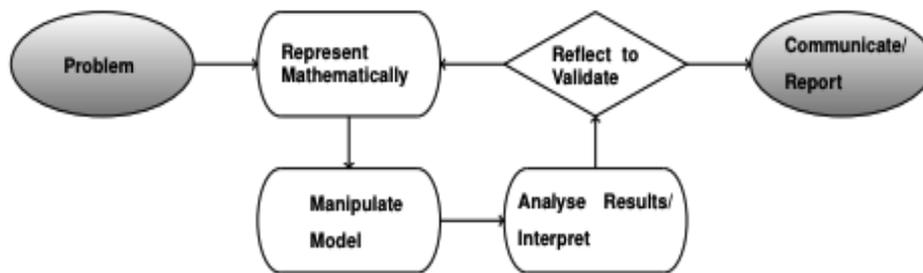
high school series to determine if the materials limit any of the aspects (see below) of the standards in which the modeling process is used.

Research or Standards connection:

- [Common Core State Standards for Mathematics \(CCSSM\)](#)
- [High School Publishers' Criteria for the CCSSM \(Spring 2013\)](#)
- [Student Achievement Partners \(SAP\) Instructional Materials Evaluation Tool for High School Mathematics](#)
- [Achieve EQUiP Rubric for Lessons & Units](#)
- [CCSS Mathematics Curriculum Materials Analysis Project](#)

Resources:

- [SAP Coherence Map](#)
- [Institute for Mathematics Education Progressions Documents](#)
- Review the progressions document “[Modeling, High School](#)”.
- Review “[How to Identify Tasks that Engage Students in Mathematical Modeling NCTM-SIAM Committee on Modeling Across the Curriculum](#)”
- “Math Modeling: Getting Started & Getting Solutions” (A link to this handbook cannot be provided, but it can be downloaded by googling “SIAM and Moody’s modeling handbook”.)



## Indicator 1a.ii Guiding Question:

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

### Evidence Collection

Review the tables of content 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 establish a foundation of where and how often the modeling standards are addressed.

Review all instructional materials provided, including assessments. For each course in the series, note where modeling standards are being addressed with the full intent of the modeling process.

Note where modeling standards are being addressed with certain aspects of the modeling process, but not the full modeling process.

Aspects *could* include, but are not limited to:

- variable identification;
- approximation of quantities, shapes, behaviors, etc.;

- formulation of models (e.g. geometric, graphical, tabular, algebraic, statistical representations);
- analysis of relationships;
- 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, note modeling standards that are not addressed with the modeling process and/or aspects of the modeling process.

The following examples are 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 provide the model or dictate the type of model students should use, 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.
- If modeling problems are included such that the mathematics students will use is clearly evident, then the materials do not attend to the full intent of the modeling process. For example, a modeling problem that requires using quadratic equations or functions is placed at the end of a chapter or lesson on quadratic equations.

## Cluster Meeting

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 or are completely omitted.

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.

Are there any modeling standards, clusters, domains, or conceptual categories that are addressed without the full intent of the modeling process?

Do the materials allow for growth and sophistication with modeling as specified in the progression documents?

# Gateway 1: Focus & Coherence

<b>Criterion 1.1</b>	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” (p. 57 of CCSSM).
<b>Indicator 1b.i</b>	Materials provide students with opportunities to work with all high school standards and do not distract students with prerequisite or additional topics.  1b.i. 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.

Scoring:		
<p>2 points</p> <ul style="list-style-type: none"> <li>Evidence clearly describes how the materials for the SERIES, when used as designed, allows students to spend the majority of their time (&gt;50%) on the content widely applicable as prerequisites (<a href="#">WAPs</a>) for a range of college majors, postsecondary programs, and careers.</li> </ul> <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> <li>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.</li> </ul>	<p>1 point</p> <ul style="list-style-type: none"> <li>The SERIES does not spend a majority of time on the WAPs, and some of the remaining materials address prerequisites or additional topics that are distracting.</li> </ul>	<p>0 points</p> <ul style="list-style-type: none"> <li>The SERIES does not spend a majority of time on the WAPs, and the majority of the remaining materials address prerequisites or additional topics that are distracting.</li> </ul>

## About this indicator:

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 CCSSM 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 CCSSM 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.

Research or Standards connection:

- [Common Core State Standards for Mathematics \(CCSSM\)](#)
- [High School Publishers' Criteria for the CCSSM \(Spring 2013\)](#)
- [Student Achievement Partners \(SAP\) Instructional Materials Evaluation Tool for High School Mathematics](#)
- [Achieve EQUiP Rubric for Lessons & Units](#)
- [CCSS Mathematics Curriculum Materials Analysis Project](#)

Resources:

- [SAP Coherence Map](#)
- [Institute for Mathematics Education Progressions Documents](#)
- 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 CCSSM widely applicable as prerequisites for a range of college majors, postsecondary programs, and careers (WAPs).

## Indicator 1b.i Guiding Question:

Do the materials, when used as designed, focus on the widely applicable as prerequisites (WAPs) for a range of college majors, postsecondary programs, and careers?

### Evidence Collection

Review all instructional materials provided, including assessments. For each course in the series, document 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 CCSSM 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.

### Cluster Meeting

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.

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?

# Gateway 1: Focus & Coherence

<b>Criterion 1.1</b>	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” (p. 57 of CCSSM).
<b>Indicator 1b.ii</b>	Materials provide students with opportunities to work with all high school standards and do not distract students with prerequisite or additional topics.  1b.ii. Materials, when used as designed, allow students to fully learn each standard.

<b>Scoring:</b>		
<b>4 points</b> <ul style="list-style-type: none"> <li>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.</li> </ul>	<b>2 points</b> <ul style="list-style-type: none"> <li>Materials for the series, when used as designed, do not enable students to fully learn some of the non-plus standards.</li> </ul>	<b>0 points</b> <ul style="list-style-type: none"> <li>Materials for the series, when used as designed, do not enable students to fully learn most of the non-plus standards.</li> </ul>

## About this indicator:

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.

Research or Standards connection:

- [Common Core State Standards for Mathematics \(CCSSM\)](#)
- [High School Publishers' Criteria for the CCSSM \(Spring 2013\)](#)
- [Student Achievement Partners \(SAP\) Instructional Materials Evaluation Tool for High School Mathematics](#)
- [Achieve EQulP Rubric for Lessons & Units](#)
- [CCSS Mathematics Curriculum Materials Analysis Project](#)

Resources:

- [SAP Coherence Map](#)
- [Institute for Mathematics Education Progressions Documents](#)

## Indicator 1b.ii Guiding Question:

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

## Evidence Collection

Review the HS CCSSM 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 establish 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 examine all provided materials to 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 use 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 a limited number of 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 limited exercises for students to practice a standard, then the materials do not allow students to fully learn the standard.

For the series, reviewers should consider the numbers, equation types, contexts, etc. that students should encounter as indicated by the 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 teachers and students 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 students will know what to do in order to fully learn non-plus standards.

## Cluster Meeting

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.

If the series has not enabled all students to fully learn each non-plus standard, then what are the specific characteristics (for example, limited opportunities for practice, extensive scaffolding, etc.) that the series is missing?

Do the available materials provide ample opportunity for students to demonstrate that they have mastered the standard by the end of the series?

# Gateway 1: Focus & Coherence

<b>Criterion 1.1</b>	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” (p.57 of CCSSM).
<b>Indicator 1c</b>	Materials require students to engage in mathematics at a level of sophistication appropriate to high school.

Scoring:		
<p>2 points</p> <ul style="list-style-type: none"> <li>Materials regularly use contexts appropriate for high school students, use various types of real numbers, and provide opportunities for students to apply key takeaways from grades 6-8.</li> </ul>	<p>1 point</p> <ul style="list-style-type: none"> <li>Materials regularly use contexts appropriate for high school students and apply key takeaways from grades 6-8, yet do not vary the types of real numbers being used. AND/OR</li> <li>Materials regularly use various types of real numbers and apply key takeaways from grades 6-8, yet do not use contexts appropriate for high school students. AND/OR</li> <li>Materials regularly use contexts appropriate for high school students and vary the types of real numbers being used, yet some of the key takeaways from grades 6-8 are not applied.</li> </ul>	<p>0 points</p> <ul style="list-style-type: none"> <li>Materials regularly do not use contexts appropriate for high school students or vary the types of real numbers being used. AND/OR</li> <li>Materials do not apply most of the key takeaways from grades 6-8.</li> </ul>

## About this indicator:

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.

Research or Standards connection:

- [Common Core State Standards for Mathematics \(CCSSM\)](#)
- [High School Publishers' Criteria for the CCSSM \(Spring 2013\)](#)
- [Student Achievement Partners \(SAP\) Instructional Materials Evaluation Tool for High School Mathematics](#)

- [Achieve EQUiP Rubric for Lessons & Units](#)
- [CCSS Mathematics Curriculum Materials Analysis Project](#)

Resources:

- [SAP Coherence Map](#)
- [Institute for Mathematics Education Progressions Documents](#)
- 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.

## Indicator 1c Guiding Question:

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

### Evidence Collection

Review the units, chapters, lessons, and assessments in both student and teacher materials.

Throughout the series, look for mathematical contexts that consist of real-life and relevant situations appropriate for high school students. 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, determine if key takeaways from middle school are applied at a level of sophistication appropriate for high school students. Materials should not be “re-teaching” standards from Grades 6-8. Note: standards from Grades 6-8 do not need to be identified in either the teacher or student materials for this indicator. Key takeaways from middle school include, but are 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 (6-7.NS)

- Performing rational number arithmetic fluently

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

- 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. Every student should engage with course-level work. Note: The quality and types of the differentiation provided by the materials are examined in Gateway 3.

## Cluster Meeting

Are the contexts relevant for high school students? Document instances of contexts that are or are not appropriate for high school students.

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?

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 standards from Grades 6-8 simply being re-taught? Do the applications of key takeaways occur throughout the series or only within one course?

# Gateway 1: Focus & Coherence

<b>Criterion 1.1</b>	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” (p. 57 of CCSSM).
<b>Indicator 1d</b>	Materials are mathematically coherent and make meaningful connections in a single course and throughout the series, where appropriate and where required by the Standards.

Scoring:		
<b>2 points</b> <ul style="list-style-type: none"> <li>Materials foster coherence through meaningful mathematical connections in a single course and throughout the series, where appropriate and where required by the Standards.</li> </ul>	<b>1 point</b> <ul style="list-style-type: none"> <li>Materials partially foster coherence through meaningful mathematical connections in a single course and throughout the series, where appropriate and where required by the Standards.</li> </ul>	<b>0 points</b> <ul style="list-style-type: none"> <li>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.</li> </ul>

## About this indicator:

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.

Research or Standards connection:

- [Common Core State Standards for Mathematics \(CCSSM\)](#)
- [High School Publishers' Criteria for the CCSSM \(Spring 2013\)](#)
- [Student Achievement Partners \(SAP\) Instructional Materials Evaluation Tool for High School Mathematics](#)
- [Achieve EQUIP Rubric for Lessons & Units](#)
- [CCSS Mathematics Curriculum Materials Analysis Project](#)

Resources:

- [SAP Coherence Map](#)
- [Institute for Mathematics Education Progressions Documents](#)

## Indicator 1d Guiding Question:

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?

## Evidence Collection

Note: Meaningful connections are ones where students build mathematical knowledge by linking and applying multiple concepts within and across courses. For this indicator, identifications do not have to be explicit.

Review the units, chapters and lessons in both student and teacher materials.

Review the course and series scope and sequence.

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 connections to prior learning from the course or the series 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).

Further examples can be found at [PARCC HS Model Content Framework](#) starting on page 73.

## Cluster Meeting

How is coherence present both within and across courses in the series?

How are the materials using previous course concepts to develop the full depth of the high school standards?

# Gateway 1: Focus & Coherence

<b>Criterion 1.1</b>	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” (p.57 CCSSM).
<b>Indicator 1e</b>	Materials explicitly identify and build on knowledge from Grades 6-8 to the high school standards.

Scoring:		
<b>2 points</b> <ul style="list-style-type: none"> <li>Content from Grades 6-8 is explicitly identified and supports the progressions of the high school standards.</li> <li>Connections between Grades 6-8 and high school concepts are present and allow students to extend their previous knowledge.</li> </ul>	<b>1 point</b> <ul style="list-style-type: none"> <li>Content from Grades 6-8 is not explicitly identified and/or does not fully support the progressions of the high school standards.</li> <li>Connections between Grades 6-8 and high school concepts are partially present but may not allow students to extend their previous knowledge.</li> </ul>	<b>0 points</b> <ul style="list-style-type: none"> <li>Content from Grades 6-8 is not explicitly identified and does not support the progressions of the high school standards.</li> <li>Connections between Grades 6-8 and high school concepts are not present and do not allow students to extend their previous knowledge.</li> </ul>

## About this indicator:

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.

Research or Standards connection:

- [Common Core State Standards for Mathematics \(CCSSM\)](#)
- [High School Publishers' Criteria for the CCSSM \(Spring 2013\)](#)
- [Student Achievement Partners \(SAP\) Instructional Materials Evaluation Tool for High School Mathematics](#)
- [Achieve EQulP Rubric for Lessons & Units](#)
- [CCSS Mathematics Curriculum Materials Analysis Project](#)

Resources:

- [SAP Coherence Map](#)
- [Institute for Mathematics Education Progressions Documents](#)
- Review criterion 3c on page 11 of the [High School Publishers' Criteria for the Common Core State Standards for Mathematics \(Spring 2013\).](#)”

## Indicator 1e Guiding Question:

How do materials explicitly identify and build knowledge from Grades 6-8 to the high school standards?

### 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.

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; and
- 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 Grades 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).
- Further examples can be found at [PARCC HS Model Content Framework](#) starting on page 44.

## Cluster Meeting

Are the Grades 6-8 standards explicitly identified?

How are the materials using standards from Grades 6-8 to develop understanding of high school content?

Are the Grades 6-8 connections a purposeful extension or reinforcement of course-level standards, or do the connections interfere with the work of the course/series?

# Gateway 1: Focus & Coherence

<b>Criterion 1.1</b>	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” (p. 57 of CCSSM).
<b>Indicator 1f</b>	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.

## Scoring: Narrative Evidence Only

Note: No score is given for this indicator. Only qualitative evidence is provided.

## About this indicator:

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 (+)” (CCSSM, p. 57). 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.

Research or Standards connection:

- [Common Core State Standards for Mathematics \(CCSSM\)](#)
- [High School Publishers' Criteria for the CCSSM \(Spring 2013\)](#)
- [Student Achievement Partners \(SAP\) Instructional Materials Evaluation Tool for High School Mathematics](#)
- [Achieve EQUiP Rubric for Lessons & Units](#)
- [CCSS Mathematics Curriculum Materials Analysis Project](#)

Resources:

- [SAP Coherence Map](#)
- [Institute for Mathematics Education Progressions Documents](#)

## Indicator 1f Guiding Question:

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

## Evidence Collection

Note: This indicator is not scored, 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, 1aii, 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 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.

## Cluster Meeting

How are the materials incorporating the plus standards in order to prepare students sufficiently for future advanced level mathematics courses?

How does the treatment of a plus standard enhance the work of the lesson/unit/course?

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?

In what ways do the plus standards serve as purposeful extensions of course-level standards?

Do the plus standards unduly interfere with the work of the course?

# Gateway 2: Rigor & Mathematical Practices

## Criterion 2.1

### Rigor and Balance

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 skill and fluency; and engaging applications.

### What is the purpose of this Criterion?

Criterion 1 considers the ways in which the materials reflect the balances in the Standards and help students to meet the rigorous expectations by providing students with opportunities to make their own connections to the mathematics to develop conceptual understanding, procedural skill and fluency, and application.

### Research Connection

- [Common Core State Standards Mathematics](#)

### Scoring:

#### Meets Expectations

- 7-8 points

#### Partially Meets Expectations

- 5-6 points

#### Does Not Meet Expectations

- <5 points

# Gateway 2: Rigor & Mathematical Practices

<b>Criterion 2.1</b>	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.
<b>Indicator 2a</b>	Materials support the intentional development of students’ conceptual understanding of key mathematical concepts, especially where called for in specific content standards or clusters.

Scoring:		
<p>2 points</p> <ul style="list-style-type: none"> <li>Materials develop conceptual understanding throughout the series.</li> </ul> <p style="text-align: center;">AND</p> <ul style="list-style-type: none"> <li>Materials provide opportunities for students to independently demonstrate conceptual understanding throughout the series.</li> </ul>	<p>1 point</p> <ul style="list-style-type: none"> <li>Materials have missed opportunities to develop conceptual understanding.</li> </ul> <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> <li>Materials do not provide opportunities for students to independently demonstrate conceptual understanding throughout the series.</li> </ul>	<p>0 points</p> <ul style="list-style-type: none"> <li>Materials have few or no opportunities to develop conceptual understanding.</li> </ul> <p style="text-align: center;">AND</p> <ul style="list-style-type: none"> <li>Materials do not provide opportunities for students to independently demonstrate conceptual understanding.</li> </ul>

## About this indicator:

What is the purpose of this Indicator?

This indicator, along with 2b, 2c, and 2d, determines the shift of rigor. In order to obtain rigor, there needs to be a balance among conceptual understanding, procedural 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.

Research or Standards connection:

- [Common Core State Standards for Mathematics \(CCSSM\)](#)
- [High School Publishers' Criteria for the CCSSM \(Spring 2013\)](#)
- [Student Achievement Partners \(SAP\) Instructional Materials Evaluation Tool for High School Mathematics](#)
- [Achieve EQulP Rubric for Lessons & Units](#)
- [Achieve Framework to Evaluate Cognitive Complexity in Mathematics Assessments](#)
- [CCSS Mathematics Curriculum Materials Analysis Project](#)

Resources:

- [SAP Coherence Map](#)
- [Institute for Mathematics Education Progressions Documents](#)
- [Video: “Building Conceptual Understanding in Mathematics” \(NCTM\)](#)
- [Video: “Conceptual Understanding Excerpt” \(The Hunt Institute\)](#)

- Review criterion 2a on page 9 of the [High School Publishers' Criteria for the Common Core State Standards for Mathematics \(Spring 2013\)](#).
- [Concrete Representational Abstract: Instructional Sequence for Mathematics](#)
- Reading: "Principles To Actions", (NCTM) p. 42-48

## Indicator 2a Guiding Questions:

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?

### Evidence Collection

Conceptual Understanding is a flexible web of connections and relationships within and between ideas, interpretations, and images of mathematical concepts.

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.

Look for the evidence in lessons, review lessons, chapter and/or unit assessments, homework assignments, concept checks (if included), hands-on activities (if included), investigations (if included), 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 representational (semi-concrete) representations, in writing and/or discussion, when developing conceptual understanding. For example:

Concrete	Representational	Abstract
<p>Student uses algebra tiles to solve the equation.</p> $2x + 1 = 3 + x$	<p>Student solves the equation by drawing representations of the concrete model.</p> $2x + 1 = 3 + x$	<p>The student connects the concrete models and the pictorial representation to the algebraic methods.</p> $2x + 1 = 3 + x$ $2x + 1 - 1 = 3 + x - 1$ $2x = 2 + x$ $2x - x = 2 + x - x$ $x = 2$

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. 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.

The use of concrete representations (manipulatives) does not necessarily indicate conceptual understanding. If evidence includes concrete and/or visual representations, explain how the representations are being used to develop/enhance conceptual understanding. For example, students using algebra tiles to factor quadratic expressions should be able to explain the connections between the algebra tiles, the process of factoring, and the corresponding algebraic representations.

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.

*Examples include, but are not limited to:*

Clusters/Standards that relate to Conceptual Understanding
N-RN.1 – 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.
A-APR.B – Understand the relationship between zeros and factors of polynomials.
A-REI.A – Understand solving equations as a process of reasoning and explain the reasoning.
A-REI.10 – 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).
A-REI.11 – 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.★
F-IF.A – Understand the concept of a function and use function notation.
F-LE.1 – Distinguish between situations that can be modeled with linear functions and with exponential functions.

G-SRT.2 – 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.

G-SRT.6 – 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.

## Cluster Meeting

What does intentional development of conceptual understanding look like in materials?

What specific evidence illustrates intentional development of conceptual understanding?

How do the materials in the series enable students to reason in settings involving the careful application of concept definitions, relations, or representations?

Do the materials attend to conceptual understanding throughout the series?

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

# Gateway 2: Rigor & Mathematical Practices

<b>Criterion 2.1</b>	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.
<b>Indicator 2b</b>	Materials provide intentional opportunities for students to develop procedural skills and fluencies, especially where called for in specific content standards or clusters.

Scoring:		
<b>2 points</b> <ul style="list-style-type: none"> <li>Materials develop procedural skills throughout the series.</li> </ul> <p style="text-align: center;">AND</p> <ul style="list-style-type: none"> <li>Materials provide opportunities to independently demonstrate procedural skills throughout the series.</li> </ul>	<b>1 point</b> <ul style="list-style-type: none"> <li>Materials have missed opportunities to develop procedural skills throughout the series.</li> </ul> <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> <li>Materials do not provide students opportunities to independently demonstrate procedural skills throughout the series.</li> </ul>	<b>0 points</b> <ul style="list-style-type: none"> <li>Materials have no or few opportunities to develop procedural skills throughout the series.</li> </ul> <p style="text-align: center;">AND</p> <ul style="list-style-type: none"> <li>Materials do not provide opportunities for students to independently demonstrate procedural skills.</li> </ul>

## About this indicator:

What is the purpose of this Indicator?

This indicator, along with 2a, 2c, and 2d, determines the shift of rigor. In order to obtain rigor, there needs to be a balance among conceptual understanding, procedural 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.

Research or Standards connection:

- [Common Core State Standards for Mathematics \(CCSSM\)](#)
- [High School Publishers' Criteria for the CCSSM \(Spring 2013\)](#)
- [Student Achievement Partners \(SAP\) Instructional Materials Evaluation Tool for High School Mathematics](#)
- [Achieve EQUiP Rubric for Lessons & Units](#)
- [Achieve Framework to Evaluate Cognitive Complexity in Mathematics Assessments](#)
- [CCSS Mathematics Curriculum Materials Analysis Project](#)

Resources:

- [SAP Coherence Map](#)
- [Institute for Mathematics Education Progressions Documents](#)
- Review criterion 2b on page 9 of the [High School Publishers' Criteria for the Common Core State Standards](#)

## Indicator 2b Guiding Question:

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?

### Evidence Collection

Procedural skill includes knowing how and why an algorithm works.

Fluency includes: efficiency, accuracy, flexibility, and appropriate strategy selection.

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.

Evaluate whether aspects of rigor present in lessons/chapters/units align to the aspect of rigor in the targeted standard(s).

Look for procedural problems and exercises that include cases in which students use algorithms efficiently/fluently. For example, solve 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.

*Examples include, but are not limited to:*

Clusters/Standards that relate to Procedural Skills
N-RN.2 – Rewrite expressions involving radicals and rational exponents using the properties of exponents.
A-SSE.2 – Use the structure of an expression to identify ways to rewrite it.
A-APR.1 – Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; <u>add, subtract, and multiply polynomials.</u>
A-APR.6 – 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.
F-BF.4a – Solve an equation of the form $f(x) = c$ for a simple function $f$ that has an inverse and write an expression for the inverse. <i>For example, <math>f(x) = 2x^3</math> or <math>f(x) = (x+1)/(x-1)</math> for <math>x \neq 1</math>.</i>

G-CO.12 - Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.).

G-GPE.4 – Use coordinates to prove simple geometric theorems algebraically.

G-GPE.5 – 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).

G-GPE.6 – Find the point on a directed line segment between two given points that partitions the segment in a given ratio.

## Cluster Meeting

Throughout the series, review evidence of opportunities for students to develop procedural skill and fluency in the materials completed by teachers.

Throughout the series, review evidence of opportunities for students to independently demonstrate procedural skill and fluency in the units as completed by teachers.

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." In what ways do students have sufficient practice (algebraic or otherwise) in order to be adept/skilled with the operations of mathematics?

How do the materials develop procedural skills over a course? Over a series?

# Gateway 2: Rigor & Mathematical Practices

<b>Criterion 2.1</b>	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.
<b>Indicator 2c</b>	Materials support the intentional development of students' ability to utilize mathematical concepts and skills in engaging applications, especially where called for in specific content standards or clusters.

Scoring:		
<p>2 points</p> <ul style="list-style-type: none"> <li>Materials include multiple opportunities for students to engage in routine and non-routine application of mathematics throughout the series.</li> </ul> <p style="text-align: center;">AND</p> <ul style="list-style-type: none"> <li>Materials provide opportunities to independently demonstrate the use of mathematics flexibly in a variety of contexts.</li> </ul>	<p>1 point</p> <ul style="list-style-type: none"> <li>Materials have missed opportunities to engage in non-routine application of mathematics throughout the series.</li> </ul> <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> <li>There is little variety in situational contexts/problem types when students are presented with word problems.</li> </ul> <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> <li>Materials do not provide opportunities to independently demonstrate the use of mathematics flexibly in a variety of contexts.</li> </ul>	<p>0 points</p> <ul style="list-style-type: none"> <li>Materials have no or few opportunities to engage in application of mathematics throughout the series.</li> </ul> <p style="text-align: center;">AND</p> <ul style="list-style-type: none"> <li>Materials do not provide opportunities to independently demonstrate the use of mathematics flexibly in a variety of contexts.</li> </ul>

## About this indicator:

What is the purpose of this Indicator?

This indicator, along with 2a, 2b, and 2d, determines the shift of rigor. In order to obtain rigor, there needs to be a balance among conceptual understanding, procedural skills, and application. To engage in application, students need opportunities to apply mathematical knowledge and skills in a real-world context. Materials should promote problem-solving activities that call for using Mathematics flexibly in routine and non-routine contexts.

Research or Standards connection:

- [Common Core State Standards for Mathematics \(CCSSM\)](#)
- [High School Publishers' Criteria for the CCSSM \(Spring 2013\)](#)
- [Student Achievement Partners \(SAP\) Instructional Materials Evaluation Tool for High School Mathematics](#)
- [Achieve EQUiP Rubric for Lessons & Units](#)

- [Achieve Framework to Evaluate Cognitive Complexity in Mathematics Assessments](#)
- [CCSS Mathematics Curriculum Materials Analysis Project](#)

Resources:

- [SAP Coherence Map](#)
- [Institute for Mathematics Education Progressions Documents](#)
- Review criterion 2c on page 10 of the [High School Publishers' Criteria for the Common Core State Standards for Mathematics \(Spring 2013\)](#).
- Reading: Chapter 1 of The GAIMME Report (A link to this report cannot be provided, but it can be downloaded by googling “The GAIMME Report”.)
- Reading: “Math Modeling: Getting Started & Getting Solutions” (A link to this handbook cannot be provided, but it can be downloaded by googling “SIAM and Moody's modeling handbook”.)
- Reading: “[How to Identify Tasks that Engage Students in Mathematical Modeling NCTM-SIAM Committee on Modeling Across the Curriculum](#)”.

### Indicator 2c Guiding Question:

Do the instructional materials develop students’ ability to utilize mathematical concepts and skills in engaging applications throughout the series?

Do the instructional materials provide opportunities for students to independently utilize mathematical concepts and skills in engaging applications throughout the series?

### Evidence Collection

Application problems often, but not always, present a real-world scenario. Students employ a prescribed mathematical strategy or choose their own strategy to find a solution.

Select cluster(s) or standard(s) that specifically relate to application. 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 application.

Determine if there is a variety of contextual problems, including non-routine problems, that develop the mathematics of the non-plus standards.

Look for evidence where application problems particularly stress applying the content of the non-plus standards.

Consider if applications build over the series.

Determine if the materials include an ample number of contextual problems that develop the mathematics of the course.

Note when the materials:

- afford opportunities for students to engage in and practice problem solving,
- allow or require students to make their own assumptions or simplifications in order to model a situation mathematically, and

- provide problems to be worked individually as well as classroom activities centered on application scenarios.

Evidence must include specific examples from the instructional materials. If opportunities for application 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 application. Include Unit, Lesson, Lesson Part and page numbers for reference for all examples.

Examples include, but are not limited to:

Clusters/Standards that relate to Applications
N-Q.A – Reason quantitatively and use units to solve problems.
A-SSE.3 – Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.★
A-CED.3 - Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context.
A-REI.11 – 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.★
F-IF.B – Interpret functions that arise in applications in terms of the context.
F-BF.1 – Write a function that describes a relationship between two quantities.★
G-SRT.8 – Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.★
G-GMD.3 – Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.★
G-MG.2 - Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot).*
S-ID.2 – Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.
S-CP.7 – Apply the Addition Rule, $P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$ , and interpret the answer in terms of the model.

## Cluster Meeting

Where do the materials provide opportunities for students to engage in application?

In what ways do the materials require greater levels of application complexity as the series progresses?

How do the materials throughout the series enable students to solve non-routine problems and/or apply mathematics to contextual situations?

# Gateway 2: Rigor & Mathematical Practices

<b>Criterion 2.1</b>	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.
<b>Indicator 2d</b>	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.

## Scoring:

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

2 points	1 point	0 points
<ul style="list-style-type: none"> <li>All three aspects of rigor are present independently throughout each grade level.</li> </ul> <p style="text-align: center;">AND</p> <ul style="list-style-type: none"> <li>Multiple aspects of rigor are engaged simultaneously to develop students' mathematical understanding of a single topic/unit of study throughout each grade level.</li> </ul>	<ul style="list-style-type: none"> <li>All three aspects of rigor are not present independently throughout each grade level.</li> </ul> <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> <li>Multiple aspects of rigor are not engaged simultaneously to develop students' mathematical understanding of a single topic/unit of study throughout each grade level.</li> </ul>	<ul style="list-style-type: none"> <li>All three aspects of rigor are not present independently throughout each grade level.</li> </ul> <p style="text-align: center;">AND</p> <ul style="list-style-type: none"> <li>Multiple aspects of rigor are not engaged simultaneously to develop students' mathematical understanding of a single topic/unit of study throughout each grade level.</li> </ul>

## About this indicator:

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.

Research or Standards connection:

- [Common Core State Standards for Mathematics \(CCSSM\)](#)
- [High School Publishers' Criteria for the CCSSM \(Spring 2013\)](#)
- [Student Achievement Partners \(SAP\) Instructional Materials Evaluation Tool for High School Mathematics](#)
- [Achieve EQUiP Rubric for Lessons & Units](#)
- [Achieve Framework to Evaluate Cognitive Complexity in Mathematics Assessments](#)
- [CCSS Mathematics Curriculum Materials Analysis Project](#)

Resources:

- [SAP Coherence Map](#)
- [Institute for Mathematics Education Progressions Documents](#)
- [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" \(Publishers' Criteria, p. 10\)](#)

## Indicator 2d Guiding Question:

Do the instructional materials balance the three aspects of rigor?

### 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 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. Look for the evidence in lessons, review lessons, routine daily checks, chapter and unit assessments, homework assignments, and other sections demonstrating connections between procedural skills and conceptual understanding.

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.

## Cluster Meeting

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 each course and the series?

In what ways do the materials maintain balance of the aspects of rigor throughout each course and the series?

In what ways do the materials neglect one, or more, aspect(s) of rigor throughout each course and the series?

# Gateway 2: Rigor & Mathematical Practices

## Criterion 2.2

### Practice-Content Connections

Materials meaningfully connect the Standards for Mathematical Content and the Standards for Mathematical Practice (MPs).

### What is the purpose of this Criterion?

The purpose of this criterion is to ensure the Standards for Mathematical Practice (MPs) are identified and connected to grade-level mathematical content, and the materials present opportunities for students to both learn and independently demonstrate each of the MPs.

### Research Connection

- [Common Core State Standards Mathematics](#)

### Scoring:

Note: If the instructional materials do not identify the MPs for teachers, evidence of this will be included in the Practice-Content Connections criterion report. The lack of identification of the MPs will result in the deduction of 1 point in the scoring for indicator 2e only.

#### Meets Expectations

- 7-8 points

#### Partially Meets Expectations

- 4-6 points

#### Does Not Meet Expectations

- <4 points

# Gateway 2: Rigor & Mathematical Practices

Criterion 2.2	Materials meaningfully connect the Standards for Mathematical Content and the Standards for Mathematical Practice (MPs).
Indicator 2e	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 mathematical practice standards.

Scoring:		
<p>2 points</p> <ul style="list-style-type: none"> <li>There is intentional development of MP1 to meet its full intent in connection to course-level content across the series.</li> </ul> <p style="text-align: center;">AND</p> <ul style="list-style-type: none"> <li>There is intentional development of MP6 to meet its full intent in connection to course-level content across the series.</li> </ul>	<p>1 point</p> <ul style="list-style-type: none"> <li>There is intentional development of MP1 to meet its full intent in connection to course-level content across the series.</li> </ul> <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> <li>There is intentional development of MP6 to meet its full intent in connection to course-level content across the series.</li> </ul>	<p>0 points</p> <ul style="list-style-type: none"> <li>There is not intentional development of MP1 to meet its full intent in connection to course-level content across the series.</li> </ul> <p style="text-align: center;">AND</p> <ul style="list-style-type: none"> <li>There is not intentional development of MP6 to meet its full intent in connection to course-level content across the series.</li> </ul>

## About this indicator:

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.

Research or Standards connection:

- [Common Core State Standards for Mathematics \(CCSSM\)](#)
- [High School Publishers' Criteria for the CCSSM \(Spring 2013\)](#)
- [Student Achievement Partners \(SAP\) Instructional Materials Evaluation Tool for High School Mathematics](#)
- [Achieve EQUiP Rubric for Lessons & Units](#)
- [CCSS Mathematics Curriculum Materials Analysis Project](#)

Resources:

- [SAP Coherence Map](#)
- [Institute for Mathematics Education Progressions Documents](#)
- [MP1: Make sense of problems and persevere in solving them](#)
- [MP6: Attend to precision](#)

- [This compilation document](#)

## Indicator 2e Guiding Question:

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?

## 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 misidentified 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:

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 course-level, 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.

## Cluster Meeting

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?

Do expectations for students increase throughout courses and the series?

Do the materials provide guidance to teachers in order to develop students’ skills identified in MP1 and MP6?

# Gateway 2: Rigor & Mathematical Practices

Criterion 2.2	Materials meaningfully connect the Standards for Mathematical Content and the Standards for Mathematical Practice (MPs).
Indicator 2f	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 mathematical practice standards.

Scoring:		
<p>2 points</p> <ul style="list-style-type: none"> <li>There is intentional development of MP2 to meet its full intent in connection to course-level content across the series.</li> </ul> <p style="text-align: center;">AND</p> <ul style="list-style-type: none"> <li>There is intentional development of MP3 to meet its full intent in connection to course-level content across the series.</li> </ul>	<p>1 point</p> <ul style="list-style-type: none"> <li>There is intentional development of MP2 to meet its full intent in connection to course-level content across the series.</li> </ul> <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> <li>There is intentional development of MP3 to meet its full intent in connection to course-level content across the series.</li> </ul>	<p>0 points</p> <ul style="list-style-type: none"> <li>There is not intentional development of MP2 to meet its full intent in connection to course-level content across the series.</li> </ul> <p style="text-align: center;">AND</p> <ul style="list-style-type: none"> <li>There is not intentional development of MP3 to meet its full intent in connection to course-level content across the series.</li> </ul>

## About this indicator:

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.

Research or Standards connection:

- [Common Core State Standards for Mathematics \(CCSSM\)](#)
- [High School Publishers' Criteria for the CCSSM \(Spring 2013\)](#)
- [Student Achievement Partners \(SAP\) Instructional Materials Evaluation Tool for High School Mathematics](#)
- [Achieve EQUiP Rubric for Lessons & Units](#)
- [CCSS Mathematics Curriculum Materials Analysis Project](#)

Resources:

- [SAP Coherence Map](#)
- [Institute for Mathematics Education Progressions Documents](#)
- [MP2: Reason abstractly and quantitatively](#)
- [MP3: Construct viable arguments and critique the reasoning of others](#)

- [This compilation document](#)

## Indicator 2f Guiding Question:

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?

### 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 misidentified 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:

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 course-level, 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.

## Cluster Meeting

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?

Do expectations for students increase throughout courses and the series?

Do the materials provide guidance to teachers in order to develop students' skills identified in MP2 and MP3?

# Gateway 2: Rigor & Mathematical Practices

Criterion 2.2	Materials meaningfully connect the Standards for Mathematical Content and the Standards for Mathematical Practice (MPs).
Indicator 2g	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 mathematical practice standards.

Scoring:		
<p>2 points</p> <ul style="list-style-type: none"> <li>There is intentional development of MP4 to meet its full intent in connection to course-level content across the series.</li> </ul> <p style="text-align: center;">AND</p> <ul style="list-style-type: none"> <li>There is intentional development of MP5 to meet its full intent in connection to course-level content across the series.</li> </ul>	<p>1 point</p> <ul style="list-style-type: none"> <li>There is intentional development of MP4 to meet its full intent in connection to course-level content across the series.</li> </ul> <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> <li>There is intentional development of MP5 to meet its full intent in connection to course-level content across the series.</li> </ul>	<p>0 points</p> <ul style="list-style-type: none"> <li>There is not intentional development of MP4 to meet its full intent in connection to course-level content across the series.</li> </ul> <p style="text-align: center;">AND</p> <ul style="list-style-type: none"> <li>There is not intentional development of MP5 to meet its full intent in connection to course-level content across the series.</li> </ul>

## About this indicator:

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.

Research or Standards connection:

- [Common Core State Standards for Mathematics \(CCSSM\)](#)
- [High School Publishers' Criteria for the CCSSM \(Spring 2013\)](#)
- [Student Achievement Partners \(SAP\) Instructional Materials Evaluation Tool for High School Mathematics](#)
- [Achieve EQUiP Rubric for Lessons & Units](#)
- [CCSS Mathematics Curriculum Materials Analysis Project](#)

Resources:

- [SAP Coherence Map](#)
- [Institute for Mathematics Education Progressions Documents](#)
- [MP4: Model with mathematics](#)
- [MP5: Use appropriate tools strategically](#)

- [This compilation document](#)

## Indicator 2g Guiding Question:

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?

## Evidence Collection

Note: If all aspects of the modeling cycle are present in the materials, then the materials meet the full intent of MP4.

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 misidentified 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:

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

- engage in the modeling cycle (MP4)
  - 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 (MP5)
  - use multiple tools to represent information in a situation
  - create and use models to represent
  - reflect on whether the results make sense, possibly improving or revising the model
- \*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 that could lead to refining and/or revising models
- 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 course-level, 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.

## Cluster Meeting

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?

Do expectations for students increase throughout courses and the series?

Do the materials provide guidance to teachers in order to develop students' skills identified in MP4 and MP5?

# Gateway 2: Rigor & Mathematical Practices

Criterion 2.2	Materials meaningfully connect the Standards for Mathematical Content and the Standards for Mathematical Practice (MPs).
Indicator 2h	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 mathematical practice standards.

Scoring:		
<p>2 points</p> <ul style="list-style-type: none"> <li>There is intentional development of MP7 to meet its full intent in connection to course-level content across the series.</li> </ul> <p style="text-align: center;">AND</p> <ul style="list-style-type: none"> <li>There is intentional development of MP8 to meet its full intent in connection to course-level content across the series.</li> </ul>	<p>1 point</p> <ul style="list-style-type: none"> <li>There is intentional development of MP7 to meet its full intent in connection to course-level content across the series.</li> </ul> <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> <li>There is intentional development of MP8 to meet its full intent in connection to course-level content across the series.</li> </ul>	<p>0 points</p> <ul style="list-style-type: none"> <li>There is not intentional development of MP7 to meet its full intent in connection to course-level content across the series.</li> </ul> <p style="text-align: center;">AND</p> <ul style="list-style-type: none"> <li>There is not intentional development of MP8 to meet its full intent in connection to course-level content across the series.</li> </ul>

## About this indicator:

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.

Research or Standards connection:

- [Common Core State Standards for Mathematics \(CCSSM\)](#)
- [High School Publishers' Criteria for the CCSSM \(Spring 2013\)](#)
- [Student Achievement Partners \(SAP\) Instructional Materials Evaluation Tool for High School Mathematics](#)
- [Achieve EQUiP Rubric for Lessons & Units](#)
- [CCSS Mathematics Curriculum Materials Analysis Project](#)

Resources:

- [SAP Coherence Map](#)
- [Institute for Mathematics Education Progressions Documents](#)
- [MP7](#): Look for and make use of structure
- [MP8](#): Look for and express regularity in repeated reasoning

- [This compilation document](#)

## Indicator 2h Guiding Question:

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?

## 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 misidentified 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:

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 course-level, 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.

## Cluster Meeting

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?

Do expectations for students increase throughout courses and the series?

Do the materials provide guidance to teachers in order to develop students' skills identified in MP7 and MP8?

# Gateway 3: Usability

## Criterion 3.1

### Teacher Supports

The program includes opportunities for teachers to effectively plan and utilize materials with integrity and to further develop their own understanding of the content.

### What is the purpose of this Criterion?

This criterion examines how the materials support teachers:

- in delivering the student and ancillary materials, especially as it relates to students' mathematical development.
- in understanding the instructional approaches of the program and research-based strategies.
- in improving their own knowledge of the subject beyond the grade level.
- in understanding the role of the standards in the context of the overall series.
- in planning for effective instruction that includes appropriate materials and how caregivers can support student progress and achievement.

### Scoring:

#### Meets Expectations

- 8-9 points

#### Partially Meets Expectations

- 5-7 points

#### Does Not Meet Expectations

- <5 points

# Gateway 3: Usability

<b>Criterion 3.1</b>	The program includes opportunities for teachers to effectively plan and utilize materials with integrity and to further develop their own understanding of the content.
<b>Indicator 3a</b>	Materials provide teacher guidance with useful annotations and suggestions for how to enact the student materials and ancillary materials, with specific attention to engaging students in order to guide their mathematical development.

Scoring:		
<p><b>2 points</b></p> <ul style="list-style-type: none"> <li>Materials provide comprehensive guidance that will assist teachers in presenting the student and ancillary materials.</li> </ul> <p style="text-align: center;">AND</p> <ul style="list-style-type: none"> <li>Materials include sufficient and useful annotations and suggestions that are presented within the context of the specific learning objectives.</li> </ul>	<p><b>1 point</b></p> <ul style="list-style-type: none"> <li>Materials provide comprehensive guidance that will assist teachers in presenting the student and ancillary materials.</li> </ul> <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> <li>Materials include sufficient and useful annotations and suggestions that are presented within the context of the specific learning objectives.</li> </ul>	<p><b>0 points</b></p> <ul style="list-style-type: none"> <li>Materials do not provide comprehensive guidance that will assist them in presenting the student and ancillary materials.</li> </ul> <p style="text-align: center;">AND</p> <ul style="list-style-type: none"> <li>Materials do not include sufficient and useful annotations and suggestions that are presented within the context of the specific learning objectives.</li> </ul>

## About this indicator:

What is the purpose of this Indicator?

This indicator examines the materials to determine whether they contain teacher guidance with sufficient and useful annotations and suggestions for how to enact the student materials and ancillary materials.

### Indicator 3a Guiding Question:

Do the materials provide teacher guidance with useful annotations and suggestions for how to enact the student materials and ancillary materials, with specific attention to engaging students in order to guide their mathematical development?

### Evidence Collection

Review the materials, both print and digital (if available), across the series.

Look for and record evidence to:

- Describe if and how the materials include overview sections, annotations, narrative information, or other

documents that will assist the teacher in presenting the student material and/or ancillary materials.

- Describe how information and guidance provided by the materials is useful for planning instruction. Look for suggestions about instructional strategies and guidance for presenting the content (specifically how to support students' mathematical development), which could include identifying and addressing student errors and misconceptions. These are often in the planning sections as well as margin notes, but could also be in the front matter philosophy, professional development, or explanations of program components.

## Cluster Meeting

Discuss and answer the following questions to support consensus scoring conversations:

- How are the materials structured to provide information that will assist the teacher in presenting the student material or ancillary materials?
- How do the materials provide specific guidance to plan instruction and support students in the content (specifically how to support students' mathematical development)?

# Gateway 3: Usability

<b>Criterion 3.1</b>	The program includes opportunities for teachers to effectively plan and utilize materials with integrity and to further develop their own understanding of the content.
<b>Indicator 3b</b>	Materials contain adult-level explanations and examples of the more complex grade/course-level concepts and concepts beyond the current course so that teachers can improve their own knowledge of the subject.

Scoring:		
<p><b>2 points</b></p> <ul style="list-style-type: none"> <li>Materials contain adult-level explanations and examples of the more complex grade/course-level concepts so that teachers can improve their own knowledge of the subject.</li> </ul> <p style="text-align: center;"><b>AND</b></p> <ul style="list-style-type: none"> <li>Materials contain adult-level explanations and examples of concepts beyond the current course so that teachers can improve their own knowledge of the subject.</li> </ul>	<p><b>1 point</b></p> <ul style="list-style-type: none"> <li>Materials contain adult-level explanations and examples of the more complex grade/course-level concepts so that teachers can improve their own knowledge of the subject.</li> </ul> <p style="text-align: center;"><b>OR</b></p> <ul style="list-style-type: none"> <li>Materials contain adult-level explanations and examples of concepts beyond the current course so that teachers can improve their own knowledge of the subject.</li> </ul>	<p><b>0 points</b></p> <ul style="list-style-type: none"> <li>Materials do not contain adult-level explanations and examples of the more complex grade/course-level concepts so that teachers can improve their own knowledge of the subject.</li> </ul> <p style="text-align: center;"><b>AND</b></p> <ul style="list-style-type: none"> <li>Materials do not contain adult-level explanations and examples of concepts beyond the current course so that teachers can improve their own knowledge of the subject.</li> </ul>

## About this indicator:

What is the purpose of this Indicator?

This indicator examines the materials to determine whether they deepen teacher understanding of mathematical concepts and the mathematical practices so that teachers can improve their own knowledge of the subject.

### Indicator 3b Guiding Question:

Do the materials contain adult-level explanations and examples of the more complex grade/course-level concepts and concepts beyond the current course so that teachers can improve their own knowledge of the subject?

### Evidence Collection

Review the materials, both print and digital (if available), across the series.

Look for and record evidence to:

- Describe if and how the materials provide complete adult-level explanations and examples that support the teacher in developing their own understanding of the content and expected student practices.

## Cluster Meeting

Discuss and answer the following questions to support consensus scoring conversations:

- Where are supports provided for teachers to develop their own understanding of more advanced, grade-level concepts?
- Where are supports provided for teachers to develop their own understanding of concepts beyond the current course?

# Gateway 3: Usability

<b>Criterion 3.1</b>	The program includes opportunities for teachers to effectively plan and utilize materials with integrity and to further develop their own understanding of the content.
<b>Indicator 3c</b>	Materials include standards correlation information that explains the role of the standards in the context of the overall series.

Scoring:		
<b>2 points</b> <ul style="list-style-type: none"> <li>Correlation information is present for the mathematics standards addressed throughout the grade level/series.</li> <li style="text-align: center;">AND</li> <li>Explanations of the role of the specific grade-level/course-level mathematics are present in the context of the series.</li> </ul>	<b>1 point</b> <ul style="list-style-type: none"> <li>Correlation information is present for the mathematics standards addressed throughout the grade level/series.</li> <li style="text-align: center;">OR</li> <li>Explanations of the role of the specific grade-level/course-level mathematics are present in the context of the series.</li> </ul>	<b>0 points</b> <ul style="list-style-type: none"> <li>Standards correlations are inaccurate or missing.</li> <li style="text-align: center;">OR</li> <li>There are few, if any, explanations of the role of the specific grade-level/course-level mathematics in the context of the series.</li> </ul>

## About this indicator:

What is the purpose of this Indicator?

This indicator examines whether materials provide documentation of how each lesson and unit correlate to the Common Core State Standards for Mathematics and whether materials provide explanations of the role of the standards at each unit/module in the context of the overall series.

Research or Standards connection:

- [Common Core State Standards for Mathematics \(CCSSM\)](#)

## Indicator 3c Guiding Question:

Do the materials include standards correlation information that explains the role of the standards in the context of the overall series?

## Evidence Collection

Review the print and digital (if available) table of contents, pacing guides, scope and sequence, and other teacher materials.

Look for and record evidence to:

- Describe how teacher materials provide information to allow for coherence across multiple course levels to allow a teacher to make prior connections and teach for connections to future content.

- Describe how individual units, lessons, or activities throughout the series are correlated to the CCSSM.

Note:

- if materials only reference the Standards for Mathematical Content but not Mathematical Practices.
- if standards correlation is inconsistent between levels (i.e. from the overview to a module or a lesson).
- if standards correlation is inaccurate.
- if standards correlation is over-identified.

## Cluster Meeting

Discuss and answer the following questions to support consensus scoring conversations:

- Are the standards identified consistently and accurately?
- Do the materials identify how the current work fits into the K-12 progression of learning?

# Gateway 3: Usability

<b>Criterion 3.1</b>	The program includes opportunities for teachers to effectively plan and utilize materials with integrity and to further develop their own understanding of the content.
<b>Indicator 3d</b>	Materials provide strategies for informing all stakeholders, including students, parents, or caregivers about the program and suggestions for how they can help support student progress and achievement.

## Scoring: Narrative Evidence Only

Note: No score is given for this indicator. Only qualitative evidence is provided.

## About this indicator:

What is the purpose of this Indicator?

This indicator examines the series to determine if the materials contain strategies for informing students, parents, or caregivers about the program, and it also examines the series to determine if the materials contain suggestions for how parents or caregivers can help support student progress and achievement.

## Indicator 3d Guiding Question:

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

## Evidence Collection

Look at both print and digital (if available) student materials and teacher materials, including beginning sections of the entire course, unit, chapter, or lesson that contains overview sections, teacher instruction pages, or ancillary supports for a narrative explanation of the content in each topic, paying attention to key instruction that will inform others that may be assisting the student's progress.

Look for and record evidence to:

- Determine where the materials contain strategies for informing students, parents, or caregivers about the mathematics their student is learning. Look for forms of communication with parents and caregivers, including for families that may speak and read in a language other than English.
- Describe where the materials contain suggestions for how parents or caregivers can help support student progress and achievement. Look for any work that notes a school-to-home connection.
- Note whether any materials for parents (like letters home) have been translated into languages other than English. If so, list the available languages.

## Cluster Meeting

Discuss and answer the following questions to support consensus scoring conversations:

- Where do the materials contain overview sections, teacher instruction pages, or ancillary supports that

contain strategies for informing students, parents, or caregivers about the mathematics program, including for families that may speak and read a language other than English?

- Where do the materials contain overview sections, teacher instruction pages, or ancillary supports that contain suggestions for how parents or caregivers can help support student progress and achievement?

# Gateway 3: Usability

<b>Criterion 3.1</b>	The program includes opportunities for teachers to effectively plan and utilize materials with integrity and to further develop their own understanding of the content.
<b>Indicator 3e</b>	Materials provide explanations of the instructional approaches of the program and identification of the research-based strategies.

Scoring:		
<b>2 points</b> <ul style="list-style-type: none"> <li>Materials explain the instructional approaches of the program.</li> </ul> <p style="text-align: center;">AND</p> <ul style="list-style-type: none"> <li>Materials include and reference research-based strategies.</li> </ul>	<b>1 point</b> <ul style="list-style-type: none"> <li>Materials explain the instructional approaches of the program.</li> </ul> <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> <li>Materials include and reference research-based strategies.</li> </ul>	<b>0 points</b> <ul style="list-style-type: none"> <li>Materials do not explain the instructional approaches of the program.</li> </ul> <p style="text-align: center;">AND</p> <ul style="list-style-type: none"> <li>Materials do not include and reference research-based strategies.</li> </ul>

## About this indicator:

What is the purpose of this Indicator?

This indicator examines the materials to determine whether they explain the instructional approaches of the program and whether they identify research-based strategies that have informed the design of the materials.

### Indicator 3e Guiding Question:

Do the materials provide explanations of the instructional approaches of the program and identification of the research-based strategies?

### Evidence Collection

Review the materials across the series.

Look for and record evidence to:

- Describe how and where the materials explain the instructional approaches of the program.
- Describe how and where the materials identify and reference research-based strategies that are used in the design.

### Cluster Meeting

Discuss and answer the following questions to support consensus scoring conversations:

- Where and how well do the materials explain the instructional approaches of the program?

- Where and how well do the materials identify and reference research-based strategies used in and throughout the program?

# Gateway 3: Usability

<b>Criterion 3.1</b>	The program includes opportunities for teachers to effectively plan and utilize materials with integrity and to further develop their own understanding of the content.
<b>Indicator 3f</b>	Materials provide a comprehensive list of supplies needed to support instructional activities.

<b>Scoring:</b>	
<b>1 point</b> <ul style="list-style-type: none"> <li>Materials include a comprehensive list of supplies needed to support the instructional activities.</li> </ul>	<b>0 points</b> <ul style="list-style-type: none"> <li>Materials do not include a comprehensive list of supplies needed to support instructional activities.</li> </ul>

## About this indicator:

What is the purpose of this Indicator?

This indicator examines the series to determine if the materials contain a comprehensive list of materials needed to support implementation.

<p><b>Indicator 3f Guiding Question:</b> Do the materials provide a comprehensive list of supplies needed to support instructional activities?</p>
<p><b>Evidence Collection</b></p> <p>Review the materials across the series.</p> <p>Look for and record evidence to:</p> <ul style="list-style-type: none"> <li>Determine whether a comprehensive list of required materials is provided.</li> </ul>
<p><b>Cluster Meeting</b></p> <p>Discuss and answer the following questions to support consensus scoring conversations:</p> <ul style="list-style-type: none"> <li>Does the series provide a comprehensive list of required materials? At what level(s) is the support provided (course, unit/module, lesson, etc.)?</li> </ul>

## Gateway 3: Usability

Criterion 3.1	The program includes opportunities for teachers to effectively plan and utilize materials with integrity and to further develop their own understanding of the content.
Indicator 3g	<i>*This is not an assessed indicator in Mathematics.</i>

## Gateway 3: Usability

Criterion 3.1	The program includes opportunities for teachers to effectively plan and utilize materials with integrity and to further develop their own understanding of the content.
Indicator 3h	<i>*This is not an assessed indicator in Mathematics.</i>

# Gateway 3: Usability

## Criterion 3.2

### Assessment

The program includes a system of assessments identifying how materials provide tools, guidance, and support for teachers to collect, interpret, and act on data about student progress towards the standards.

### What is the purpose of this Criterion?

This criterion

- examines how the materials measure individual student progress towards the standards and elements over time.
- examines how the materials provide guidance to monitor and move student learning.
- examines how the materials indicate which standards are assessed and provide accommodations while still assessing the intent of the standards.

### Scoring:

Meets Expectations

- 9-10 points

Partially Meets Expectations

- 7-8 points

Does Not Meet Expectations

- <7 points

# Gateway 3: Usability

<b>Criterion 3.2</b>	The program includes a system of assessments identifying how materials provide tools, guidance, and support for teachers to collect, interpret, and act on data about student progress towards the standards.
<b>Indicator 3i</b>	Assessment information is included in the materials to indicate which standards are assessed.

Scoring:		
<p><b>2 points</b></p> <ul style="list-style-type: none"> <li>Materials consistently identify the standards and practices assessed for formal assessments.</li> </ul>	<p><b>1 point</b></p> <ul style="list-style-type: none"> <li>Materials identify the standards and practices assessed for some of the formal assessments.</li> </ul> <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> <li>Materials consistently identify the standards and practices assessed for formal assessments, but do not include all standards and practices for the grade or course level.</li> </ul>	<p><b>0 points</b></p> <ul style="list-style-type: none"> <li>Materials do not identify the standards and practices assessed for the formal assessments.</li> </ul> <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> <li>Materials identify the standards and practices assessed for some of the formal assessments, but do not include all standards and practices for the grade or course level.</li> </ul>

## About this indicator:

What is the purpose of this Indicator?

This indicator examines the assessment materials to determine whether they identify the standards being assessed for all formal assessment types. It is important to note that some assessments may be building toward the standards and not intended to measure full depth of the standards; these assessments should identify which aspects of the standards are being assessed and/or being built toward.

Formal assessments are determined by the publisher and could include all types: formative, summative, etc. Reviewers look for a list of standards assessed for the entire assessment and/or associated with each item/task. Reviewers look for evidence of identification only.

### Indicator 3i Guiding Question:

Does assessment information included in the materials indicate which standards are assessed?

### Evidence Collection

Review assessments and corresponding assessment guidance across the series. \*Note: this is not an item analysis.

Look for and record evidence to:

- Describe how and where assessments clearly identify which standards are being assessed. Include the level at which the assessment is given (unit, lesson, etc.) and the level at which standards are identified (assessment, task, item, etc.).
- Describe any instances where standards are listed incorrectly or are not from the appropriate grade level/band.
- In the event that the assessments build toward grade-level or grade-band standards, describe whether the assessment information identifies which aspects of the standards are assessed. Also, describe how and where the materials include information that details how the assessments build toward the standards for the grade level or band.

## Cluster Meeting

Discuss and answer the following questions to support consensus scoring conversations:

- Where and how do the materials clearly identify which standards are assessed?
- Do the standards correlations or assessment guidance documents indicate if all standards for the grade level/band are assessed by the end of the grade level/band?
- If assessments are building towards the standards, do the materials identify which aspects of the standards are being assessed and how these contribute to building toward grade-level/grade-band standards?

# Gateway 3: Usability

<b>Criterion 3.2</b>	The program includes a system of assessments identifying how materials provide tools, guidance, and support for teachers to collect, interpret, and act on data about student progress towards the standards.
<b>Indicator 3j</b>	Assessment system provides multiple opportunities throughout the grade, course, and/or series to determine students' learning and sufficient guidance to teachers for interpreting student performance and suggestions for follow-up.

Scoring:		
<p>4 points</p> <ul style="list-style-type: none"> <li>Assessment system provides multiple opportunities to determine students' learning and sufficient guidance to teachers for interpreting student performance.</li> </ul> <p style="text-align: center;">AND</p> <ul style="list-style-type: none"> <li>Assessment system provides multiple opportunities to determine students' learning and suggestions to teachers for following-up with students.</li> </ul>	<p>2 point</p> <ul style="list-style-type: none"> <li>Assessment system provides multiple opportunities to determine students' learning and sufficient guidance to teachers for interpreting student performance but does not provide suggestions for following-up with students.</li> </ul> <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> <li>Assessment system provides multiple opportunities to determine students' learning and suggestions to teachers for following-up with students but does not provide sufficient guidance for interpreting student performance.</li> </ul>	<p>0 points</p> <ul style="list-style-type: none"> <li>Assessment system does not provide multiple opportunities to determine students' learning and sufficient guidance to teachers for interpreting student performance.</li> </ul> <p style="text-align: center;">AND</p> <ul style="list-style-type: none"> <li>Assessment system does not provide multiple opportunities to determine students' learning and suggestions to teachers for following-up with students.</li> </ul>

## About this indicator:

What is the purpose of this Indicator?

This indicator examines assessments and corresponding assessment guidance across the series, including answer keys, rubrics, and other assessment scoring tools (e.g., sample student responses, scoring guidelines, and open-ended feedback), guidance for teachers to interpret student performance, and suggestions for follow-up based on student performance.

### Indicator 3j Guiding Question:

Does the assessment system provide multiple opportunities throughout the grade, course, and/or series to determine students' learning and sufficient guidance to teachers for interpreting student performance and suggestions for follow-up?

## Evidence Collection

Review assessments and corresponding assessment guidance across the series, including answer keys, rubrics, and other assessment scoring tools.

Look for and record evidence to:

- Describe if and how assessments provide tools for scoring purposes (e.g., sample student responses, rubrics, scoring guidelines, and open-ended feedback).
- Describe whether guidance is provided to teachers to interpret student understanding. Look for task-specific scoring guidance to help determine if a student has met the expectations.
- Describe whether teachers are provided with guidance to respond to student needs elicited by the assessment. Record evidence about follow-up steps/suggestions provided for the teacher.

## Cluster Meeting

Discuss and answer the following questions to support consensus scoring conversations:

- How and where do the materials provide tools to score assessment items?
- Is guidance consistently provided to teachers to interpret student understandings?
- Are teachers consistently provided with guidance to respond to student needs elicited by the assessment?

# Gateway 3: Usability

<b>Criterion 3.2</b>	The program includes a system of assessments identifying how materials provide tools, guidance, and support for teachers to collect, interpret, and act on data about student progress towards the standards.
<b>Indicator 3k</b>	Assessments include opportunities for students to demonstrate the full intent of grade-level/course-level standards and practices across the series.

Scoring:		
<p><b>4 points</b></p> <ul style="list-style-type: none"> <li>Assessments include opportunities for students to demonstrate the full intent of grade-level/course-level standards and practices across the series.</li> </ul>	<p><b>2 points</b></p> <ul style="list-style-type: none"> <li>Assessments do not include opportunities for students to demonstrate the full intent of grade-level/course-level standards across the series.</li> <li>OR</li> <li>Assessments do not include opportunities for students to demonstrate the full intent of grade-level/course-level practices across the series.</li> </ul>	<p><b>0 points</b></p> <ul style="list-style-type: none"> <li>Assessments do not include opportunities for students to demonstrate the full intent of grade-level/course-level standards and practices across the series.</li> </ul>

## About this indicator:

What is the purpose of this Indicator?

This indicator examines the assessments within and across the materials to determine whether they include a variety of assessment types that are constructed in a manner that allows for the depth of the grade-level standards and practices to be assessed.

Research or Standards connection:

- [CCSSO Criteria for High Quality Assessment: Section C - Align to Standards - Mathematics](#)

### Indicator 3k Guiding Question:

Do the assessments include opportunities for students to demonstrate the full intent of grade-level/course-level standards and practices across the series?

### Evidence Collection

Review assessments and corresponding assessment guidance across the series.

Look for and record evidence to:

- Describe the different types of modalities (e.g., writing, illustrating, demonstrating, modeling, oral presentations, and performance tasks) used for student assessments.
- Describe the different types of items used for student assessments and how they are used to measure student performance (e.g., performance tasks, discussion questions, constructed response questions, project- or problem-based tasks, portfolios, justified multiple choice).
- Demonstrate that assessments address sufficient complexity.

## Cluster Meeting

Discuss and answer the following questions to support consensus scoring conversations:

- Do the assessments include a variety of modalities (e.g., writing, illustrating, demonstrating, modeling, oral presentations, and performance tasks) and how are they used across different assessments, grades/courses, and series?
- Do the assessments include a variety of types (e.g., performance tasks, discussion questions, constructed response questions, project- or problem-based tasks, portfolios, justified multiple choice) and how are they used across different assessments, grades/courses, and series?
- Is there a good balance of complexity in assessment tasks?

# Gateway 3: Usability

<b>Criterion 3.2</b>	The program includes a system of assessments identifying how materials provide tools, guidance, and support for teachers to collect, interpret, and act on data about student progress towards the standards.
<b>Indicator 3I</b>	Assessments offer accommodations that allow students to demonstrate their knowledge and skills without changing the content of the assessment.

## Scoring: Narrative Evidence Only

Note: No score is given for this indicator. Only qualitative evidence is provided.

## About this indicator:

What is the purpose of this Indicator?

This indicator examines the series' assessments and assessment guidance documentation to determine what accommodations are available.

## Indicator 3I Guiding Question:

Do the assessments offer accommodations that allow students to demonstrate their knowledge and skills without changing the content of the assessment?

## Evidence Collection

Review assessments and corresponding assessment guidance across the series.

Look for and record evidence to:

- Describe where and how accommodations are offered that ensure all students can access the assessment, (e.g. text to speech, increased font size, etc.) without changing the content of the assessment.
- Describe any guidance for teachers on the use of provided accommodations.
- Describe whether any accommodations alter grade-level/course expectations or the content of the assessment for students.
- Describe any guidance provided for teachers to account for varied levels of English language proficiency without changing the content of the assessment, yet still allowing Multilingual Learners (MLLs)<sup>1</sup> to show grade level mastery regardless of language ability.
- Describe any guidance provided for teachers to allow for students with disabilities to demonstrate their knowledge and skills without changing the content of the assessment.

<sup>1</sup> At EdReports, we use the term "multilingual learners" when we refer to students who are developing proficiency in multiple languages including students learning English as an additional language in school. This choice is the organization's attempt to use more asset-based language.

## Cluster Meeting

Discuss and answer the following questions to support consensus scoring conversations:

- Where and how do the assessments provide accommodations for students?
- Where and how is guidance provided for teachers to use the accommodations?
- Do accommodations alter grade-level/course expectations for students?
- Are current instructional supports for MLLs maintained through the assessment process?
- Are current instructional supports for Students with Disabilities maintained through the assessment process?

# Gateway 3: Usability

## Criterion 3.3

### Student Supports

The program includes materials designed for each student’s regular and active participation in grade-level/grade-band/series content.

### What is the purpose of this Criterion?

This criterion examines how the materials:

- leverage diverse cultural and social backgrounds of students.
- provide appropriate support, accommodations, and modifications for special populations that support regular and active participation in mathematics.
- provide multiple access points for students at varying ability levels to make sense of mathematics.
- include multi-modal opportunities for students to share their thinking.
- represent people of various demographic and physical characteristics.
- provide opportunities for teachers to use a variety of grouping strategies.
- are made accessible by providing appropriate supports for different reading levels.

### Scoring:

#### Meets Expectations

- 8 points

#### Partially Meets Expectations

- 6-7 points (\*with no 0s)

#### Does Not Meet Expectations

- <6 points

# Gateway 3: Usability

<b>Criterion 3.3</b>	The program includes materials designed for each student’s regular and active participation in grade-level/grade-band/series content.
<b>Indicator 3m</b>	Materials provide strategies and supports for students in special populations to support their regular and active participation in learning grade-level/series mathematics.

Scoring:		
<b>2 points</b> <ul style="list-style-type: none"> <li>Materials regularly provide strategies, supports, and resources for students in special populations to support their regular and active participation in grade-level mathematics.</li> </ul>	<b>1 point</b> <ul style="list-style-type: none"> <li>Materials do not regularly provide strategies, supports, and resources for students in special populations to support their regular and active participation in grade-level mathematics.</li> </ul>	<b>0 points</b> <ul style="list-style-type: none"> <li>There are no strategies, supports, or resources for students in special populations to support their regular and active participation in grade-level mathematics.</li> </ul>

## About this indicator:

What is the purpose of this Indicator?

This indicator examines whether the materials provide strategies, supports, and resources for students in special populations to support their regular and active participation in grade-level mathematics.

Research or Standards connection:

For this indicator, special populations refers to students that must overcome barriers that may require special consideration and attention to ensure equal opportunity for success and in an educational setting.

Resources:

- [Supporting Special Populations, Office of Elementary and Secondary Education](#)

## Indicator 3m Guiding Question:

What opportunities are there for students in special populations to engage with materials to support ongoing participation in grade-level mathematics content?

## Evidence Collection

Review teacher and student materials across the series.

Look for and record evidence to:

- Describe where and how the materials provide specific strategies and supports for differentiating instruction to meet the needs of students in special populations.
- Identify whether the materials support students in special populations in regular and active participation in grade-level mathematics and include any instances where differentiation does not present opportunities to engage students in the work of the grade level.
- Describe teacher guidance around using grouping strategies with students in special populations.

Note - There must be more than a statement at the beginning of the chapter or lesson that is generic or states that the same strategy could be used with every lesson.

## Cluster Meeting

Discuss and answer the following questions to support consensus scoring conversations:

- How and where do materials provide appropriate differentiated strategies and supports for students in special populations?
- Do materials provide differentiation supports to sufficiently engage students in grade-level/course-level mathematics?
- Do the materials include overarching guidance on strategies and accommodations for special populations? Are these evident in lessons?

# Gateway 3: Usability

<b>Criterion 3.3</b>	The program includes materials designed for each student’s regular and active participation in grade-level/grade-band/series content.
<b>Indicator 3n</b>	Materials provide extensions and/or opportunities for students to engage with grade-level/course-level mathematics at higher levels of complexity.

Scoring:		
<p>2 points</p> <ul style="list-style-type: none"> <li>Materials provide multiple opportunities for advanced students to investigate the course-level mathematics at a higher level of complexity.</li> <li style="text-align: center;">AND</li> <li>No instances of advanced students doing more problems than their classmates.</li> </ul>	<p>1 point</p> <ul style="list-style-type: none"> <li>Materials provide some opportunities for advanced students to investigate the course-level mathematics at a higher level of complexity.</li> <li style="text-align: center;">AND</li> <li>There are few instances of advanced students doing more problems than their classmates.</li> </ul>	<p>0 points</p> <ul style="list-style-type: none"> <li>Materials provide few, if any, opportunities for advanced students to investigate the course-level mathematics at a higher level of complexity.</li> <li style="text-align: center;">OR</li> <li>There are many instances of advanced students doing more problems than their classmates.</li> </ul>

## About this indicator:

What is the purpose of this Indicator?

This indicator examines the materials to determine whether the materials provide opportunities for advanced students to engage in grade-level mathematics at a higher level of complexity.

### Indicator 3n Guiding Question:

What opportunities are present for students to engage in learning with grade-level mathematics at higher levels of complexity?

Are the opportunities that are present purposeful investigations or extensions?

Do the opportunities extend learning of the grade-level content or topic?

### Evidence Collection

Review the student materials across the series.

Look for and record evidence to:

- Describe how and where advanced students have opportunities to work at a higher level of complexity with a standard. Note - this is not students completing additional tasks or more work, but is an extension of their learning.

- Identify strategies and supports for advanced students exploration of grade-level content at a higher level of complexity.
- Describe teacher guidance around using grouping strategies with advanced students.

## Cluster Meeting

Discuss and answer the following questions to support consensus scoring conversations:

- Where and how do the materials present opportunities specific to extending students' learning of the grade-level content?
- Where and how do the materials present opportunities to students to engage in grade-level content at a higher level of complexity?
- What opportunities do students have to develop and apply higher-level thinking?
- What strategies and supports are available for students to engage in grade-level content at a higher level of complexity?

# Gateway 3: Usability

<b>Criterion 3.3</b>	The program includes materials designed for each student’s regular and active participation in grade-level/grade-band/series content.
<b>Indicator 3o</b>	Materials provide varied approaches to learning tasks over time and variety in how students are expected to demonstrate their learning with opportunities for students to monitor their learning.

## Scoring: Narrative Evidence Only

Note: No score is given for this indicator. Only qualitative evidence is provided.

## About this indicator:

What is the purpose of this Indicator?

This indicator examines the materials for a variety of approaches to learning tasks over the grade level and grade band, a variety of opportunities for students to demonstrate their learning over time, opportunities for students to receive oral and/or written peer or teacher feedback, and opportunities for students to monitor and move their learning.

## Indicator 3o Guiding Question:

What approaches to presentation of material are provided?

What approaches are provided for students to demonstrate and monitor their learning?

Do the approaches to presentation and demonstration of learning vary over the course of the year?

## Evidence Collection

Review teacher and student materials across the series.

Look for and record evidence to:

- Describe how and where the materials provide multi-modal opportunities for students to question, investigate, sense-make, and problem-solve using a variety of formats and methods.
- Describe how and where students have opportunities to share their thinking, to demonstrate changes in their thinking over time, and to apply their understanding in new contexts.
- Describe how the program leverages the use of a variety of formats and methods over time to deepen student understanding and ability to explain and apply mathematics ideas.
- Describe if and how materials provide for ongoing review, practice, self-reflection, and feedback.
- Describe if and how materials provide multiple strategies, such as oral and/or written feedback, peer or teacher feedback, and self-reflection.
- Describe if and how materials provide a clear path for students to monitor and move their own learning.

## Cluster Meeting

Discuss and answer the following questions to support consensus scoring conversations:

- How and where do the materials provide multi-modal opportunities for students to question, investigate, sense-make, and problem-solve using a variety of formats and methods?
- How and where do students have opportunities to share their thinking, to compare their thinking with other students or to new ideas presented in the learning opportunities, to demonstrate changes in their thinking over time, and to apply their understanding in new contexts?
- Where and how often do the materials provide for ongoing review, practice, self-reflection, and feedback?
- Where and how often do the materials provide guidance for multiple feedback strategies, such as oral and/or written feedback?
- Where and how often do the materials provide guidance for multiple strategies for peer or teacher feedback?
- Where and how often do the materials encourage students to monitor their own progress based on feedback and self-reflection?
- Where and how often do the materials provide a clear path for students to monitor and move their own learning?

# Gateway 3: Usability

<b>Criterion 3.3</b>	The program includes materials designed for each student’s regular and active participation in grade-level/grade-band/series content.
<b>Indicator 3p</b>	Materials provide opportunities for teachers to use a variety of grouping strategies.

## Scoring: Narrative Evidence Only

Note: No score is given for this indicator. Only qualitative evidence is provided.

### About this indicator:

What is the purpose of this Indicator?

This indicator examines the materials to determine the types and frequency of grouping strategies for teachers to use and to determine if guidance is provided to teachers on how and when to use specific grouping strategies.

Note: Evidence for grouping strategies with: special populations will be in 3m; advanced students in 3n; and MLLs in 3q.

### Indicator 3p Guiding Question:

Do the materials provide opportunities for teachers to use a variety of grouping strategies?

### Evidence Collection

Review teacher and student materials across the series.

Look for and record evidence to:

- Describe how and where the materials provide grouping strategies for students.
- Describe how and where the materials provide for interaction among students and the types of interactions provided.
- Describe how and where the materials provide guidance for the teacher on grouping students in a variety of grouping formats.

Note: If you identify grouping strategies specifically targeted to differentiated populations, please assign that evidence to the associated indicators (special populations will be in 3m; advanced students in 3n; MLLs in 3q).

### Cluster Meeting

Discuss and answer the following questions to support consensus scoring conversations:

- How and where do materials provide different grouping strategies? How does this differ based on the needs of particular students?

- How and where do materials balance whole group, small group, and individual instruction to provide for interaction among students?
- How and where do the materials provide guidance for the teacher on how and when to use specific grouping strategies?

# Gateway 3: Usability

<b>Criterion 3.3</b>	The program includes materials designed for each student’s regular and active participation in grade-level/grade-band/series content.
<b>Indicator 3q</b>	Materials provide strategies and supports for students who read, write, and/or speak in a language other than English to regularly participate in learning grade-level mathematics.

Scoring:		
<b>2 points</b> <ul style="list-style-type: none"> <li>Materials consistently provide strategies and supports for students who read, write, and/or speak in a language other than English to meet or exceed grade-level standards through regular and active participation in grade-level mathematics.</li> </ul>	<b>1 point</b> <ul style="list-style-type: none"> <li>Materials provide strategies and supports for students who read, write, and/or speak in a language other than English to meet or exceed grade-level standards through active participation in grade-level mathematics, but not consistently.</li> </ul>	<b>0 points</b> <ul style="list-style-type: none"> <li>Materials do not provide strategies and supports for students who read, write, and/or speak in a language other than English to meet or exceed grade-level standards through regular and active participation in grade-level mathematics.</li> </ul>

## About this indicator:

What is the purpose of this Indicator?

This indicator examines whether the materials provide strategies, supports, and resources for students who read, write, and/or speak in a primary language other than English to support their regular and active participation in grade-level mathematics.

## Indicator 3q Guiding Question:

Do the materials provide strategies and supports for students who read, write, and/or speak in a language other than English to regularly participate in learning grade-level mathematics?

## Evidence Collection

Review teacher and student materials across the series.

Look for and record evidence to:

- Describe how the materials frame their MLL approach and supports throughout the program for the explicit purpose of ensuring they are able to meet the standards.
- Describe how the materials provide strategies, appropriate support, and accommodations, that will support MLLs' regular and active participation. Include opportunities for speaking, listening, reading, and writing to develop practices and knowledge of the subject matter. This may include scaffolding, but should scaffold up towards grade-level work.

- Describe content-specific or lesson-specific strategies or materials provided for supporting all students in engaging in grade-level/grade-band instruction. There must be more than a statement at the beginning of the chapter or lesson that is generic or states that the same strategy could be used with every lesson, and there needs to be specific supports and/or routines that allow students to access grade-level instruction and content.
- Describe teacher guidance to support MLL students and to utilize the strategies, supports, and/or accommodations found. Also, describe how the learning opportunities and assessments help teachers identify and follow-up on whether the student has success in content vs. language acquisition, as well as identify when students may have misconceptions with content vs. language demand, to ensure the two are not conflated.
- Describe how the materials incorporate varied approaches to learning tasks over time and variety in how students are expected to demonstrate their learning of grade-level content with opportunities for students to do so in various ways as their language development progresses.
- Describe teacher guidance around using grouping strategies with MLLs. Is there guidance as to how to use language proficiency in grouping students, i.e., when to group students by home language or by language proficiency, either heterogeneously or homogeneously?

## Cluster Meeting

Discuss and answer the following questions to support consensus scoring conversations:

- Where do materials provide appropriate support, and accommodations for MLLs that will support their regular and active participation in learning mathematics?
- Where is there evidence of specific resources and strategies supporting all students?
- Where are differentiation supports present for MLLs?
- What materials would help teachers provide lessons and concepts to help support these students?
- Are there oral language development activities (speaking and listening) for students that provide pathways, including scaffolds and supports for MLLs to engage with grade-level content and to develop disciplinary practices and knowledge of the subject matter? Speaking and listening activities without specific supports for MLLs would not be sufficient evidence.
- Are there reading and writing activities that engage MLLs in topics and prompts with peers and teacher throughout and as an integral part of the reading and writing process to develop disciplinary practices and knowledge of the subject matter?
- Do the materials for teachers provide guidance for instructional practices that promote student agency and learner autonomy for MLLs?
- Do the materials provide guidance for teachers to anticipate and address potential language demands and opportunities that may interfere with engagement of content? Do they clearly identify where both student successes and challenges may be rooted in misconceptions in content vs. language demands, through learning and assessment?
- Do the materials support teachers in identifying students at various language levels with guidelines for supporting these students in monitoring and moving their language development along the English proficiency progression?
- For MLLs still developing their language skills but exceeding in their ability to engage in grade-level content, do the materials allow for them to develop and deepen their understanding of concepts in their primary language?
- Are there vocabulary development supports specific to MLLs, not just to the content? If the focused-upon words are needed to grapple with the linguistic demand of the lesson, then they are MLL supports. If all students need content vocabulary knowledge to be successful in the lesson, then activities and strategies to learn those content-specific words are not MLL strategies.

- Are supports for MLLs differentiated based on level of language proficiency?
- Have we chosen evidence that is specific to supporting the language development of MLLs?

# Gateway 3: Usability

<b>Criterion 3.3</b>	The program includes materials designed for each student’s regular and active participation in grade-level/grade-band/series content.
<b>Indicator 3r</b>	Materials provide a balance of images or information about people, representing various demographic and physical characteristics.

## Scoring: Narrative Evidence Only

Note: No score is given for this indicator. Only qualitative evidence is provided.

### About this indicator:

What is the purpose of this Indicator?

This indicator examines the series to determine if the materials include a balance of images or information about people, representing various demographic and physical characteristics.

### Indicator 3r Guiding Question:

Do the materials provide a balance of images or information about people, representing various demographic and physical characteristics?

### Evidence Collection

Review the student materials across the series.

Look for and record evidence to:

- Describe if and how the materials provide examples of various demographic and physical characteristics.
- Describe if the images and those represented show students engaging in and able to do the work related to the context of the learning.

### Cluster Meeting

Discuss and answer the following questions to support consensus scoring conversations:

- How and where do materials and assessments depict different individuals of different genders, races, ethnicities, and other physical characteristics?
- How and where do materials and assessments balance positive portrayals of demographics or physical characteristics? Do names used in assessments, or images throughout the materials depict different genders, races, ethnicities, and other physical characteristics?
- Do the materials avoid stereotypes or language that might be offensive to a particular group?
- Are depictions of demographics or physical characteristics portrayed positively across the series, or is one demographic represented more positively than others? For example, do assessment items proportionately use male and female names for both correct and incorrect responses, or is one gender predominately used for incorrect responses?

- Do the materials provide representations that show students that they can succeed in the subject, going beyond just showing photos of diverse students not engaged in work related to the context of the learning?

# Gateway 3: Usability

<b>Criterion 3.3</b>	The program includes materials designed for each student’s regular and active participation in grade-level/grade-band/series content.
<b>Indicator 3s</b>	Materials provide guidance to encourage teachers to draw upon student home language to facilitate learning.

## Scoring: Narrative Evidence Only

Note: No score is given for this indicator. Only qualitative evidence is provided.

### About this indicator:

What is the purpose of this Indicator?

This indicator examines the materials for teacher guidance on connecting learning opportunities to students through use of student home language.

### Indicator 3s Guiding Question:

Do the materials present multilingualism as an asset in reading, and encourage support teachers of MLLs to use their students' home language strategically for learning how to negotiate texts in the target language?

Do the materials include instructions on how to garner information of a students' home language that will aid in learning?

### Evidence Collection

Review teacher and student materials across the series.

Look for and record evidence to:

- Describe how the materials provide suggestions and strategies to use the home language to support students in learning mathematics.
- Describe how the materials present multilingualism as an asset in reading and learning mathematics, and how to use students’ home language strategically for learning how to negotiate text in the target language.
- Describe how teacher materials should include guidance on how to garner information that will aid in learning, including the family’s preferred language of communication, schooling experiences in other languages, literacy abilities in other languages, and previous exposure to academic or everyday English. Include whether and how the materials guide teachers to use this information strategically in instruction.

### Cluster Meeting

Discuss and answer the following question to support consensus scoring conversations:

- What strategies are present to utilize student home language in context with the materials? Are these strategies generalized or specific to certain content?

- Do materials promote home language and knowledge as an asset to engage students in the content material?
- Do the materials use student home language as an additional support to gain access to the content, or rely on students understanding the content in their home language?
- Do the materials recognize all languages, or rely on known information about some of the more prevalent languages (i.e., cognates in Spanish)?

# Gateway 3: Usability

<b>Criterion 3.3</b>	The program includes materials designed for each student’s regular and active participation in grade-level/grade-band/series content.
<b>Indicator 3t</b>	Materials provide guidance to encourage teachers to draw upon student cultural and social backgrounds to facilitate learning.

## Scoring: Narrative Evidence Only

Note: No score is given for this indicator. Only qualitative evidence is provided.

### About this indicator:

What is the purpose of this Indicator?

This indicator examines whether materials are designed to elicit and leverage diverse cultural and social backgrounds of students.

### Indicator 3t Guiding Question:

Do the materials provide guidance to encourage teachers to draw upon student cultural and social backgrounds to facilitate learning?

### Evidence Collection

Review teacher and student materials across the series.

Look for and record evidence to:

- Describe if and how materials make connections to the linguistic, cultural, and conventions used in learning mathematics.
- Describe if and how materials make connections to the linguistic and cultural diversity to facilitate learning.
- Identify if teacher guidance is present on how to engage culturally diverse students in the learning of mathematics.
- Identify equity guidance and opportunities in the materials.
- Identify opportunities for students to feel “acknowledged” such as tasks based on customs of other cultures.
- Identify prompts where students are encouraged to share how they (or their parents) do things at home or use information to create personal problems, etc.

### Cluster Meeting

Discuss and answer the following questions to support consensus scoring conversations:

- How well do the materials capitalize on diverse cultural and social backgrounds of students?
- How well do the materials help to promote equity and access (across genders, cultures, or countries of origin)?
- How well are the learning goals, instructional activities, text, and images presented in a context designed to leverage diverse cultural and social backgrounds of students?
- How well are the learning goals, instructional activities, text, or images, likely to be relevant, interesting and/or motivating to students?
- How well do the materials connect to the students' funds of knowledge, culture, or community?

# Gateway 3: Usability

<b>Criterion 3.3</b>	The program includes materials designed for each student’s regular and active participation in grade-level/grade-band/series content.
<b>Indicator 3u</b>	Materials provide supports for different reading levels to ensure accessibility for students.

## Scoring: Narrative Evidence Only

Note: No score is given for this indicator. Only qualitative evidence is provided.

### About this indicator:

What is the purpose of this Indicator?

This indicator examines the materials to determine if supports are present for a range of students at a variety of reading levels to engage with grade-level mathematics.

### Indicator 3u Guiding Question:

Do the materials provide supports for different reading levels to ensure accessibility for students?

### Evidence Collection

Review teacher and student materials across the series.

Look for and record evidence to:

- Identify strategies to engage students in reading and accessing grade-level mathematics. Note: strategies and supports for engaging students in MP1, Make sense and persevere in solving problems and MP6, Attending to precision in language can also be noted here.
- Identify multiple entry points that present a variety of representations to help struggling readers to access and engage in grade-level mathematics.

### Cluster Meeting

Discuss and answer the following questions to support consensus scoring conversations:

- How and where do the materials include specific supports or strategies to support students who read below grade level to engage with grade-level mathematics?
- How and where do the materials scaffold vocabulary or concepts to support readers below grade level?
- How and where do the materials use a variety of representations to engage students with grade-level content?
- Do materials include “just-right” pre-reading activities that offer visuals and other types of supports and scaffolds for building essential and pertinent background knowledge on new or unfamiliar themes/ topics?

# Gateway 3: Usability

<b>Criterion 3.3</b>	The program includes materials designed for each student’s regular and active participation in grade-level/grade-band/series content.
<b>Indicator 3v</b>	Manipulatives, both virtual and physical, are accurate representations of the mathematical objects they represent and, when appropriate, are connected to written methods.

Scoring:		
<b>2 points</b> <ul style="list-style-type: none"> <li>Manipulatives are accurate representations of mathematical objects and are connected to written methods.</li> </ul>	<b>1 point</b> <ul style="list-style-type: none"> <li>Manipulatives are accurate representations of mathematical objects.</li> <li>OR</li> <li>Manipulatives are connected to written methods.</li> </ul>	<b>0 points</b> <ul style="list-style-type: none"> <li>Manipulatives are not accurate representations of mathematical objects and are not connected to written methods.</li> </ul>

## About this indicator:

What is the purpose of this Indicator?

This indicator determines how materials include manipulatives to support and represent mathematical objects, and connect to grade-level written methods.

### Indicator 3v Guiding Question:

Are manipulatives, both virtual and physical, accurate representations of the mathematical objects they represent and, when appropriate, are connected to written methods?

### Evidence Collection

Review teacher and student materials across the series.

Look for and record evidence to:

- Identify the use of physical and/or virtual manipulatives. Examples of manipulatives (physical or virtual) could include: two-color counters, calculator, coins, number cubes, playing cards, string, square tiles, unit cubes, colored chips, algebra tiles, grid paper, index cards, anchor charts, ruler, compass, protractor, geometry software, bar diagrams, fraction strips, number lines, decimal grids, x-y tables, pie charts, etc.
- Identify situations where manipulatives help students develop understanding of a concept.
- Describe if and how manipulatives are used and who is using them. Look for routine use of manipulatives so students understand their purpose and can independently choose to use any tools helpful to them, both for learning and for explaining their understanding.

- Identify alignment with content where manipulatives help develop conceptual understanding, as well as instances where they could be beneficial but are not used.
- Describe if and how students connect, and eventually transition from, the use of manipulatives to written methods.

## Cluster Meeting

Discuss and answer the following questions to support consensus scoring conversations:

- How often are manipulatives used to develop understanding of content?
- Do students use manipulatives in a variety of situations so they understand their purpose and can use them effectively? Or do they just "check a box"?
- How are manipulatives used to build toward a written process?

# Gateway 3: Usability

## Criterion 3.4

### Intentional Design

The program includes a visual design that is engaging and references or integrates digital technology, when applicable, with guidance for teachers.

### What is the purpose of this Criterion?

This criterion:

- examines how the materials integrate digital technology and interactive tools to support student engagement in mathematics.
- examines how the materials use digital technology to provide collaborative opportunities for teachers and/or students.
- examines how the embedded technology and visual design supports student engagement and learning.

### Scoring: Narrative Evidence Only

Note: No score is given for this criterion. Only qualitative evidence is provided.

# Gateway 3: Usability

<b>Criterion 3.4</b>	The program includes a visual design that is engaging and references or integrates digital technology, when applicable, with guidance for teachers.
<b>Indicator 3w</b>	Materials integrate technology such as interactive tools, virtual manipulatives/objects, and/or dynamic mathematics software in ways that engage students in the grade-level/series standards, when applicable.

## Scoring: Narrative Evidence Only

Note: No score is given for this indicator. Only qualitative evidence is provided.

## About this indicator:

What is the purpose of this Indicator?

This indicator examines whether materials integrate interactive tools and/or dynamic software in ways that support student engagement in mathematics and is applicable to materials with digital components only.

## Indicator 3w Guiding Question:

Do the materials integrate interactive tools and/or dynamic software in ways that support student engagement in mathematics, when applicable?

## Evidence Collection

Review teacher and student materials across the series.

Look for and record evidence to:

- Describe if and how digital technology and interactive tools such as data collection tools, simulations, virtual manipulatives, and/or modeling tools are available to students.
- Describe if and how digital materials support students' engagement in “doing” math.
- Describe if and how digital materials can be customized for local use (i.e., student and/or community interests).
- Identify alignment to the course-level content standards and Mathematical Practices.

## Cluster Meeting

Discuss and answer the following questions to support consensus scoring conversations:

- What digital technology and interactive tools are included in the materials?
- How are digital technology and interactive tools, such as data collection tools, simulations, and/or modeling tools made available to students?
- How do included digital tools support student engagement in mathematics?
- How can digital materials be customized for local use (i.e., student and/or community interests)?

# Gateway 3: Usability

<b>Criterion 3.4</b>	The program includes a visual design that is engaging and references or integrates digital technology, when applicable, with guidance for teachers.
<b>Indicator 3x</b>	Materials include or reference digital technology that provides opportunities for teachers and/or students to collaborate with each other, when applicable.

## Scoring: Narrative Evidence Only

Note: No score is given for this indicator. Only qualitative evidence is provided.

### About this indicator:

What is the purpose of this Indicator?

This indicator examines the series to determine if the materials provide opportunities and guidance for teachers and/or students to collaborate with each other and is applicable to materials with digital components only.

### Indicator 3x Guiding Question:

Do the materials include or reference digital technology that provides opportunities for teachers and/or students to collaborate with each other, when applicable?

### Evidence Collection

Review teacher and student materials across the series.

Look for and record evidence to:

- Describe how and where the materials include or reference digital technology that provides opportunities for teachers and/or students to collaborate with each other.
- Describe which stakeholders the materials support collaboration between: teacher to teacher, teacher to student, or student to student.

### Cluster Meeting

Discuss and answer the following questions to support consensus scoring conversations:

- How and where do the materials provide opportunities for online or digital collaboration?
- How and where do the materials provide opportunities for students to collaborate with the teacher and/or with other students?

# Gateway 3: Usability

<b>Criterion 3.4</b>	The program includes a visual design that is engaging and references or integrates digital technology, when applicable, with guidance for teachers.
<b>Indicator 3y</b>	The visual design (whether in print or digital) supports students in engaging thoughtfully with the subject, and is neither distracting nor chaotic.

## Scoring: Narrative Evidence Only

Note: No score is given for this indicator. Only qualitative evidence is provided.

### About this indicator:

What is the purpose of this Indicator?

This indicator examines the visual design to determine if images, graphics, and models support student learning and engagement, without being visually distracting; examines for consistency in layout of the teacher and student materials; examines resources to determine whether they clearly communicate information; and examines resources to determine whether they contain any errors as they relate to usability.

### Indicator 3y Guiding Question:

Does the visual design (whether in print or digital) support students in engaging thoughtfully with the subject, and is neither distracting nor chaotic?

### Evidence Collection

Review teacher and student materials across the series.

Look for and record evidence to:

- Describe how images, graphics, and models support student learning and engagement without being visually distracting.
- Describe whether teacher and student materials are consistent in layout and structure across lessons/modules/units.
- Describe if and how the images, graphics, and models clearly communicate information or support student understanding of topics, texts, or concepts.
- Identify any errors in the resources related to usability.

### Cluster Meeting

Discuss and answer the following questions to support consensus scoring conversations:

- Do all images, graphics, and models support student learning and engagement, without being visually distracting?
- Are the teacher and student materials consistent in layout and structure?
- Are there any directions, questions, or information in the materials or assessments that are ambiguous, unclear, or inaccurate?

- Are the organizational features (Table of Contents, glossary, index, internal references, table headers, captions, etc.) in the materials clear, accurate, and error-free?

# Gateway 3: Usability

<b>Criterion 3.4</b>	The program includes a visual design that is engaging and references or integrates digital technology, when applicable, with guidance for teachers.
<b>Indicator 3z</b>	Materials provide teacher guidance for the use of embedded technology to support and enhance student learning, when applicable.

## Scoring: Narrative Evidence Only

Note: No score is given for this indicator. Only qualitative evidence is provided.

### About this indicator:

What is the purpose of this Indicator?

This indicator examines the materials to determine whether they provide teacher guidance for the use of embedded technology to support and enhance student learning and is applicable to materials with digital components only.

### Indicator 3z Guiding Question:

Do the materials provide teacher guidance for the use of embedded technology to support and enhance student learning, when applicable?

### Evidence Collection

Review teacher materials across the series.

Look for and record evidence to:

- Describe where and how the materials provide guidance for using embedded technology to support and enhance student learning, where applicable.

### Cluster Meeting

Discuss and answer the following questions to support consensus scoring conversations:

- Where and how do teacher materials provide guidance for using embedded technology to support and enhance student learning, where applicable?