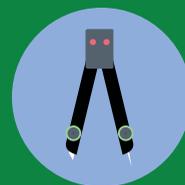


# High-Quality Instructional Materials (HQIM):

A Guide for Teachers  
for **Selecting** and  
**Implementing** HQIM

# Math



**MISSISSIPPI** INSTRUCTIONAL  
MATERIALS **MATTER.**



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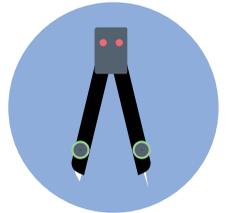
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**MISSISSIPPI INSTRUCTIONAL  
MATERIALS MATTER.**



# ABOUT THIS GUIDE

This guide was created to support Mississippi math teachers as they select and implement high-quality instructional materials (HQIM). The guide was produced and published by Mississippi First in partnership with the Mississippi Department of Education. We encourage teachers to supplement this guide with the information that can be found online at [msinstructionalmaterials.org](https://msinstructionalmaterials.org).

## A Note about ELA

This guide is dedicated to the adoption of HQIM for math. Currently, MDE is working on the ELA rubric and the materials list. MDE will release the list in December 2020. Once that is done, we will create an ELA guide to support ELA teachers in Mississippi.

## A Thank You

Mississippi is working in close partnership with the eight-state Council of Chief State School Officers (CCSSO) Instructional Materials and Professional Development Network. This guide is based on the [\*High Quality Instructional Materials \(HQIM\): A Resource Manual for Identifying, Selecting, and Implementing HQIM\*](#) published by the New Mexico Public Education Department to support their HQIM initiatives.



# PURPOSE

Mississippi teachers, leaders, students, and parents have been working hard. **You have been working hard.** We're all seeing the fruits of this labor.

**In 2019, Mississippi students were ranked #1 for gains in fourth-grade reading and math in the country.**

This is huge. **We must** continue to build on this momentum. We must ensure all our students and teachers have access to the best materials, aligned to our learning standards, so Mississippi teachers have the support they need to give every Mississippi student a great education—no matter at what level they start. The Mississippi Department of Education has launched a new instructional materials initiative to keep our students growing.

This guide provides resources to ensure Mississippi teachers have access to high-quality instructional materials that get students excited to learn and prepare them for their future.



**EVALUATE**



**FIND TOOLS**



**USE MATERIALS**

Specifically, with this guide, teachers can **evaluate** their current materials and **find tools** to encourage their district leaders to adopt standards-aligned materials and training. We hope this guide increases the **use of high-quality instructional materials** in Mississippi classrooms and the number of teachers receiving professional development that improves their knowledge and ability to use high-quality instructional materials.



# WHY HQIM MATTERS

Many schools do not provide teachers with instructional materials that meet student needs, and teachers must fill the gaps.

**73% of U.S. teachers say they use materials found online more than they use hardcover textbooks. More than 93% of teachers report frequently using their own or locally developed materials. Searching for supplemental materials can be exhausting, given the vast amount of content available online and the wide range of quality.**

## HIGH-QUALITY INSTRUCTIONAL MATERIALS

In Fall 2017, the Mississippi Department of Education (MDE) adopted the following definition for High-Quality Instructional Materials (HQIM).

**DEFINITION** Mississippi defines **HQIM** as materials that are...

### ALIGNED



**aligned** with the Mississippi College- and Career-Readiness Standards,

### VALIDATED



are **externally validated**,

### COMPREHENSIVE



are **comprehensive**, and

### ENGAGING



include **engaging** texts (books, multimedia, etc.), problems, and assessments.

# The New State Process

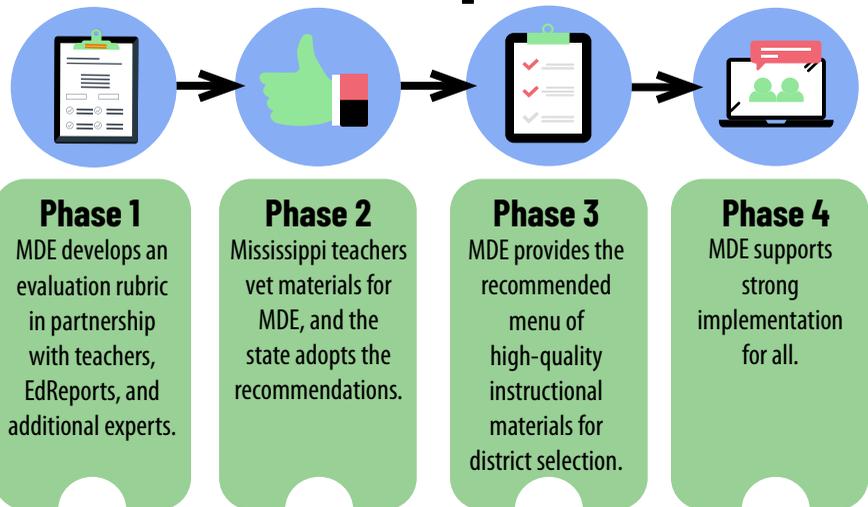
## What Is Mississippi's New Materials Adoption Process?

With Mississippi's new initiative, the Mississippi Department of Education (MDE) has developed a new instructional materials adoption process. The new process requires MDE to develop a subject-specific evaluation rubric in partnership with teachers, EdReports, and additional experts. This rubric uses the MDE's definition of "high quality" as its basis for evaluating materials. Math was reviewed in 2017-2018 and adopted by the State Board of Education in 2019, and ELA was reviewed in 2018-2019 and is set to be adopted by the State Board of Education in 2020.

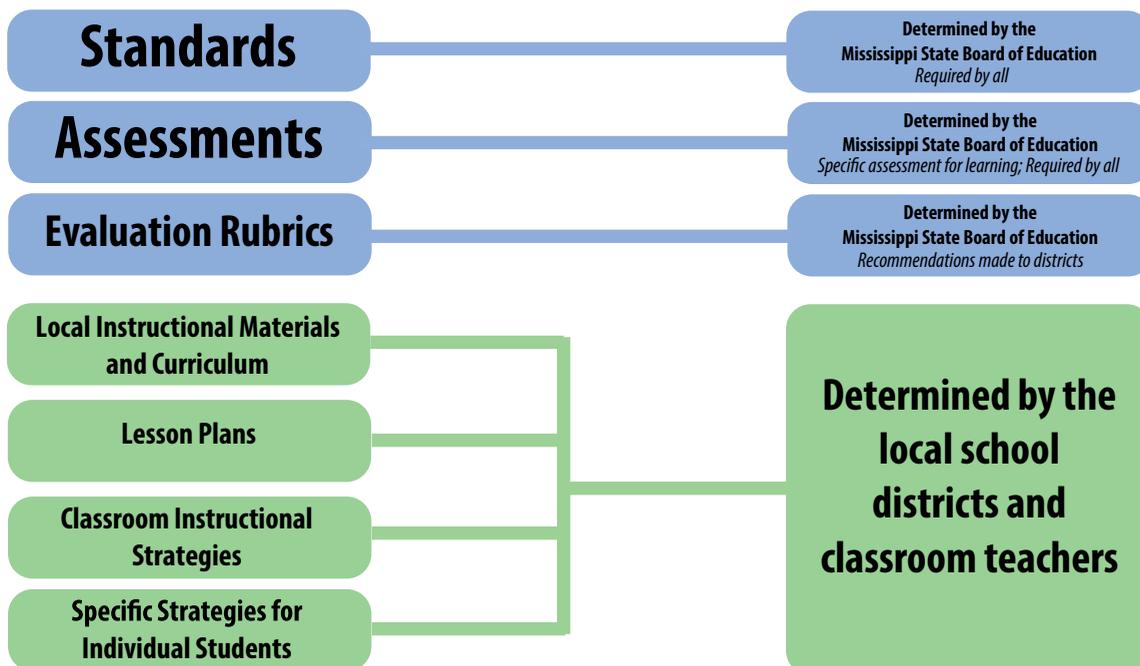
## Math: State-Adopted Materials Vetted by Teachers

In 2019, MDE worked with Mississippi teachers and EdReports to develop and publish the Mississippi High-Quality Instructional Materials Mathematics Review Rubric (HQIM<sup>2</sup>R<sup>2</sup>) for K-8 and high school (Appendix A).

## Selection & Adoption Process



The HQIM<sup>2</sup>R<sup>2</sup> identifies the criteria and indicators for high-quality instructional materials. The HQIM<sup>2</sup>R<sup>2</sup> is complemented by Evidence Guides for K-8 and high school that support the identification of evidence and scoring criteria (Appendix B). After reviewing a variety of math curricula using the HQIM<sup>2</sup>R<sup>2</sup>, MDE and teachers from across Mississippi identified 17 curricula that they consider to be Mississippi standards-aligned at the K-8 and high school levels (Appendix C). The list was then adopted by the Mississippi State Board of Education.





# The Process for Districts

## **How Mississippi Districts Make Materials Selections**

In Mississippi, the school district materials adoption process differs from district to district. In some districts, decisions are made at the school level; other districts make their selection district-wide. **The only way to be sure how YOUR district makes their adoption is to reach out to school or district leadership.**

MDE encourages Mississippi districts to use the HQIM templates the state developed. MDE also provides a list of approved high-quality instructional materials that have already been evaluated and are recommended for Mississippi classrooms. This MDE-approved list can help districts make their own selection decisions. To be clear, districts make the final decision on the instructional materials they use, and they control the process of selecting instructional materials for their district/schools.

**The State's materials adoption cycles are typically 5-to-7 years for each core subject area.** Districts make decisions when they see a need, though many will select within a year or so of a state adoption. MDE adopted new high-quality math materials during the 2018-2019 school year. ELA will be adopted during the 2020-2021 school year.



# Evaluate Your Current Instructional Materials

## Do your current materials pass the test?

Materials that are high-quality meet student and teacher needs and are evidence-based.

## Questions to Ask Yourself:

### STUDENT NEEDS

- Does it meet the **academic needs** of my students?
- Will it be **engaging** or **interesting** to my students?
- Can it be **differentiated** to meet the needs of my students?
- Are the materials **culturally** and **linguistically** relevant for my student population?

### TEACHER NEEDS

- Does this address all the **standards** to their full extent?
- Does it make contributions to my instructional strategies that help prepare my students to be **college and career ready** and secure in their identity, community, and life?
- Can I **customize** it?
- Are the **results measurable**?
- Is the material supported by ongoing **professional development**?
- Are there others using these materials I can gain **best practices** from?

### RESEARCH

- Do the materials demonstrate strong or moderate evidence of effectiveness in producing positive student outcomes?
- Is there any **independent research** that shows that students are learning?



## IN THE EVALUATION OF INSTRUCTIONAL MATERIALS, EDREPORTS IS THE GURU.

EdReports.org is an independent nonprofit that increases the capacity of teachers, administrators, and leaders to seek, identify, and demand the highest-quality instructional materials. Drawing upon expert educators (they are looking for Mississippi reviewers!), their reviews of instructional materials and support of smart adoption processes equip teachers with excellent materials nationwide. They may have evaluations of your current materials. Check it out!



# Supporting Strong Selection for Everyone

## How to Ensure Successful Selection of HQIM

### Identify the Materials Evaluation Process for Your District

Each district has their own process. Reach out to your school leaders to understand how your district selects their materials.

### Questions to ask:

**1**

*What is the timeline for curriculum adoption? How often does the district select and purchase new materials?*

**2**

*Are teachers part of the evaluation process? What role do teachers play in the process?*

**3**

*Does the district use the MDE rubric to evaluate the materials?*

A 'How To' Guide and Timeline is provided on pages 8-9 that exemplifies a quality process.

## Make Recommendations to Your School Leaders

Once you have an understanding of the process, present the HQIM that you feel best supports your students. Use the questions below to help build your case.

**1**

What elements of the materials will help you teach your student better?

**2**

How do the materials lend themselves to differentiated instructional strategies?

**3**

Will the materials help you teach in-person and virtually?

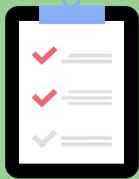
**4**

Do you know of other Mississippi schools that are using the materials? What has their experience been?

# Selecting HQIM — A Sample Timeline & Process

## a 'How To' Guide for Schools\*

1



### Establish district process and parameters.

1-2 months

- Review** district and state policies and practices regarding selection processes and implementation.
- Define** the role of committee members in the selection process (i.e. advisory or decision making or representatives).
- Identify** selection process committee membership which should include individuals well-versed in the mathematics standards and instructional shifts.
- Create** a school or district-established timeline.
- Set** budget parameters.
- Establish** a decision-making process (i.e. consensus, etc.).
- Outline** a communication plan with key stakeholders.
- Determine** how and when to collect community input.
- Delineate** priorities or non-negotiables which may include specific instructional practices that are part of district plans or material requirements set forth in board policies.

2



### Collect key research/resources.

1-2 months

- Gather** information on the current state of math instruction and materials use (complete [Knowing Your Starting Point Data Inventory](#) created by EdReports.)
- Collate student mathematics data** – state assessments, district/school assessments, demographic, etc.
- Collate teacher demographic data.**
- Collect** key research/resources.

3

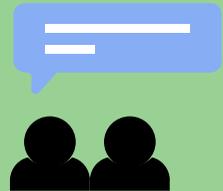


### Teachers, get involved!

1 months

- Examine** the Mississippi College and Career Ready Standards for Mathematics.
- Seek feedback** on district priorities.
- Using the Standards, **identify** a shared vision for what high quality mathematics instruction will look like.
- Engage** in educator training and support.
- Review** data – student achievement data, including subgroups – teacher demographic data.
- Synthesize** information and research from professional organizations and journals.
- Gather** feedback from colleagues in the district.

4



### Engage the community, too.

1 months

- Stakeholders to consider:**
  - Local school board members
  - Business leaders
  - Parents and guardians
  - Members of key community organization
  - Postsecondary education representatives
- Ways to engage stakeholders:**
  - Newsletters
  - Social media posts
  - Website
  - Surveys
  - Curriculum night that pairs activities with information

\*This plan was adapted from a plan created by the Nebraska Instructional Materials Collaborative.

# Selecting HQIM — A Sample, Continued

## a 'How To' Guide for Schools

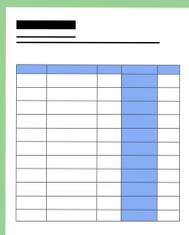
5

### Narrow choices based on standards alignment.

1 month

- Preview** the mathematics reviews on the Mississippi Instructional Materials Matter website. If more information is needed, visit [EdReports.org](http://EdReports.org) for more detailed information about alignment and usability.
- Lead** a materials-based discussion with the instructional materials selection committee in order to choose 2-4 sets of materials that your committee will analyze to see how well they meet local priorities. For example:
  - What does the evidence say about each set of materials?
  - How could the identified strengths support your teachers' understanding and implementation of standards-aligned materials? Are the materials educative and provide professional learning support?
  - What steps would you and your team need to take to fill any identified gaps?
  - What are the pedagogical implications and related supports that are necessary for implementing these materials well?
  - How will these materials support your team's vision of delivering high quality instruction for mathematics?
- Utilize** the [HQIM<sup>2</sup>R<sup>2</sup> and evidence guides](#) to determine how the EdReports reviews support alignment to the Mississippi College and Career Ready Standards.

6



### Evaluate materials.

1 month

- After you've narrowed the field, work with your committee to **apply a rubric** for determining how well materials meet the HQIM definition. This may include a field study or pilot depending on your context.
- Points to **consider**:
  - EL needs
  - Special Education supports
  - Culturally relevant materials
  - Demographics
  - Recent instructional materials selection
  - District context

7



### Make a decision.

2 months

- Lead** your team through a decision-making process and prepare to share the data and how the process worked with your school board and the full education community. The decision-making process should have been identified in step 1.
- Review** an example of a district-led consensus protocol.

8

### Create rollout and implementation plans.

2 months

- Determine** if the mathematics materials need to be supplemented to become better aligned and develop measures you will use to assess how well the materials are working over the next several years.
- Determine** professional learning needs to address to support implementation (Review examples of professional learning on high-quality curricula).
  - School and/or district administrators
  - Teachers
- Review** the [district resources](#) on the Mississippi Department of Education, including K-12 math pacing guides.
- Develop** implementation documents including:
  - Instructional pacing guide
  - Formative & summative assessment plan
  - Walk-throughs
  - Communications plan for external stakeholders (students, parents, etc.)
- Identify** additional instructional supports:
  - Framework
  - Supplemental materials
  - Intervention materials
  - Sample lesson plans, videos, other resources



## Supporting Strong Implementation for Everyone

### Why Implementation Matters

Having access to high-quality materials is great, but if there is no additional time devoted to learning how to successfully implement those materials in the classroom, it is hard for teachers and students to be successful. When we met with Mississippi teachers across the state, every teacher discussed the need for professional development (PD) on how to successfully use new instructional materials in their classroom.

The Mississippi Department of Education has dedicated much of its time and resources to training districts on these [approved materials](#) as well as encouraging districts to adopt from the approved list in order to help streamline implementation.

[A national study] reported that the average teacher received one day of professional development devoted to their curriculum during the 2016-17 school year. Implementing curriculum, especially new instructional materials, requires a greater magnitude of support for teachers. In Singapore, a top performing educational system, teachers receive an average of twelve days of professional development each year. Excellent educational systems provide teachers with HQIM and frequent, ongoing PD that is based on understanding, internalizing, and effectively using the HQIM so they can engage students in their learning.

### Strategies that Ensure Successful Implementation of HQIM

- **Support teachers in using new materials**
  - » Provide training during the summer
  - » Set up a coaching system that can provide ongoing PD
  - » Partner with other schools that are using the same materials to share costs and resources
  - » Include teachers in determining supplemental instructional materials
- **Support schools in creating structures for professional learning**
  - » Give a needs assessment to teachers in order to have a better understanding of their professional needs
  - » Set up a train-the-trainer model and have teachers lead PD
  - » Create a structure that allows for teachers to share ongoing strategies
- **Support differentiated instructional strategies**
  - » Provide PD that is focused on differentiated instruction
- **Support strategies to implement multicultural education that have strong focus in culturally relevant and cultural responsive practices**
  - » Make sure PD develops a knowledge base to identify their cultural and belief systems, to affirm and validate cultural characteristics, perspectives, and experiences of culturally and linguistically diverse students, and to build and bridge the academic content to their live experiences

# Appendix



**MISSISSIPPI** INSTRUCTIONAL  
MATERIALS **MATTER.**

# K-8 Adopted Math Materials

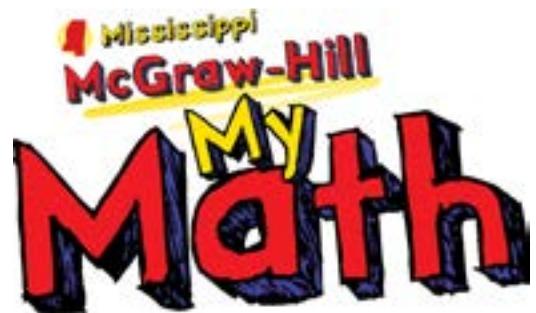
## Mississippi McGraw Hill My Math

**Grade Levels: K-5**

*Mississippi McGraw Hill My Math* gives you the rigor, personalization, and student engagement you and your students need to be successful—and have fun while achieving that success! Mississippi McGraw Hill My Math can help you challenge your students in a way that inspires them to embrace the power of math through real-world applications and see just how fun math success can be.

**Material website:** <https://www.mheducation.com/prek-12/explore/states/mississippi/math/my-math.html>

**EdReport website:** <https://edreport.org/reports/overview/my-math-2014>



Digital Learning Materials, Online Platform



Online Professional Learning

## Great Minds: Eureka Math

**Grade Levels: K-8**

Great Minds embraces the research that knowledge building should start at the outset of a student's education. When we created Eureka Math—originally EngageNY Math—we did so with the intention of creating a truly new curriculum. One that was intelligently designed to teach math as a coherent body of knowledge that follows the proper learning progressions required for true math fluency, and not just a set of skills. A curriculum that would instill deep, conceptual understanding that students could build on as high as they wanted to while also allowing them to find the joy in the subject. We submitted those plans to the New York State Education Department and won the contract to create every grade of what is now known as Eureka Math®.



**Material website:** <https://greatminds.org/math>

**EdReport website:** <https://edreport.org/reports/overview/eureka-math-2013-2014>



Digital Learning Materials, Online Platform



Online Professional Learning

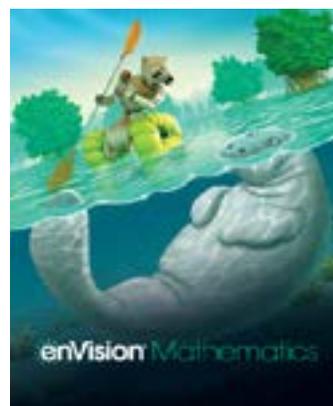
## enVision Math

**Grade Levels: K-8**

Our nationally recognized and most effective math series is used in thousands of classrooms everywhere. enVision® focuses on deep conceptual math understanding aided by visual models, student-centered projects, 3-act tasks, and personalized learning. enVision offers comprehensive vertical alignment from Kindergarten through Algebra 2, ensuring schools and districts address all mathematical standards in the most effective way. enVision is the first math series that combines problem-based learning with visual learning. Students learn more about math by solving rich, reality-based problems. They gain a deeper, clearer understanding of math concepts with visual models and scaffolds in every lesson.

**Material website:** <https://www.savvas.com/index.cfm?locator=PS3c5r>

**EdReport website:** <https://edreport.org/reports/overview/envision-mathematics-common-core-2020>



Digital Learning Materials



Online Professional Learning

## Illustrative Mathematics

**Grade Levels: 6-8**

LearnZillion Illustrative Mathematics® Math Curriculum, 6-8 is organized into three courses corresponding to Grades 6, 7, and 8. Each course is organized into nine units. All units have: classroom-ready lesson plans, print-ready student handouts, instructional routines, embedded supports for students with disabilities and ELLs, practice sets, daily formative assessments, assessments, learning targets, extension problems, digital activities, and family-friendly explanations of unit concepts.



# Illustrative Mathematics

**Material website:** <https://learnzillion.com/p/illustrative-mathematics/>

**EdReport website:** <https://edreport.org/reports/overview/learnzillion-illustrative-mathematics-6-8-math-2019>



Digital Learning Materials



Online Professional Learning

## Carnegie Learning

**Grade Levels: 6-8**

At Carnegie Learning, we know exactly what it takes to create a classroom where Mississippi teachers have all the tools and support they need to bring better math learning to each and every student. Not only is our blended solution guided by 20+ years of scientific research into how students learn, but it's been proven to work. The Carnegie Learning's Mississippi Middle School and High School Math Solution includes everything students and teachers need to enable math learning on a deep conceptual level.

**Material website:** <https://www.carnegielearning.com/sample-center-mississippi/>

**EdReport website:** <https://edreport.org/reports/overview/carnegie-learning-math-solution-2018>



Digital Learning Materials



Online Professional Learning

# High School Math Materials

## Algebra I (HQIM-Rated)

Material	Publisher	Grade Levels	Material Website	EdReport Link
<b>Big Ideas Math®: A Bridge to Success Algebra 1</b>	National Geographic Learning and Cengage	9-12	<a href="https://ngl.cengage.com/assets/downloads/bim/bim_bro_aga-bts_9780357081389.pdf">https://ngl.cengage.com/assets/downloads/bim/bim_bro_aga-bts_9780357081389.pdf</a>	No Report
<b>Eureka Math Algebra 1</b>	Great Minds	9-12	<a href="https://greatminds.org/math">https://greatminds.org/math</a>	No Report
<b>Houghton Mifflin Harcourt Algebra 1, 2018</b>	Houghton Mifflin Harcourt	9-12	<a href="https://www.hmhco.com/programs/aga">https://www.hmhco.com/programs/aga</a>	No Report
<b>enVision Mississippi Algebra 1</b>	Pearson	9-12	<a href="https://shorturl.at/lquOP">shorturl.at/lquOP</a>	<a href="https://edreport.org/reports/overview/envision-aga-2018">https://edreport.org/reports/overview/envision-aga-2018</a>

## Geometry (HQIM-Rated)

Material	Publisher	Grade Levels	Material Website
<b>Big Ideas Math®: A Bridge to Success Geometry</b>	National Geographic Learning and Cengage	9-12	<a href="https://ngl.cengage.com/assets/downloads/bim/bim_bro_aga-bts_9780357081389.pdf">https://ngl.cengage.com/assets/downloads/bim/bim_bro_aga-bts_9780357081389.pdf</a>
<b>Eureka Math Geometry</b>	Great Minds	9-12	<a href="https://greatminds.org/math">https://greatminds.org/math</a>
<b>Houghton Mifflin Harcourt Geometry, 2018</b>	Houghton Mifflin Harcourt	9-12	<a href="https://www.hmhco.com/programs/aga">https://www.hmhco.com/programs/aga</a>
<b>enVision Mississippi Geometry</b>	Pearson	9-12	<a href="https://shorturl.at/dgptP">shorturl.at/dgptP</a>

## Algebra 2 (HQIM-Rated)

Material	Publisher	Grade Levels	Material Website	EdReport Link
<b>Big Ideas Math®: A Bridge to Success Algebra 2</b>	National Geographic Learning and Cengage	9-12	<a href="https://ngl.cengage.com/assets/downloads/bim/bim_bro_aga-bts_9780357081389.pdf">https://ngl.cengage.com/assets/downloads/bim/bim_bro_aga-bts_9780357081389.pdf</a>	No Report
<b>Eureka Math Algebra 2</b>	Great Minds	9-12	<a href="https://greatminds.org/math">https://greatminds.org/math</a>	No Report
<b>Houghton Mifflin Harcourt Algebra 2, 2018</b>	Houghton Mifflin Harcourt	9-12	<a href="https://www.hmhco.com/programs/aga">https://www.hmhco.com/programs/aga</a>	No Report
<b>enVision Mississippi Algebra 2</b>	Pearson	9-12	<a href="https://shorturl.at/cdqyF">shorturl.at/cdqyF</a>	No Report

# High School Math Materials NOT HQIM-Rated

MDE adopted materials for **Algebra 3**, **SREB Math**, **Advanced Math Plus**, **Calculus**, **AP Calculus**, and **AP Statistics**. However, these materials were **NOT** reviewed using the High School High-Quality Instructional Materials Mathematics Review Rubric (HQIM<sup>2</sup>R<sup>2</sup>).

Subject	Material	Publisher	Grade Levels	Material Website
Algebra 3	<b>Cengage- Algebra and Trig</b>	Cengage	9-12	<a href="https://www.cengage.com/c/algebra-and-trigonometry-3e-stewart/9780840068132PF/">https://www.cengage.com/c/algebra-and-trigonometry-3e-stewart/9780840068132PF/</a>
Algebra 3	<b>Algebra and Trigonometry</b>	Pearson	9-12	<a href="https://www.pearson.com/us/higher-education/math---science/mathematics/precalculus-mathematics/precalculus-mathematics/algebra-and-trigonometry.html">https://www.pearson.com/us/higher-education/math---science/mathematics/precalculus-mathematics/precalculus-mathematics/algebra-and-trigonometry.html</a>
SREB	<b>Intermediate Algebra 7th Ed.</b>	Pearson	9-12	<a href="https://www.pearson.com/us/higher-education/program/Martin-Gay-Intermediate-Algebra-7th-Edition/PGM1984430.html">https://www.pearson.com/us/higher-education/program/Martin-Gay-Intermediate-Algebra-7th-Edition/PGM1984430.html</a>
SREB	<b>Applied Mathematics for College and Career Readiness</b>	Peason	9-12	<a href="https://www.pearson.com/store/p/applied-mathematics-for-college-and-career-readiness/P100000074281">https://www.pearson.com/store/p/applied-mathematics-for-college-and-career-readiness/P100000074281</a>
Advanced Math Plus	<b>Topics in Contemporary Mathematics</b>	Cengage	9-12	<a href="https://www.cengage.com/c/topics-in-contemporary-mathematics-10e-bello/9781133107422PF/">https://www.cengage.com/c/topics-in-contemporary-mathematics-10e-bello/9781133107422PF/</a>
Advanced Math Plus	<b>Eureka Math: Precalculus and Advanced Topics in Mathematics</b>	Great Minds	9-12	<a href="https://www.engageny.org/content/precalculus-and-advanced-topics">https://www.engageny.org/content/precalculus-and-advanced-topics</a>
Advanced Math Plus	<b>Precalculus: Graphical, Numerical, Algebraic, 10th Ed.</b>	Pearson	9-12	<a href="https://www.pearson.com/us/higher-education/program/Demana-Precalculus-Graphical-Numerical-Algebraic-10th-Edition/PGM1742618.html">https://www.pearson.com/us/higher-education/program/Demana-Precalculus-Graphical-Numerical-Algebraic-10th-Edition/PGM1742618.html</a>
Precalculus Advanced Math Plus	<b>Precalculus: Enhanced with Graphing Utilities, 7th Ed.</b>	Pearson	9-12	<a href="https://www.pearson.com/us/higher-education/product/Sullivan-Precalculus-Enhanced-with-Graphing-Utilities-7th-Edition/9780134119281.html">https://www.pearson.com/us/higher-education/product/Sullivan-Precalculus-Enhanced-with-Graphing-Utilities-7th-Edition/9780134119281.html</a>

## High School Math Materials, Continued

*NOT HQIM-Rated*

Subject	Material	Publisher	Grade Levels	Material Website
Calculus	<b>Calculus: An Applied Approach</b>	Cengage	9-12	<a href="https://www.cengage.com/c/calculus-an-applied-approach-brief-10e-larson/9781305860926PF/#:~:text=CALCULUS%3A%20AN%20APPLIED%20APPROACH%2C%20BRIEF%2C%2010th%20Edition%20emphasizes%20integrated,and%20appeal%20to%20students'%20interests.">https://www.cengage.com/c/calculus-an-applied-approach-brief-10e-larson/9781305860926PF/#:~:text=CALCULUS%3A%20AN%20APPLIED%20APPROACH%2C%20BRIEF%2C%2010th%20Edition%20emphasizes%20integrated,and%20appeal%20to%20students'%20interests.</a>
Calculus	<b>Calculus: Graphical, Numerical, Algebraic, 5th Ed.</b>	Pearson	9-12	<a href="https://www.pearson.com/us/higher-education/product/Finney-Downloadable-Teacher-s-Resources-for-Calculus-Graphical-Numerical-Algebraic-5th-Edition/9780134105703.html">https://www.pearson.com/us/higher-education/product/Finney-Downloadable-Teacher-s-Resources-for-Calculus-Graphical-Numerical-Algebraic-5th-Edition/9780134105703.html</a>
AP Calculus	<b>Calculus for the AP Course</b>	Bedford, Freeman, & Worth	9-12	<a href="https://www.bfwpub.com/high-school/us/product/Calculus-for-the-AP-Course/p/1464142262">https://www.bfwpub.com/high-school/us/product/Calculus-for-the-AP-Course/p/1464142262</a>
AP Calculus	<b>Calculus: AP Edition, 2nd Ed.</b>	Pearson	9-12	<a href="https://www.pearson.com/store/p/calculus-ap-edition/P100000763120#">https://www.pearson.com/store/p/calculus-ap-edition/P100000763120#</a>
AP Statistics	<b>Statistics: Learning from Data AP</b>	Cengage	9-12	<a href="https://ngl.cengage.com/search/productOverview.do?N=201+4294918395&amp;Ntk=NGL%7CP_EPI&amp;Ntt=10570695941793977411692212681962783533&amp;Ntx">https://ngl.cengage.com/search/productOverview.do?N=201+4294918395&amp;Ntk=NGL%7CP_EPI&amp;Ntt=10570695941793977411692212681962783533&amp;Ntx</a>
AP Statistics	<b>Stats: Modeling the World, AP Edition</b>	Pearson	9-12	<a href="https://www.pearson.com/us/higher-education/product/Bock-Stats-Modeling-the-World-AP-Edition-3rd-Edition/9780131359581.html">https://www.pearson.com/us/higher-education/product/Bock-Stats-Modeling-the-World-AP-Edition-3rd-Edition/9780131359581.html</a>

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

## High Quality Instructional Materials Math Review Rubric

### K-8 Mathematics

<b>Evaluator</b>		<b>Rating Committee</b>	
<b>Publisher</b>			
<b>Title of Textbook Series/Instructional Program</b>			
<b>Grade Range of Textbook Series/Instructional Program</b>		<b>Specific Grade Evaluated</b>	

Mississippi defines High-Quality Instructional Materials (HQIM) as material that are aligned with the Mississippi College- and Career-Readiness Standards, externally validated, comprehensive, and include engaging texts, which include books-both digital and print; and multimedia material, rigorous problems, and aligned assessments. HQIM can be used to identify students' areas of strength and opportunities for growth and are sequentially mapped and designed to prepare students to graduate ready for college and the workforce, educative for teachers, and accessible to students with differentiated needs.

### The High-Quality Instructional Materials Mathematics Review Rubric K-8

The High-Quality Instructional Materials Mathematics Review Rubric K-8 (HQIM<sup>2</sup>R<sup>2</sup>) identifies the criteria and indicators for high quality instructional materials. The K-8 Evidence Guides complement the K-8 Quality Instructional Materials Review Tool by elaborating details for each indicator including the purpose of the indicator, information on how to collect evidence, guiding questions and discussion prompts, and scoring criteria.

## **HQIM<sup>2</sup>R<sup>2</sup> Scoring Protocol and Criteria**

1. For instructional materials for which there is an existing EdReports review, an adjusted EdReports (AER) review will include:
  - a. Alignment to MS CCR Standards
  - b. Revision of report structure to match Mississippi High-Quality Instructional Materials Review Rubric
  - c. Training for review of specific Mississippi
2. For instructional materials for which there is no existing EdReports review:
  - a. Training on the use of Mississippi High Quality Instructional Materials Review Rubric Evidence Guide

### **The HQIM<sup>2</sup>R<sup>2</sup> is comprised of three sections:**

**Section 1:** Alignment to Standards, Learning Progressions, and Coherence - This is a requirement for submission.

**Section 2:** Alignment to Rigor, and the Standards for Mathematical Practice - This is a requirement for submission.

**Section 3:** Usability and Design of Materials

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

## GATEWAY 1

Alignment to Standards, Learning Progressions, and Coherence - **This is a requirement for submission.**

- **Criterion 1a - 1b**  
**Alignment and Accuracy** - How well do the instructional materials align to the Standards for Mathematical Content?
- **Criterion 1c - 1fii**  
**Learning Progressions and Coherence** - How well do the instructional materials attend to the learning progressions emphasized in the standards, so that the curriculum is coherent both within grades and across grade bands?

Criterion 1a - 1b: ALIGNMENT AND ACCURACY			
CRITERIA	INDICATORS OF SUPERIOR QUALITY	Guiding/Key Questions	SCORE
<p><b>How well do the instructional materials align to the MS-CCR Standards for Mathematical Content?</b></p> <p>Materials adequately address the <i>Mississippi College- and Career-Readiness Standards (MS CCRS) for Mathematics</i></p> <p><b>6 possible points</b></p> <p>Meets expectations (5-6 pts)</p> <p>Partially meets expectations (3-4 pts)</p> <p>Does not meet expectations (&lt;3 pts)</p>	<p><b>1a.</b> The instructional materials <b>assess</b> the grade level content <b>and, if applicable,</b> content from earlier grades. <b>(2 points)</b></p>	<p>Do assessments questions address grade-level standards?</p> <p>Note: Grades K-5 does not assess probability or statistics.</p>	0 1 2
	<p><b>1b.</b> The majority of the <i>MS CCRS for Mathematics</i> K-8 are incorporated, across a grade-level. <b>(4 points)</b></p>	<p>Does at least 65% of instructional time address the major work of the grade?</p> <p>Includes:</p> <ul style="list-style-type: none"> <li>• assessment</li> <li>• supporting work connected to major work</li> </ul>	0 2 4

**Criterion 1c - 1fii: LEARNING PROGRESSIONS and COHERENCE**

CRITERIA	INDICATORS OF SUPERIOR QUALITY	Guiding/Key Questions	SCORE
<p><b>How well do the instructional materials attend to the learning progressions emphasized in the standards, so that the curriculum is coherent both within grades and across grade bands?</b></p> <p>Each grade's instructional materials are coherent and consistent with <i>the progressions</i> in the Standards.</p> <p><b>8 possible points</b></p> <p>Meets expectations (7-8 pts)</p> <p>Partially meets expectations (5-6 pts)</p> <p>Does not meet expectations (&lt;5 pts)</p>	<p><b>1c.</b> Supporting content enhances focus and coherence simultaneously by engaging students in the major work of the grade. (2 points)</p>	<p>Is supporting content connected to the major work of the grade? Is supporting content addressed independently?</p>	<p>0 1 2</p>
	<p><b>1d.</b> The amount of content designated for one grade level is viable for one school year in order to foster coherence between grades. (2 points)</p>	<p>Can the instructional materials reasonably be completed in one school year?</p>	<p>0 1 2</p>
	<p><b>1e.</b> Materials are consistent with the progressions in the Standards. (2 points)</p> <p><b>NOTE: 1ei, 1eii, and 1eiii are scored as one item.</b></p>	<p>Are the materials consistent with the progressions in the standards?</p>	<p>0 1 2</p>
	<p><b>1ei.</b> Materials develop according to the grade-by-grade progression in the Standards. If there is content from prior or future grades, that content is clearly identified and related to grade-level work.</p>	<p>Do materials concentrate on the mathematics of the grade as referenced in the <a href="#">Standards and Progression documents</a>?</p>	<p style="background-color: #cccccc;">0 1 2</p>

	<p><b>1eii.</b> Materials give all students extensive work with grade-level problems.</p>	<p>Are all grade-level standards present? Do the materials address the full intent of the standards?</p> <p>Is off-grade level content present? Is it a plausible extension or reinforcement of grade-level standards? Does it take time away from the work of the grade?</p> <p>Note where the full intent of a standard is not met, and where there are missing standards.</p>	
	<p><b>1eiii.</b> Materials relate grade level concepts explicitly to prior knowledge from earlier grades.</p>	<p>Is grade-level content connected to specific standards from earlier grades?</p>	
	<p><b>1f.</b> Materials foster coherence through connections at a single grade, where appropriate and required by the Standards. (2 points)</p> <p><i>NOTE: 1fi and 1fii are scored as one item.</i></p>	<p>Are standards connected or are the presented as separate ideas?</p>	<p>0 1 2</p>
	<p><b>1fi.</b> Materials include learning objectives that are visibly shaped by MC CCR cluster headings.</p>	<p>Do learning objectives reflect the MS CCR cluster headings?</p>	
	<p><b>1fii.</b> Materials include problems and activities that serve to connect two or more clusters in a domain, or two or more domains in a grade, in cases where these connections are natural and important.</p>	<p>Are there problems and activities that serve to connect two or more clusters in a domain, or two or more domains in a grade?</p>	

**TOTAL SCORE  
(GATEWAY 1)**

Criterion 1a-1b \_\_\_\_\_ out of 6 points

Criterion 1c-1fii \_\_\_\_\_ out of 8 points

\_\_\_\_\_ **of 14 points**

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

## GATEWAY 2

Alignment to Rigor and The Standards for Mathematical Practices - **This is a requirement for submission.**

- Criterion 2a - 2d**  
**Rigor** - Are all aspects of rigor (conceptual understanding, procedural skill and fluency, application, and balance across all three) attended to in the instructional materials?
- Criterion 2e - 2giii**  
**Standards for Mathematical Practice** - Are the Standards for Mathematical Practice addressed so that students have opportunities to demonstrate independent mastery of these standards?

Criterion 2a - 2d: RIGOR			
CRITERIA	INDICATORS OF SUPERIOR QUALITY	Guiding/Key Questions	SCORE
<b>All aspects of rigor (conceptual understanding, procedural skill and fluency, application, and balance across all three) are attended to in the instructional materials.</b>  <b>8 possible points</b> Meets expectations (7-8 pts) Partially meets expectations (5-6 pts) Does not meet expectations (<5 pts)	<b>2a.</b> Attention to Conceptual Understanding: The materials support the intentional development of students' conceptual understanding of key mathematical concepts, especially where called for in specific content standards or clusters. <b>(2 points)</b>	Do materials develop conceptual understanding?	0 1 2
	<b>2b.</b> Attention to Procedural Skill and Fluency: The materials provide intentional opportunities for students to develop procedural skills <b>fluently</b> , especially where called for in specific content standards or clusters. <b>(2 points)</b>	Do materials develop procedural skill?  Do students have opportunities to fluently engage with those standards that call for fluently?	0 1 2

	<b>2c.</b> Attention to Applications: The 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. (2 points)	Do students apply mathematical knowledge/skills to real-world contexts?	0 1 2
	<b>2d.</b> Balance: 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. (2 points)	Do materials balance the three aspects of rigor?	0 1 2

**Criterion 2e-giii: STANDARDS FOR MATHEMATICAL PRACTICE**

CRITERIA	INDICATORS OF SUPERIOR QUALITY	Guiding/Key Questions	SCORE
<b>The Standards for Mathematical Practice are addressed so that students have opportunities to demonstrate independent mastery of these standards.</b>  <b>10 possible points</b> Meets expectations (9-10 pts) Partially meets expectations (6-8 pts) Does not meet expectations (<6 pts)	<b>2e.</b> The Standards for Mathematical Practice are identified and used to enrich mathematics content within and throughout each applicable grade. (2 points)	Are the Standards for Mathematical Practice identified?  Do the Standards for Mathematical Practice enrich the content?	0 1 2
	<b>2f.</b> The materials carefully attend to the full meaning of each practice standard. <sup>1</sup> (2 points)	Is the full intent of the Standards for Mathematical Practices present?	0 1 2

<sup>1</sup> Refer also to Criterion #9 (page 15) in the Publisher's Criteria.

	<b>2g.</b> Emphasis on Mathematical Reasoning: Materials support the Standards' emphasis on mathematical reasoning by:		
	<b>2gi.</b> Materials prompt students to construct viable arguments and analyze the arguments of others concerning key grade-level mathematics details in the content standards. (2 points)	Do students have opportunities to construct viable arguments and analyze the arguments of others?	0 1 2
	<b>2gii.</b> Materials assist teachers in engaging students in constructing viable arguments and analyzing the arguments of others concerning key grade-level mathematics detailed in the content standards. (2 points)	Do the materials support teachers to engage students in constructing viable arguments and in analyzing the arguments of others?	0 1 2
	<b>2giii.</b> Materials explicitly attend to the specialized language of mathematics. (2 points)	Do materials attend to the specialized language of mathematics?	0 1 2
<b>TOTAL SCORE (GATEWAY 2)</b>	Criterion 2a-2d: _____ out of 8 points Criterion 2e-2giii: _____ out of 10 points	_____ of 18 points	

TOTAL SCORE (Gateway 1 and 2)		
GATEWAY 1	GATEWAY 2	TOTAL
_____ of 14 points	_____ of 18 points	_____ of 32 points

## GATEWAY 3

### Instructional Support, Usability, and Assessment

- **Criterion 3a-3e**  
**Use and Design to Facilitate Student Learning** - Are materials well designed and take into account effective lesson structure and pacing?
- **Criterion 3f-3l**  
**Teacher Planning and Learning for Success with the Mississippi College and Career Ready Standards** - Do materials support teacher planning, learning, and understanding of the Standards? Do materials provide teachers with guidance to build their own knowledge of mathematics and to give all students extensive opportunities and support to explore key concepts?
- **Criterion 3o-3q**  
**Assessment** - Do materials offer teachers resources and tools to collect ongoing data about student progress on the Standards? Do materials offer assessment opportunities that genuinely measure progress and elicit direct, observable evidence of the degree to which students can independently demonstrate the assessed standards?
- **Criterion 3r-y**  
**Differentiation, Scaffolding, and Supports for All Learners** - Do materials give all students extensive opportunities and support to explore key concepts?
- **Criterion 3z-3ad**  
**Effective Use of Technology** - Do materials support effective use of technology to enhance student learning? Are digital materials accessible and available in multiple platforms?
- **Criterion 3ae-3ah**  
**Supplemental Materials** - Do supplemental materials reinforce core instruction and provide ample and a variety of resources to support student learning?

**Criterion 3a-3e: USE AND DESIGN FACILITATE STUDENT LEARNING**

CRITERIA	INDICATORS OF SUPERIOR QUALITY	Guiding/Key Question/s	SCORE
<p><b>Materials are well designed and take into account effective lesson structure and pacing.</b></p> <p><b>8 possible points</b></p> <p>Meets expectations (7-8 pts)</p> <p>Partially meets expectations (5-6 pts)</p> <p>Does not meet expectations (&lt;5 pts)</p>	<p><b>3a.</b> The underlying design of the materials distinguishes between problems and exercises. In essence, the difference is that in solving problems, students learn new mathematics, whereas in working exercises, students apply what they have already learned to build mastery. Each problem or exercise has a purpose. <b>(2 points)</b></p>	<p>Do the materials provide problems and exercises?</p> <p>Do all problems and exercises have a purpose?</p>	<p>0 1 2</p>
	<p><b>3b.</b> Design of assignments is not haphazard: exercises are given in intentional sequences. <b>(2 points)</b></p>	<p>Are there any instances where the sequencing of assignments is haphazard in development, i.e. abstract before concrete, unnatural flow of material, etc.?</p> <p>Do materials have an intentional sequence for problems and exercises?</p>	<p>0 1 2</p>
	<p><b>3c.</b> There is variety in what students are asked to produce. <b>(2 points)</b></p>	<p>Are students asked to produce many types of representations and/or solutions throughout the work they do?</p> <p>Are students asked to produce models, practice fluency, create arguments, justify their answers, attend to mathematical practices, and make real-world connections?</p> <p>Are students presented with tasks that have more than one answer? (May be better suited to indicators 2a and 2c.)</p>	<p>0 1 2</p>

	<p><b>3d.</b> Manipulatives are faithful representations of the mathematical objects they represent and when appropriate are connected to written methods. (2 points)</p>	<p>Are the manipulatives consistent representations of the mathematical objects?</p> <p>Are the manipulatives connected to written methods?</p>	0 1 2
	<p><b>3e.</b> The visual design (whether in print or digital) is not distracting or chaotic but supports students in engaging thoughtfully with the subject. (Unscored)</p>	<p>Do the materials maintain a consistent layout for each lesson?</p> <p>Are the pictures and models supportive of student learning and engagement without being visually distracting?</p>	
	<p><b>3ei.</b> The material incorporates a glossary, footnotes, recordings, pictures, and/or other features that aid students and teachers in using the book effectively. (Unscored)</p>	<p>Do the materials include features (glossaries, footnotes, recordings, pictures, etc.) that aid students and teachers in using them effectively?</p>	
<b>Criterion 3f - 3I: TEACHER PLANNING AND LEARNING FOR SUCCESS with the MS CCRS</b>			
<p><b>Materials support teacher planning, learning, and understanding of the Standards.</b></p> <p><b>Materials provide teachers with guidance to build their own knowledge and to give all students extensive opportunities and support to explore key concepts.</b></p> <p><b>8 possible points</b></p>	<p><b>3f.</b> Materials support teachers in planning and providing effective learning experiences by providing quality questions to help guide students' mathematical development. (2 points)</p>	<p>Are there any overview sections and/or annotations that contain narrative information about the math content and/or quality questions to help guide students' mathematical development?</p> <p>Are the questions provided to teachers designed to elicit students' mathematical understanding?</p>	0 1 2
	<p><b>3g.</b> Materials contain a teacher's edition with: (2 points)</p>	<p>Are there overview sections and/or annotations that contain narrative information about the math content</p>	0 1 2

<p>Meets expectations (7-8 pts) Partially meets expectations (5-6 pts) Does not meet expectations (&lt;5 pts)</p>	<ul style="list-style-type: none"> <li>• ample and useful annotations, suggestions on how to present the content in the student edition and in the ancillary materials.</li> <li>• Where applicable, materials include teacher guidance for the use of embedded technology to support and enhance student learning.</li> </ul>	<p>and/or ancillary documents that will assist the teacher in presenting the student material?</p> <p>Are there embedded technology links that will enhance the learning for all students?</p> <p>If technology support is embedded, is it overarching and accessible?</p>	
	<p><b>3h.</b> Materials contain a teacher’s edition that contains full, adult-level explanations and examples of the more advanced mathematics concepts in the lessons so that teachers can improve their own knowledge of the subject, as necessary. (2 points)</p>	<p>Do the materials include annotations on how to present the information in the student editions to assist in full understanding of the standards and other supports that will assist a teacher in developing their own understanding allowing for seamless transitions of that knowledge to student learning?</p>	<p>0 1 2</p>
	<p><b>3i.</b> Materials contain a teacher’s edition (in print or clearly distinguished/accessible as a teacher’s edition in digital materials) that <i>explains the role of the specific grade-level mathematics in the context of the overall mathematics curriculum</i> for kindergarten through High School. (2 points)</p>	<p>Are there chapter or lesson overviews that explain the progression of the content and how this specific course connects to previous and upcoming courses?</p> <p>Is there information given to allow for coherence, not just a single course above or below, but there are multiple course levels, if applicable, to allow a teacher to make prior connections and teach for connections to future content?</p>	<p>0 1 2</p>

	<p><b>3j.</b> Materials provide a list of lessons in the teacher's edition (in print or clearly distinguished/accessible as a teacher's edition in digital materials), <i>cross-referencing the standards addressed and providing an estimated instructional time for each lesson, chapter and unit</i> (i.e., pacing guide). (Unscored)</p>	<p>Is there clear documentation that aligns standards to lessons/chapters/units/topics?</p> <p>Is there clear documentation that provides estimated instructional time for lessons/chapters/units/topics?</p>	
	<p><b>3k.</b> Materials contain strategies for informing parents or caregivers about the mathematics program and suggestions for how they can help support student progress and achievement. (Unscored)</p>	<p>Do materials include strategies to inform parents or caregivers about the mathematical program and how they can support student progress?</p>	
	<p><b>3l.</b> Materials contain explanations of the instructional approaches of the program and identification of the research-based strategies. (Unscored)</p>	<p>Do the materials contain research based strategies? Are these strategies identified?</p> <p>Do the materials contain explanation of the instructional approaches for the program?</p>	
<b>Criterion 3m-3q: ASSESSMENT</b>			
<p><b>Materials offer teachers resources and tools to collect ongoing data about student progress on the Standards.</b></p>	<p><b>3m.</b> Materials provide strategies for gathering information on students prior knowledge and across grade levels. (2 points)</p>	<p>Do materials provide strategies to gather information on students' prior knowledge?</p>	<p>0 1 2</p>
<p><b>Materials offer assessment opportunities that genuinely measure progress and elicit direct, observable evidence</b></p>	<p><b>3n.</b> Materials provide support for teachers to identify and address common student errors and misconceptions. (2 points)</p>	<p>Do materials help teachers identify and address common student errors and misconceptions?</p>	<p>0 1 2</p>

<p><b>of the degree to which students can independently demonstrate the assessed standards.</b></p> <p><b>10 possible points</b></p> <p>Meets expectations (9-10 pts)</p> <p>Partially meets expectations (6-8 pts)</p> <p>Does not meet expectations (&lt;6 pts)</p>	<p><b>3o.</b> Materials provide opportunities for ongoing review and practice, with feedback, for students in learning both concepts and skills. (2 points)</p>	<p>Do materials include feedback to students on both concepts and skills?</p>	<p>0 1 2</p>
	<p><b>3p. Materials offer ongoing formative and summative assessments.</b></p>		
	<p><b>3pi.</b> Assessments clearly denote which standards are <i>targeted</i>. (2 points)</p>	<p>Do materials denote what cluster/standard is being assessed by each item?</p>	<p>0 1 2</p>
	<p><b>3pii.</b> Assessments include aligned rubrics that provide sufficient guidance to teachers for interpreting student performance and suggestions for follow-up. (2 points)</p>	<p>Do materials include scoring guidance (rubrics, anchors, etc.)?</p> <p>Does the guidance include support for teachers to interpret student performance and suggestions for follow-up?</p>	<p>0 1 2</p>
	<p><b>3piii</b> The assessment materials include embedded assessments that reflect a variety of knowledge levels. (Unscored)</p>	<p>Do materials include assessments that reflect a variety of knowledge levels?</p>	
	<p><b>3piv.</b> Multiple types of formative and summative assessments (performance-based tasks, questions, research, investigations, and projects) are embedded into the content materials and assess the learning targets. (Unscored)</p>	<p>Do the materials include multiple types of formative and summative assessments?</p>	
	<p><b>3q.</b> Materials encourage students to monitor their own progress. (Unscored)</p>	<p>Do materials provide opportunities for students to monitor their own progress?</p>	

**Criterion 3r - 3y: DIFFERENTIATION, SCAFFOLDING, AND SUPPORTS FOR ALL LEARNERS**

<p><b>Materials give all students extensive opportunities and support to explore key concepts.</b></p> <p><b>12 possible points</b>                  Meets expectations (11-12 pts)                  Partially meets expectations (8-10 pts)                  Does not meet expectations (&lt;8 pts)</p>	<p><b>3r.</b> Materials provide strategies to help teachers sequence or scaffold lessons so that the content is accessible to all learners. (2 points)</p>	<p>Do the materials provide specific strategies to help teachers sequence and/or scaffold lessons so the content is accessible to all learners?</p>	<p>0 1 2</p>
	<p><b>3s.</b> Materials provide teachers with strategies for meeting the needs of a range of learners. (2 points)</p>	<p>Do the materials provide appropriate suggestions to differentiate instruction to support the varying needs of learners?</p>	<p>0 1 2</p>
	<p><b>3t.</b> Materials embed tasks with multiple entry- points that can be solved using a variety of solution strategies or representations. (2 points)</p>	<p>Do materials include tasks that provide multiple entry-points that can be solved using a variety of solution strategies or representations?</p>	<p>0 1 2</p>
	<p><b>3u.</b> Materials suggest support, accommodations, and modifications for English Language Learners and other special populations that will support their regular and active participation in learning mathematics (e.g., modifying vocabulary words within word problems). (2 points)</p>	<p>Do materials suggest supports, accommodations, and/or modifications for English Language Learners and other special populations to support their regular and active participation in learning mathematics?</p>	<p>0 1 2</p>
	<p><b>3v.</b> Materials provide opportunities for advanced students to investigate mathematics content at greater depth. (2 points)</p>	<p>Do the materials provide opportunities for advanced students to investigate mathematics content at greater depth?</p>	<p>0 1 2</p>
	<p><b>3w.</b> Materials provide a balanced portrayal of various demographic and personal characteristics. (2 points)</p>	<p>Do the materials provide a balanced portrayal of various demographic and personal characteristics.</p>	<p>0 1 2</p>

	<b>3x.</b> Materials provide opportunities for teachers to use a variety of grouping strategies. (Unscored)	Do the materials present teachers with a variety of grouping strategies?	
	<b>3y.</b> Materials encourage teachers to draw upon home language and culture to facilitate learning. (Unscored)	Do the materials provide guidance for teachers to draw upon home language and culture?	
<b>Criterion 3z-3ad: EFFECTIVE USE OF TECHNOLOGY</b>			
<p><b>Materials support effective use of technology to enhance student learning. Digital materials are accessible and available in multiple platforms.</b></p> <p><b>All indicators are unscored, however qualitative evidence is provided.</b></p>	<b>3z.</b> Materials integrate technology such as interactive tools, virtual manipulatives/objects, and/or dynamic mathematics software in ways that engage students in the Mathematical Practices. (Unscored)	Do the materials integrate technology such as interactive tools, virtual manipulatives/objects, and/or dynamic mathematics software in ways that engage students in the Mathematical Practices.	
	<b>3aa.</b> Digital materials (either included as part of the core materials or as part of a digital curriculum) are web-based and compatible with multiple internet browsers (e.g., Internet Explorer, Firefox, Google Chrome, etc.). In addition, materials are “platform neutral” (i.e., are compatible with multiple operating systems such as Windows and Apple and are not proprietary to any single platform) and allow the use of tablets and mobile devices. (Unscored)	<p>Are digital materials (either included as part of the core materials or as part of a digital curriculum) web-based and compatible with multiple internet browsers?</p> <p>Are materials “platform neutral?”</p>	
	<b>3ab.</b> Materials include opportunities to assess student mathematical understandings and knowledge of procedural skills using technology. (Unscored)	Do materials include opportunities to assess student mathematical understandings and knowledge of procedural skills using technology?	

	<b>3ac.</b> Materials can be easily customized for individual learners.		
	<b>3aci.</b> Digital materials include opportunities for teachers to personalize learning for all students, using adaptive or other technological innovations. (Unscored)	Do digital materials include opportunities for teachers to personalize learning for all students, using adaptive or other technological innovations?	
	<b>3acii.</b> Materials can be easily customized for local use. For example, materials may provide a range of lessons to draw from on a topic. (Unscored)	Can materials be easily customized for local use. For example, materials may provide a range of lessons to draw from on a topic?	
	<b>3ad.</b> Materials include or reference technology that provides opportunities for teachers and/or students to collaborate with each other (e.g. websites, discussion groups, webinars, etc.). (Unscored)	Do materials include or reference technology that provides opportunities for teachers and/or students to collaborate with each other?	
<b>Criterion 3ae-3ah: SUPPLEMENTAL MATERIALS</b>			
<b>Supplemental materials reinforce core instruction and provide ample and a variety of resources to support student learning.</b>  <b>All indicators are unscored, however qualitative evidence is provided.</b>	<b>3ae.</b> Supplemental materials employ a variety of reading levels and is <b>grade/level appropriate.</b> (Unscored)	Do supplemental materials use a variety of reading levels that are grade-level appropriate?	
	<b>3af.</b> Supplemental materials provide ample resources that reinforce student learning through practice. (Unscored)	Do supplemental materials reinforce student learning through practice?	
	<b>3ag.</b> All supplemental materials are aligned to the content of the core instructional materials. (Unscored)	Are supplemental materials aligned to core materials?	

	<b>3ah.</b> Supplemental materials provide a variety of resources for student learning activities (e.g., journals/writing, cooperative group work, graphic organizers, etc.). (Unscored)	Are there a variety of resources for student learning activities in supplemental materials	
<b>TOTAL SCORE (GATEWAY 3)</b>	Criterion 3a-3e: _____ out of 8 points Criterion 3f-3l: _____ out of 8 points Criterion 3m-3q: _____ out of 10 points Criterion 3r-3y: _____ out of 12 points Criterion 3z-3ad and 3ae-ah are unscored		_____ of 38 points

<b>TOTAL SCORE (Gateway 1, 2, and 3)</b>			
<b>GATEWAY 1</b>	<b>GATEWAY 2</b>	<b>GATEWAY 3</b>	<b>GRAND TOTAL</b>
_____ of 14 points	_____ of 18 points	_____ of 38 points	_____ of 70 points

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

## High Quality Instructional Materials Math Review Rubric

### High School Mathematics

<b>Evaluator</b>		<b>Rating Committee</b>	
<b>Publisher</b>			
<b>Title of Textbook Series/Instructional Program</b>			
<b>Grade Range of Textbook Series/Instructional Program</b>		<b>Specific Grade Evaluated</b>	

Mississippi defines High-Quality Instructional Materials (HQIM) as material that are aligned with the Mississippi College- and Career-Readiness Standards, externally validated, comprehensive, and include engaging texts, which include books—both digital and print; and multimedia material, rigorous problems, and aligned assessments. HQIM can be used to identify students’ areas of strength and opportunities for growth and are sequentially mapped and designed to prepare students to graduate ready for college and the workforce, educative for teachers, and accessible to students with differentiated needs.

### The High-Quality Instructional Materials Mathematics Review Rubric for High School

The High-Quality Instructional Materials Mathematics Review Rubric HS (HQIM<sup>2</sup>R<sup>2</sup>) identifies the criteria and indicators for high quality instructional materials. The High School Evidence Guides complement the HS Quality Instructional Materials Review Tool by elaborating details for each indicator including the purpose of the indicator, information on how to collect evidence, guiding questions and discussion prompts, and scoring criteria.

### **HQIM<sup>2</sup>R<sup>2</sup> Scoring Protocol and Criteria**

1. For instructional materials for which there is an existing EdReports review, an adjusted EdReports (AER) review will include:
  - a. Alignment to MS CCR Standards
  - b. Revision of report structure to match Mississippi High-Quality Instructional Materials Review Rubric
  - c. Training for review of specific Mississippi
2. For instructional materials for which there is no existing EdReports review:
  - a. Training on the use of Mississippi High Quality Instructional Materials Review Rubric Evidence Guide

### **The HQIM<sup>2</sup>R<sup>2</sup> is comprised of three sections:**

- Section 1:** Alignment to Standards, Learning Progressions, and Coherence - This is a requirement for submission.
- Section 2:** Alignment to Rigor, and the Standards for Mathematical Practice - This is a requirement for submission.
- Section 3:** Usability and Design of Materials

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

## GATEWAY 1

Focus and Coherence - **This is a requirement for submission.**

In this gateway, reviewers consider how well the 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, including the modeling standards that appear throughout the high school Mississippi College- and Career-Readiness Standards for Mathematics, as indicated by a star (\*). We use the specific definition of modeling that appears in the standards to inform our evidence collection and scoring.

- Do the instructional materials focus on “the high school standards that specify the mathematics which all students should study in order to be college and career ready”?
- Do the instructional materials exhibit coherence within and across courses/grade levels that is consistent with a logical structure of mathematics?

Criterion 1a - 1g: FOCUS and COHERENCE		
CRITERIA	INDICATORS OF SUPERIOR QUALITY	SCORE
<p><b>The instructional materials are coherent and consistent with “the high school standards that specify the mathematics which all students should study in order to be college and career ready.”</b></p> <p><b>18 possible points</b></p> <p>Meets expectations (14-18 pts)</p> <p>Partially meets expectations (10-13 pts)</p> <p>Does not meet expectations (&lt;10 pts)</p>	<b>1a.</b> The materials focus on the high school standards.	
	<b>1ai.</b> The materials attend to the full intent of the mathematical content contained in the high school standards for all students. (4 points)	0 2 4
	<b>1aii.</b> The materials attend to the full intent of the modeling process when applied to the modeling standards. (2 points)	0 1 2
	<b>1b.</b> The materials provide students with opportunities to work with all high school standards and do not distract students with prerequisite or additional topics.	

	<b>1bi.</b> The materials, when used as designed, allow students to spend the majority of their time on the content from MS CCRS FOR MATHEMATICS widely applicable as prerequisites for a range of college majors, postsecondary programs, and careers. (2 points)	0	1	2
	<b>1bii.</b> The materials when used as designed allow students to fully learn each standard. (4 points)	0	2	4
	<b>1c.</b> The materials require students to engage in mathematics at a level of sophistication appropriate to high school. (2 points)	0	1	2
	<b>1d.</b> The materials are mathematically coherent and make meaningful connections in a single course, where appropriate and where required by the Standards. (2 points)	0	1	2
	<b>1e.</b> The materials explicitly identify and build on knowledge from Grades 6-8 to the High School Standards. (2 points)	0	1	2
	<b>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. (Unscored)			
	<b>1g.</b> The materials address all of the standards for the course as prescribed by MS CCRS for Mathematics.	Yes	No	
<b>TOTAL SCORE (GATEWAY 1)</b>				<hr style="width: 50px; margin: 0 auto;"/> <b>of 18 points</b>

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

## GATEWAY 2

Rigor and the Standards for Mathematical Practices - **This is a requirement for submission.**

Rigor determines if a series instructional materials reflect the balances in the standards by helping students develop conceptual understanding, procedural skill and fluency, and application. Mathematical Practices determine how well materials meaningfully connect the Mathematical Content Standards and the Mathematical Practice Standards.

- Do the instructional materials engage students with all aspects of rigor: conceptual understanding, procedural skill and fluency, and application in a balanced way?
- Do the Mathematical Practices connect to the Mathematical Content Standards in meaningful and deliberate ways?

Criterion 2a - 2d: RIGOR and BALANCE		
CRITERIA	INDICATORS OF SUPERIOR QUALITY	SCORE
<p><b>The instructional materials reflect the balances in the Standards and help students meet the Standards' rigorous expectations, by giving appropriate attention to: developing students' conceptual understanding; procedural skill and fluency; and engaging applications.</b></p> <p><b>8 possible points</b></p> <p>Meets expectations (7-8 pts)</p> <p>Partially meets expectations (5-6 pts)</p> <p>Does not meet expectations (&lt;5 pts)</p>	<p><b>2a.</b> Attention to Conceptual Understanding: The materials support the intentional development of students' conceptual understanding of key mathematical concepts, especially where called for in specific content standards or clusters. <b>(2 points)</b></p>	0 1 2
	<p><b>2b.</b> Attention to Procedural Skill and Fluency: The materials provide intentional opportunities for students to develop procedural skills and fluencies, especially where called for in specific content standards or clusters. <b>(2 points)</b></p>	0 1 2

	<p><b>2c.</b> Attention to Applications: The 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. (2 points)</p>	0 1 2
	<p><b>2d.</b> Balance: 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. (2 points)</p>	0 1 2
<b>Criterion 2e - 2h: PRACTICE-CONTENT CONNECTION</b>		
CRITERIA	INDICATORS OF SUPERIOR QUALITY	SCORE
<p><b>Materials meaningfully connect the Standards for Mathematical Content and the Standards for Mathematical Practice.</b></p> <p><b>8 possible points</b>          Meets expectations (7-8 pts)          Partially meets expectations (4-6 pts)          Does not meet expectations (&lt;4 pts)</p>	<p><b>2e.</b> The materials support the intentional development of overarching, mathematical practices (MPs 1 and 6), in connection to the high school content standards, as required by the mathematical practice standards. (2 points)</p>	0 1 2
	<p><b>2f.</b> The materials support the intentional development of reasoning and explaining (MPs 2 and 3), in connection to the high school content standards, as required by the mathematical practice standards. (2 points)</p>	0 1 2
	<p><b>2g.</b> The materials support the intentional development of modeling and using tools (MPs 4 and 5), in connection to the high school content standards, as required by the mathematical practice standards. (2 points)</p>	0 1 2
	<p><b>2h.</b> The materials support the intentional development of seeing structure and generalizing (MPs 7 and 8), in connection to the high school content standards, as required by the mathematical practice standards. (2 points)</p>	0 1 2
<b>TOTAL SCORE (GATEWAY 2)</b>	<p>Criterion 2a-2d: _____ out of 8 points</p> <p>Criterion 2e-2h: _____ out of 8 points</p>	<p>_____</p> <p><b>of 16 points</b></p>

TOTAL SCORE Gateway 1 and 2)		
GATEWAY 1	GATEWAY 2	TOTAL
_____	_____	_____
of 18 points	of 16 points	of 34 points

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

## GATEWAY 3

### Instructional Support, Usability, and Assessment

Gateway 3 Rating Sheets include some Indicators that are rated and some that are not rated. In cases where Indicators are not rated, the evidence collected provides valuable information about instructional materials, although the indicator is not scored and does not affect the rating for the Criterion or Gateway.

Criterion 3a-3e: USE AND DESIGN FACILITATE STUDENT LEARNING		
CRITERIA	INDICATORS OF SUPERIOR QUALITY	SCORE
<p><b>Materials are well designed and take into account effective lesson structure and pacing.</b></p> <p><b>8 possible points</b></p> <p>Meets expectations (7-8 pts)</p> <p>Partially meets expectations (5-6 pts)</p> <p>Does not meet expectations (&lt;5 pts)</p>	<p><b>3a.</b> The underlying design of the materials distinguishes between problems and exercises. In essence, the difference is that in solving problems, students learn new mathematics, whereas in working exercises, students apply what they have already learned to build mastery. Each problem or exercise has a purpose. (2 points)</p>	0 1 2
	<p><b>3b.</b> Design of assignments is not haphazard: exercises are given in intentional sequences. (2 points)</p>	0 1 2
	<p><b>3c.</b> There is variety in how students are asked to present the mathematics. (2 points)</p>	0 1 2
	<p><b>3d.</b> Manipulatives, both virtual and physical, are faithful representations of the mathematical objects they represent and when appropriate are connected to written methods. (2 points)</p>	0 1 2
	<p><b>3e.</b> The visual design (whether in print or digital) is not distracting or chaotic but supports students in engaging thoughtfully with the subject. (Unscored)</p>	

	<p><b>3ei.</b> The material incorporates a glossary, footnotes, recordings, pictures, and/or other features that aid students and teachers in using the book effectively. (Unscored)</p>	
<p><b>Criterion 3f - 3l: TEACHER PLANNING AND LEARNING FOR SUCCESS with the MS CCRS</b></p>		
<p><b>Materials support teacher learning and understanding of the Standards.</b></p> <p><b>8 possible points</b>          Meets expectations (7-8 pts)          Partially meets expectations (5-6 pts)          Does not meet expectations (&lt;5 pts)</p>	<p><b>3f.</b> Materials support teachers in planning and providing effective learning experiences by providing quality questions to help guide students' mathematical development. (2 points)</p>	0 1 2
	<p><b>3g.</b> Materials contain a teacher's edition with ample and useful annotations and suggestions on how to present the content in the student edition and in the ancillary materials. Where applicable, materials include teacher guidance for the use of embedded technology to support and enhance student learning. (2 points)</p>	0 1 2
	<p><b>3h.</b> Materials contain a teacher's edition that contains full, adult-level explanations and examples of the more advanced mathematics concepts and the mathematical practices so that teachers can improve their own knowledge of the subject, as necessary. (2 points)</p>	0 1 2
	<p><b>3i.</b> Materials contain a teacher's edition that explains the role of the specific mathematics standards in the context of the overall series. (2 points)</p>	0 1 2
	<p><b>3j.</b> Materials provide a list of lessons in the teacher's edition, cross-referencing the standards addressed and providing an estimated instructional time for each lesson, chapter and unit (i.e., pacing guide). (Unscored)</p>	
	<p><b>3k.</b> Materials contain strategies for informing students, parents, or caregivers about the mathematics program and suggestions for how they can help support student progress and achievement. (Unscored)</p>	

	<b>3l.</b> Materials contain explanations of the instructional approaches of the program and identification of the research-based strategies. (Unscored)	
<b>Criterion 3m-3q: ASSESSMENT</b>		
<b>Materials offer teachers resources and tools to collect ongoing data about student progress on the Standards.</b>  <b>10 possible points</b> Meets expectations (9-10 pts) Partially meets expectations (6-8 pts) Does not meet expectations (<6 pts)	<b>3m.</b> Materials provide strategies for gathering information about students' prior knowledge within and across grade levels/courses. (2 points)	0 1 2
	<b>3n.</b> Materials provide support for teachers to identify and address common student errors and misconceptions. (2 points)	0 1 2
	<b>3o.</b> Materials provide support for ongoing review and practice, with feedback, for students in learning both concepts and skills. (2 points)	0 1 2
	<b>3p. Materials offer ongoing formative and summative assessments.</b>	
	<b>3pi.</b> Assessments clearly denote which standards are being emphasized. (2 points)	0 1 2
	<b>3pii.</b> Assessments provide sufficient guidance to teachers for interpreting student performance and suggestions for follow-up. (2 points)	0 1 2
	<b>3piii</b> The assessment materials include embedded assessments that reflect a variety of knowledge levels. (Unscored)	
	<b>3piv.</b> Multiple types of formative and summative assessments (performance-based tasks, questions, research, investigations, and projects) are embedded into the content materials and assess the learning targets. (Unscored)	
	<b>3q.</b> Materials encourage students to monitor their own progress. (Unscored)	

**Criterion 3r - 3y: DIFFERENTIATED INSTRUCTION**

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

**10 possible points**

Meets expectations (9-10 pts)

Partially meets expectations (6-8 pts)

Does not meet expectations (<6 pts)

**3r.** Materials provide strategies to help teachers sequence or scaffold lessons so that the content is accessible to all learners. (2 points) 0 1 2

**3s.** Materials provide teachers with strategies for meeting the needs of a range of learners. (2 points) 0 1 2

**3t.** Materials embed tasks with multiple entry-points that can be solved using a variety of solution strategies or representations. (2 points) 0 1 2

**3u.** Materials suggest support, accommodations, and modifications for English Language Learners and other special populations that will support their regular and active participation in learning mathematics (e.g., modifying vocabulary words within word problems). (2 points) 0 1 2

**3v.** Materials provide opportunities for advanced students to investigate mathematics content at greater depth. (2 points) 0 1 2

**3w.** Materials provide a balanced portrayal of various demographic and personal characteristics. (Unscored)

**3x.** Materials provide opportunities for teachers to use a variety of grouping strategies. (Unscored)

**3y.** Materials encourage teachers to draw upon home language and culture to facilitate learning. (Unscored)

**Criterion 3z-3ad: EFFECTIVE USE OF TECHNOLOGY**

**Materials support effective use of technology to enhance**

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

<p><b>student learning. Digital materials are accessible and available in multiple platforms.</b></p> <p><b>All indicators are unscored, however qualitative evidence is provided.</b></p>	<p>students in the Mathematical Practices. (Unscored)</p>	
	<p><b>3aa.</b> Digital materials (either included as part of the core materials or as part of a digital curriculum) are web-based and compatible with multiple internet browsers (e.g., Internet Explorer, Firefox, Google Chrome, etc.). In addition, materials are “platform neutral” (i.e., are compatible with multiple operating systems such as Windows and Apple and are not proprietary to any single platform) and allow the use of tablets and mobile devices. (Unscored)</p>	
	<p><b>3ab.</b> Materials include opportunities to assess student mathematical understandings and knowledge of procedural skills using technology. (Unscored)</p>	
	<p><b>3ac.</b> Materials can be easily customized for individual learners.</p>	
	<p><b>3aci.</b> Digital materials include opportunities for teachers to personalize learning for all students, using adaptive or other technological innovations. (Unscored)</p>	
	<p><b>3acii.</b> Materials can be easily customized for local use. For example, materials may provide a range of lessons to draw from on a topic. (Unscored)</p>	
	<p><b>3ad.</b> Materials include or reference technology that provides opportunities for teachers and/or students to collaborate with each other (e.g. websites, discussion groups, webinars, etc.). (Unscored)</p>	
<p><b>Criterion 3ae-3ah: SUPPLEMENTAL MATERIALS</b></p>		
<p><b>Supplemental materials reinforce core instruction and provide ample and a variety of resources to support student learning.</b></p>	<p><b>3ae.</b> Supplemental materials employ a variety of reading levels and is <b>grade/level appropriate</b>. (Unscored)</p>	
	<p><b>3af.</b> Supplemental materials provide ample resources that reinforce student learning through practice. (Unscored)</p>	

<p><b>All indicators are unscored, however qualitative evidence is provided.</b></p>	<p><b>3ag.</b> All supplemental materials are aligned to the content of the core instructional materials. (Unscored)</p>	
	<p><b>3ah.</b> Supplemental materials provide a variety of resources for student learning activities (e.g., journals/writing, cooperative group work, graphic organizers, etc.). (Unscored)</p>	
<p><b>TOTAL SCORE (GATEWAY 3)</b></p>	<p>Criterion 3a-3e: _____ out of 8 points</p> <p>Criterion 3f-3l: _____ out of 8 points</p> <p>Criterion 3m-3q: _____ out of 10 points</p> <p>Criterion 3r-3y: _____ out of 10 points</p> <p>Criterion 3z-3ad and 3ae-ah are unscored</p>	<p>_____ of 36 points</p>

TOTAL SCORE (Gateway 1, 2, and 3)			
GATEWAY 1	GATEWAY 2	GATEWAY 3	GRAND TOTAL
<p>_____ of 18 points</p>	<p>_____ of 16 points</p>	<p>_____ of 36 points</p>	<p>_____ of 70 points</p>

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

## EVIDENCE GUIDES

K-8 Mathematics

# Gateway 1

## GUIDANCE FOR Indicator 1a

### CRITERION

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

### INDICATOR

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

## Do assessment questions address grade-level Standards?



### WHAT IS THE PURPOSE OF THIS INDICATOR?

This indicator, along with indicator 1b, determines the **shift of Focus**. In order to maintain Focus, materials concentrate on grade-level Standards. Assessments are determined by the publisher and are series specific.



### EVIDENCE COLLECTION

#### Evidence Collection: Guiding Questions

- Do K-5 assessments include questions addressing the following topics?
  - Probability (including chance, likely outcomes, probability models).
  - Statistical distributions (including center, variation, clumping, outliers, mean, median, mode, range, quartiles; and statistical association or trends, including two-way tables, bivariate measurement data, scatter plots, trend line, line of best fit, correlation).
  - Similarity, transformations, and congruence.
- Do materials include many above-grade-level items on assessments that would require major modifications to fix?
- Do materials include above grade-level items whose removal or modification would change the underlying structure or intent of the materials?
- Do materials include above-grade-level items on assessments that do not require major modifications to fix or are mathematically reasonable?

**Record all evidence including span of instructional time of associated lessons/activities and record the above-grade-level Standards for ALL of these questions.**

**Evidence Collection: Locating evidence sources**

- Look at all interim, unit, and/or summative assessments.
- Look at scoring rubrics, if available, to determine acceptable responses for the items. If all questions are on grade-level, provide evidence of assessment items that are representative of the instructional materials.



**DISCUSSION POINTS FOR REVIEW TEAM MEETING**

Verify with the team that the assessment items noted by individual reviewers assess above grade-level Standards.

- Include each above grade-level assessment question.
- For each question, list the above grade-level Standard to which the item aligns and explain why the assessment item is above grade-level.

For each above grade-level assessment item listed, discuss the following questions:

1. Are the above grade-level Standards in the next grade-level or several grades beyond? (Assessing Standards that are one grade-level away from the current one could be mathematically reasonable. More than one grade-level away is probably not mathematically reasonable.) Is the assessment item clearly identified as above grade-level?
2. Would skipping the above grade-level assessment item (and, therefore, the associated lessons and activities) still maintain the integrity of the instructional materials?
3. Is the above grade-level assessment item included at the beginning of the year or at the end of the year?



## SCORING

**2 points**

Topics from probability, statistics, similarity or congruence are NOT assessed in K - 5.

**AND**

Materials assess grade-level Standards OR include above-grade level assessment items that could be removed or modified without impacting the structure or intent of the materials.

**AND**

Above-grade level items are mathematically reasonable.

**0 points**

Topics from probability, statistics, similarity or congruence ARE assessed in K - 5.

**OR**

Materials include above-grade level assessments items that would require major modifications to fix.

**OR**

Above-grade level items are not mathematically reasonable.

## ► GUIDANCE FOR Indicator 1b

### CRITERION

Students and teachers using the materials as designed devote the large majority of class time in each grade, K – 8, to the Major Work\* of the grade.

### INDICATOR

The majority of the MS CCRS-M K-8 are incorporated, across a grade-level.

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**Is at least 65% of instructional time address the Major Work\* of the grade?**

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### WHAT IS THE PURPOSE OF THIS INDICATOR?

This indicator, along with indicator 1a, determines the **shift of Focus**. In order to maintain Focus, materials concentrate on grade-level Standards, and a large majority of class time is dedicated to lessons or activities from materials that align to the Major Work of the grade-level being reviewed. (Major Work of the grade refers to those Standards identified in the Critical Areas. While all grade-level Standards are important, an emphasis on Major Work of the grade ensures that meaningful connections are made within and between Standards across the grade-level).

**Note:** ALL Standards in MS CCRS-M are accounted for in evidence gathered between indicators 1b, 1c, 1e, and 1f. Indicator 1c addresses the **connections** within and between domains and Standards for each grade-level. Indicator 1e addresses the **progressions** of the Standards within and between grade-levels, as well as extensive work with grade-level Standards. Indicator 1f addresses how materials demonstrate **coherence** between the domains and Standards of grade-level Standards including learning objectives.



## EVIDENCE COLLECTION

### Evidence Collection: Guiding Questions

- When considering units/chapters, what percent focus on addressing the Major Work of the grade?
- When considering lessons/activities, what percent focus on addressing the Major Work of the grade?
- When considering the amount of instructional time in material (including assessments), what percent is spent on the Major Work of the grade?
- When considering the supporting work in material (including assessments), what percent connects and addresses the Major Work of the grade?

#### **Please Note:**

- If it is not possible for a reviewer to capture data for each of these perspectives, then the reviewer should provide an explanation as to why a perspective was not feasible. (For example, a set of materials is not divided into units/chapters, so a calculation from that perspective is not possible.)
- If a perspective other than the three that already have been given is a better representation for the materials, then the reviewer should clearly explain why the other perspective is better and include evidence and calculations to accompany the additional perspective.

### Evidence Collection: Preparing to Collect Evidence

- Familiarize yourself with the Major Work of the grade being reviewed. (See the [EdReports Quality Instructional Materials Tool: Grades K-8 Mathematics](#)).

### Evidence Collection: Locating Evidence Sources

- List all units/chapters/lessons/activities and assessments focused primarily on Major Work of the grade and list all units/chapters/lessons/activities and assessments that include connections between supporting and Major Work of the grade.
- Explain evidence that is listed including specific Standards.
- Explain how calculations were performed and include all calculations on the evidence collection worksheet.

**Note: Collect evidence for 1b, 1c, 1f simultaneously.**



### DISCUSSION POINTS FOR REVIEW TEAM MEETING

1. Which perspective is most representative of the instructional materials? Why?
2. How similar are each reviewer's calculations percents?
3. In which lessons does supporting work increase the focus on the Major Work of the grade?
4. Evidence that reflects difficulty in calculating percents for the materials should be moved to Gateway 3.



### SCORING

#### 4 points

The materials should devote at least 65%. For those materials on the borderline (e.g., 60% - 64%), evidence should clearly explain how non-Major Work supports the Major Work of the grade and increases the materials' attention to Focus.

#### 0 points

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

**\*Standards considered as Major Work by Grade:**

<b>GRADE</b>	<b>MAJOR WORK</b>	<b>SUPPORTING</b>
<b>Kindergarten</b>	K.CC.1, 2, 3, 4, 5, 6, 7 K.OA.1, 2, 3, 4, 5 K.NBT.1	K.MD.1, 2, 3 K.G.1, 2, 3, 4, 5, 6
<b>Grade 1</b>	1.OA.1, 2, 3, 4, 5, 6, 7, 8 1.NBT.1, 2, 3, 4, 5, 6 1.MD.1, 2	1.MD.3a, 3b, 4, 5 1.G.1, 2, 3
<b>Grade 2</b>	2.OA.1, 2 2.NBT.1, 2, 3, 4, 5, 6, 7, 8, 9 2.MD.1, 2, 3, 4, 5, 6	2.OA.3, 4 2.MD.7, 8a, 8b, 9, 10 2.G.1, 2, 3
<b>Grade 3</b>	3.OA.1, 2, 3, 4, 5, 6, 7, 8, 9 3.NF.1, 2, 3 3.MD.1, 2, 5, 6, 7	3.NBT.1, 2, 3 3.MD.3, 4, 8 3.G.1, 2
<b>Grade 4</b>	4.OA.1, 2, 3 4.NBT.1, 2, 3, 4, 5, 6 4.NF.1, 2, 3, 4, 5, 6, 7	4.OA.4, 5 4.MD.1, 2, 3, 4, 5, 6, 7 4.G.1, 2, 3
<b>Grade 5</b>	5.NBT.1, 2, 3, 4, 5, 6, 7 5.NF.1, 2, 3, 4, 5, 6, 7 5.MD.3, 4, 5	5.OA.1, 2, 3 5.MD.1, 2 5.G.1, 2, 3, 4
<b>Grade 6</b>	6.RP.1, 2, 3 6.NS.1, 5, 6, 7, 8, 9 6.EE.1, 2, 3, 4, 5, 6, 7, 8, 9	6.NS.2, 3, 4 6.G.1, 2, 3, 4 6.SP.1, 2, 3, 4, 5
<b>Grade 7</b>	7.RP.1, 2, 3 7.NS.1, 2, 3 7.EE.1, 2, 3, 4	7.G.1, 2, 3, 4, 5, 6 7.SP.1, 2, 3, 4, 5, 6, 7, 8, 9
<b>Grade 8</b>	8.EE.1, 2, 3, 4, 5, 6, 7, 8 8.F.1, 2, 3, 4, 5 8.G.1, 2, 3, 4, 5, 6, 7, 8	8.NS.1, 2 8.G.9 8.SP.1, 2, 3, 4

## ► GUIDANCE FOR Indicator 1c

### CRITERION

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

### INDICATOR

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

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**Is supporting content connected to the Major Work of the grade? Is supporting content addressed independently?**

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### WHAT IS THE PURPOSE OF THIS INDICATOR?

This indicator, along with indicators 1d, 1e, and 1f, determines the **shift of Coherence**. In order to maintain coherence, materials should link to the mathematical content across grades and within grades. The chapters and lessons should show how learning is built on previous learning and builds towards future learning. Within the grade-level, Supporting Work is connected to Major Work of the grade.

**Note:** *ALL Standards in MS CCRS-M are accounted for in evidence gathered between indicators 1b, 1c, 1e, and 1f. Indicator 1b addresses how Major Work of the grade is attended to in the instructional materials. Indicator 1e addresses the progressions of the Standards within and between grade levels, as well as extensive work with grade-level Standards. Indicator 1f addresses how materials demonstrate coherence between the domains of grade-level Standards including learning objectives.*



## EVIDENCE COLLECTION

### Evidence Collection: Guiding Questions

- When are supporting Standards connected to the Major Work of the grade? How are they connected?
- When supporting Standards are not connected to the major Standards of the grade, is the separation mathematically reasonable?
- Are there natural connections between supporting and major Standards of the grade that are entirely absent from the materials?

### Evidence Collection: Preparing to Collect Evidence

- Familiarize yourself with the Major Work of the grade being reviewed. (See the [EdReports Quality Instructional Materials Tool: Grades K-8 Mathematics](#)).

### Evidence Collection: Locating Evidence Sources

- Review all parts of the instructional materials to see if connections are truly being made. Note when connections are made, when they are present, but the Major Work of the grade is not explicitly mentioned, and when connections are entirely absent from the materials.
- Evidence must include specific examples from the instructional materials; examples should include chapters, lessons, and page numbers. Each piece of evidence must list specific Standards and explain the connections made/missing between supporting and major Standards within the materials.



## DISCUSSION POINTS FOR REVIEW TEAM MEETING

1. What connections between supporting and major Standards of the grade were identified?
2. Where were connections of supporting and major Standards of the grade found?
3. How were the connections made in the instructional materials?

**SCORING**

<b>2 points</b>	Supporting content is used to enhance the focus on Major Work of the grade, when appropriate.
<b>1 point</b>	Some connections are missed. <b>AND/OR</b> Connections are not fully explored.
<b>0 points</b>	Supporting content is treated separately and does not include connections to Major Work of the grade.

## KINDERGARTEN

**Big Ideas: Counting, Cardinality, comparing numbers.**

<p><b>K.MD.3</b>  <b>*K.CC.5</b>  <b>*K.OA.3</b></p> <p><b>Using objects to classify and count in different arrangements, and decompose using objects</b></p>	<p>K.MD.3 offers a context in which to decompose 10 in more than one way (see K.OA.3). For example, given a collection of 10 buttons, children could classify by color and size to answer (K.CC.5) questions such as “how many small buttons do you have”, “how many blue buttons do you have”, or “how many large gray buttons do you have?”. Such a decomposition of objects can show both that <math>10 = 7 + 3</math> and that <math>10 = 6 + 4</math>. (See figure.)</p>	
<p><b>*K.CC.5</b>  <b>*K.CC.6</b>  <b>K.G.2</b>  <b>K.G.4</b></p> <p><b>Name and count attributes of shapes, compare size of groups of objects by counting</b></p>	<p>Students can count (see K.CC.5) vertices as a strategy for recognizing shapes in different orientations (see K.G.2) and can use shapes as a setting in which to compare numbers. (see K.CC.6: e.g., count to see which has more vertices, an octagon or a hexagon — see K.G.4)</p>	

## FIRST GRADE

**Big Ideas: Addition and subtraction – concepts, skills, and problem solving; place value**

<p><b>1.MD.4</b>  <b>*1.OA</b></p> <p><b>Using data to practice adding and subtracting</b></p>	<p>When students work with organizing, representing and interpreting data, the process includes practicing using numbers and adding and subtracting to answer questions about the data (see the part of 1.MD.4 after the semicolon, and see the K–5 MD Progression document, especially Table 1 on page 4 and the discussion of categorical data on pages 5 and 6).</p>
<p><b>1.MD.3</b>  <b>*1.NBT.1</b></p> <p><b>Telling and writing time to practice reading numbers.</b></p>	<p>Telling and writing time on digital clocks (1.MD.3) is a context in which one can practice reading numbers (1.NBT.1), a kind of “application,” but no more. Relating those times to meanings — events during a day — is not part of 1.MD.3, but making sense of what one is doing (MP.1) and contextualizing (MP.2) are essential elements of good mathematical practice and should always be part of the instructional foreground.</p>

## SECOND GRADE

**Big Ideas: Addition and subtraction – concepts, skills, and problem solving; place value**

<p><b>2.MD.7, 8a, 8b, 9, 10</b> *2.NBT.1, 2, 3, 4, 5, 6, 7, 8, 9, 10</p> <p><b>Time and money are used to develop place value understanding.</b></p>	<p>When students work with time and money (2.MD.7-8), their work with dollars, dimes, and pennies should support their understanding and skill in place value (2.NBT). Their work with nickels, with telling time to the nearest five minutes on analog clocks, with counting by 5s (2.NBT.2), and with arrays of five rows and/or five columns (2.OA.3-4) should be taken together.</p>
<p><b>2.MD.10</b> *2.O1</p> <p><b>Using data to solve addition and subtraction problems.</b></p>	<p>2.MD.10 particularly represents an opportunity to link to the Major Work of grade 2. Picture graphs and bar graphs can add variety as contexts for solving addition and subtraction problems. The language in 2.MD.10 mentions word problems (2.OA) explicitly. See the Progression document for K–5 Measurement and Data for more on the connections between data work and arithmetic in the early grades.</p>
<p><b>2.MD.9</b> *2.MD.1</p> <p><b>Generate measurement data as a way to teach standard unit measurement.</b></p>	<p>2.MD.9 is a potential context for 2.MD.1 and gives students a first taste of visual comparison of numerical information (though the fact that this numerical information was derived from length makes the representation more about scaling the information than about visualizing it).</p>

## THIRD GRADE

**Big Ideas: Multiplication and division of whole numbers and fractions.**

<p>*3.OA.1, 2, 3, 4 3.MD.3</p> <p><b>Scaled bar graphs; multiplication and division</b></p>	<p>Represent and interpret data: Students multiply and divide to solve problems using information presented in scaled bar graphs (3.MD.3). Pictographs and scaled bar graphs are a visually appealing context for one- and two-step word problems.</p>
<p>3.G.2 *3.NF.1, 2, 3 *3.MD.5, 6, 7 3.MD.4</p> <p><b>Measurement, area, and fractions</b></p>	<p>Reason with shapes and their attributes: Work toward meeting 3.G.2 should be positioned in support of area measurement and understanding of fractions.</p>

## FOURTH GRADE

**Big Ideas: Multi-digit arithmetic; fraction equivalence; add/sub fractions**

<p><b>4.OA.4</b> *4.NBT.4, 5, 6 *4.NF.1, 2</p> <p><b>Factors and multiples; fraction equivalence</b></p>	<p>Gain familiarity with factors and multiples: Work in these Standards supports students' work with multi-digit arithmetic as well as their work with fraction equivalence.</p>
<p><b>4.MD.4</b> *4.NF.1, 2, 3, 4</p> <p><b>Add/sub fractions; measurements in fractions of a unit</b></p>	<p>Represent and interpret data: The Standards here requires students to use a line plot to display measurements in fractions of a unit and to solve problems involving addition and subtraction of fractions, connecting it directly to the Number and Operations — Fractions clusters.</p>

## FIFTH GRADE

**Big Ideas: Computation with decimals; operations on fractions**

<p><b>5.MD.1</b> *5.NBT.4, 5, 6</p> <p><b>Convert measurement units; computation with decimals</b></p>	<p>Convert like measurement units within a given measurement system: Work in these Standards supports computation with decimals. For example, converting 5 cm to 0.05 m involves computation with decimals to hundredths.</p>
<p><b>5.MD.4</b> *5.NF.1, 2, 3, 4</p> <p><b>Data sets in fractions; operations on fractions</b></p>	<p>Represent and interpret data: The Standards here provide an opportunity for solving real-world problems with operations on fractions, connecting directly to both Number and Operations — Fractions clusters.</p>

## SIXTH GRADE

**Big Ideas: Ratio and proportional reasoning, connecting arithmetic to expressions and equations**

<p><b>6.NS.4</b> <b>*6.EE.3</b></p> <p><b>Factors and multiples; equivalent expressions</b></p>	<p>Identifying greatest common factor and least common multiple. Recognizing common factors will allow students to represent expressions in different forms.</p>
<p><b>6.G.1, 2, 3, 4</b> <b>*6.EE.1, 2, 3, 4</b> <b>*6.EE.5, 6, 7, 8</b></p> <p><b>Surface area and volume; expressions, equations and inequalities</b></p>	<p>Writing, reading, evaluating, and transforming variable expressions (6.EE.1-4) and solving equations and inequalities (6.EE.7-8) can be combined with use of the volume formulas <math>V = lwh</math> and <math>V = Bh</math> (6.G.2).</p>

## SEVENTH GRADE

**Big Ideas: Ratio and proportional reasoning, operations with rational numbers**

<p><b>7.G.A.1</b> <b>*7.RP.1, 2, 3</b></p> <p><b>Scale drawings, proportional reasoning</b></p>	<p>Students use proportional reasoning when they analyze scale drawings.</p>
<p><b>7.SP.5, 6, 7, 8</b> <b>*7.RP.1, 2, 3</b></p> <p><b>Sampling and probability, proportional reasoning</b></p>	<p>Students use proportional reasoning and percentages when they extrapolate from random samples and use probability.</p>

**EIGHTH GRADE****Big Ideas: Linear equations and functions****\*8.EE.5, 6****8.SP.1, 2, 3, 4****Proportional relationships and linear equations; association in bivariate data**

Students' work with proportional relationships, lines, linear equations, and linear functions can be enhanced by working with scatter plots and linear models of association in bivariate measurement data.

## GUIDANCE FOR Indicator 1d

### CRITERION

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

### INDICATOR

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

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**Can the instructional materials reasonably be completed in one academic school year?**

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### WHAT IS THE PURPOSE OF THIS INDICATOR?

This indicator along with indicators 1c, 1e, and 1f, determines the **shift of Coherence**. This indicator examines the materials to determine if the amount of time suggested in the materials is appropriate for one academic school year and if the expectations of the materials are reasonable for both teachers and students to complete in the suggested timeframe.



### EVIDENCE COLLECTION

#### Evidence Collection: Guiding Questions

- Can the instructional materials be completed in a school year (approximately 140-190 days of instruction)?
- What is the length of the lesson according to the publisher? (For example, 60 minutes)

#### Evidence Collection: Locating Evidence Sources

Review the table of contents, any pacing guides, and scope and sequence provided by the publisher.

- Consider the days spent on lessons/activities and assessments.
- Examine the number of days recommended for re-teaching or extensions.
- Note lessons marked as optional or supplementary, but do not include these days in total days required for the material.

- Examine the lessons to see if the timing suggested by the publisher is viable.
- Note if the requirements of the lessons seem reasonable for teachers and students to complete in the suggested amount of time.



### DISCUSSION POINTS FOR REVIEW TEAM MEETING

1. Can students master ALL grade-level Standards in the time frame stated?
2. Is there too much or too little material to cover in one academic school year?
3. Was there any information you learned from the publisher's orientation that was valuable for this indicator? If so, include this information in the report.



### SCORING

<b>2 points</b>	The suggested amount of time and expectations for teachers and students of the materials are viable for one academic school year as written and would not require significant modifications. For those materials on the borderline of having too little or too much content (130-139 days or 191-200 days), evidence should clearly explain how students would be able to master ALL the grade-level Standards within one academic school year.
<b>1 point</b>	The suggested amount of time provided by the materials raises some concerns as to whether coverage of the materials and/or the expectations for teachers and students are viable. Some significant modifications would be necessary for materials to be viable for one academic school year.
<b>0 points</b>	The suggested amount of time for the materials is not viable for one academic school year, and/ or the expectations for teachers and students are unreasonable. Significant modifications would be necessary for the materials to be viable for one academic school year.

## GUIDANCE FOR Indicator 1e

### CRITERION

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

### INDICATOR

Materials are consistent with the progressions in the Standards.

- 1e.i. Materials develop according to the grade-by-grade progressions in the Standards. Content from prior or future grades is clearly identified and related to grade-level work.
- 1e.ii. Materials give all students extensive work with grade-level problems.
- 1e.iii. Materials relate grade-level concepts explicitly to prior knowledge from earlier grades.

### 1e: Are the materials consistent with the progressions in the Standards?

- **1ei: Do the materials concentrate on the mathematics of the grade as referenced in the Standards and Progression Documents?**
- **1eii: Are all grade-level Standards present? Do the materials address the full intent of the Standards? Is there above/below grade-level content present? Is it a plausible extension or reinforcement of grade-level Standards? Does it take time away from the work of the grade?**
- **1eiii: Is grade-level content connected to specific Standards from earlier grades?**



### WHAT IS THE PURPOSE OF THIS INDICATOR?

This indicator, along with indicators 1c, 1d, and 1f, determines the **shift of Coherence**. The indicator examines the coherence across grade-levels (vertically).

**Note:** ALL Standards in MS CCRS-M are accounted for in evidence gathered between indicators 1b, 1c, and 1f. Indicator 1b addresses how Major Work of the grade is attended to in the instructional materials. Indicator 1c addresses the connections within and between domains and Standards for each grade-level. Indicator 1f addresses how materials demonstrate coherence between the domains and grade-level Standards including learning objectives.



## EVIDENCE COLLECTION

### Evidence Collection: Guiding Questions

- Does the design of the materials concentrate on the mathematics of the grade as referenced in the ***Standards and Progression Documents?***
- Are all grade-level Standards present? Do the materials address the full intent of the Standards? Include evidence of missing Standards and/or Standards where the full intent is not met.
- Is there above/below grade-level content present? If so, is it clearly identified as such in the materials? Is it a plausible extension or reinforcement of grade-level Standards? Does it unduly interfere with the Major Work of the grade? Does it take time away from the Major Work of the grade?
- Is grade-level content connected to specific Standards from earlier grades?
- If the materials include activities that have differentiation suggestions, are they engaging all students with GRADE-LEVEL problems? Note: The quality and types of the differentiation provided by the materials is examined in Gateway 3.
- Are connections to prior learning explicit, and do the materials include an explanation for teachers? For example:
  - Evaluating this indicator can include looking at the way the materials extend basic ideas of place value, i.e. across the decimal point, or the role that the properties of operations play when the materials extend arithmetic beyond whole numbers to fractions, variables and expressions.

### Evidence Collection: Locating Evidence Sources

- Headings in the Standards can signal key moments where reorganizing and extending previous knowledge is important in order to accommodate new knowledge (e.g., see Standard headings that use the phrase “apply and extend previous understanding”).



### DISCUSSION POINTS FOR REVIEW TEAM MEETING

1. Is grade-level material reaching the full intent of the Standards? If not, how does that impact the progression of the mathematics?
2. What content from other grade-levels are present? Does it enhance or distract from grade-level work?
3. How was indicator 1.e.ii taken into account in the scoring? Be able to justify why the materials do or do not provide extensive work and how it was decided. “Extensive work” requires professional judgment but should consider that the work is sufficient for students to demonstrate the full intent of the grade-level Standard by the end of the grade.
4. Are they spending a good portion of time on all areas of Major Work of the grade? Are there only a few opportunities for grade-level work in one domain, but many opportunities in another domain?



### SCORING

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

#### 2 points

Content from prior and future grade-levels is clearly identified and supports the progressions of the grade-level Standards.

**AND**

Materials meet the full depth of the grade-level Standards.

**AND**

All students are given extensive work with grade-level problems.

**AND**

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

#### 1 point

Prior or future grade-level content is not clearly identified or does not support the progressions of the grade-level Standards.

**OR**

Materials do not meet the full depth of the grade-level Standards.

**OR**

All students are not given extensive work with grade-level problems.

**OR**

Materials do not explicitly relate grade-level concepts to prior knowledge from earlier grades.

**0 points**

Prior and future grade-level content is not clearly identified and does not support the progressions of the grade-level Standards.

**AND**

Materials do not meet the full depth of the grade-level Standards.

**AND**

All students are not given extensive work with grade-level problems.

**AND**

Materials do not explicitly relate grade-level concepts to prior knowledge from earlier grades.

## GUIDANCE FOR Indicator 1f

### CRITERION

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

### INDICATOR

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

- 1fi. Materials include learning objectives that are visibly shaped by MS CCRS-M.
- 1fii. Materials include problems and activities that serve to connect two or more headings (clusters) in a domain, or two or more domains in a grade, in cases where these connections are natural and important.

### Are Standards connected or are they presented as separate ideas?



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

This indicator, along with indicators 1c, 1d, and 1e, determines the **shift of Coherence**. This indicator examines coherence within the grade-level (horizontally).

**Note:** ALL Standards in MS CCRS-M are accounted for in evidence gathered between indicators 1b, 1c, 1e, and 1f. Indicator 1b addresses how Major Work of the grade is attended to in the instructional materials. Indicator 1c addresses the connections within and between domains and Standards for each grade-level. Indicator 1e addresses the progressions of the Standards within and between grade levels, as well as extensive work with grade-level Standards.

**EVIDENCE COLLECTION****Evidence Collection: Guiding Questions**

- Does the mathematics in the materials make connections to Standards?
- Are there natural connections between any domains or Standards? (This indicator is not limited to connections between major and supporting work.)
- If connections are identified, are they natural? Do connections truly support each other, or are the connections superficial?

**DISCUSSION POINTS FOR REVIEW TEAM MEETING**

1. Where are lessons and problems shaped by the MS CCRS-M?
2. Where are lessons and problems connected across Standards?
3. Are there natural and mathematically important connections missed? If so, which connections were missed and where?

**SCORING**

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

<b>2 points</b>	The materials are visibly shaped by the MS CCRS-M. <b>AND</b> Lessons and problems connect across domains and Standards.
<b>1 point</b>	Important connections are missed. <b>OR</b> The materials are not visibly shaped by the MS CCRS-M. <b>OR</b> Lessons and problems do not connect.
<b>0 points</b>	Materials are not shaped by the MS CCRS-M. <b>AND</b> Important connections are not made in the materials.

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

\*Denotes Major Work of the Grade

<b>KINDERGARTEN</b>	
<b>Big Ideas: Counting, Cardinality, comparing numbers.</b>	
*K.NBT *K.CC.5 *K.CC.3	In addition to laying the groundwork for place value in grade 1, working with numbers 11–19 (K.NBT) provides opportunities for cardinal counting beyond 10 (see K.CC.5) and for writing two-digit numbers (see K.CC.3).
K.MD.3 *K.CC.5 *K.CC.6 *K.OA.3	K.MD.3 provides opportunities for cardinal counting (see K.CC.5) and for comparing numbers (see K.CC.6). K.MD.3 also offers a context in which to decompose 10 in more than one way (see K.OA.3).
K.G.2 K.G.4	K.G.2 and K.G.4 offer some opportunities for counting and comparing numbers.

<b>FIRST GRADE</b>	
<b>Big Ideas: Addition and subtraction – concepts, skills, and problem solving; place value</b>	
	A thorough understanding of how place value language and notation represent number (1.NBT.1) serves calculation (1.NBT.2, 1.NBT.3) in many ways — not just pencil-and-paper calculation, but mental calculation as well. It is valuable for purposes of calculation to know that numbers are named so that “twenty-eight” is $20 + 8$ and “forty-one” is $40 + 1$ . That is, the names are designed to make such calculations easy so that we can base calculations like $28 + 41$ on it using properties of the operations (1.OA.4). This kind of flexible mental arithmetic is a sign of mastery and complements fluency with more algorithmic methods.
*1.OA.1,2 *1.OA.6 *1.NBT	The study of word problems in grade 1 (1.OA.1, 1.OA.2) can be coordinated with students’ growing proficiency with addition and subtraction within 20 (1.OA.6) and their growing proficiency with multi-digit addition and subtraction (1.NBT).
*1.OA.1,2 *1.OA.3,4	Word problems can also be linked to students’ growing understanding of properties of addition and the relationship between addition and subtraction. For example, put together/take apart problems with addend unknown can show subtraction as finding an unknown addend.

<p><b>*1.NBT</b> <b>*1.MD.1, 2</b></p>	<p>Units are a connection between place value (1.NBT) and measurement (1.MD). Working with place value depends on having a sense of the sizes of the base ten units and being able to see a larger unit as composed of smaller units within the system. As measurement develops through the grades, it also depends on having a sense of the sizes of units and being able to see a larger unit as composed of smaller units within the system. Grade 1 is when students first encounter the concept of a tens unit, and it is also when they first encounter the concept of a length unit.</p>
<p><b>*1.MD.1, 2</b> <b>*1.OA.1</b> <b>*1.NBT.3</b></p>	<p>Measurement Standards 1.MD.1 and 1.MD.2 together support and provide a context for the 1.OA.1 goal of solving subtraction problems that involve comparing. To meet Standard 1.MD.1, students compare the lengths of two objects by means of a third object, e.g., a length of string that allows a “copy” of the length of one immovable object to be moved to another location to compare with the length of another movable object. When students cannot find the exact difference because of the magnitude of the numbers that arise from measurement — as may occur in comparing two students’ heights — they may still compare the measurements to know which is greater (1.NBT.3).</p>
<p><b>1.G.3</b> <b>1.MD.3</b></p>	<p>While students are dealing with the limited precision of only whole and half-hours, they can distinguish the position of the hour hand and connect this to geometry Standard 1.G.3, partitioning circles into halves and quarters.</p>
<p><b>1.G.2, 3</b> <b>*1.MD.2</b></p>	<p>Composing shapes to create a new shape (1.G.2) is the spatial analogue of composing numbers to create new numbers. This is also connected to length measurement (1.MD.2) since students must visualize an object to be measured as being built up out of equal-sized units (see also 1.G.3). Though assembling two congruent right triangles into a rectangle does not use the same facts or reasoning that assembling two 5s into a 10 uses, the idea of looking at how objects in some domain (numbers or shapes) can be combined to make other objects in that domain and looking for new true statements one can make about these combinations is a big idea that is common across mathematics.</p>

## SECOND GRADE

### Big Ideas: Addition and subtraction – concepts, skills, and problem solving; place value

<p><b>*2.MD.6</b> <b>*2.MD.4</b> <b>*2.OA.1</b></p>	<p>Representing whole numbers as lengths (2.MD.6) and comparing measurements (2.MD.4) can build a robust and flexible model for fluent subtraction (2.OA.1). For example, a good way to see the “distance” from 6 to 20 is to see the distance from 6 to 10 joined with the distance from 10 to 20.</p>
<p><b>2.MD.8</b> <b>*2.NBT.1</b></p>	<p>Problems involving dollars, dimes and pennies (2.MD.8) should be connected with the place value learning of 100s, 10s and 1s (2.NBT.1). Though the notation is different, a dollar is 100 cents or a “bundle” of 10 dimes, each of which is a “bundle” of 10 pennies. Work with dollars, dimes and pennies (without the notation) can support methods of whole-number addition (e.g., dimes are added to dimes). Addition that is appropriate with whole numbers can be explored in the new notation of money contexts (though fluency with that notation is not a Standard at this grade).</p>

*2.OA.1 *2.OA.2 *2.NBT.5,6,7,8,9	Students' work with addition and subtraction word problems (2.OA.1) can be coordinated with their growing skill in multi-digit addition and subtraction (2.OA.2, 2.NBT.5, 2.NBT.6, 2.NBT.7, 2.NBT.8, 2.NBT.9).
2.MD.8 2.MD.7 *2.NBT.2 *2.OA.4	Work with nickels (2.MD.8) and with telling time to the nearest five minutes on analog clocks (2.MD.7) should be taken together with counting by 5s (2.NBT.2) as contexts for gaining familiarity with groups of 5 (2.OA.4). Recognizing time by seeing the minute hand at 3 and knowing that is 15 minutes; recognizing three nickels as 15¢; and seeing the 15-ness of a 3-by-5 rectangular array held in any position at all (including with neither base horizontal) will prepare for understanding, in grade 3, what the new operation of multiplication means.
*2.MD.6 *2.MD.1,2,3,4	The number line (2.MD.6) connects numbers, lengths and units. The number line increases in prominence across the grades.

### THIRD GRADE

**Big Ideas: Multiplication and division of whole numbers and fractions.**

3.G.2 *3.NF.1,2,3	Students' work with partitioning shapes (3.G.2) relates to visual fraction models (3.NF).
*3.MD.3 *3.OA.7	Scaled picture graphs and scaled bar graphs (3.MD.3) can be a visually appealing context for solving multiplication and division problems.

### FOURTH GRADE

**Big Ideas: Multi-digit arithmetic; fraction equivalence; add/sub fractions**

4.MD.1,2 *4.NF.4 *4.OA.1	The work that students do with units of measure (4.MD.1–2) and with multiplication of a fraction by a whole number (4.NF.4) can be connected to the idea of “times as much” in multiplication (4.OA.1).
*4.NF.3 4.MD.5,7	Addition of fractions (4.NF.3) and concepts of angle measure (4.MD.5a and 4.MD.7) are connected in that a one-degree measure is a fraction of an entire rotation and that adding angle measures together is adding fractions with a denominator of 360.

## FIFTH GRADE

### Big Ideas: Computation with decimals; operations on fractions

<p><b>*5.NF.3,4,5,6,7</b> <b>*5.NBT.5</b></p>	<p>The work that students do in multiplying fractions extends their understanding of the operation of multiplication. For example, to multiply <math>\frac{a}{b} \times q</math> (where <math>q</math> is a whole number or a fraction), students can interpret <math>\frac{a}{b} \times q</math> as meaning <math>a</math> parts of a partition of <math>q</math> into <math>b</math> equal parts (5.NF.4a). This interpretation of the product leads to a product that is less than, equal to or greater than <math>q</math> depending on whether <math>\frac{a}{b} &lt; 1</math>, <math>\frac{a}{b} = 1</math> or <math>\frac{a}{b} &gt; 1</math>, respectively (5.NF.5).</p>
<p><b>5.MD.3,4,5</b> <b>*5.NF.1,2,3,4,5,6,7</b></p>	<p>Conversions within the metric system represent an important practical application of the place value system. Students' work with these units (5.MD.1) can be connected to their work with place value (5.NBT.1).</p>

## SIXTH GRADE

### Big Ideas: Ratio and proportional reasoning, connecting arithmetic to expressions and equations

<p><b>*6.RP.1,2,3</b> <b>*6.EE.9</b></p>	<p>Students' work with ratios and proportional relationships (6.RP) can be combined with their work in representing quantitative relationships between dependent and independent variables (6.EE.9).</p>
<p><b>*6.NS.8</b> <b>*6.RP.3a</b></p>	<p>Plotting rational numbers in the coordinate plane (6.NS.8) is part of analyzing proportional relationships (6.RP.3a, 7.RP.2) and will become important for studying linear equations (8.EE.8) and graphs of functions (8.F)</p>

## SEVENTH GRADE

### Big Ideas: Ratio and proportional reasoning, operations with rational numbers

<p><b>*7.NS.1,2,3</b> <b>*7.EE.3,4</b></p>	<p>Students' work with algebraic expressions and equations should include the full range of rational numbers.</p>
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## EIGHTH GRADE

### Big Ideas: Linear equations and functions

<p><b>*8.EE.6</b> <b>*8.G.1,2,3,4,5</b></p>	<p>Work should connect the concept of similarity to work in defining slope.</p>
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# Gateway 2

## GUIDANCE FOR Indicator 2a

### CRITERION

Each grade's instructional materials reflect the balances in the Standards and help students meet the Standards' rigorous expectations, by helping students develop conceptual understanding, procedural skill and fluency, and application.

### INDICATOR

Materials develop conceptual understanding of key mathematical concepts, especially where called for in specific content Standards or cluster headings.

### Do materials develop conceptual understanding?



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

This indicator, along with 2b, 2c, and 2d, determines the **shift of Rigor**. Conceptual understanding of key concepts will allow students to be able to access concepts from a number of perspectives in order to see math as more than a set of algorithmic procedures.



#### EVIDENCE COLLECTION

##### Evidence Collection: Guiding Questions

- Do the Standard(s) from the grade-level that specifically relate to conceptual understanding (look at it throughout the whole grade-level) and do they develop conceptual understanding?

GRADE	MS CCRS-M
Kindergarten	K.OA.1
Grade 1	1.NBT.B 1.NBT.C
Grade 2	2.NBT.A 2.NBT.B
Grade 3	3.OA.1 3.OA.2

Grade 4	4.NF.A 4.NBT.A 4.NBT.B
Grade 5	5.NF.B 5.NBT.A 5.NBT.B
Grade 6	6.RP.A 6.EE.3
Grade 7	7.NS.A 7.EE.A
Grade 8	8.EE.B 8.F.A 8.G.A

- Is conceptual understanding developed thoroughly where the Standards set explicit expectations for understanding or interpreting?
  - Example: Are place value and properties of operations used to explain how the standard algorithms are developed?
- Do materials feature high-quality conceptual problems and conceptual discussion questions, including brief conceptual problems with low computational difficulty?
  - Example: Find a number greater than  $\frac{3}{5}$  and less than  $.75$ .
  - Example:  $11 + 6 = \underline{\quad} + 2$
  - Example: A fraction divided by a fraction is always/sometimes/never less than the original fraction.
- Do materials call for students to use concrete and/or visual representations, as well as verbalization, when developing conceptual understanding?
- Do the materials feature opportunities to identify correspondences across mathematical representations?

#### Evidence Collection: Locating Evidence Sources

- Evidence must include specific examples from the instructional materials.
- Manipulatives do not necessarily indicate conceptual understanding.
- If evidence includes concrete and/or visual representations, explain how the representations are being used to develop conceptual understanding.

- If evidence is addressing Standards that relate specifically to conceptual understanding, list the specific Standards and explain how the evidence demonstrates conceptual understanding.
- If opportunities to develop conceptual understanding are missed, specifically list the Standards/opportunities that are missed.
- Note whether the instructional materials include a specific section in units/chapters/lessons, etc. that are specifically designed for conceptual understanding. Include Unit, Lesson, Lesson Part and page numbers for reference for all examples.
- Evidence must include examples of how materials develop conceptual understanding AND opportunities for students to independently demonstrate conceptual understanding.

### **Understanding Mathematics**

“These Standards define what students should understand and be able to do in their study of mathematics. Asking a student to understand something means asking a teacher to assess whether the student has understood it. But what does mathematical understanding look like? One hallmark of mathematical understanding is the ability to justify, in a way appropriate to the student’s mathematical maturity, why a particular mathematical statement is true or where a mathematical rule comes from. There is a world of difference between a student who can summon a mnemonic device to expand a product such as  $(a + b)(x + y)$  and a student who can explain where the mnemonic comes from. The student who can explain the rule understands the mathematics, and may have a better chance to succeed at a less familiar task such as expanding  $(a + b + c)(x + y)$ . Mathematical understanding and procedural skill are equally important, and both are assessable using mathematical tasks of sufficient richness.

The Standards set grade-specific expectations but do not define the intervention methods or materials necessary to support students who are well below or well above grade-level expectations. It is also beyond the scope of the Standards to define the full range of supports appropriate for English language learners and for students with special needs. At the same time, all students must have the opportunity to learn and meet the same high Standards if they are to access the knowledge and skills necessary for college and/or careers. The Standards should be read as allowing for the widest possible range of students to participate fully from the outset, along with appropriate accommodations to ensure maximum participation of students with special education needs. For example, for students with reading disabilities the use of Braille, screen reader technology, or other assistive devices should be made available. In addition, while writing, these students should have access to a scribe, computer, or speech-to-text technology in their classroom. In a similar vein, speaking and listening should be interpreted broadly to include sign language. No set of grade-specific Standards can fully reflect the great variety in abilities, needs, learning rates, and achievement levels of students in any given classroom. However, the

Standards do provide clear signposts along the way to the goal of College- and Career-Readiness for all students.” (Mississippi College and Career Readiness Standards Overview, page 10).



### DISCUSSION POINTS FOR REVIEW TEAM MEETING

1. What does conceptual understanding look like in the instructional materials?
2. What examples are most representative of the instructional materials?



### SCORING

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

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

## GUIDANCE FOR Indicator 2b

### CRITERION

Each grade's instructional materials reflect the balances in the Standards and help students meet the Standards' rigorous expectations, by helping students develop conceptual understanding, procedural skill and fluency, and application.

### INDICATOR

Materials give attention throughout the year to individual Standards that set an expectation of procedural skill and fluency.

### Do materials develop procedural skill?



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

This indicator, along with 2a, 2c, and 2d, determines the **shift of Rigor**. Procedural skill and fluency is the call for speed and accuracy in calculations. Students need to practice core skills in order to have access to more complex concepts and procedures.



#### EVIDENCE COLLECTION

##### Evidence Collection: Guiding Questions

- Do the Standard(s) from the grade-level that specifically relate to procedural skill and fluency and do they develop procedural skill and/or fluency?

GRADE	MS CCRS-M
Kindergarten	K.OA.5
Grade 1	1.OA.6
Grade 2	2.OA.2 2.NBT.5
Grade 3	3.OA.7 3.NBT.2
Grade 4	4.NBT.4

Grade 5	5.NBT.5
Grade 6	6.NS.2 6.NS.3 6.EE.A
Grade 7	7.NS.A 7.EE.1 7.EE.4a
Grade 8	8.EE.7 8.EE.8b

- Is there attention throughout the academic year to individual Standards that set an expectation of procedural skill and fluency?
- Is there progress toward fluency and procedural skill interwoven with students' developing conceptual understanding of the Properties of Operations?
- Are there purely procedural problems and exercises present that include cases in which opportunistic strategies are valuable, as well as generic cases that require efficient algorithms?
  - Example of problems when opportunistic strategies are valuable: The sum  $698 + 240$  or the system of equations  $x + y = 1$  and  $2x + 2y = 3$ .
  - Example of problems when generic cases require efficient algorithms: The sum  $8767 + 2286$  or the system of equations  $6y + x = x + 3$  and  $-x = 1 + 2y$ .
- Do materials in grades K-6 (within the grade-band being reviewed) provide repeated practice toward attainment of fluency? Note: Attainment of procedural fluency is an end of grade expectation.

#### Evidence Collection: Locating Evidence Sources

- Evidence must include specific examples from the instructional materials.
- If opportunities to develop procedural skill/fluency are missed, specifically list the 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 skill and fluency. Include Unit, Lesson, Lesson Part and page numbers for reference for all examples.

- Evidence must include examples of how materials develop procedural skill and fluency AND opportunities for students to independently demonstrate procedural skill and fluency.

### **Fluency/Fluently Defined**

“Throughout the 2016 Mississippi College- and Career-Readiness Standards for Mathematics Grades K-5 Standards, the words fluency and fluently will appear in bold, italicized, and underlined font (for example: *fluently*). With respect to student performance and effective in class instruction, the expectations for mathematical fluency are explained below: Fluency is not meant to come at the expense of understanding, but is an outcome of a progression of learning and sufficient thoughtful practice. It is important to provide the conceptual building blocks that develop understanding in tandem with skill along the way to fluency; the roots of this conceptual understanding often extend one or more grades earlier in the Standards than the grade when fluency is finally expected.

Wherever the word fluently appears in a MS CCR content Standard, the word means quickly and accurately. It is important to understand that this is not explicitly tied to assessment purposes, but means more or less the same as when someone is said to be fluent in a foreign language. To be fluent is to flow: Fluent isn’t halting, stumbling, or reversing oneself. A key aspect of fluency in this sense is that it is not something that happens all at once in a single grade but requires attention to student understanding along the way. It is important to ensure that sufficient practice and extra support are provided at each grade to allow all students to meet the Standards that call explicitly for fluency.” (Mississippi College and Career Readiness Standards for Mathematics, page 19)



### **DISCUSSION POINTS FOR REVIEW TEAM MEETING**

1. What does fluency mean at this grade-level, and do the instructional materials adequately prepare students?
2. How do instructional materials build procedural skill and fluencies over the course of an academic year?



## SCORING

<b>2 points</b>	The instructional materials develop fluency throughout the grade-level.  <b>AND</b> The instructional materials provide opportunities to independently demonstrate procedural skill and fluency throughout the grade-level.
<b>1 point</b>	The instructional materials have missed opportunities to develop procedural skills and fluency throughout the grade-level.  <b>OR</b> The instructional materials do not provide students opportunities to independently demonstrate procedural skills and fluency throughout the grade-level.
<b>0 points</b>	The instructional materials have few or no opportunities to develop procedural skills and fluency throughout the grade-level.  <b>AND</b> The instructional materials do not provide opportunities for students to independently demonstrate procedural skills and fluency.

## GUIDANCE FOR Indicator 2c

### CRITERION

Each grade's instructional materials reflect the balances in the Standards and help students meet the Standards' rigorous expectations, by helping students develop conceptual understanding, procedural skill and fluency, and application.

### INDICATOR

Attention to Application: The materials support the intentional develop of students' ability to utilize mathematical concepts and skills in engaging applications, especially where called for in specific content Standards.

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### Do students apply mathematical knowledge/skills to real-world contexts?

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

This indicator, along with 2a, 2b, and 2d, determines the **shift of Rigor**.

To engage in application:

- Students need opportunities to apply mathematical knowledge and/or skills in a real-world context.
- Materials should promote activities that call for the use of mathematics flexibly in a variety of contexts, in both routine and non-routine problems.
- Students are given opportunities to use math to make meaning of and access to content.



#### EVIDENCE COLLECTION

##### Evidence Collection: Guiding Questions

- Are there selected Standard(s) from the grade-level that specifically relate to application addressed in a way that promotes students applying mathematical knowledge and/or skills in a real-world context or do they promote problem solving that calls for using math flexibly in a variety of contexts?

Some examples of Standards that call for application include:

GRADE	MS CCRS-M
Kindergarten	K.OA.2
Grade 1	1.OA.A
Grade 2	2.OA.A
Grade 3	3.OA.3 3.OA.8
Grade 4	4.OA.3 4.NF.3d 4.NF.4c
Grade 5	5.NF.6 5.NF.7c
Grade 6	6.RP.3 6.NS.1 6.EE.7 6.EE.9
Grade 7	7.RP.A 7.NS.3 7.EE.3
Grade 8	8.EE.8c 8.F.B

- In materials where these Standards are identified, evaluate whether students are engaging in application of content and skills as described in the Standards.
- Are there a variety of single- and multi-step contextual problems, including non-routine problems, that develop the mathematics of the grade?
- Do the problems attend thoroughly to the content Standards where expectations for multi-step and real-world problems are explicit?
- Does application build slowly across the grade band under review, with simpler applications in the early grades (K-2) and when new content is introduced, to more complex applications in the middle grades that begin to provide opportunities for students to make their own assumptions or simplification in order to apply the mathematics in a given situation?

**Evidence Collection: Locating evidence sources**

- Evidence must include specific examples from the instructional materials.
- If opportunities for application are missed, specifically list the 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.
- Evidence must include examples of Standards not included in the table above.
- Evidence must include examples of students having opportunities to engage in application problems AND examples of students independently demonstrating the use of mathematics flexibly in a variety of contexts.

**DISCUSSION POINTS FOR REVIEW TEAM MEETING**

1. Where and what are the non-routine problems? If problems are routine, include examples.
2. How do the materials encourage students to apply mathematics to contextual situations?
3. Explain the strategy/reasoning used as you collected evidence for this indicator.
4. Share any generalizations that you noted as you looked at materials over the course of a grade-level, with specific examples (page numbers noted) to support the generalizations.
5. Identify Standards targeted during evidence collection.

**SCORING****2 points**

The instructional materials include multiple opportunities for students to engage in routine and non-routine application of mathematics throughout the grade-level.

**AND**

The instructional materials provide opportunities to independently demonstrate the use of mathematics flexibly in a variety of contexts.

**1 point**

The instructional materials have missed opportunities to engage in non-routine application of mathematics throughout the grade-level.

**OR**

There is little variety in situational contexts/problem types when students are presented with word problems.

**OR**

The instructional materials do not provide opportunities to independently demonstrate the use of mathematics flexibly in a variety of contexts.

**0 points**

The instructional materials have no or few opportunities to engage in application of mathematics throughout the grade-level.

**AND**

The instructional materials do not provide opportunities to independently demonstrate the use of mathematics flexibly in a variety of contexts.

## GUIDANCE FOR Indicator 2d

### CRITERION

Each grade's instructional materials reflect the balances in the Standards and help students meet the Standards' rigorous expectations, by helping students develop conceptual understanding, procedural skill and fluency, and application.

### INDICATOR

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

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

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

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



#### EVIDENCE COLLECTION

##### Evidence Collection: Guiding Questions

- Do the materials have a balance of all 3 aspects of rigor, considering the program materials as a whole and as individual units of study?
- Are the content/topics being introduced to students for the first time, or is it an extension of previous learning?
- Do materials use conceptual understanding to develop procedural skill and fluency, or are students encouraged to use multiple representations (i.e. manipulatives, drawings, expressions, equations, tables, graphs, charts, number lines, etc.) and written/oral explanations to support their work in application problems?
- What lessons/topics include more than one aspect of rigor?

**Evidence Collection: Preparing to Collect Evidence**

- For this indicator, consider the intent of the program to balance the three aspects of rigor, not the quality of the materials—indicators 2a-c focus on the quality of materials.

**Evidence Collection: Locating Evidence Sources**

- 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 from the evidence collected for 2a, 2b, and 2c.

**DISCUSSION POINTS FOR REVIEW TEAM MEETING**

1. How did I determine “balance”?
2. What are places in grade-level materials where specific aspects of rigor are called for?
3. Share any generalizations noted in materials over the course of a grade-level, with specific examples (page numbers noted) to support the generalizations.
4. Are there aspects of Rigor absent from the materials?
5. Is the quality of an aspect of Rigor different from the other aspects? If yes, make sure this was captured in indicators 2a, 2b, and/or 2c. Remember that this indicator focuses on balance.



## SCORING

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

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

## GUIDANCE FOR Indicator 2e

### CRITERION

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

### INDICATOR

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

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### Are the Standards for Mathematical Practice identified? Do the Standards for Mathematical Practice enrich the content?

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

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



#### EVIDENCE COLLECTION

##### Evidence Collection: Guiding Questions

- Do teacher's manuals clearly identify the MPs throughout the grade?
- Where in the materials are the MPs identified?
- How do the materials identify and describe MPs (beyond the meaning of MPs as stated in the MS CCRS-M)?
- Are there any instances where MPs are over- or under-identified in the curricular materials (e.g. a lesson is marked as aligned to a Standard when only a small part address that, or vice versa)?
- Are teachers provided directions on how to carry out the lessons to ensure students are developing the MPs?
- Do the materials use MPs to enrich the mathematical content of the grade?

- Are materials focused only on the Standards for Mathematical Practice? If so, specifically state where and how the materials solely address the Standards for Mathematical Practice.

#### Evidence Collection: Locating Evidence Sources

- 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 text, but also look at places where they are not identified.



#### DISCUSSION POINTS FOR REVIEW TEAM MEETING

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

This indicator examines whether the MPs are included in the instructional materials. This indicator does not examine how well the Mathematical Practices are used to enrich the content, which is assessed in indicators 2f and 2gi, 2gii, and 2giii.



#### SCORING

##### 2 points

All 8 MPs are clearly identified throughout the materials, with few or no exceptions.

**AND**

The majority of the time the MPs are used to enrich the content.

**AND**

The MPs are not treated separately from the Standards of mathematical content.

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<b>1 point</b>	MPs are connected to content but are not identified. <b>AND/OR</b> There are a few instances where the MPs do not enrich the content. <b>AND/OR</b> There are few instances where the MPs are treated separately from the Standards of mathematical content.
<b>0 points</b>	MPs are not identified. <b>AND</b> MPs are not used to enrich the content. <b>AND</b> MPs are treated separately from the Standards of mathematical content.

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## GUIDANCE FOR Indicator 2f

### CRITERION

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

### INDICATOR

The materials carefully attend to the full meaning of each Mathematical Practice.

### Is the full intent of the Standards for Mathematical Practice present?



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

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



#### EVIDENCE COLLECTION

##### Evidence Collection: Guiding Questions

- Are there any overarching ways in which the MP are discussed in places like unit overviews or introductions?
- Are there specific instances (e.g. teacher script, explanatory notes, student materials) where the MPs are identified and described?
- Are there places where the MPs are being used even if they are not explicitly identified?
- Is the full intent of the MP attended to? (It is not unusual to have materials build toward the full intent. Look beyond the first few chapters/lessons). Some specific things to search for when the following MPs are marked:
  - MP.1: Ensure that students are actually making sense of problems and persevere in solving them. For example, a worksheet of routine word problems assigned for homework that have the same form as ones done in class is not an example of meeting MP.1.

- MP.2: Ensure that students have opportunities to reason both abstractly and quantitatively in a grade-appropriate manner. A place in the materials where MP.2 is marked does not require both abstract and quantitative reasoning, but there should be evidence that the materials as a whole require both.
- MP.3: Ensure that students are both constructing viable arguments and critiquing the (plausible) reasoning of others. A place where MP.3 is marked does not have to do both things, but there should be evidence that the materials as a whole require both.
- MP.4: Ensure that students are modeling a real-world context using mathematics. Modeling with mathematics focuses on students using mathematics in real-world situations, identifying quantities in a given situation, mapping relationships between quantities, analyzing relationships mathematically to draw conclusions, and interpreting the mathematics within the context of the situation. Modeling occurs when students realize the relevant mathematics present in the real-world situation, and then use mathematics to solve a real-world problem.
- MP.5: Ensure that students are not simply using tools that are chosen by the text or the teacher. Lessons specifically addressing learning to use certain tools are appropriate, especially at the younger grades. However, if MP.5 is marked for these kinds of lessons, then the full meaning of the MP is not attended to. If the students aren't given the opportunity to choose tools, the full meaning is not attended to for this MP.
- MP.6: Ensure that students are given opportunity to use mathematical symbols, language, and definitions accurately, and that materials always use precision. For example, the equal sign is exclusively used for statements of mathematical equality.
- MP.7: Students are given explicit instruction on how to look for and make use of structure, and non-explicit opportunities that call for recognition of mathematical structure.
- MP.8: Ensure that each word of the Standard is present in the mathematical work: “regularity,” “repeated,” and “reasoning.”

#### **Evidence Collection: Locating Evidence Sources**

- Record examples of where the material is either fully attending or failing to attend to the full meaning of each MP.

- Every instance of an MP being marked does not necessarily have to encompass the full meaning of an MP, but taken together there should be evidence that the materials carefully attend to the full meaning of each MP.



### DISCUSSION POINTS FOR REVIEW TEAM MEETING

1. Do examples illustrate where materials are attending to the full meaning of each MP? What examples are most representative of the instructional materials?
2. Do examples illustrate where materials are failing to attend to the full meaning of each MP? What examples are most representative of the instructional materials?



### SCORING

<b>2 points</b>	Materials attend to the full meaning of each of the 8 MPs.
<b>1 point</b>	The materials do not attend to the full meaning of one or two MPs.
<b>0 points</b>	The materials do not attend to the full meaning of three or more MPs.

## GUIDANCE FOR Indicator 2gi

### CRITERION

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

### INDICATOR

Materials prompt students to construct viable arguments and critique the reasoning of others concerning key grade-level mathematics detailed in the content Standards.

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**Do students have opportunities to construct viable arguments and critique the reasoning of others?**

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### WHAT IS THE PURPOSE OF THIS INDICATOR?

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



### EVIDENCE COLLECTION

#### Evidence Collection: Guiding Questions

- Do student materials include questions or problems where students are asked to justify a claim with mathematics, make conjectures and build a logical progression of statements to explore the truth of their conjectures, analyze situations by breaking them into cases, and recognizing counterexamples?
- Do materials include questions or problems where students justify their conclusions, communicate them to others, and respond to the arguments of others?
- Do materials include questions where students reason inductively about data, making plausible arguments that take into account the context from which the data arose?

- Do student materials include questions or problems where they are asked to evaluate someone else’s explanation, work, or thinking?
- The materials might show the work of another “student” and ask the students to decide where the error in the thinking occurred. Explain why the error occurred, and what the “student” should have done differently.
- The materials might present two solutions and/or conflicting arguments and ask students to determine whether they are both correct or one is correct and why.

### Evidence Collection: Locating Evidence Sources

- Look at the specific questions students are asked in the student pages and items students are given on assessments, practice pages, and homework.
- Make sure there is evidence of both asking students to explain/justify their reasoning and asking students to critique the reasoning of others. Critique the reasoning of others should include more than just deciding right or wrong.



### DISCUSSION POINTS FOR REVIEW TEAM MEETING

1. Do examples illustrate where materials are attending to the full meaning of MP3? What examples are most representative of the instructional materials?
2. Do examples illustrate where materials are failing to attend to the full meaning of MP3? What examples are most representative of the instructional materials?



### SCORING

<b>2 points</b>	Student materials consistently prompt students to both construct viable arguments and critique the reasoning of others.
<b>1 point</b>	There are missed opportunities where the materials could prompt students to both construct viable arguments and/or critique the reasoning of others.
<b>0 points</b>	Materials have few, if any prompts for students to both construct viable arguments and/or critique the reasoning of others.

## GUIDANCE FOR Indicator 2gii

### CRITERION

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

### INDICATOR

Materials assist teachers in engaging students in constructing viable arguments and critiquing the reasoning of others concerning key grade-level mathematics detailed in the content Standards.

### Do materials encourage and guide teachers towards engaging students in constructing viable arguments and critiquing the reasoning of others?



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

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



#### EVIDENCE COLLECTION

##### Evidence Collection: Guiding Questions

- Are there directions for the teacher in the teacher guide, and lesson and unit overviews to assist students in constructing viable arguments and critiquing the reasoning of others?

##### Evidence Collection: Locating Evidence Sources

- Look at the directions to the teacher in lessons for:
  - prompts,
  - sample questions to ask,
  - guidance on leading student discussions, and
  - problems to pose to students.

- Look for teacher prompts and suggested questions:
  - The materials might guide teachers to ask students to explain their thinking or justify their solutions.
  - The materials might prompt teachers to have students look at a solution and decide if it is correct or incorrect, and to explain why.
- Look for directions to the teacher that suggest asking students to analyze and evaluate the thinking and solutions of others and/or to justify the mathematics of the solution and/or make an argument with a claim and mathematics to support their reasoning.
- Record specific examples and evidence of where in the teacher resources and how the materials assist teachers in engaging students in constructing viable arguments and critiquing the arguments of others.



### DISCUSSION POINTS FOR REVIEW TEAM MEETING

1. Do examples illustrate where materials are assisting teachers in engaging students in MP3? What examples are most representative of the instructional materials?
2. Do examples illustrate where materials are failing to assist teachers in engaging students in MP3? What examples are most representative of the instructional materials?



### SCORING

<b>2 points</b>	Teacher resources assist teachers in engaging students in both constructing viable arguments and critiquing the reasoning of others, frequently throughout the materials.
<b>1 point</b>	There are some missed opportunities where the materials could assist teachers in engaging students in both constructing viable arguments and critiquing the reasoning of others.
<b>0 points</b>	Materials provide little or no assistance to teachers in engaging students in both constructing viable arguments and critiquing the reasoning of others.

## GUIDANCE FOR Indicator 2giii

### CRITERION

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

### INDICATOR

Materials explicitly attend to the specialized language of mathematics.

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



### WHAT IS THE PURPOSE OF THIS INDICATOR?

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



### EVIDENCE COLLECTION

#### Evidence Collection: Guiding Questions

- Do materials use accurate mathematical vocabulary?
- Do the materials accurately use numbers, symbols, graphs, and tables?
- Are students encouraged throughout the materials to use accurate mathematical terminology?
- Once definitions have been introduced, does the material regularly use the vocabulary?
- Do students have opportunities to receive feedback on how they use words, graphics, and symbols to make arguments and solve problems?
- Ensure that mathematical definitions and terminology are precise and accurate, and not watered-down (e.g. “commutative property” versus “flip-flop”; using rate/ratio/fraction/proportion precisely; using accurate geometric terminology, even at young ages).

- Provide specific examples of vocabulary, symbols, numbers, etc. that are not used accurately and precisely.



### DISCUSSION POINTS FOR REVIEW TEAM MEETING

1. Examples of mathematical terminology reflect the instructional materials.
2. The progression of student language is supported; students are given reasonable supports and time to acquire and use new terminology (materials for teachers, including teacher scripts, always use precise terminology).



### SCORING

<b>2 points</b>	<p>The materials provide explicit instruction in how to communicate mathematical thinking using words, diagrams, and symbols.</p> <p><b>AND</b></p> <p>The materials use precise and accurate terminology and definitions when describing mathematics, and support students in using them.</p>
<b>1 point</b>	<p>There is little to no instruction on how to use the language of mathematics.</p> <p><b>OR</b></p> <p>There are instances where materials do not use precise and accurate mathematical language.</p>
<b>0 points</b>	<p>There is little to no instruction on how to use the language of mathematics.</p> <p><b>AND</b></p> <p>There are instances where materials do not use precise and accurate mathematical language.</p>

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

## Gateway 3

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

## ► GUIDANCE FOR **Indicator 3a**

### Use and Design Facilitate Learning

#### CRITERION

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

#### INDICATOR

The underlying design of the materials distinguishes between problems and exercises. In essence, the difference is that in solving problems, students learn new mathematics, whereas in working exercises, students apply what they have already learned to build mastery. Each problem or exercise has a purpose.



#### EVIDENCE COLLECTION

##### Evidence Collection: Guiding Questions

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



#### SCORING

##### 2 points

Materials distinguish between problems and exercises within each lesson.

##### **AND**

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

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

## ► GUIDANCE FOR **Indicator 3b**

### Use and Design Facilitate Learning

#### CRITERION

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

#### INDICATOR

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



#### EVIDENCE COLLECTION

##### Evidence Collection: Guiding Questions

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



#### SCORING

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

## ► GUIDANCE FOR **Indicator 3c**

### Use and Design Facilitate Learning

#### CRITERION

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

#### INDICATOR

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



#### EVIDENCE COLLECTION

##### Evidence Collection: Guiding Questions

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



#### SCORING

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

## ► GUIDANCE FOR **Indicator 3d**

### Use and Design Facilitate Learning

#### CRITERION

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

#### INDICATOR

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



#### EVIDENCE COLLECTION

##### Evidence Collection: Guiding Questions

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



#### SCORING

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

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

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

**INDICATOR**

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

**EVIDENCE COLLECTION****Evidence Collection: Guiding Questions**

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

**SCORING**

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

## ► GUIDANCE FOR **Indicator 3ei**

### Use and Design Facilitate Learning

#### CRITERION

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

#### INDICATOR

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

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

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#### EVIDENCE COLLECTION

##### Evidence Collection: Guiding Questions

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

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



#### SCORING

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

## GUIDANCE FOR **Indicator 3f**

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

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

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



#### EVIDENCE COLLECTION

##### Evidence Collection: Guiding Questions

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



#### SCORING

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

## ► GUIDANCE FOR **Indicator 3g**

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

#### CRITERION

Materials support teacher learning and understanding of the Standards.

#### INDICATOR

Materials contain a teacher's edition with:

- ample and useful annotations.
- suggestions on how to present the content in the student edition and in the ancillary documents.
- where applicable, materials include teacher guidance for the use of embedded technology to support and enhance student learning.

**Are there overview sections and/or annotations that contain narrative information about the math content and/or ancillary documents that will assist the teacher in presenting the student material?**

**Are there embedded technology links that will enhance the learning for all students?**

**If technology support is embedded, is it overarching and accessible?**



#### EVIDENCE COLLECTION

##### Evidence Collection: Guiding Questions

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



## SCORING

<b>2 points</b>	Materials contain ample annotations/suggestions on how to present the content in the student edition and ancillary documents. <b>AND</b> Annotations/suggestions provided for teachers are useful to present the content in the student edition and ancillary documents.
<b>1 point</b>	Materials contain ample annotations/suggestions on how to present the content in the student edition and ancillary documents. <b>OR</b> Annotations/suggestions provided for teachers are useful to present the content in the student edition and ancillary documents.
<b>0 points</b>	Materials do not contain ample annotations/suggestions on how to present the content in the student edition and ancillary documents. <b>AND</b> Annotations/suggestions provided for teachers are not useful to present the content in the student edition and ancillary documents.

## ► GUIDANCE FOR **Indicator 3h**

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

#### CRITERION

Materials support teacher learning and understanding of the Standards.

#### INDICATOR

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

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**Do the materials include annotations on how to present the information in the student editions to assist in full understanding of the Standards and other supports that will assist a teacher in developing their own understanding allowing for seamless transitions of that knowledge to student learning?**

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#### EVIDENCE COLLECTION

##### Evidence Collection: Guiding Questions

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



## SCORING

<p><b>2 points</b></p>	<p>The materials include explanations and examples of the course level mathematics specifically for teachers that can improve their own knowledge of the subject.</p> <p><b>AND</b></p> <p>The materials include explanations and examples appropriate for teachers of advanced mathematics concepts that extend beyond the current course that can improve their own knowledge of the subject.</p>
<p><b>1 point</b></p>	<p>The materials include some explanations and examples of the course level mathematics specifically for teachers that can improve their own knowledge of the subject.</p> <p><b>AND/OR</b></p> <p>The materials include some explanations and examples appropriate for teachers of advanced mathematics concepts that extend beyond the current course that can improve their own knowledge of the subject.</p>
<p><b>0 points</b></p>	<p>The materials do not include explanations and examples of the course level mathematics specifically for teachers that can improve their own knowledge of the subject.</p> <p><b>AND</b></p> <p>The materials do not include explanations and examples appropriate for teachers of advanced mathematics concepts that extend beyond the current course that can improve their own knowledge of the subject.</p>

## ► GUIDANCE FOR **Indicator 3i**

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

#### CRITERION

Materials support teacher learning and understanding of the Standards.

#### INDICATOR

Materials contain a teacher's edition that explains the role of the specific grade-level mathematics Standards in the context of the overall mathematics curriculum for Kindergarten through High School.

**Are there chapter or lesson overviews that explain the progression of the content and how this specific course connects to previous and upcoming courses?**

**Is there information given to allow for coherence, not just a single course above or below, but there are multiple course levels, if applicable, to allow a teacher to make prior connections and teach for connections to future content?**

NOTE: This indicator is similar to indicator 1e. In indicator 1e, the materials are examined for specific evidence of how the content from prior and future grades is connected to grade-level content. In this indicator, the materials are examined for support provided to teachers in explaining the role of grade-level content across the mathematics continuum.



#### EVIDENCE COLLECTION

##### Evidence Collection: Guiding Questions

- Do the instructional materials provide information that explains the progression of the content within the grade-level, and connections to prior and future grade-levels?
- Is it clear to the teacher how the specific mathematics Standards connect to other Standards within the series or grade-level?

**SCORING**

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

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

Materials support teacher learning and understanding of the Standards.

**INDICATOR**

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

**EVIDENCE COLLECTION****Evidence Collection: Guiding Questions**

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

**SCORING**

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

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

Materials support teacher learning and understanding of the Standards.

**INDICATOR**

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

**EVIDENCE COLLECTION****Evidence Collection: Guiding Questions**

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

**SCORING**

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

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

Materials support teacher learning and understanding of the Standards.

**INDICATOR**

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

**EVIDENCE COLLECTION****Evidence Collection: Guiding Questions**

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

**SCORING**

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

## GUIDANCE FOR **Indicator 3m**

### Assessments

#### CRITERION

Materials support teacher learning and understanding of the Standards.

#### INDICATOR

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

**Do materials provide strategies to gather information on students' prior knowledge?**



#### EVIDENCE COLLECTION

##### Evidence Collection: Guiding Questions

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



#### SCORING

##### 2 points

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

##### AND

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

##### 1 point

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

##### OR

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

**0 points**

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

**AND**

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

## GUIDANCE FOR **Indicator 3n**

### Assessments

#### CRITERION

Materials support teacher learning and understanding of the Standards.

#### INDICATOR

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

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**Do materials help teachers identify and address common student errors and misconceptions?**

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#### EVIDENCE COLLECTION

##### Evidence Collection: Guiding Questions

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



#### SCORING

##### 2 points

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

##### **AND**

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

---

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

## ► GUIDANCE FOR **Indicator 3o**

### Assessments

#### CRITERION

Materials support teacher learning and understanding of the Standards.

#### INDICATOR

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

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**Do materials provide feedback to students on both concepts and skills?**

---



#### EVIDENCE COLLECTION

##### Evidence Collection: Guiding Questions

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



#### SCORING

##### 2 points

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

**AND**

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

**AND**

Materials provide support for teachers to provide feedback.

<b>1 point</b>	Materials do not provide support for ongoing review and practice for students in learning concepts. <b>OR</b> Materials do not provide support for ongoing review and practice for students in learning skills. <b>OR</b> Materials do not provide support for teachers to provide feedback.
<b>0 points</b>	Materials do not provide support for ongoing review and practice for students in learning concepts. <b>AND</b> Materials do not provide support for ongoing review and practice for students in learning skills. <b>AND</b> Materials do not provide support for teachers to provide feedback.

## ► GUIDANCE FOR **Indicator 3pi**

### Assessments

#### CRITERION

Materials support teacher learning and understanding of the Standards.

#### INDICATOR

Materials offer ongoing assessments:

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

---

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

---



#### EVIDENCE COLLECTION

##### Evidence Collection: Guiding Questions

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



#### SCORING

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

## ► GUIDANCE FOR **Indicator 3pii**

### Assessments

<b>CRITERION</b>	Materials support teacher learning and understanding of the Standards.
<b>INDICATOR</b>	Materials offer ongoing assessments: <ul style="list-style-type: none"> <li>ii. Assessments provide sufficient guidance to teachers for interpreting student performance and suggestions for follow-up.</li> </ul>

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

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### EVIDENCE COLLECTION

#### Evidence Collection: Guiding Questions

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



### SCORING

<b>2 points</b>	Materials include sufficient guidance for teachers to interpret student performance. <b>AND</b> Materials provide suggestions for follow-up.
<b>1 point</b>	Materials include some guidance for teachers to interpret student performance. <b>AND/OR</b> Materials provide some suggestions for follow-up.

**0 points**

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

**AND**

Materials do not provide suggestions for follow-up.

## ► GUIDANCE FOR **Indicator 3piii**

### Assessments

#### CRITERION

Materials support teacher learning and understanding of the Standards.

#### INDICATOR

Materials offer ongoing assessments:

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

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

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



#### EVIDENCE COLLECTION

##### Evidence Collection: Guiding Questions

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



#### SCORING

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

## ► GUIDANCE FOR **Indicator 3piv**

### Assessments

#### CRITERION

Materials support teacher learning and understanding of the Standards.

#### INDICATOR

Materials offer ongoing assessments:

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

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

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



#### EVIDENCE COLLECTION

##### Evidence Collection: Guiding Questions

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



#### SCORING

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

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

Materials support teacher learning and understanding of the Standards.

**INDICATOR**

Materials encourage students to monitor their own progress.

**EVIDENCE COLLECTION****Evidence Collection: Guiding Questions**

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

**SCORING**

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

## GUIDANCE FOR **Indicator 3r**

### Differentiated Instruction

#### CRITERION

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

#### INDICATOR

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

**Do the materials provide specific strategies to help teachers sequence and/or scaffold lessons so the content is accessible to all learners?**



#### EVIDENCE COLLECTION

##### Evidence Collection: Guiding Questions

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



#### SCORING

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

## GUIDANCE FOR **Indicator 3s**

### Differentiated Instruction

#### CRITERION

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

#### INDICATOR

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

**Do the materials provide appropriate suggestions to differentiate instruction to support the varying needs of learners?**



#### EVIDENCE COLLECTION

##### Evidence Collection: Guiding Questions

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



#### SCORING

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

## GUIDANCE FOR **Indicator 3t**

### Differentiated Instruction

#### CRITERION

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

#### INDICATOR

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

**Do materials include tasks that provide multiple entry-points that can be solved using a variety of solution strategies or representations?**



#### EVIDENCE COLLECTION

##### Evidence Collection: Guiding Questions

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



#### SCORING

**2 points**

Teachers are provided guidance to help students solve problems with multiple entry points and problems with multiple solutions or representations consistently throughout the instructional materials.

**1 point**

Teachers are provided guidance to help students solve problems with multiple entry points or problems with multiple solutions or representations throughout the instructional materials.

**OR**

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

## GUIDANCE FOR **Indicator 3u**

### Differentiated Instruction

#### CRITERION

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

#### INDICATOR

Materials provide support, accommodations, and modifications for English Language Learners and other special populations that will support their regular and active participation in learning mathematics (e.g., modifying vocabulary words within word problems).

**Do materials suggest supports, accommodations, and/or modifications for English Language Learners and other special populations to support their regular and active participation in learning mathematics?**



#### EVIDENCE COLLECTION

##### Evidence Collection: Guiding Questions

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



#### SCORING

##### 2 points

Materials include teacher guidance to provide support for ELL students and other special populations.

##### 1 point

Materials include teacher guidance to provide some support for ELL students and other special populations.

##### OR

Some general statements about ELL students and other special populations are provided.

**0 points**

Materials include little, if any, teacher guidance to provide support for ELL students and other special populations.

## GUIDANCE FOR **Indicator 3v**

### Differentiated Instruction

#### CRITERION

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

#### INDICATOR

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

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



#### EVIDENCE COLLECTION

##### Evidence Collection: Guiding Questions

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



#### SCORING

##### 2 points

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

##### AND

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

##### 1 point

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

##### OR

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

##### OR

	There are some instances of advanced students simply doing more problems than their classmates.
<b>0 points</b>	Materials provide very few, if any, opportunities for advanced students to investigate the course-level mathematics at a greater depth. <b>AND</b> There are many instances of advanced students simply doing more problems than their classmates.

## GUIDANCE FOR **Indicator 3w**

### Differentiated Instruction

#### CRITERION

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

#### INDICATOR

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

---

**Do the materials provide a balanced portrayal of various demographic and personal characteristics?**

---



#### EVIDENCE COLLECTION

##### Evidence Collection: Guiding Questions

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



#### SCORING

<b>2 points</b>	The materials provide various demographic and personal characteristics.
<b>1 point</b>	The materials provide some variety in demographic and personal characteristics.
<b>0 points</b>	The materials do not provide various demographic and personal characteristics.

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

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

**INDICATOR**

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

**EVIDENCE COLLECTION****Evidence Collection: Guiding Questions**

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

**SCORING**

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

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

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

**INDICATOR**

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

**EVIDENCE COLLECTION****Evidence Collection: Guiding Questions**

- Provide examples of home language connections and connections to culture of students to facilitate learning. This may be at the beginning of each chapter or throughout the materials.

**SCORING**

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

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

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

**INDICATOR**

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

**EVIDENCE COLLECTION****Evidence Collection: Guiding Questions**

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

**SCORING**

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

## ► GUIDANCE FOR **Indicator 3aa**

### Effective Technology Use

#### CRITERION

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

#### INDICATOR

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



#### EVIDENCE COLLECTION

##### Evidence Collection: Guiding Questions

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



#### SCORING

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

## ► GUIDANCE FOR **Indicator 3ab**

### Effective Technology Use

#### CRITERION

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

#### INDICATOR

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



#### EVIDENCE COLLECTION

##### Evidence Collection: Guiding Questions

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



#### SCORING

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

## ► GUIDANCE FOR **Indicator 3aci**

### Effective Technology Use

#### CRITERION

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

#### INDICATOR

Materials can be easily customized for individual learners.

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



#### EVIDENCE COLLECTION

##### Evidence Collection: Guiding Questions

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



#### SCORING

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

## ► GUIDANCE FOR **Indicator 3acii**

### Effective Technology Use

#### CRITERION

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

#### INDICATOR

Materials can be easily customized for individual learners.

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



#### EVIDENCE COLLECTION

##### Evidence Collection: Guiding Questions

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



#### SCORING

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

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

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

**INDICATOR**

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

**EVIDENCE COLLECTION****Evidence Collection: Guiding Questions**

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

**SCORING**

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

## ► GUIDANCE FOR **Indicator 3ae**

### Supplemental Materials

#### CRITERION

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

#### INDICATOR

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

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

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



#### EVIDENCE COLLECTION

##### Evidence Collection: Guiding Questions

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



#### SCORING

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

## ► GUIDANCE FOR **Indicator 3af**

### Supplemental Materials

#### CRITERION

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

#### INDICATOR

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

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

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



#### EVIDENCE COLLECTION

##### Evidence Collection: Guiding Questions

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



#### SCORING

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

## ► GUIDANCE FOR **Indicator 3ag**

### Supplemental Materials

#### CRITERION

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

#### INDICATOR

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

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

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



#### EVIDENCE COLLECTION

##### Evidence Collection: Guiding Questions

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



#### SCORING

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

## ► GUIDANCE FOR **Indicator 3ah**

### Supplemental Materials

#### CRITERION

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

#### INDICATOR

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

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

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



#### EVIDENCE COLLECTION

##### Evidence Collection: Guiding Questions

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



#### SCORING

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

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

## EVIDENCE GUIDES

HS Mathematics

# Gateway 1

## ► GUIDANCE FOR Indicator 1ai

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

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

#### CRITERION

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

#### INDICATOR

The materials focus on the high school standards.

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

---

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

---



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

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



## EVIDENCE COLLECTION

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



### DISCUSSION POINTS FOR REVIEW TEAM MEETING

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



### SCORING

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

#### 4 points

All aspects of all non-plus standards are addressed by the instructional materials of the series.

**OR**

There are few instances where all aspects of the non-plus standards are not addressed by the instructional materials of the series.

#### 2 points

More than a few aspects of the non-plus standards have not been completely addressed by the instructional materials of the series.

**AND/OR**

Some non-plus standards have been entirely omitted from the instructional materials of the series.

#### 0 points

Many aspects of the non-plus standards have not been completely addressed by the instructional materials of the series.

**AND/OR**

Many non-plus standards have been entirely omitted from the instructional materials of the series.

## ► GUIDANCE FOR Indicator 1aii

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

#### CRITERION

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

#### INDICATOR

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

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

---

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

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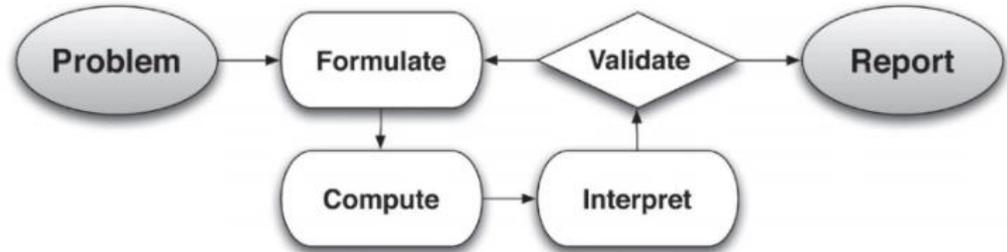
#### WHAT IS THE PURPOSE OF THIS INDICATOR?

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



## EVIDENCE COLLECTION

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



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

Aspects could include, but are not limited to:

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

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



### DISCUSSION POINTS FOR REVIEW TEAM MEETING

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

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



## SCORING

**4 points**

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

**OR**

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

**2 points**

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

**AND/OR**

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

**AND/OR**

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

**0 points**

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

**AND/OR**

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

**AND/OR**

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

## ► GUIDANCE FOR **Indicator 1bi**

### Focus and Coherence: Widely Applicable as Prerequisites

#### CRITERION

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

#### INDICATOR

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

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

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

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

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



## EVIDENCE COLLECTION

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

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

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

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

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



### DISCUSSION POINTS FOR REVIEW TEAM MEETING

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



### SCORING

**2 points**

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

**OR**

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

**1 point**

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

**0 points**

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

## ► GUIDANCE FOR **Indicator 1bii**

### Focus and Coherence: Fully learn each standard

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

#### CRITERION

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

#### INDICATOR

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

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

---

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

---



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

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



#### EVIDENCE COLLECTION

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

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

Aspects could include, but are not limited to:

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

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

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

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

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

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



### DISCUSSION POINTS FOR REVIEW TEAM MEETING

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



**SCORING**

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

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

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

**INDICATOR**

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

---

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

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

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



## EVIDENCE COLLECTION

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

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

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

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

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

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

- Integers, rational numbers, irrational numbers

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

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

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

- Applying concepts and skills of basic statistics and probability

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

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



### DISCUSSION POINTS FOR REVIEW TEAM MEETING

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



### SCORING

**2 points**

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

**1 point**

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

**AND/OR**

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

**AND/OR**

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

**0 points**

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

**AND/OR**

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

## ► GUIDANCE FOR **Indicator 1d**

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

#### CRITERION

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

#### INDICATOR

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

---

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

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

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



#### EVIDENCE COLLECTION

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

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

Examples of connections between conceptual categories:

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

Examples of connections among standards, clusters, and domains:

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



### DISCUSSION POINTS FOR REVIEW TEAM MEETING

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



### SCORING

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

## ► GUIDANCE FOR Indicator 1e

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

### CRITERION

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

### INDICATOR

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

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

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### WHAT IS THE PURPOSE OF THIS INDICATOR?

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



### EVIDENCE COLLECTION

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

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

Examples include but are not limited to:

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

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

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

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

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



### DISCUSSION POINTS FOR REVIEW TEAM MEETING

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



### SCORING

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

## ► GUIDANCE FOR Indicator 1f

### Focus and Coherence: Plus Standards

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

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

#### CRITERION

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

#### INDICATOR

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

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

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

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



#### EVIDENCE COLLECTION

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

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

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



### DISCUSSION POINTS FOR REVIEW TEAM MEETING

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

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



## SCORING

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

# Gateway 2

## ► GUIDANCE FOR **Indicator 2a**

### Rigor and Balance: Conceptual Understanding

#### CRITERION

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

#### INDICATOR

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

---

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

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

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

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



#### EVIDENCE COLLECTION

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

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

Examples include, but are not limited to:

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

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

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



### DISCUSSION POINTS FOR REVIEW TEAM MEETING

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



### SCORING

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

## GUIDANCE FOR Indicator 2b

### Rigor and Balance: Procedural Skill and Fluency

#### CRITERION

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

#### INDICATOR

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

---

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

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

This indicator, along with 2a, 2c, and 2d, determines the shift of rigor. In order to obtain rigor, there needs to be a balance among conceptual understanding, procedural skills, and application. Procedural skills are the call for efficiency and accuracy in calculations. Students need to practice core skills in order to have access to more complex concepts and procedures.



#### EVIDENCE COLLECTION

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

Examples include, but are not limited to:

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

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

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



### DISCUSSION POINTS FOR REVIEW TEAM MEETING

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



### SCORING

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

**0 points**

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

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

## ► GUIDANCE FOR **Indicator 2c**

### Rigor and Balance: Procedural Skill and Fluency

#### CRITERION

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

#### INDICATOR

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

---

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

---



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

This indicator, along with 2a, 2c, and 2d, determines the shift of rigor. In order to obtain rigor, there needs to be a balance among conceptual understanding, procedural skills, and application. Procedural skills are the call for efficiency and accuracy in calculations. Students need to practice core skills in order to have access to more complex concepts and procedures.



#### EVIDENCE COLLECTION

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

Examples include, but are not limited to:

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

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

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

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



### DISCUSSION POINTS FOR REVIEW TEAM MEETING

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



### SCORING

**2 points**

The instructional materials develop procedural skills throughout the series.

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

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

## ► GUIDANCE FOR **Indicator 2d**

### Balance

#### CRITERION

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

#### INDICATOR

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

---

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

---



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

This indicator, along with 2a, 2b, and 2c, determines the shift of rigor. In order to be considered rigorous, program materials must include a balance of conceptual understanding, procedural skills, and application. This balance should be evident in all aspects of the high school series and in each course to support students as they develop mathematical understanding.



#### EVIDENCE COLLECTION

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

- Look for a balance of all three aspects of rigor, considering the program materials as a whole and as individual units of study.
- Consider whether the content/topic is being introduced to students for the first time or is an extension of previous learning.
- Consider whether materials in the series simultaneously develop conceptual understandings and procedural skills.
- Be mindful of where students are encouraged to use multiple representations and written explanations to support their work in application problems.
- For this indicator, consider the intent of the series to balance the three aspects of rigor, not the quality of the materials—indicators 2a-c focus on the quality of rigor within the materials.
- Determine if the materials consistently balance the three aspects of rigor while allowing for dedicated focus on each individual aspect.
- Determine if the materials neglect to attend to all aspects of rigor specified by the standards or clusters.

Examples may include, but are not limited to:

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

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



### DISCUSSION POINTS FOR REVIEW TEAM MEETING

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



### SCORING

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

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

## ► GUIDANCE FOR **Indicator 2e**

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

### CRITERION

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

### INDICATOR

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

---

**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?**

---



### WHAT IS THE PURPOSE OF THIS INDICATOR?

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



### EVIDENCE COLLECTION

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

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

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

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

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

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

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

- Check to see if any materials focus only on the Standards for Mathematical Practice (therefore, they are not being used to enrich the mathematical content). Record any instances where the Standards for Mathematical Practice are not being used to enrich the mathematics content.
- Verify that student engagement with the lessons and assessments would require use of the Standards for Mathematical Practice so that across the series students will develop their use of the MPs to the full intent of the standards.
- Record any instances where a MP was identified, however, engagement with the lesson or task would only require minimal or trivial use of the indicated MP.
- If MPs are only located in a specific part of the teacher’s manuals (e.g. the teacher-led portion of the lesson), you will need to look at other sections (e.g. independent work, homework, assessments) to ensure that the MPs are intentionally used to enrich the content. **Look not only where the MPs are identified, but also look at places where they are not identified.**



### DISCUSSION POINTS FOR REVIEW TEAM MEETING

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



### SCORING

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

**2 points**

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

**AND**

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

## ► GUIDANCE FOR **Indicator 2f**

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

### CRITERION

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

### INDICATOR

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

---

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

---



### WHAT IS THE PURPOSE OF THIS INDICATOR?

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



### EVIDENCE COLLECTION

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

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

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

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

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

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

- ensure students make connections between mathematical representations and scenarios
  - provide opportunities for students to engage in active mathematical discourse
  - ask clarifying and probing questions
- Check to see if any materials focus only on the Standards for Mathematical Practice (therefore, they are not being used to enrich the mathematical content). Record any instances where the Standards for Mathematical Practice are not being used to enrich the mathematics content.

- Verify that student engagement with the lessons and assessments would require use of the Standards for Mathematical Practice so that across the series students will develop their use of the MPs to the full intent of the standards.
- Record any instances where an MP was identified, however, engagement with the lesson or task would only require minimal or trivial use of the indicated MP.
- If you found that MPs are only located in a specific part of the teacher’s manuals (e.g. the teacher-led portion of the lesson), you will need to look at other sections (e.g. independent work, homework, assessments) to ensure that the MPs are intentionally used to enrich the content.  
**Look not only where the MPs are identified in the materials, but also look at places where they are not identified.** It may help to search for keywords like conjecture, explain, justify, discuss, analyze, ask, and clarify.



### DISCUSSION POINTS FOR REVIEW TEAM MEETING

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



### SCORING

#### 2 points

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

#### **AND**

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

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

## ► GUIDANCE FOR **Indicator 2g**

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

### CRITERION

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

### INDICATOR

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

---

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

---



### WHAT IS THE PURPOSE OF THIS INDICATOR?

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



## EVIDENCE COLLECTION

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

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

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

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

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

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

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

- Model tools effectively, including their benefits and limitations
- Encourage the use of multiple tools for communication, calculation, investigation, sense-making, etc.
- Check to see if any materials focus only on the Standards for Mathematical Practice (therefore, they are not being used to enrich the mathematical content). Record any instances where the Standards for Mathematical Practice are not being used to enrich the mathematics content.
- Verify that student engagement with the lessons and assessments would require use of the Standards for Mathematical Practice so that across the series students will develop their use of the MPs to the full intent of the standards.
- Record any instances where an MP was identified, however, engagement with the lesson or task would only require minimal or trivial use of the indicated MP.
- If you found that MPs are only located in a specific part of the teacher’s manuals (e.g. the teacher-led portion of the lesson), you will need to look at other sections (e.g. independent work, homework, assessments) to ensure that the MPs are intentionally used to enrich the content. **Look not only where the MPs are identified in the materials, but also look at places where they are not identified.**



### DISCUSSION POINTS FOR REVIEW TEAM MEETING

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



### SCORING

**2 points**

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

**AND**

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

## ► GUIDANCE FOR **Indicator 2h**

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

### CRITERION

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

### INDICATOR

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

---

**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?**

---



### WHAT IS THE PURPOSE OF THIS INDICATOR?

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



### EVIDENCE COLLECTION

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

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

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

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

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

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

- Provide tasks/problems with patterns.
  - Prompt students to look for structure and patterns.
  - Prompt students to describe what they see in the structure/pattern. E.g. Ask a student to explain how his/her expression “ $4n + 1$ ” can be seen in the tile pattern.
  - Provide time for students to look for patterns, structure, shortcuts, generalizations, etc.
  - Ask probing questions like “Does that always work?” or “Why does that work?”
- Check to see if any materials focus only on the Standards for Mathematical Practice (therefore, they are not being used to enrich the mathematical content). Record any instances where the Standards for Mathematical Practice are not being used to enrich the mathematics content.

- Verify that student engagement with the lessons and assessments would require use of the Standards for Mathematical Practice so that across the series students will develop their use of the MPs to the full intent of the standards.
- Record any instances where an MP was identified, however, engagement with the lesson or task would only require minimal or trivial use of the indicated MP.
- If you found that MPs are only located in a specific part of the teacher’s manuals (e.g. the teacher-led portion of the lesson), you will need to look at other sections (e.g. independent work, homework, assessments) to ensure that the MPs are intentionally used to enrich the content. **Look not only where the MPs are identified in the materials, but also look at places where they are not identified.**



### DISCUSSION POINTS FOR REVIEW TEAM MEETING

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



### SCORING

#### 2 points

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

#### AND

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

#### 1 point

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

#### AND/OR

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

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

## Gateway 3

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

## ► GUIDANCE FOR **Indicator 3a**

### Use and Design Facilitate Learning

#### CRITERION

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

#### INDICATOR

The underlying design of the materials distinguishes between problems and exercises. In essence, the difference is that in solving problems, students learn new mathematics, whereas in working exercises, students apply what they have already learned to build mastery. Each problem or exercise has a purpose.



#### EVIDENCE COLLECTION

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



#### SCORING

##### 2 points

Materials distinguish between problems and exercises within each lesson.

##### **AND**

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

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

## ► GUIDANCE FOR **Indicator 3b**

### Use and Design Facilitate Learning

#### CRITERION

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

#### INDICATOR

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



#### EVIDENCE COLLECTION

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



#### SCORING

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

## ► GUIDANCE FOR **Indicator 3c**

### Use and Design Facilitate Learning

#### CRITERION

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

#### INDICATOR

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



#### EVIDENCE COLLECTION

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



#### SCORING

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

## ► GUIDANCE FOR **Indicator 3d**

### Use and Design Facilitate Learning

#### CRITERION

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

#### INDICATOR

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



#### EVIDENCE COLLECTION

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



#### SCORING

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

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

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

**INDICATOR**

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

**EVIDENCE COLLECTION**

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

**SCORING**

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

## ► GUIDANCE FOR **Indicator 3ei**

### Use and Design Facilitate Learning

#### CRITERION

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

#### INDICATOR

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

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

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#### EVIDENCE COLLECTION

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

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



#### SCORING

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

## ► GUIDANCE FOR **Indicator 3f**

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

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

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



#### EVIDENCE COLLECTION

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



#### SCORING

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

## ► GUIDANCE FOR **Indicator 3g**

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

#### CRITERION

Materials support teacher learning and understanding of the Standards.

#### INDICATOR

Materials contain a teacher's edition with ample and useful annotations and suggestions on how to present the content in the student edition and in the ancillary materials. Where applicable, materials include teacher guidance for the use of embedded technology to support and enhance student learning.



#### EVIDENCE COLLECTION

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



#### SCORING

##### 2 points

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

##### **AND**

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

##### 1 point

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

##### **OR**

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

**0 points**

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

**AND**

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

## ► GUIDANCE FOR **Indicator 3h**

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

#### CRITERION

Materials support teacher learning and understanding of the Standards.

#### INDICATOR

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



#### EVIDENCE COLLECTION

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



#### SCORING

##### 2 points

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

##### **AND**

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

##### 1 point

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

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

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

## ► GUIDANCE FOR **Indicator 3i**

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

#### CRITERION

Materials support teacher learning and understanding of the Standards.

#### INDICATOR

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



#### EVIDENCE COLLECTION

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



#### SCORING

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

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

Materials support teacher learning and understanding of the Standards.

**INDICATOR**

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

**EVIDENCE COLLECTION**

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

**SCORING**

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

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

Materials support teacher learning and understanding of the Standards.

**INDICATOR**

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

**EVIDENCE COLLECTION**

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

**SCORING**

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

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

Materials support teacher learning and understanding of the Standards.

**INDICATOR**

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

**EVIDENCE COLLECTION**

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

**SCORING**

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

## GUIDANCE FOR **Indicator 3m**

### Assessments

#### CRITERION

Materials support teacher learning and understanding of the Standards.

#### INDICATOR

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



#### EVIDENCE COLLECTION

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



#### SCORING

##### 2 points

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

**AND**

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

##### 1 point

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

**OR**

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

##### 0 points

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

**AND**

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

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## ► GUIDANCE FOR **Indicator 3n**

### Assessments

#### CRITERION

Materials support teacher learning and understanding of the Standards.

#### INDICATOR

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



#### EVIDENCE COLLECTION

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



#### SCORING

##### 2 points

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

##### **AND**

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

---

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

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## GUIDANCE FOR **Indicator 3o**

### Assessments

#### CRITERION

Materials support teacher learning and understanding of the Standards.

#### INDICATOR

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



#### EVIDENCE COLLECTION

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



#### SCORING

##### 2 points

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

**AND**

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

**AND**

Materials provide support for teachers to provide feedback.

##### 1 point

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

**OR**

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

**OR**

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

## ► GUIDANCE FOR **Indicator 3pi**

### Assessments

#### CRITERION

Materials support teacher learning and understanding of the Standards.

#### INDICATOR

Materials offer ongoing assessments:

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

---

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

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#### EVIDENCE COLLECTION

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



#### SCORING

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

## ► GUIDANCE FOR **Indicator 3pii**

### Assessments

#### CRITERION

Materials support teacher learning and understanding of the Standards.

#### INDICATOR

Materials offer ongoing assessments:

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

---

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

---



#### EVIDENCE COLLECTION

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



#### SCORING

##### 2 points

Materials include sufficient guidance for teachers to interpret student performance.

**AND**

Materials provide suggestions for follow-up.

##### 1 point

Materials include some guidance for teachers to interpret student performance.

**AND/OR**

Materials provide some suggestions for follow-up.

**0 points**

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

**AND**

Materials do not provide suggestions for follow-up.

## ► GUIDANCE FOR **Indicator 3piii**

### Assessments

#### CRITERION

Materials support teacher learning and understanding of the Standards.

#### INDICATOR

Materials offer ongoing assessments:

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

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

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



#### EVIDENCE COLLECTION

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



#### SCORING

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

## ► GUIDANCE FOR **Indicator 3piv**

### Assessments

#### CRITERION

Materials support teacher learning and understanding of the Standards.

#### INDICATOR

Materials offer ongoing assessments:

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

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

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



#### EVIDENCE COLLECTION

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



#### SCORING

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

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

Materials support teacher learning and understanding of the Standards.

**INDICATOR**

Materials encourage students to monitor their own progress.

**EVIDENCE COLLECTION**

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

**SCORING**

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

## ► GUIDANCE FOR **Indicator 3r**

### Differentiated Instruction

#### CRITERION

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

#### INDICATOR

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



#### EVIDENCE COLLECTION

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



#### SCORING

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

## ► GUIDANCE FOR **Indicator 3s**

### Differentiated Instruction

#### CRITERION

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

#### INDICATOR

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



#### EVIDENCE COLLECTION

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



#### SCORING

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

## GUIDANCE FOR **Indicator 3t**

### Differentiated Instruction

#### CRITERION

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

#### INDICATOR

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



#### EVIDENCE COLLECTION

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



#### SCORING

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

## GUIDANCE FOR **Indicator 3u**

### Differentiated Instruction

#### CRITERION

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

#### INDICATOR

Materials provide support, accommodations, and modifications for English Language Learners and other special populations that will support their regular and active participation in learning mathematics (e.g., modifying vocabulary words within word problems).



#### EVIDENCE COLLECTION

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



#### SCORING

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

## GUIDANCE FOR **Indicator 3v**

### Differentiated Instruction

#### CRITERION

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

#### INDICATOR

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

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



#### EVIDENCE COLLECTION

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



#### SCORING

##### 2 points

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

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

##### 1 point

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

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

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

**0 points**

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

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

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

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

**INDICATOR**

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

**EVIDENCE COLLECTION**

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

**SCORING**

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

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

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

**INDICATOR**

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

**EVIDENCE COLLECTION**

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

**SCORING**

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

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

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

**INDICATOR**

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

**EVIDENCE COLLECTION**

- Provide examples of home language connections and connections to culture of students to facilitate learning. This may be at the beginning of each chapter or throughout the materials.

**SCORING**

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

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

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

**INDICATOR**

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

**EVIDENCE COLLECTION**

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

**SCORING**

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

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

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

**INDICATOR**

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

**EVIDENCE COLLECTION**

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

**SCORING**

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

## ► GUIDANCE FOR **Indicator 3ab**

### Effective Technology Use

#### CRITERION

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

#### INDICATOR

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



#### EVIDENCE COLLECTION

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



#### SCORING

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

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

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

**INDICATOR**

Materials can be easily customized for individual learners.

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

**EVIDENCE COLLECTION**

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

**SCORING**

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

## ► GUIDANCE FOR **Indicator 3acii**

### Effective Technology Use

#### CRITERION

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

#### INDICATOR

Materials can be easily customized for individual learners.

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



#### EVIDENCE COLLECTION

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



#### SCORING

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

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

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

**INDICATOR**

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

**EVIDENCE COLLECTION**

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

**SCORING**

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

## ► GUIDANCE FOR **Indicator 3ae**

### Supplemental Materials

#### CRITERION

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

#### INDICATOR

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

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

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



#### EVIDENCE COLLECTION

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



#### SCORING

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

**GUIDANCE FOR Indicator 3af****Supplemental Materials****CRITERION**

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

**INDICATOR**

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

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

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

**EVIDENCE COLLECTION**

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

**SCORING**

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

## ► GUIDANCE FOR **Indicator 3ag**

### Supplemental Materials

#### CRITERION

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

#### INDICATOR

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

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

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



#### EVIDENCE COLLECTION

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



#### SCORING

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

## ► GUIDANCE FOR **Indicator 3ah**

### Supplemental Materials

#### CRITERION

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

#### INDICATOR

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

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

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



#### EVIDENCE COLLECTION

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



#### SCORING

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



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