Instructional Materials Evaluation Toolkit (IMET)

Mathematics, Grades K–8, Published v.3 2015

Your Evaluation Guide for *Reveal Math* ©2020, Courses 1-3

Introduction

What Are the Purposes of the IMET?

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

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

Traditionally, judging alignment has been approached as a crosswalking exercise. But crosswalking can result in large percentages of "aligned content" while obscuring the fact that the materials in question align not at all to the letter or the spirit of the standards being implemented. The IMET is designed to sharpen the alignment question and make alignment and misalignment more clearly visible. The IMET is based on the Common Core State Standards for Mathematics (www. corestandards.org/Math). For materials passing the IMET, educators can make use of more detailed instruments available in the Materials Alignment Toolkit (www.achievethecore.org/materials-alignment-toolkit) developed collaboratively by the Council of the Great City Schools, the Council of Chief State School Officers, and Achieve to enable further analysis of individual grade-level alignment, supports for special populations, and other aspects of quality in aligned materials. There are important considerations for implementation of materials in addition to alignment. Evaluators may want to add their own indicators to the ones provided here in order to evaluate local considerations beyond alignment.

Getting Started

When to Use the IMET

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

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

Who Uses the IMET?

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

Prior to Evaluation

Assemble all of the materials necessary for the evaluation. It is essential for evaluators to have materials for all grades covered by the program, as some criteria cannot be rated without having access to each grade. In addition, each evaluator should have a reference copy of the Common Core State Standards for Mathematics (www.corestandards. org/Math). Reviewers may also choose to reference the K-8 Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013), for additional support and guidance. (www.achievethecore.org/ content/upload/Math_Publishers_Criteria_K-8_Spring_2013_FINAL. pdf). Before conducting the evaluation itself, it is important to develop a protocol for the evaluation process. The protocol should include having evaluators study the IMET. It will also be helpful for evaluators to get a sense of each program overall before beginning the process. At a minimum, this would include reading the front matter of the text, looking at the table of contents, and paging through multiple chapters. There are training materials available for the IMET (www. achievethecore.org/IMET) which provide an overview of the tool and detailed information about each of the criteria. The trainings provide support for understanding and applying each metric of the IMET. If an instructional materials review is being conducted for more than one grade (e.g., materials for grades 3-5), it is recommended that an IMET be completed for each grade, as many metrics can only be evaluated for one grade at a time.

Navigating the Tool

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

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

- The Non-Negotiable Alignment Criteria must each be met in full for materials to be considered aligned to the Shifts and the major features of the Common Core State Standards. Each Non-Negotiable Alignment Criterion has one or more metrics associated with it; every one of these metrics must be met in order for the criterion as a whole to be met.
- Examine the relevant materials and use evidence to rate the materials against each criterion and its associated metric(s).
- Record and explain the evidence upon which the rating is based.

Step 2: Alignment Criteria (p. 13)

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

Step 3: Evaluation Summary (p. 32)

- Compile all of the results from Steps 1 and 2 to determine if the instructional materials are aligned to the Shifts and major features of the CCSS.
- All steps should be completed to produce a comprehensive picture of the strengths and weaknesses of the alignment of the materials under evaluation. Information about areas in need of improvement or supplementation should be shared with internal and external stakeholders.

Directions for Non-Negotiable 1
Freedom from Obstacles to Focus

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

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

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

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

Metrics to Review
- **NN Metric 1A:** Materials reflect the basic architecture of the Standards by not assessing the topics listed below* before the grade level indicated.
- Probability, including chance, likely outcomes, probability models. (Introduced in the CCSSM in grade 7)
- Statistical distributions, including center, variation, clumping, outliers, mean, median, mode, range, quartiles; and statistical association or trends, including two-way tables, bivariate measurement data, scatter plots, trend line, line of best fit, correlation. (Introduced in the CCSSM in grade 6)
- Coordinate transformations or formal definition of congruence or similarity. (Introduced in the CCSSM in grade 8)
- Symmetry of shapes, including line/reflection symmetry, rotational symmetry. (Introduced in the CCSSM in grade 4)

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

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

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

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

Non-Negotiable 1

Freedom from Obstacles to Focus

Metric

NN Metric 1A:

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

- Probability, including chance, likely outcomes, probability models. (Introduced in the CCSSM in grade 7)

- Statistical distributions, including center, variation, clumping, outliers, mean, median, mode, range, quartiles; and statistical association or trends, including two-way tables, bivariate measurement data, scatter plots, trend line, line of best fit, correlation. (Introduced in the CCSSM in grade 6)

- Coordinate transformations or formal definition of congruence or similarity. (Introduced in the CCSSM in grade 8)

- Symmetry of shapes, including line/reflection symmetry, rotational symmetry. (Introduced in the CCSSM in grade 4)

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

How to Find the Evidence

Evaluate the table of contents, all chapter tests, all unit tests, and other such assessment components (including rubrics). For context, read Criterion #2 from the K-8 Publishers' Criteria for the Common Core State Standards for Mathematics (Spring 2013).

Evidence

McGraw-Hill's *Reveal Math* **follows the intended scope and conceptual development as prescribed by the Common Core State Standards for Mathematics (CCSSM).** The program does not hold students or teachers accountable for topics not introduced by the CCSSM. For example, **there are no module tests or other assessment components that make students or teachers responsible for probability before Grade 7 or similarity, congruence, and transformations before Grade 8.**

The table of contents for each course/module can be found in the *Interactive Student Edition* and the Teacher Edition on the following pages. It includes the standards that are taught and assessed in each module.

Interactive Student Edition:
- *Reveal Math*, Course 1: Contents in Brief, p. iii; Table of Contents, pp. iv-xiii
- *Reveal Math*, Course 2: Contents in Brief, p. iii; Table of Contents, pp. iv-xiv
- *Reveal Math*, Course 3: Contents in Brief, p. iii; Table of Contents, pp. iv-xiv

Teacher Edition:
- *Reveal Math*, Course 1: pp. xx-xxix
- *Reveal Math*, Course 2: pp. xx-xxx
- *Reveal Math*, Course 3: pp. xx-xxx

Rating

☑ **Meets**

☐ **Does Not Meet**

Non-Negotiable 1

Freedom from Obstacles to Focus

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

Rating for Non-Negotiable 1

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

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

Rating

☑ **Meets**

☐ **Does Not Meet**

Strengths / Weaknesses:

McGraw-Hill's *Reveal Math* follows the intended scope and conceptual development as prescribed by the Common Core State Standards for Mathematics (CCSSM). **The program does not hold students or teachers accountable for topics not introduced by the CCSSM.** For example, there are no module tests or other assessment components that make students or teachers responsible for probability before Grade 7 or similarity, congruence, and transformations before Grade 8. This can be easily verified because grade-level standards are clearly articulated throughout the program. This allows districts to feel confident that by following the *Reveal Math* series, their teachers will meet the expectations of the CCSSM and the requirements for success on the new assessments.

Before moving to Non-Negotiable 2, record the final Meets or Does Not Meet rating in the Evaluation Summary on Page 32.

Directions for Non-Negotiable 2

Focus and Coherence

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

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

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

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

Metrics to Review
- **NN Metric 2A**: Students and teachers using the materials as designed devote the large majority of time to the Major Work of the grade.
- **NN Metric 2B:** Supporting Work enhances focus and coherence   simultaneously by also engaging students in the Major Work of   the grade.
- **NN Metric 2C:** Materials follow the grade-by-grade progressions in the Standards. Content from previous or future grades does not unduly interfere with on-grade-level content.
- **NN Metric 2D:** Lessons that only include mathematics from previous grades are clearly identified as such to the teacher.

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

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

Non-Negotiable 2

Focus and Coherence

Metric

NN Metric 2A:
Students and teachers using the materials as designed devote the large majority of time to the Major Work of the grade.

How to Find the Evidence

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

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

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

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

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

Evidence

The content of *Reveal Math, Courses 1-3* **is organized to emphasize the major work** of the Common Core State Standards for Mathematics (CCSSM) for each grade. The following charts indicate the instructional time and number of lessons devoted to the major work of each grade. The percent of coverage is calculated. **The supporting content found in *Reveal Math* enriches the focus of the major work of each grade.** Supporting content occurs primarily after the major work in each grade is completed. This positioning provides opportunities to use supporting work to enhance the major work of each grade.

	Reveal Math, Course 1	*Reveal Math,* Course 2	*Reveal Math,* Course 3
Instructional Time	117 of 167.5 days **(70%)**	102 of 156 days **(65%)**	139 of 173.5 days **(80%)**
Number of Lessons	40 of 59 lessons **(68%)***	40 of 62 lessons **(65%)****	45 of 57 lessons **(79%)*****
Module Breakdown	**Major Work:** Modules 1-7 **Supporting or Additional Work:** Modules 8-10	**Major Work:** Modules 1-7 **Supporting or Additional Work:** Modules 8-11	**Major Work:** Modules 1-9 **Supporting or Additional Work:** Modules 10, 11

* 7 additional lessons that focus on supporting/additional work also connect to the major work, for a total of **47/59 lessons (85%)** that tie to the major work.
** 8 additional lessons that focus on supporting/additional work also connect to the major work, for a total of **48/62 lessons (77%)** that tie to the major work.
*** 3 additional lessons that focus on supporting/additional work also connect to the major work, for a total of **48/57 lessons (84%)** that tie to the major work.

Rating

☑ **Meets**

☐ **Does Not Meet**

Non-Negotiable 2

Focus and Coherence

Metric

NN Metric 2B:

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

How to Find the Evidence

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

Evaluate chapters and lessons that focus on Supporting Work.

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

Evidence

In **McGraw-Hill's** *Reveal Math*, **content addressing supporting or additional clusters is connected to the major work of the grade**, in cases where those connections are meaningful and enhance student understanding of mathematical topics across domains.

Examples for each grade are cited on page 9a.

Rating

☑ **Meets**

☐ **Does Not Meet**

Page 9a – Additional Evidence

Reveal Math Course 1	
Standard	**Connection to Major Work**
6.NS.B	• In Lesson 5-6, students use the greatest common factor to rewrite and factor numerical and algebraic expressions using the Distributive Property. (major work 6.EE.A.3)
6.G.A	• In Lessons 8-1, 8-2, and 8-3, students write and solve equations to find missing dimensions, given the area of two-dimensional figures. (major work 6.EE.B.6, 6.EE.B.7) • In Lesson 9-1, students write and solve equations to find missing dimensions, given the volume of a three-dimensional figure. (major work 6.EE.B.6, 6.EE.B.7) • Throughout Modules 8 and 9, students write, read, and evaluate expressions in which letters stand for numbers as they work with volume and surface formulas. (major work 6.EE.A.2, 6.EE.A.2.C)
6.SP.A, 6.SP.B	• In Lesson 10-3, students write and solve equations to find a missing data value given the mean. (major work 6.EE.B.6, 6.EE.B.7) • In Lesson 10-5, students use absolute value to calculate the mean absolute deviation of a set of data. (major work 6.NS.C.7)

Reveal Math Course 2	
Standard	**Connection to Major Work**
7.G.A, 7.G.B	• In Lessons 8-1 and 8-2, students write and solve equations to find missing angle measures. (major work 7.EE.B.4.A) • In Lessons 9-1 and 9-2, students write and solve equations to find missing dimensions involving the circumference and area of circles. (major work 7.EE.B.4.A) • In Lesson 9-4, students write and solve equations to find missing dimensions given the volume of a three-dimensional figure. (major work 7.EE.B.4.A)
7.SP.A. 7.SP.B, 7.SP.C	• In Lessons 10-2 and 10-3, students relate the relative frequency and theoretical probability of a simple event to ratios and use ratio and proportional reasoning to make predictions from relative frequencies. (major work 7.RP.A.3) • In Lesson 11-2, students use ratio and proportional reasoning to make predictions based on data gathered using a valid sampling method. (major work 7.RP.A.3)

Reveal Math Course 3	
Standard	**Connection to Major Work**
8.NS.A	• In Lesson 2-2, students use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. (major work 8.EE.A.2)
8.G.C	• In Lesson 10-4, students write and solve equations to find missing dimensions given the volume of cylinders, cones, and spheres. (major work 8.EE.A.2)
8.SP.A	• In Lesson 11-3, students interpret the equation $y = mx + b$ as defining a linear function by writing equations for lines of fit to represent a scatter plot. By doing so, they construct a function to model a linear relationship between two quantities, and determine the rate of change and initial value. (major work 8.F.A.3, 8.F.B.4)

Non-Negotiable 2

Focus and Coherence

Metric

NN Metric 2C:
Materials follow the grade-by-grade progressions in the Standards. Content from previous or future grades does not unduly interfere with on-grade- level content.

How to Find the Evidence

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

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

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

Evidence

The content in **McGraw-Hill's** *Reveal Math* is based on the grade-by-grade progressions in the CCSSM. As indicated in the tables below, **grade-level work begins at the start of the school year, allowing students ample time to make tangible progress during each year**. The deliberate progression of the standards in *Reveal Math*, both within and across grades, is important for ensuring students success. To see the complete grade-by-grade progression, please see *Reveal Math's Scope and Sequence Alignment Guide* for Grades 6-8 Mathematics. This document is intended for curriculum planning, particularly to demonstrate how McGraw-Hill's *Reveal Math* programs adhere to the new progressions of concepts and skills across all grades K-8 and K-12 as required by the Standards.

Module Breakdown	*Reveal Math,* Course 1	*Reveal Math,* Course 2	*Reveal Math,* Course 3
Major Work	Modules 1-7	Modules 1-7	Modules 1-9
Supporting/ Additional Work	Modules 8-10	Modules 8-11	Modules 10-11

Rating

☑ **Meets**

☐ **Does Not Meet**

Non-Negotiable 2
Focus and Coherence

Metric

NN Metric 2D:
Lessons that only include mathematics from previous grades are clearly identified as such to the teacher.

How to Find the Evidence

Evaluate units, chapters, and lessons to identify any lessons that only include content from previous grades. Check whether these lessons are identified as such.

Evidence

There are no lessons that are from prior grades or future grades in each grade of McGraw-Hill's *Reveal Math* program. A few lessons are correlated as *Preparation for* to indicate to the teacher that these lessons cover foundational prerequisite knowledge in order to meet the full intent of those standards. These lessons do not cover prior grade material, however. Further explanation is provided below.

In *Reveal Math*, **Course 1**, Lessons 2-1 through 2-3 are correlated as *Preparation for 6.RP.A.3, 6.RP.A.3.C.* In these lessons, students build a foundational understanding of percents, as Grade 6 is the first time in which the Common Core State Standards for Mathematics introduce percents. 6.RP.A.3.C asks students to find the percent of a quantity as a rate per 100 and to solve problems involving finding the whole, given a part and the percent. Before students can fully meet this standard, they need to understand what a percent is (Lesson 2-1), what it means for percents to be greater than 100% or less than 1% (Lesson 2-2), and how to relate fractions, decimals, and percents (Lesson 2-3). These lessons do not cover prior grade material, as percents are not part of the Grade 5 Standards.

In *Reveal Math*, **Course 3**,
- Lesson 1-1 is correlated as *Preparation for 8.EE.A.1.* In this lesson, students extend their understanding of powers and exponents from Grades 6-7 to rational-number bases, which will connect with the Laws of Exponents later in this module.
- Lesson 4-2 is correlated to *Preparation for 8.EE.B.6, 8.F.B.4, and 8.SP.A.3.* Before students can fully meet 8.EE.B.6, they need to build understanding of the concept of slope.
- Lesson 4-6 is correlated to *Preparation for 8.EE.C.8.B, 8.F.A.3.* Before students can fully meet 8.EE.C.8.B and 8.F.A.3, they need to build skill and fluency in graphing non-proportional linear equations of the form $y = mx + b$.

Rating

☑ **Meets**

☐ **Does Not Meet**

Non-Negotiable 2

Focus and Coherence

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

Rating for Non-Negotiable 2

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

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

Rating

☑ **Meets**

☐ **Does Not Meet**

Strengths / Weaknesses:

McGraw-Hill's *Reveal Math* concentrates on the major work of each grade as required by the Standards. **Its organization reflects the emphasis at each grade level on the major work or clusters. The supporting and additional content found in *Reveal Math* enriches the focus of the major work in each grade and is always grade-level appropriate as required by the Standards.** Grade-level work begins at the start of each year, allowing students ample time to make tangible progress during each year. **There are no lessons that solely focus on content from prior grades.** In the program, six lessons across Courses 1-3 (out of 178 total lessons, or about 3%) are correlated as *Preparation for*, but include content that is foundational to the grade-level standards and is not found in the standards from prior grades.

Before moving to Alignment Criterion 1, record the final Meets or Does Not Meet rating in the Evaluation Summary on Page 32.

Now continue by evaluating the Alignment Criterion 1 for Rigor and Balance

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Directions for Alignment Criterion 1
Rigor and Balance

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

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

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

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

Metrics to Review
- **AC Metric 1A:** The materials support the development of students' conceptual understanding of key mathematical concepts, especially where called for in specific content standards or cluster headings.
- **AC Metric 1B:** The materials are designed so that students attain the fluencies and procedural skills required by the Standards.
- **AC Metric 1C:** The materials are designed so that teachers and students spend sufficient time working with applications, without losing focus on the Major Work of each grade.

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

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

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

Alignment Criterion 1

Rigor and Balance

Use the questions on this page to evaluate Metric 1A. On page 15, record evidence for each question and rate Metric 1A.

Metric	How to Find the Evidence	Questions for Metric

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

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

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

Where the standards explicitly require students to understand concepts, do the assignments that students work on build that understanding, and do assessment tasks reveal whether students understand the mathematics in question?? Evaluate lessons, chapter/unit assessments, and homework assignments, paying attention to work aligned to standards that explicitly call for understanding or interpreting.

NOTE: Examples of evaluating this metric might include looking at how well the multi-digit addition and subtraction algorithms are developed and explained on the basis of place value and properties of operations; or how well the multi-digit multiplication and division algorithms are developed and explained on the basis of place value and properties of operations; or how well solving equations is presented and explained as a process of reasoning

Do the materials feature high-quality conceptual problems and conceptual discussion questions? Evaluate lessons, chapter/unit assessments, and homework assignments.

NOTE: Examples of conceptual problems might include such questions as "Find a number greater than 1/5 and less than ¼," or "If the divisor does not change and the dividend increases, what happens to the quotient?"

Do the materials feature opportunities to identify correspondences across mathematical representations? When manipulatives are used, are they faithful representations of the mathematical objects they represent? Are manipulatives connected to written methods? Evaluate lessons, chapter/unit assessments, and homework assignments. NOTE: Examples of evaluating this metric might include looking at whether students are supported in identifying correspondences among:

- The verbal description of a situation, the diagrams that distill its mathematical features, and the equations that model it

- Equivalent forms of numbers (e.g., 3 and 6/2) and the number line

- Rational number operations and representations of them via models such as the vector model

- The expression that defines a function and the graph that shows the relationship

Alignment Criterion 1

Rigor and Balance

Metric

AC Metric 1A:

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

Evidence

Where the standards explicitly require students to understand concepts, do the assignments that students work on build that understanding, and do assessment tasks reveal whether students understand the mathematics in question?

McGraw-Hill's *Reveal Math* is purposefully designed to support a balance between the development of conceptual understanding, the need for instilling procedural fluency, and the desire to make the mathematics rich and meaningful to every student. **The materials feature high-quality conceptual problems and conceptual discussion questions and feature frequent opportunities to strengthen conceptual understanding through the use of multiple representations of quantitative relationships. Conceptual understanding is treated as distinct from fluency work or applications.** Lessons in *Reveal Math* begin with conceptual development, often initiated in the Explore activity and carried through the Learn resource. In the Explore activities, students begin to build conceptual understanding by working collaboratively to explore new math concepts, and discuss their thinking by orally responding to *Talk About It!* questions embedded at point of use in the activities. In these activities, students use digital manipulatives including WebSketchpad®, eTools, digital algebra tiles, and many other types of digital tools. Please see pages 15a-15b for specific examples.

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

Yes. Throughout the Explore and Learn resources, students encounter *Talk About It!* **discussion question prompts that support concept development** by having them engage in mathematical discourse opportunities with a partner or the entire class. **The Apply problems featured at the end of the majority of lessons feature high-quality conceptual problems**. These problems as well as other problems, including examples, application problems, and practice exercises provide opportunities for students to engage in mathematical discourse to describe or defend their solutions and reasoning as they exhibit their critical thought process. Please see pages 15a-15b for specific examples.

Do the materials feature opportunities to identify correspondences across mathematical representations? When manipulatives are used, are they faithful representations of the mathematical objects they represent? Are manipulatives connected to written methods?

Yes. In the Learn resources, students build conceptual development in a variety of ways, **including multiple methods for solving problems (Method 1/Method 2), multiple representations (such as bar diagrams and other models, words, equations/symbols, tables, and graphs, animations and videos, and the use of digital tools such as WebSketchpad®, technology-enhanced items, and eTools.** Please see pages 15a-15b for specific examples.

Rating

✓ **Meets (2)**

☐ **Partially Meets (1)**

☐ **Does Not Meet (0)**

Page 15a – Additional Evidence

Examples from each grade are cited below and on the next page, 15b.

Reveal Math Course 1

The cluster 6.RP.A *Understand ratio concepts and use ratio reasoning to solve problems* is addressed in Modules 1-2.

Conceptual understanding is developed through the Explore activities and Learn resources for each lesson. Some specific examples are cited below.

- Lesson 1-1; online Explore activity *Compare Two Quantities* and corresponding teacher support in the Teacher Edition pp. 3c-3d
- Lesson 1-1; Learn *Understand Ratio Relationships* in the *Interactive Student Edition* pp. 3-4 and corresponding teacher support in the Teacher Edition pp. 3-4 (includes bar diagram representations of ratio relationships and *Talk About It!* conceptual discussion questions)
- Lesson 1-2; online Explore activity *Equivalent Ratios* and corresponding teacher support in the Teacher Edition pp. 13c-13d
- Lesson 1-2; Learn *Equivalent Ratios and Ratio Tables* in the *Interactive Student Edition* pp. 13-14 and corresponding teacher support in the Teacher Edition pp. 13-14 (includes multiple representations of ratio relationships – bar diagrams and ratio tables – and *Talk About It!* conceptual discussion questions)
- Lesson 1-3; Learn *Ratios as Ordered Pairs* in the *Interactive Student Edition* p. 23 and corresponding teacher support in the Teacher Edition p. 23 (includes multiple representations of ratio relationships – tables, ordered pairs, and graphs – and *Talk About It!* conceptual discussion questions)
- Lesson 1-4: Learn *Use Graphs to Compare Ratio Relationships* and Learn *Use Tables to Compare Ratio Relationships* in the *Interactive Student Edition* pp. 29 and 31 and corresponding teacher support in the Teacher Edition pp. 29 and 31 (includes multiple representations of ratio relationships – tables, ordered pairs, and graphs – and *Talk About It!* conceptual discussion questions)
- Lesson 1-5: Learn *Use Bar Diagrams to Solve Ratio Problems* and Learn *Use Double Number Lines and Equivalent Ratios to Solve Ratio Problems* in the *Interactive Student Edition* pp. 37 and 40-41 and corresponding teacher support in the Teacher Edition pp. 37 and 40-41 (includes multiple representations of ratio relationships – bar diagrams and double number lines – and *Talk About It!* conceptual discussion questions)
- Lesson 1-6; Learn *Unit Ratios and Measurement Conversions*, Learn *Convert Larger Units to Smaller Units*, and Learn *Convert Smaller Units to Larger Units* in the *Interactive Student Edition* pp. 47-49 and 51-52 and corresponding teacher support in the Teacher Edition pp. 47-49 and 51-52 (includes multiple representations of ratio relationships among measurement units – bar diagrams and equivalent ratios – and *Talk About It!* conceptual discussion questions)
- Lesson 1-7; online Explore activity *Compare Quantities with Different Units* and corresponding teacher support in the Teacher Edition pp. 57c-57d
- Lesson 1-7; Learn *Understand a Rate and a Unit Rate* and Learn *Unit Price* in the *Interactive Student Edition* pp. 57-58 and 60 and corresponding teacher support in the Teacher Edition pp. 57-58 and 60 (includes multiple representations of rates – bar diagrams, words, units, example – and *Talk About It!* conceptual discussion questions)
- Lesson 1-8; Learn *Use Bar Diagrams to Solve Rate Problems* and Learn *Use Double Number Lines and Equivalent Rates to Solve Rate Problems* in the *Interactive Student Edition* pp. 65 and 67 and corresponding teacher support in the Teacher Edition pp. 65 and 67 (includes multiple representations of rates – bar diagrams, double number lines, equivalent rates – and *Talk About It!* conceptual discussion questions)

Page 15b – Additional Evidence, continued.

Reveal Math Course 2

The cluster 7.NS.A *Apply and extend previous understandings of operations with fractions* is addressed in Modules 3-4.

Conceptual understanding is developed through the Explore activities and Learn resources for each lesson. Some specific examples are cited below.

- Lesson 3-1; online Explore activity *Use Algebra Tiles to Add Integers* and corresponding teacher support in the Teacher Edition pp. 127c-127d
- Lesson 3-1; Learn *Add Integers with the Same Sign*, Learn *Find Additive Inverses*, and Learn *Add Integers with Different Signs* in the *Interactive Student Edition* pp. 127-128, 130, 131-132, and corresponding teacher support in the Teacher Edition pp. 127-128, 130, 131-132 (includes multiple representations and *Talk About It!* conceptual discussion questions)
- Lesson 3-2; online Explore activities *Use Algebra Tiles to Subtract Integers* and *Find Distance on a Number Line* and corresponding teacher support in the Teacher Edition pp. 139c-139d and pp. 142a-142b
- Lesson 3-2; Learn *Subtract Integers* and Learn *Find the Distance Between Integers* in the *Interactive Student Edition* pp. 139-140 and 142, and corresponding teacher support in the Teacher Edition pp. 139-140 and 142 (includes multiple representations of subtracting integers and *Talk About It!* conceptual discussion questions)
- Lesson 3-3; online Explore activity *Use Algebra Tiles to Multiply Integers* and corresponding teacher support in the Teacher Edition pp. 149c-149d
- Lesson 3-3; Learn *Multiply Integers with Different Signs* and Learn *Multiply Integers with the Same Sign* in the *Interactive Student Edition* pp. 149 and 151, and corresponding teacher support in the Teacher Edition pp. 149 and 151 (includes multiple representations of multiplying integers)
- Lesson 3-4; online Explore activity *Use Algebra Tiles to Divide Integers* and corresponding teacher support in the Teacher Edition pp. 159c-159d
- Lesson 3-4; Learn *Divide Integers with Different Signs* and Learn *Divide Integers with the Same Sign* in the *Interactive Student Edition* pp. 159 and 161, and corresponding teacher support in the Teacher Edition pp. 159 and 161 (includes multiple representations of multiplying integers)

Reveal Math Course 3

The cluster 8.EE.B *Understand the connections between proportional relationships, lines, and linear equations* is addressed in Module 4.

Conceptual understanding is developed through the Explore activities and Learn resources for each lesson. Some specific examples are cited below.

- Lesson 4-1; online Explore activity *Rate of Change* and corresponding teacher support in the Teacher Edition pp. 175c-175d
- Lesson 4-1; Learn *Proportional Relationships* and Learn *Unit Rate and Slope* in the *Interactive Student Edition* pp. 175-176, and corresponding teacher support in the Teacher Edition pp. 175-176 (includes multiple representations of proportional relationships and *Talk About It!* conceptual discussion questions)
- Lesson 4-3; online Explore activity *Right Triangles and Slope* and corresponding teacher support in the Teacher Edition pp. 205c-205d
- Lesson 4-3; Learn *Similar Triangles* and Learn *Similar Triangles and Slope* in the *Interactive Student Edition* pp. 205-207, and corresponding teacher support in the Teacher Edition pp. 205-207 (includes multiple representations of similar triangles and slope triangles and *Talk About It!* conceptual discussion questions)
- Lesson 4-4; online Explore activity *Derive the Equation $y = mx$* and corresponding teacher support in the Teacher Edition pp. 213c-213d
- Lesson 4-4; Learn *Direct Variation* in the *Interactive Student Edition* pp. 213-214, and corresponding teacher support in the Teacher Edition pp. 213-214 (includes multiple representations of direct variation proportional relationships and *Pause and Reflect* conceptual discussion questions)
- Lesson 4-5; online Explore activity *Derive the Equation $y = mx + b$* and corresponding teacher support in the Teacher Edition pp. 225c-225d
- Lesson 4-5; Learn *Slope-Intercept Form of a Line* in the *Interactive Student Edition* pp. 225-226, and corresponding teacher support in the Teacher Edition pp. 225-226 (includes multiple representations of linear relationships)

Alignment Criterion 1

Rigor and Balance

Use the questions on this page to evaluate Metric 1B. On page 17, record evidence for each question and rate Metric 1B.

Metric	How to Find the Evidence	Questions for Metric
AC Metric 1B: The materials are designed so that students attain the fluencies and procedural skills required by the Standards.	Identify clusters or standards from the Major Work for the grade being evaluated that relate specifically to fluency and procedural skill to use throughout the questions associated with this metric.	Do the materials in grades K–6 provide repeated practice toward attainment of fluency standards? Do assessment tasks reveal whether students have the fluencies the standards require? Evaluate lessons, daily routines, and homework assignments for evidence of repeated practice toward attainment of the following K–6 standards that set an explicit expectation of fluent (accurate and reasonably fast) computation: K.OA.A.5, 1.OA.C.6, 2.OA.B.2, 2.NBT.B.5, 3.OA.C.7, 3.NBT.A.2, 4.NBT.B.4, 5.NBT.B.5, 6.NS.B.2, 6.NS.B.3. Is progress toward fluency and procedural skill interwoven with students' developing conceptual understanding of the operations in question? Evaluate lessons, chapter/unit assessments, daily routines, and homework assignments for evidence that the development of fluency and procedural skill is supported by conceptual understanding. Some examples of standards that call for procedural skill include: K.CC.A.1, 1.NBT.A.1, 2.OA.C.4,3.OA.C.7, 3.NBT.A.3, 4.NBT.A.2, 5.NF.A.1, 6.EE.A.1, 7.NS.A,7.EE.A.1,7.EE.B.4a, 8.EE.C.7, 8.EE.C.8b NOTE: This list is not exhaustive.

Alignment Criterion 1

Rigor and Balance

Metric

AC Metric 1B:

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

Evidence

Do the materials in grades K–6 provide repeated practice toward attainment of fluency standards? Do assessment tasks reveal whether students have the fluencies the standards require?

Yes. **McGraw-Hill's** *Reveal Math* provides sufficient attention throughout the year to the individual standards that set an expectation of procedural skill and fluency. **For example, in Grade 6, students are expected to attain procedural skill and fluency as it relates to operations with decimals and fraction division. In Course 1 Module 3, students focus on these skills but repeated practice is continued throughout the year.** In Module 5, students work with numerical and algebraic expressions that contain not only whole number operations, but also fraction and decimal operations. In Module 6, students solve one-step equations using not only whole numbers, but also fractions and decimals. In Modules 8-9, students use area and volume formulas to measure figures whose measurements are not only whole numbers, but include fractions and decimals.

Please see pages 17a-17b for specific examples.

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

Yes. For example, in Grade 6 (Course 1), students continue to develop procedural skill and fluency as it relates to operations with decimals and fraction division. **Conceptual understanding of fraction division, including concrete representations, is explicitly taught and connections are made to help students gain fluency in these operations. Purely procedural problems and exercises are also included. The standard algorithms for operations with decimals and fraction division are based on place-value understanding and mathematical reasoning, not on tricks.** In Grades 7 and 8 (Courses 2-3), students practice fluency in algebraic operations so that they can engage in higher-order critical thinking about structure and not be weighed down by the lack of computational fluency.

Please see pages 17a-17b for specific examples.

Rating

☑ **Meets (2)**

☐ **Partially Meets (1)**

☐ **Does Not Meet (0)**

Page 17a – Additional Evidence

The citations on this page and the next page, 17b, support Metric 1B for procedural skill and fluency.

Reveal Math **Course 1**

The cluster 6.NS.A *Apply and extend previous understandings of multiplication and division to divide fractions by fractions* is addressed in Module 3.

The bridge from conceptual understanding to procedural skill and fluency is developed from the Explore activities and Learn resources to the Examples and Practice exercises for each lesson. Some specific examples are cited below.

- In Lesson 3-3, students complete an online Explore activity *Divide Whole Numbers by Fractions* in which they explore how this kind of division problem can be represented using bar diagrams. Students continue to develop this conceptual understanding in the Learn resource *Divide Whole Numbers by Fractions* (pp. 157-158) using concrete representations (bar diagrams) and relate it to using the definition of fraction division. See teacher support on pages 157a-157b, 157-158 of the Teacher Edition.
- In Lesson 3-3, students build fluency with dividing whole numbers by fractions (Examples 4-5, pp. 159-162 and Practice exercises pp. 165-166) and make connections between their conceptual understanding (bar diagrams) and procedural fluency (multiplying by the reciprocal).
- In Lesson 3-4, students continue to connect conceptual understanding of fraction division using concrete representations (bar diagrams) and procedural skills (multiplying by the reciprocal) to build fluency dividing fractions by fractions in the Learn resource *Divide Fractions by Fractions*, p. 167, Examples 1-3, pp. 168-172, and Practice exercises, pp. 175-176.
- In Lesson 3-5, students continue to connect conceptual understanding of fraction division using concrete representations (bar diagrams) and procedural skills (multiplying by the reciprocal) to build fluency dividing with whole and mixed numbers in the online Explore activity *Divide Fractions by Whole Numbers* (teacher support pp 177c-177d), the Learn resources *Divide Fractions by Whole Numbers* and *Divide Mixed Numbers*, pp. 177-178 and 181, Examples 1-3, pp. 179-182, and Practice exercises, pp. 185-186.

Reveal Math **Course 2**

The cluster 7.EE.A *Use properties of operations to generate equivalent expressions* is addressed in Modules 2-7.

The bridge from conceptual understanding to procedural skill and fluency is developed from the Explore activities and Learn resources to the Examples and Practice exercises for each lesson. Some specific examples are cited below.

- In Lesson 6-2, students complete the online Explore activities *Solve Two-Step Equations Using Bar Diagrams* and *Solve Two-Step Equations Using Algebra Tiles* in which they explore how two-step equations of the form $px + q = r$ can be represented using bar diagrams and algebra tiles. From this foundation of conceptual understanding, students learn how to use the properties of operations to undo operations in the reverse order of the order of operations (p. 290) to build procedural fluency in solving equations by algebraic manipulation. See teacher support on pages 289c-289f, 290 of the Teacher Edition.
- In Lesson 6-2, students build fluency with solving two-step equations of the form $px + q = r$ (Examples 1-4, pp. 290-292 and Practice exercises pp. 297-298) and make connections between their conceptual understanding and procedural fluency as they compare arithmetic methods and algebraic methods (pp. 293-294).
- In Lesson 6-4, students complete the online Explore activities *Solve Two-Step Equations Using Bar Diagrams* and *Solve Two-Step Equations Using Algebra Tiles* in which they explore how two-step equations of the form $p(x + q) = r$ can be represented using bar diagrams and algebra tiles. From this foundation of conceptual understanding, students build procedural fluency (p. 308) by using two different methods to solve equations of this form. See teacher support on pages 307c-307f, 308 of the Teacher Edition.
- In Lesson 6-4, students build fluency with solving two-step equations of the form $p(x + q) = r$ (Examples 1-4, pp. 308-311 and Practice exercises pp. 315-316) and make connections between their conceptual understanding and procedural fluency as they compare arithmetic methods and algebraic methods (p. 312).

Page 17b – Additional Evidence, continued

Reveal Math Course 3

The cluster 8.EE.C *Analyze and solve linear equations and simultaneous linear equations* is addressed in Modules 3 and 6.

The bridge from conceptual understanding to procedural skill and fluency is developed from the Explore activities and Learn resources to the Examples and Practice exercises for each lesson. Some specific examples are cited below.

- In Lesson 6-1, students complete an online Explore activity *Systems of Equations* in which they explore what it means when two linear equations intersect. Students also learn what the solution of a system of equations means in the Learn resource *Systems of Equations* (p. 319) and how systems of equations with no solution, one solution, or infinitely many solutions are represented graphically. This foundation of conceptual understanding is developed prior to building fluency with solving systems of equations by graphing or algebraic manipulation. See teacher support on pages 319c-319d, 319 of the Teacher Edition.
- In Lesson 6-1, students build fluency with graphing systems of linear equations, including writing equations in slope-intercept form prior to graphing (Examples 1-4, pp. 320-326 and Practice exercises pp. 329-330).
- In Lesson 6-2, students extend their conceptual understanding gained in Lesson 6-1 about how systems of equations with no solution, one solution, or infinitely many solutions are represented graphically and build fluency by studying the structure of the algebraic equations, noting what the slopes and y-intercepts tell about the solution of the system, as opposed to graphing the system (Learn resource *Systems of Equations: Compare Slopes and y-Intercepts*, p. 332, Examples 1-4, pp. 332-336, and Practice exercises, pp. 339-340)
- Drawing on their conceptual understanding foundation from Lessons 6-1 and 6-2, students build procedural fluency with algebraic manipulation in Lessons 6-3 and 6-4 to solve systems using the substitution and elimination methods. Students solve simple cases by inspection, analyzing the structure of the equations (MP7) because they have developed the conceptual understanding of what a solution of a system means. (pp. 341-362)

Alignment Criterion 1

Rigor and Balance

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

Metric

AC Metric 1C:
The materials are designed so that teachers and students spend sufficient time working with applications, without losing focus on the Major Work of each grade.

How to Find the Evidence

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

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

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

Questions for Metric

Are there single- and multi-step contextual problems that develop the mathematics of the grade, afford opportunities for practice, and engage students in problem solving? Where the standards require students to solve multi-step and real-world problems, do the assignments that students work on allow them to do that, and do assessment tasks reveal whether students can do that? Evaluate lessons, chapter/unit assessments, and homework assignments.

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

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

Alignment Criterion 1

Rigor and Balance

Metric

AC Metric 1C:
The materials are designed so that teachers and students spend sufficient time working with applications, without losing focus on the Major Work of each grade.

Evidence

Are there single- and multi-step contextual problems that develop the mathematics of the grade, afford opportunities for practice, and engage students in problem solving? Where the standards require students to solve multi-step and real-world problems, do the assignments that students work on allow them to do that, and do assessment tasks reveal whether students can do that?

Yes. Contextual problem solving is an integral part of **McGraw-Hill's** *Reveal Math*. Numerous opportunities are included for students to engage in rich, contextual problem-solving tasks, including multi-step problems (labeled as **Apply**). In the **Apply** problems, **students are asked to engage in solving and discussing a rich task that allows for multiple entry points and varied solution strategies**. Students are asked to come up with their own strategies for solving the problems and construct an argument that can be used to defend their solution (**Step 4** of the **Apply** problem). Throughout the Practice exercises, students are presented with **numerous opportunities to solve single-step and multi-step application problems and respond to higher-order thinking questions that involve constructing arguments**. Look for the exercises labeled as *Apply*, *Persevere with Problems*, *Make a Conjecture*, *Make an Argument*, or *Justify Conclusions*. In the Teacher Edition, look for the *Teaching the Mathematical Practices* tips labeled with *1 Make Sense of Problems and Persevere in Solving Them* or *3 Construct Viable Arguments and Critique the Reasoning of Others*. Please see pages 19a-19b for specific examples.

Do application problems particularly stress applying the Major Work of the grade?
Yes. Application problems are present in every lesson. In lessons that focus on the major work of each grade, the application problems also target those same standards. In lessons that focus on supporting or additional work, many application problems also support or enhance the major work of each grade. Please see pages 19a-19b for specific examples.

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

Yes. Throughout the program, modeling with mathematics builds with the emphasis on mathematical modeling being representing a contextual problem with algebraic expressions, equations, or inequalities and then solving the problem through algebraic manipulation, and interpreting the solution within the context of the problem. Look for the exercises labeled as **Model with Mathematics.** In the Teacher Edition, look for the Teaching the Mathematical Practices tips labeled as this mathematical practice *4 Model with Mathematics.* In the Apply problems, students are asked to devise their own strategies to solve problems, including making assumptions and/or simplifications. Please see pages 19a-19b for specific examples.

Rating

- ☑ **Meets (2)**
- ☐ **Partially Meets (1)**
- ☐ **Does Not Meet (0)**

Page 19a – Additional Evidence
The citations on this page and the next page, 19b, support Metric 1C for applications.

Reveal Math, Course 1

There are 227 examples in Course 1. Of these, 128 are set in context (about 56%), either single-step or multi-step application problems. In Course 1, forty-six out of fifty-nine lessons (78%) include 3-4 multi-step, rich application problems labeled as **Apply**.

Interactive Student Edition and Teacher Edition:
- Lesson 3-1, p. 142, Practice Exercise 15 (multi-step contextual problem)
- Lesson 4-7, p. 251, Apply problem (multi-step contextual problem)
- Lesson 6-2, p. 342, Example 1 (modeling)
- Lesson 7-2, pp. 406, 409, Examples 1-2 (modeling)
- Lesson 7-3, p. 419, Example 2 (modeling)
- Lesson 8-1, p. 439 Apply problem (multi-step contextual problem)
- Lesson 9-1, p. 491 Apply problem (multi-step contextual problem)

Reveal Math, Course 2

There are 250 examples in Course 2. Of these, 137 are set in context (about 55%), either single-step or multi-step application problems. In Course 2, forty-nine out of sixty-two lessons (79%) include 3-4 multi-step, rich application problems labeled as **Apply**.

Interactive Student Edition and Teacher Edition:
- Lesson 2-3, pp. 85-88, Example 3, Apply problem (multi-step contextual problem)
- Lesson 2-4, pp. 92-93 and 95-96, Example 2, Apply problem (multi-step contextual problem)
- Lesson 5-2, p. 247, Apply problem (multi-step contextual problem)
- Lesson 6-3, pp. 300-301, Examples 1-2 (modeling)
- Lesson 6-5, pp. 318-320, Examples 1-2 (modeling)
- Lesson 7-2, pp. 342-344, Examples 1-2 (modeling)
- Lesson 7-5, pp. 365-367, Examples 1-2 (modeling)
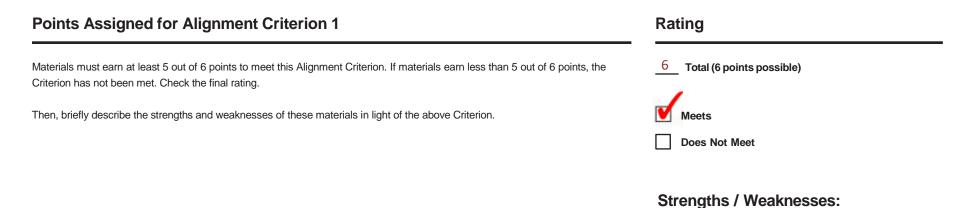- Lesson 9-3, p. 471, Apply problem (multi-step contextual problem)

Reveal Math, Course 3
There are 252 examples in Course 3. Of these, 116 are set in context (about 46%), either single-step or multi-step application problems. In Course 3, forty-four out of fifty-seven lessons (77%) include 3-4 multi-step, rich application problems labeled as **Apply**.   <u>*Interactive Student Edition* and Teacher Edition:</u>   • Lesson 3-2, pp. 139-140, Example 2 (modeling)   • Lesson 4-4, p. 215, Example 1 (modeling)   • Lesson 4-5, p. 233, Apply problem (multi-step contextual problem)   • Lesson 5-3, pp. 274-275, Example 1 (modeling)   • Lesson 5-4, p. 289, Apply problem (multi-step contextual problem)   • Lesson 6-1, pp. 319c-319d, online Explore activity *Systems of Equations* (modeling)   • Lesson 6-5, p. 366, Example 2 (modeling)   • Lesson 7-3, p. 416, Exercise 7 (multi-step contextual problem)   • Lesson 8-1, p. 444, Exercises 7-8 (multi-step contextual problem)   • Lesson 10-1, p. 539, Apply problem (multi-step contextual problem)

Alignment Criterion 1

Rigor and Balance

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

Points Assigned for Alignment Criterion 1

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

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

Rating

6   **Total (6 points possible)**

☑ **Meets**

☐ **Does Not Meet**

Strengths / Weaknesses:

The organization of **McGraw-Hill's** *Reveal Math* program was purposefully designed to support a balance between the development of conceptual understandings, the need for instilling proficiency, and the desire to make the mathematics rich and meaningful to every student.

The materials feature high-quality conceptual problems and conceptual discussion questions and feature frequent opportunities to identify multiple representations. Progress toward fluency—particularly fluency in algebraic operations—is interwoven with conceptual understanding and applied within and across courses. *Reveal Math* contains high-quality contextual problems that develop the mathematics of the grade and engage students in problem solving at many levels.

Before moving to Alignment Criterion 2, record the final Meets or Does Not Meet rating in the Evaluation Summary on Page 32.

Directions for Alignment Criterion 2

Standards for Mathematical Practice

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

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

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

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

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

- **AC Metric 2B:** Tasks and assessments of student learning are designed to provide evidence of students' proficiency in the Standards for Mathematical Practice.

- **AC Metric 2C:** Materials support the Standards' emphasis on mathematical reasoning.

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

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

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

Alignment Criterion 2
Standards for Mathematical Practice

Metric

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

How to Find the Evidence

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

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

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

Evidence

A strong emphasis on connecting the Standards for Mathematical Practice (MP) to the Common Core State Standards for Mathematics (CCSSM) for content is built into **McGraw-Hill's** *Reveal Math*. In the *Interactive Student Edition*, *Talk About It!* **questions encourage critical thinking and mathematical discourse among students to help them develop the habits of mind described in the practice standards**. Throughout each lesson of the Teacher Edition, strategies and suggestions for demonstrating the Standards for Mathematical Practice are found in the Explores, Learns, and Examples; these are labeled **Teaching the Mathematical Practices**. Also included in the Teacher Edition, *Questions for Mathematical Discourse* are included for each example to promote high expectations, critical thinking skills, and class discussion.

Examples for each mathematical practice standard are cited on page 22a.

Rating

☑ **Meets (2)**

☐ **Partially Meets (1)**

☐ **Does Not Meet (0)**

Mathematical Practice Standard	*Reveal Math*
MP1 Make sense of problems and persevere in solving them.	A strong problem-solving strand is present throughout *Reveal Math* with an emphasis on having students explain to themselves and others the meanings of problems and plan their solution strategies. Look for the **Apply** problems and exercises labeled as **Persevere with Problems**. In the Teacher Edition, look for the **Teaching the Mathematical Practices** tips labeled as this mathematical practice.
MP2 Reason abstractly and quantitatively.	In *Reveal Math*, students are routinely asked to make sense of quantities and their relationships, and attend to the meaning of quantities as opposed to just computing with them. Look for the exercises labeled as **Reason Abstractly**. Many *Talk About It!* question prompts ask students to reason about relationships between quantities. In the Teacher Edition, look for the **Teaching the Mathematical Practices** tips labeled as this mathematical practice.
MP3 Construct viable arguments and critique the reasoning of others.	In *Reveal Math*, students are required to justify their reasoning and to find the errors in another student's reasoning or work. Look for the **Apply** problems (Step 4) and the exercises labeled as **Make a Conjecture**, **Find the Error**, **Use a Counterexample**, **Make and Argument**, or **Justify Conclusions.** Many *Talk About It!* question prompts ask students to justify conclusions and/or critique another student's reasoning. In the Teacher Edition, look for the **Teaching the Mathematical Practices** tips labeled as this mathematical practice.
MP4 Model with mathematics.	In *Reveal Math*, students apply the mathematics they know to solve real-world problems by beginning to use mathematical modeling. For example, students write equations to model real-world situations. Look for the exercises labeled as **Model with Mathematics.** In the Teacher Edition, look for the **Teaching the Mathematical Practices** tips labeled as this mathematical practice.
MP5 Use appropriate tools strategically.	In addition to traditional tools such as estimation, mental math, or measurement tools, students are encouraged to use digital tools, such as Web Sketchpad, eTools, etc. to help solve problems in *Reveal Math*. Look for the exercises labeled as **Use Math Tools.** Many **Explore** activities ask students to select and use appropriate tools as they progress through the activities. In the Teacher Edition, look for the **Teaching the Mathematical Practices** tips labeled as this mathematical practice.
MP6 Attend to precision.	In *Reveal Math*, students are routinely required to communicate precisely to partners, the teacher, or the entire class by using precise definitions and mathematical vocabulary. Look for the exercises labeled as **Be Precise.** Many *Talk About It!* question prompts ask students to clearly and precisely explain their reasoning. In the Teacher Edition, look for the **Teaching the Mathematical Practices** tips labeled as this mathematical practice.
MP7 Look for and make use of structure.	In *Reveal Math*, students are routinely encouraged to look for patterns or structure present in problem situations. For example, in Course 1, students look for structure present in algebraic expressions and use the structure of three-dimensional figures to create nets. Look for the exercises labeled as **Identify Structure.** Many *Talk About It!* question prompts ask students to study the structure of expressions and figures. In the Teacher Edition, look for the **Teaching the Mathematical Practices** tips labeled as this mathematical practice.
MP8 Look for and express regularity in repeated reasoning.	In *Reveal Math*, students are encouraged to look for repeated calculations that lead them to sound mathematical conclusions. Look for the exercises labeled as **Identify Repeated Reasoning.** Several *Talk About It!* question prompts ask students to look for repeated calculations. In the Teacher Edition, look for the **Teaching the Mathematical Practices** tips labeled as this mathematical practice.

Alignment Criterion 2
Standards for Mathematical Practice

Metric

AC Metric 2B:

Tasks and assessments of student learning are designed to provide evidence of students' proficiency in the Standards for Mathematical Practice.

How to Find the Evidence

Tasks and assessments of student learning are designed to provide evidence of students' proficiency in the Standards for Mathematical Practice.

Evaluate the variety of tasks and assessments provided (e.g., observation checklists, portfolio recommendations, performance tasks, tests and quizzes) to see whether students have opportunities to demonstrate proficiency with each of the Standards for Mathematical Practice over the course of the year.

Evidence

The tasks and assessments present in **McGraw-Hill's** *Reveal Math* are specifically designed to provide evidence of student proficiency in the Standards for Mathematical Practice.

Throughout the program, tasks include, but are not limited to, Explore activities, Apply problems, Practice and Higher-Order Thinking exercises, Collaboration Strategies, and Module Ignite Activities. Please see specific examples of tasks page 23a.

Assessments are present as course-level, module-level, and lesson-level assessments and are carefully designed to elicit observable evidence of student proficiency of the MAFS and Standards for Mathematical Practice. The following gives the breakdown of assessments in *Reveal Math*.

Course-Level Assessments
- Diagnostic and Placement Test (online)
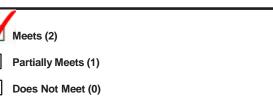- Benchmark Tests (online)
- End of Course Test (online)

Module-Level Assessments
- Are You Ready? (print)
- FSA Practice (print)
- Module Pretest (online)
- Module Vocabulary Test (online)
- Leveled Module Tests (AL, OL, BL) (online)
- Module Performance Task (online)

Lesson-Level Assessments
- Each Example in every lesson includes a formative assessment checkpoint, called *Check*, that can be used to determine if students understand the math presented in the Example and are ready to move on.
- Each module includes 1-3 mid-module formative assessment checkpoints called *Put It All Together*, that can be used to determine if students understand and integrate the math presented in related topics/lessons.
- Each lesson concludes with an *Exit Ticket* that asks students to return to the scenario presented in the Launch the Lesson from the start of the lesson and write about what they learned.
- Each module includes a Formative Assessment Math Probe that is intended to be assigned after students have completed a particular lesson. The probe is a formative assessment targeting one or more common misconceptions.

Rating

☑ **Meets (2)**

☐ **Partially Meets (1)**

☐ **Does Not Meet (0)**

Mathematical Practice Standard	*Reveal Math* Examples of Tasks
MP1 Make sense of problems and persevere in solving them.	Throughout the program, students are asked to explain to themselves and others the meanings of problems and plan their solution strategies. Look for the **Apply** problems and exercises labeled as **Persevere with Problems**. In the Teacher Edition, look for the **Teaching the Mathematical Practices** tips labeled as this mathematical practice.
MP2 Reason abstractly and quantitatively.	In Course 1, students use reasoning to understand how a ratio can represent a comparison between two quantities and use ratio reasoning to solve problems (Module 1). *Tasks:* Explore activities, Apply problems, Practice exercises In Course 2, students use reasoning about ratios and proportional relationships to solve multi-step percent problems (Module 2). *Tasks:* Explore activities, Apply problems, Practice exercises
MP3 Construct viable arguments and critique the reasoning of others.	Throughout the program, students are required to justify their reasoning and to find the errors in another student's reasoning or work. Look for the **Apply** problems (Step 4) and the exercises labeled as **Make a Conjecture**, **Find the Error**, **Use a Counterexample**, **Make and Argument**, or **Justify Conclusions.** Many *Talk About It!* question prompts ask students to justify conclusions and/or critique another student's reasoning. In the Teacher Edition, look for the **Teaching the Mathematical Practices** tips labeled as this mathematical practice.
MP4 Model with mathematics.	In Course 3, students model a real-world situation with a system of equations and use algebra to solve the problem (Lesson 6-5). *Tasks:* Explore activities, Apply problems, Practice exercises In Course 3, students model a relationship between bivariate data with a line of fit and use it to make predictions (Lesson 11-3). *Tasks:* Explore activities, Apply problems, Practice exercises
MP5 Use appropriate tools strategically.	In Course 2, students use both bar diagrams and algebra tiles to solve two-step equations (Lessons 6-2 and 6-4) and note when it might be more advantageous to use one tool over another. Specific teacher support is provided on pages 289 and 307. *Tasks:* Explore activities, Apply problems, Practice exercises
MP6 Attend to precision.	In Course 2, students use correct and precise mathematical vocabulary to explain the significance of the points (0, 0) and (1, r) on the graph of a proportional relationship, where r is the unit rate (Lesson 1-4). *Tasks:* Explore activities, Apply problems, Practice exercises In Course 3, students use correct and precise mathematical vocabulary to explain why the slope is the same between any two distinct points on a non-vertical line (Lesson 4-3). *Tasks:* Explore activities, Apply problems, Practice exercises
MP7 Look for and make use of structure.	In Course 1, students look for structure present in algebraic expressions (Lesson 5-1 and Lesson 5-3) and use the structure of three-dimensional figures to create nets (Lesson 9-2, Lesson 9-3, and Lesson 9-4). *Tasks:* Explore activities, Apply problems, Practice exercises
MP8 Look for and express regularity in repeated reasoning.	In Course 1, students use repeated reasoning in long division to make sense of a remainder of 0 (Lesson 3-1). If they were to keep dividing, they will continue to repeat 0s, which is why no further division needs to take place. *Tasks:* Explore activities, Apply problems, Practice exercises

Alignment Criterion 2

Standards for Mathematical Practice

Use the questions on this page to evaluate Metric 2C. On page 25, record evidence for each question and rate Metric 2C.

Metric	How to Find the Evidence	Questions for Metric
AC Metric 2C: Materials support the Standards' emphasis on mathematical reasoning.	Evaluate the units, chapters, and lessons in both the teacher and student materials. NOTE: In order for students to reason mathematically, the mathematics in the materials must be accurate. Any concerns about mathematical accuracy should be collected as evidence for this metric. For context, read Criterion #10 in the K-8 Publisher's Criteria for the Common Core State Standards for Mathematics (Spring 2013).	Do the materials support students in constructing viable arguments and critiquing the arguments of others concerning grade-level mathematics that is detailed in the content standards? Read Standard for Mathematical Practice 3. Evaluate teacher and student materials to ensure that students are given opportunities to reason with grade-level mathematics. Do the materials support students in producing not only answers and solutions, but also, in a grade-appropriate way, arguments, explanations, diagrams, mathematical models, etc., especially in the Major Work of the grade? Familiarize yourself with the Major Work of the grade being evaluated (see the Focus by Grade Level documents). Evaluate teacher and student materials to understand the types of work students are expected to produce. Do materials explicitly attend to the specialized language of mathematics? Is the language of argument, problem solving, and mathematical explanations taught rather than assumed? Evaluate teacher and student materials, paying attention to how mathematical language is taught. NOTE: Examples of evaluating this metric might include looking at whether students are supported in: basing arguments on definitions, using the method of providing a counterexample, or recognizing that examples alone do not establish a general statement.

Alignment Criterion 2

Standards for Mathematical Practice

Metric	Evidence

AC Metric 2C:

Materials support the Standards' emphasis on mathematical reasoning.

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

Yes. A strong emphasis on using mathematical reasoning to construct arguments, defend solutions, and analyze the arguments of others concerning grade-level mathematics is built into **McGraw-Hill's** *Reveal Math*.

- Throughout the *Interactive Student Edition*, students are routinely required to justify their reasoning, construct arguments, and to find errors in another student's reasoning or work (Standard for Mathematical Practice 3 *Construct Viable Arguments and Critique the Reasoning of Others*). Look for the **Apply** problems (specifically Step 4) and the exercises labeled as **Make a Conjecture**, **Find the Error**, **Use a Counterexample**, **Make and Argument**, or **Justify Conclusions.** Many *Talk About It!* question prompts ask students to justify conclusions and/or critique another student's reasoning. In the Teacher Edition, look for the **Teaching the Mathematical Practices** tips labeled as Mathematical Practice **3 Construct Viable Arguments and Critique the Reasoning of Others.**
- Each lesson contains an Exit Ticket in which students are asked to write about the problem or question posed. Many of these Exit Tickets ask students to construct an argument to defend their solution. Look for the *Write About It!* question prompts in the Exit Tickets.

Please see page 25a for evidence.

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

Yes. **McGraw-Hill's** *Reveal Math* provides teachers with specific tips, suggestions and activities to engage students in constructing and analyzing arguments concerning the key grade-level mathematics outlined in the Common Core State Standards for Mathematics (CCSSM).

Please see page 25b for evidence.

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

Yes. A strong emphasis on mathematical and academic vocabulary and language development is built into **McGraw-Hill's** *Reveal Math*. Correspondences between language and multiple representations (diagrams, tables, graphs, symbols) are clearly identified to help students make connections and build conceptual understanding of academic and mathematical vocabulary.

Please see pages 25c-25d for evidence.

Rating

☑ **Meets (2)**

☐ **Partially Meets (1)**

☐ **Does Not Meet (0)**

Reveal Math, **Course 1**	
Interactive Student Edition and Teacher Edition:	Digital Student and Teacher Centers:
- Lesson 1-1, p. 9, *Write About It!* - Lesson 1-1, p. 12, Exercises 10-11 - Lesson 1-2, p. 13, Learn, *Talk About It!* - Lesson 1-6, p. 46, Exercise 11 - Lesson 8-2, p. 450, Exercises 11 and 14 - Lesson 9-1, p. 494, Exercise 9 - Lesson 9-4, p. 520, Example 2, *Talk About It!*	- Lesson 1-2, *Exit Ticket Write About It!* located in the Reflect and Practice section of Lesson 1-2 - Lesson 1-5, *Exit Ticket Write About It!* located in the Reflect and Practice section of Lesson 1-5 - Lesson 2-3, *Exit Ticket Write About It!* located in the Reflect and Practice section of Lesson 2-3

Reveal Math, **Course 2**	
Interactive Student Edition and Teacher Edition:	Digital Student and Teacher Centers:
- Lesson 1-1, p. 9, *Write About It!* - Lesson 1-4, p. 40, Exercises 7 and 8 - Lesson 4-2, p. 196, Exercises 20 and 21 - Lesson 8-3, p. 413, Learn, *Talk About It!* - Lesson 8-5, p. 438, Example 3, *Talk About It!* - Lesson 9-6, p. 500, Example 2	- Lesson 3-5, *Exit Ticket Write About It!* located in the Reflect and Practice section of Lesson 3-5 - Lesson 5-1, *Exit Ticket Write About It!* located in the Reflect and Practice section of Lesson 5-1 - Lesson 7-5, *Exit Ticket Write About It!* located in the Reflect and Practice section of Lesson 7-5

Reveal Math, **Course 3**	
Interactive Student Edition and Teacher Edition:	Digital Student and Teacher Centers:
- Lesson 1-1, p. 7, Example 3 *Talk About It!* - Lesson 1-1, p. 8 Examples 4-5 *Talk About It!* - Lesson 1-1, p. 12, Exercises 12-15 - Lesson 2-1, p. 78, Exercise 16 - Lesson 2-3, p. 97, Example 5 *Talk About It!* - Lesson 2-4, p. 110, Exercises 14 and 17 - Lesson 4-3, p. 206, Learn *Talk About It!* - Lesson 8-2, p. 454, Exercise 9	- Lesson 4-1, *Exit Ticket Write About It!* located in the Reflect and Practice section of Lesson 4-1 - Lesson 4-3, *Exit Ticket Write About It!* located in the Reflect and Practice section of Lesson 4-3 - Lesson 7-4, *Exit Ticket Write About It!* located in the Reflect and Practice section of Lesson 7-4

Page 25b – Additional Evidence

McGraw-Hill's *Reveal Math* provides teachers with specific tips, suggestions and activities to engage students in constructing and analyzing arguments concerning the key grade-level mathematics outlined in the Common Core State Standards for Mathematics (CCSSM).

- Throughout each lesson, tips and suggestions are provided for teachers to support their students as they construct and analyze arguments are found in the Explores, Learns, Examples and Practice sections; these are labeled *Teaching the Mathematical Practices*. As students are frequently required to justify their reasoning and to analyze the arguments of others, these tips (particularly those labeled as *3 Construct Viable Arguments and Critique the Reasoning of Others*) provide teachers with tips and suggestions for how to engage and support their students.
- In the Practice section of each lesson, Collaborative Practice tips and suggested activities are included. Many of these suggested activities include having students work in pairs or groups to construct arguments, defend their reasoning to others, and listen/analyze the reason of others.
  - *Explore the truth of statements created by others* – Students write true and false statements for a selected problem, and trade their statements with other students. Students work together to determine which statements are true and which are false, and defend their reasoning.
  - *Interview a student* – Pairs of students interview each other as they work through a problem. Interview questions include asking the interviewee to think aloud through their solution process and defend their reasoning. The interviewer listens and analyzes the reasoning.
  - *Solve the problem another way* – Students work collaboratively to come up with (and defend) alternative approaches to solving a problem.
  - *Listen and ask clarifying questions* – Students work in pairs to solve a problem. One student formulates a strategy for solving a problem. The other student is designated as the "coach". While the first student talks through their strategy and defends it using mathematical reasoning, the coach listens and analyzes their reasoning, and offers encouragement or redirection, as needed.
- Each module includes a *Cheryl Tobey Formative Assessment Math Probe* which is designed to target common misconceptions that students may have about a key concept covered in that module. Each probe is designed to be used after a specific lesson. In the activity, students must construct an argument to explain their choice for selecting a certain response. Support is provided in the Teacher Edition indicating likely possible misconceptions that students may have if they select certain responses. In many probes, students may select a correct response but their argument defending their response shows incorrect reasoning.
- Many of the *Differentiate* activities in the Teacher Edition include having students work together to make a conjecture about a mathematical concept and/or construct an argument to defend their reasoning/solution to a mathematical problem posed in the activity.

Teacher Edition:	*Reveal Math,* Course 1		*Reveal Math,* Course 2		*Reveal Math,* Course 3	
Teaching the Mathematical Practices suggestions	• Lesson 1-1, p. 9 • Lesson 1-1, p. 12 • Lesson 1-2, p. 13	• Lesson 5-2, p. 279 • Lesson 5-6, p. 315 • Lesson 6-4, p. 362	• Lesson 1-1, p. 9 • Lesson 1-4, p. 31d • Lesson 3-2, p. 139 • Lesson 7-4, p. 357	• Lesson 8-1, pp. 391-392 • Lesson 8-3, p. 413 • Lesson 9-6, p. 500 • Lesson 10-2, p. 519	• Lesson 1-4, p. 33d • Lesson 2-1, pp. 73, 78 • Lesson 2-4, p. 110 • Lesson 2-5, p. 122	• Lesson 4-6, p. 246 • Lesson 5-2, p. 272 • Lesson 5-4, p. 292 • Lesson 7-3, p. 405d
Collaborative Practice Suggestions	• Lesson 4-5, p. 236 • Lesson 4-6, p. 244	• Lesson 5-4, p. 304	• Lesson 1-2, p. 20 • Lesson 1-3, p. 30	• Lesson 8-4, p. 434	• Lesson 2-1, p. 78 • Lesson 2-4, p. 110	• Lesson 5-2, p. 272
Cheryl Tobey Formative Assessment Probes	• Module 1, p. 1b • Module 3, p. 133b	• Module 5, p. 259b	• Module 1, p. 1b • Module 2, p. 61b	• Module 3, p. 125b	• Module 1, p. 1b • Module 2, p. 67b	• Module 3, p. 127b
Differentiate activities	• Lesson 7-2, p. 410 • Lesson 7-3, p. 415	• Lesson 8-3, p. 454	• Lesson 3-1, p. 130 • Lesson 4-4, p. 205	• Lesson 8-4, p. 426	• Lesson 3-1, p. 130 • Lesson 3-3, p. 145	• Lesson 7-3, p. 406

Page 25c – Additional Evidence

A strong emphasis on mathematical and academic vocabulary and language development is built into **McGraw-Hill's *Reveal Math***. Correspondences between language and multiple representations (diagrams, tables, graphs, symbols) are clearly identified to help students make connections and build conceptual understanding of academic and mathematical vocabulary.

- Throughout the *Interactive Student Edition*, students are routinely required to communicate precisely to partners, the teacher, or the entire class by using precise definitions and mathematical vocabulary (Standard for Mathematical Practice 6 *Attend to Precision*). Look for the exercises labeled as **Be Precise.** Many ***Talk About It!*** question prompts ask students to clearly and precisely explain their reasoning. In the Teacher Edition, look for the **Teaching the Mathematical Practices** tips labeled as Mathematical Practice **6 Attend to Precision**.

- In the Learn and Example resources, students build academic vocabulary through the use of multiple representations and multiple means (Method 1/Method 2) for solving problems. Students encounter *Talk About It!* question prompts that support vocabulary and language development by having them engage in mathematical discourse opportunities with a partner or the entire class.

- Each lesson begins with a *What Vocabulary Will You Learn?* or *What Vocabulary Will You Use?* online slide that can be projected for the class. This resource contains discussion questions related to the vocabulary terms of the lesson.

- Each module includes an online Module Vocabulary Activity that can be used as a practice test or formative assessment checkpoint prior to the summative Module Vocabulary Test.

- In the core Teacher Edition, specific Differentiate activities include strategies to help develop language and vocabulary skills.

- *Reveal Math* includes language development support and scaffolds throughout the Teacher Edition and *Language Development Handbook*, Teacher Edition. The *Language Development Handbook*, Student Edition, includes support for all students in vocabulary development, notetaking, and writing skills using word cards, vocabulary squares, three-column charts, definition maps, concept webs, and other graphic organizers, along with English/Spanish cognates in Dinah Zike's Visual Kinesthetic Vocabulary®. The Teacher Edition of the handbook includes strategies, activities, and tips to support students who are building English proficiency. The activities include specific scaffolds for Entering/Emerging, Developing/Expanding, and Bridging English Language Learners.

- The program also features *Dinah Zike's Foldables.* Each module's *Foldables Study Organizer* allows students to use a ready-made study organizer to record the module's key math concepts, including key vocabulary. These three-dimensional graphic organizers are accessible to all learners, including ELLs, in that they allow students to apply their conceptual understanding to a study tool.

Specific examples are cited on the next page, page 25d.

Page 25d – Additional Evidence, continued

Reveal Math, Course 1

Interactive Student Edition and Teacher Edition: • pp. 217, 341, 550, Learn *Talk About It!* questions • p. 329, Foldable and pp. FL3-FL4 (Volume 2) • Learn resources: pp. 3-4, 13-14, 23, 135 Teacher Edition: • p. 215b and p. 397b, *What Vocabulary Will You Learn?* • pp. 4, 37, 47, 57, 58, 86, 143, 170, 172, 202, 210, 227, 239, 278, 299, 315, 341, 351, 397, 443, 454, 512, 521, 537, 569, Differentiate: Language Development Activities	Digital Student and Teacher Centers: • Lesson 4-4 *What Vocabulary Will You Learn?* • Lesson 7-1 *What Vocabulary Will You Learn?* • Digital Glossary and Multilingual eGlossary located in Program Resources: Glossaries Digital Teacher Center: *Module Vocabulary Activity (RM C1 M7)* and *Module Vocabulary Test (RM C1 M7)* located on the Module 7 landing page in the Review and Assess section	*Language Development Handbook,* Student Edition: • p. 45, Lesson 8-2, Vocabulary graphic organizer: Definition Map • starting on pp. VKV1, Visual Kinesthetic Vocabulary Cards *Language Development Handbook,* Teacher Edition: • p. T45, Lesson 8-2, Sensory Support: Models

Reveal Math, Course 2

Interactive Student Edition and Teacher Edition: • p. 36, Example 4 *Talk About It!* Question • Example resources: pp. 23, 198, 414, 482 • p. 441, Foldable and pp. FL9-FL10 (Volume 2) • Learn resources: pp. 127-128, 130, 131-132, 139-140, 142, 149, 151, 159, 161 Teacher Edition: • p. 177b, p. 233b, *What Vocabulary Will You Learn?* • pp. 14, 25, 31, 65, 107, 130, 177, 205, 243, 279, 294, 341, 373, 397, 413, 447, 490, 511, 534, 576, 578, 605, 614, Differentiate: Language Development Activities	Digital Student and Teacher Centers: • Lesson 4-1 *What Vocabulary Will You Learn?* • Lesson 5-1 *What Vocabulary Will You Learn?* • Digital Glossary and Multilingual eGlossary located in Program Resources: Glossaries Digital Teacher Center: *Module Vocabulary Activity (RM C2 M3)* and *Module Vocabulary Test (RM C2 M3)* located on the Module 3 landing page in the Review and Assess section	*Language Development Handbook,* Student Edition: • p. 29, Lesson 5-5, Vocabulary graphic organizer: Four-Square Chart • starting on pp. VKV1, Visual Kinesthetic Vocabulary Cards *Language Development Handbook,* Teacher Edition: • p. T29, Lesson 5-5, Vocabulary Support: Math Word Wall

Reveal Math, Course 3

Interactive Student Edition and Teacher Edition: • p. 19, p. 27, p. 71, p. 82, p. 605, Example *Talk About It!* questions • p. 247, Foldable and pp. FL9-FL10 (Volume 1) • Learn resources pp. 175-176, pp. 205-207, pp. 213-214, pp. 225-226 Teacher Edition: • p. 3b, p. 465b, *What Vocabulary Will You Learn?* • pp. 13, 28, 70, 93, 105, 130, 137, 175, 225, 253, 254, 263, 266, 273, 293, 296, 305, 335, 381, 405, 437, 455, 513, 543, 554, 583, Differentiate: Language Development Activities	Digital Student and Teacher Centers: • Lesson 1-1 *What Vocabulary Will You Learn?* • Lesson 8-4 *What Vocabulary Will You Learn?* • Digital Glossary and Multilingual eGlossary located in Program Resources: Glossaries Digital Teacher Center: *Module Vocabulary Activity (RM C3 M4)* and *Module Vocabulary Test (RM C3 M4)* located on the Module 4 landing page in the Review and Assess section	*Language Development Handbook,* Student Edition: • p. 29, Lesson 6-1, Vocabulary graphic organizer: Definition Map • starting on pp. VKV1, Visual Kinesthetic Vocabulary Cards *Language Development Handbook,* Teacher Edition: • p. T29, Lesson 6-1, Graphic Support: K-W-L Chart

Alignment Criterion 2

Standards for Mathematical Practice

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

Points Assigned for Alignment Criterion 2

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

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

Rating

<u>6</u>   Total (6 points possible)

✔ Meets

☐ Does Not Meet

Strengths / Weaknesses:

A strong emphasis on using mathematical reasoning to construct arguments, defend solutions, and analyze the arguments of others concerning grade-level mathematics is built into **McGraw-Hill's** *Reveal Math*. Throughout the *Interactive Student Edition*, students are routinely required to justify their reasoning, construct arguments, and to find errors in another student's reasoning or work (Standard for Mathematical Practice 3 *Construct Viable Arguments and Critique the Reasoning of Others*). Look for the **Apply** problems (specifically Step 4) and the exercises labeled as **Make a Conjecture**, **Find the Error**, **Use a Counterexample**, **Make and Argument**, or **Justify Conclusions.** Many *Talk About It!* question prompts ask students to justify conclusions and/or critique another student's reasoning. In the Teacher Edition, look for the **Teaching the Mathematical Practices** tips labeled as Mathematical Practice **3 Construct Viable Arguments and Critique the Reasoning of Others**. In addition, the program provides teachers with specific tips, suggestions and activities to engage students in constructing and analyzing arguments concerning the key grade-level mathematics outlined in the Common Core State Standards for Mathematics (CCSSM).

A strong emphasis on mathematical and academic vocabulary and language development is built into **McGraw-Hill's** *Reveal Math*. Correspondences between language and multiple representations (diagrams, tables, graphs, symbols) are clearly identified to help students make connections and build conceptual understanding of academic and mathematical vocabulary. Throughout the *Interactive Student Edition*, students are routinely required to communicate precisely to partners, the teacher, or the entire class by using precise definitions and mathematical vocabulary (Standard for Mathematical Practice 6 *Attend to Precision*). Look for the exercises labeled as **Be Precise.** Many *Talk About It!* question prompts ask students to clearly and precisely explain their reasoning. In the Teacher Edition, look for the **Teaching the Mathematical Practices** tips labeled as Mathematical Practice **6 Attend to Precision**.

Before moving to Alignment Criteria 3, record the final Meets or Does Not Meet rating in the Evaluation Summary on Page 32.

Directions for Alignment Criterion 3
Access to the Standards for All Students

Alignment Criterion3: Materials must provide supports for English Language Learners and other special populations.

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

Materials to Assemble
- Common Core State Standards for Mathematics (www.corestandards.org/wp-content/uploads/Math_Standards.pdf)
- From the grade being evaluated: teacher and student materials

Metrics to Review
- **AC Metric 3A:** Support for English Language Learners and other special populations is thoughtful and helps those students meet the same Standards as all other students. The language in which problems are posed is carefully considered.
- **AC Metric 3B:** Materials provide appropriate level and type of scaffolding, differentiation, intervention, and support for a broad range of learners with gradual removal of supports, when needed, to allow students to demonstrate their mathematical understanding independently.

- **AC Metric 3C:** Design of lessons attends to the needs of a variety of learners (e.g., using multiple representations, deconstructing/reconstructing the language of problems, providing suggestions for addressing common student difficulties).

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

To rate Alignment Criterion 3, first rate metrics 3A, 3B, and 3C. Rate each metric as Meets (2 points), Partially Meets (1 point), or Does Not Meet (0 points). Since there are three metrics, and each metric is worth up to 2 points, the maximum possible rating across all three metrics is 6 points. Ideally, aligned materials will earn all 6 points; materials are judged to have met Alignment Criterion 3 if the materials earn 5 or 6 points. This threshold recognizes that evaluators sometimes differ in how they assess features such as support for special populations, while at the same time ensuring that no single metric can receive a rating of zero and be aligned to the Shifts and major features of the CCSSM. (If reviewers notice that materials have strong supports for some populations but weak supports for others, then reviewers can consider disaggregating scores for this Alignment Criterion to ensure that the selected materials provide access for the specific students who will be using the materials.)

Alignment Criterion 3

Access to the Standards for All Students

Metric

AC Metric 3A:

Support for English Language Learners and other special populations is thoughtful and helps those students meet the same Standards as all other students. The language in which problems are posed is carefully considered.

How to Find the Evidence

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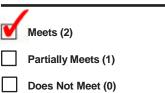
Evidence

McGraw-Hill's *Reveal Math* includes language development support and scaffolds throughout the Teacher Edition and *Language Development Handbook*, Teacher Edition.

- The *Language Development Handbook*, Student Edition, includes support for all students in vocabulary development, notetaking, and writing skills using word cards, vocabulary squares, three-column charts, definition maps, concept webs, and other graphic organizers, along with English/Spanish cognates in Dinah Zike's Visual Kinesthetic Vocabulary®. The Teacher Edition of the handbook includes strategies, activities, and tips to support students who are building English proficiency. The activities include specific scaffolds for Entering/Emerging, Developing/Expanding, and Bridging English Language Learners.
- In the core Teacher Edition, **specific Differentiate activities include strategies to help develop language and vocabulary skills**.
- Each lesson in the Student and Teacher Digital Center includes *What Vocabulary Will You Learn/Use?* **resources that come with classroom discussion questions**.
- A course-level digital and print Glossary is provided with words translated in English and Spanish. A digital Multilingual eGlossary is provided that contains mathematics terms translated into 13 languages. In addition, Spanish Personal Tutors are available online.
- **Each lesson includes a language objective that is explicitly stated online and related to the content objective of the lesson**.
- The program also features **Dinah Zike's Foldables**. Each module's Foldables Study Organizer allows students to use a ready-made graphic organizer to record and study the module's key math concepts. These three-dimensional study organizers are accessible to all learners, including ELLs, in that they allow students to apply and organize their conceptual understanding to a study tool.

Please see page 28a for evidence.

Rating

☑ **Meets (2)**

☐ **Partially Meets (1)**

☐ **Does Not Meet (0)**

Page 28a – Additional Evidence

Reveal Math, Course 1

Interactive Student Edition:
- pp. 217, 341, 550, *Talk About It!* questions
- pp. 40-42, Learn/Example 3 (Method 1/Method 2)
- p. 329, Foldable and pp. FL3-FL4 (Volume 1)

Teacher Edition:
- pp. 236, 244, 304, Collaborative Practice
- p. 215b, p. 397b, *What Vocabulary Will You Learn?* discussion questions
- pp. 410, 415, 454, Differentiate

Language Development Activities
- pp. 4, 37, 47, 57, 58, 86, 143, 170, 172, 202, 210, 227, 239, 278, 299, 315, 341, 351, 397, 443, 454, 512, 521, 537, 569

Language Development Handbook:
- p. 45: Lesson 8-2 (Student Edition)
- p. xiii, English Language Development Activities (Teacher Edition)
- p. T45, Lesson 8-2, English Learner Instructional Strategy and Leveled Activities (Teacher Edition)

Digital Student Center:
- Explore activity *Use Algebra Tiles to Model the Distributive Property*, located in the Explore and Develop section of Lesson 5-6
- Explore activity *Parallelograms and Area of Triangles*, located in the Explore and Develop section of Lesson 8-2
- Animation in Learn *Find Area of Trapezoids by Decomposing*, located in the Explore and Develop section of Lesson 8-3

Student and Teacher Digital Centers:
- Lesson 4-4, Lesson 7-1, *What Vocabulary Will You Learn?*
- Digital Glossary and Multilingual eGlossary located in the Program Resources: Glossaries section of the course after Module 10

Language Objective, Digital Teacher Center:
- Lesson 1-7, *Solve Ratio Problems*, Lesson Goal at top of lesson landing page in the Information section.
- Lesson 7-1, *Relationships Between Two Variables*, Lesson Goal at top of lesson landing page in the Information section.

Reveal Math, Course 2

Interactive Student Edition:
- pp. 36, 127-132, 139-142, 149 *Talk About It!* questions
- p. 128, Example 1 (Method 1/Method 2)
- pp. 308-310, Examples 1-2 (Method 1/Method 2)
- p. 416, Learn (online video, teacher notes for recreating the activity)

Teacher Edition:
- pp. 20, 30, 434, Collaborative Practice
- p. 177b, p. 233b, *What Vocabulary Will You Learn?* discussion questions
- pp. 130, 205, 426 490, Differentiate

Language Development Activities
- pp. 14, 25, 31, 65, 107, 130, 177, 205, 243, 279, 294, 341, 373, 397, 413, 447, 490, 511, 534, 576, 578, 605, 614

Language Development Handbook:
- p. 29, Lesson 5-5 (Student Edition)
- p. xiii, English Language Development Activities (Teacher Edition)
- p. T29, Lesson 5-5, English Learner Instructional Strategy and Leveled Activities (Teacher Edition)

Digital Student Center:
- Explore activity *Use Algebra Tiles to Add Integers*, located in the Explore and Develop section of Lesson 3-1
- Explore activities *Solve Two-Step Equations Using Bar Diagrams* and *Solve Two-Step Equations Using Algebra Tiles*, located in the Explore and Develop section of Lesson 6-2
- Explore activity *Area of Circles*, located in the Explore and Develop section of Lesson 9-2
- Explore activity *Long-Run Relative Frequencies*, located in the Explore and Develop section of Lesson 10-3

Student and Teacher Digital Centers:
- Lesson 1-4, Lesson 4-1, Lesson 5-1, *What Vocabulary Will You Learn?*
- Digital Glossary and Multilingual eGlossary located in the Program Resources: Glossaries section of the course after Module 11

Language Objective, Digital Teacher Center:
- Lesson 3-5, *Order of Integer Operations*, Lesson Goal at top of lesson landing page in the Information section.
- Lesson 8-1, *Vertical and Adjacent Angles*, Lesson Goal at top of lesson landing page in the Information section.

Reveal Math, Course 3	
Interactive Student Edition: • p. 73, Learn *Talk About It!* question • p. 138, Example 1 *Talk About It!* question • p. 160, Example 1 *Talk About It!* question • p. 179, Example 2 *Talk About It!* question • p. 238, Example 2 *Talk About It!* question • p. 386, Learn (online video, teacher notes for recreating the activity) • p. 394, Learn (online video, teacher notes for recreating the activity) • p. 398, Learn (online video, teacher notes for recreating the activity) • p. 481, Learn (online video, teacher notes for recreating the activity) Teacher Edition: • p. 3b, p. 465b, *What Vocabulary Will You Learn?* • p. 175, p. 182, p. 225, p. 381, Differentiate • p. 24, p. 78, p. 362, Collaborative Practice *Language Development Activities* • pp. 13, 28, 70, 93, 105, 130, 137, 175, 225, 253, 254, 263, 266, 273, 293, 296, 305, 335, 381, 405, 437, 455, 513, 543, 554, 583 *Language Development Handbook,* Student Edition: • p. 29, Lesson 6-1, Vocabulary graphic organizer: Definition Map *Language Development Handbook,* Teacher Edition: • p. xiii, English Language Development Activities • pp. T29, English Learner Instructional Strategy and Leveled Activities • pp. VKV1-VKV40, Visual Kinesthetic Vocabulary Cards	Digital Student Center: • Explore activity *Develop Concepts of Slope*, located in the Explore and Develop section of Lesson 4-2 • Explore activity *Systems of Equations*, located in the Explore and Develop section of Lesson 6-1 • Animation in Learn *Estimate Irrational Numbers Using a Number Line*, located in the Explore and Develop section of Lesson 2-4 Student and Teacher Digital Centers: • Lesson 1-1, Lesson 8-4, *What Vocabulary Will You Learn?* • Digital Glossary and Multilingual eGlossary located in the Program Resources: Glossaries section of the course after Module 11 Language Objective, Digital Teacher Center: • Lesson 1-3, *Powers of Monomials*, Lesson Goal at top of lesson landing page in the Information section. • Lesson 6-1, *Solve Systems of Equations by Graphing*, Lesson Goal at top of lesson landing page in the Information section.

Alignment Criterion 3

Access to the Standards for All Students

Metric

AC Metric 3B:

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

How to Find the Evidence

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

Evidence

McGraw-Hill's *Reveal Math* addresses the needs for all students. Each lesson includes a list of suggested Differentiated resources that are based on assessment data from the Checks placed after each Example. Resources range from Remediation (Review resources) that target prerequisite skill knowledge to Enrichment (Extension resources) that extend student knowledge on the lesson topic.

- Online **Review** resources target prerequisite knowledge that is required for each lesson.
- The Teacher Edition includes **Reteaching Activity** suggestions at-point-of-use for students who would benefit from additional support or scaffolding.
- Online **Extension** activities are included for the majority of lessons. In these activities, students extend their understanding of mathematical topics related to the lesson.
- The Teacher Edition includes **Enrichment Activity** suggestions at point-of-use for students who would benefit from a challenge or opportunity to extend their learning.
- The Teacher Edition includes **Language Development Activity** suggestions at point-of-use that provide support for students building mathematical vocabulary.
- The **Language Development Handbook** is appropriate for all students to support their vocabulary and language development growth. The Teacher Edition includes scaffolded activities appropriate for varying proficiency levels of students building English Language proficiency.
- In the Teacher Edition, *Questions for Mathematical Discourse* are included for each example to promote high expectations, critical thinking skills, and class discussion. On-level (OL) questions and beyond-level (BL) questions are appropriate for all students to answer, while approaching-level (AL) questions are included if students need more scaffolded support.

In addition, the program ensures a seamless connection for students who need extra topic support with **embedded *Arrive Math Booster* mini-lessons**. These mini-lessons, *Take Another Look*, are included with the program to provide students with direct support related to the lesson objective. The Differentiate chart at the end of each lesson directs teachers when it may be appropriate to assign these *Take Another Look* mini-lessons based on assessment results.

Please see pages 29a-29b for evidence.

Rating

☑ **Meets (2)**

☐ **Partially Meets (1)**

☐ **Does Not Meet (0)**

Reveal Math, Course 1			
Review/Remediation/Reteaching Resources	**Extension/Enrichment Resources**	**Language Development Support**	**Scaffolded Questions for Mathematical Discourse**
Teacher Digital Center: • Lesson 4-6, Review resources: Learn – *Use Integers to Represent Quantities*, Example – *Use Integers to Represent Quantities*, located in the Additional Resources section, within the Differentiate section, of Lesson 4-6 • Lesson 4-6, *Take Another Look: Reflected Points* from the *Arrive Math* Intervention program, located in the Additional Resources section, within the Differentiate section of Lesson 4-6 Teacher Edition: • pp. 23, 136, 170, Differentiate: Reteaching Activity	Teacher Digital Center: • Lesson 4-6, Extension: *Translations in the Coordinate Plane*, located in the Additional Resources section, within the Differentiate section, of Lesson 4-6 Teacher Edition: • pp. 336, 359, 423, Differentiate: Enrichment Activity	Teacher Edition: *Language Development Activities* • pp. 4, 37, 47, 57, 58, 86, 143, 170, 172, 202, 210, 227, 239, 278, 299, 315, 341, 351, 397, 443, 454, 512, 521, 537, 569 *Language Development Handbook,* Teacher Edition: • p. xiii, English Language Development Activities • p. T45, Lesson 8-2, English Learner Instructional Strategy and Leveled Activities	Teacher Edition: • pp. 5-8, Examples 1-3

Reveal Math, Course 2			
Review/Remediation/Reteaching Resources	**Extension/Enrichment Resources**	**Language Development Support**	**Scaffolded Questions for Mathematical Discourse**
Teacher Digital Center: • Lesson 6-3, Review resources: Learn – *Write One-Step Equations*, Example – *Write and Solve One-Step Equations*, located in the Additional Resources section, within the Differentiate section, of Lesson 6-3 • Lesson 6-3, *Take Another Look: Solving Real-World Problems with Two-Step Equations* from the *Arrive Math* Intervention program, located in the Additional Resources section, within the Differentiate section of Lesson 6-3 Teacher Edition: • pp. 21, 279, 299, Differentiate: Reteaching Activity	Teacher Digital Center: • Lesson 6-3, Extension: *Consecutive Integers Equations*, located in the Additional Resources section, within the Differentiate section, of Lesson 6-3 Teacher Edition: • pp. 285, 289, 317, Differentiate: Enrichment Activity	Teacher Edition: *Language Development Activities* • pp. 14, 25, 31, 65, 107, 130, 177, 205, 243, 279, 294, 341, 373, 397, 413, 447, 490, 511, 534, 576, 578, 605, 614 *Language Development Handbook,* Teacher Edition: • p. xiii, English Language Development Activities • p. T29, Lesson 5-5, English Learner Instructional Strategy and Leveled Activities	Teacher Edition: • pp. 5-8, Examples 1-2

Reveal Math, Course 3			
Review/Remediation/Reteaching Resources	**Extension/Enrichment Resources**	**Language Development Support**	**Scaffolded Questions for Mathematical Discourse**
Teacher Digital Center: • Lesson 4-2, Review resources: Learn – *Subtract Integers*, Example – *Subtract Integers*, located in the Additional Resources section, within the Differentiate section, of Lesson 4-2 • Lesson 4-2, *Take Another Look: The Slope of a Line* from the *Arrive Math* Intervention program, located in the Additional Resources section, within the Differentiate section of Lesson 4-2 Teacher Edition: • pp. 182, 196, 381, Differentiate: Reteaching Activity	Teacher Digital Center: • Lesson 4-2, Extension: *Slope of Perpendicular Lines*, located in the Additional Resources section, within the Differentiate section, of Lesson 4-2 Teacher Edition: • pp. 175, 225, 341, Differentiate: Enrichment Activity	Teacher Edition: *Language Development Activities* • pp. 13, 28, 70, 93, 105, 130, 137, 175, 225, 253, 254, 263, 266, 273, 293, 296, 305, 335, 381, 405, 437, 455, 513, 543, 554, 583 *Language Development Handbook,* Teacher Edition: • p. xiii, English Language Development Activities • p. T29, Lesson 6-1, English Learner Instructional Strategy and Leveled Activities	Teacher Edition: • pp. 364-370, Examples 1-4

Alignment Criterion 3

Access to the Standards for All Students

Metric

AC Metric 3C:
Design of lessons attends to the needs of a variety of learners (e.g., using multiple representations, deconstructing/reconstructing the language of problems, providing suggestions for addressing common student difficulties).

How to Find the Evidence

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

NOTE: The examples in parentheses are not all required and there may be different approaches that developers use to meet this metric.
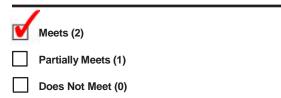
Evidence

The materials in **McGraw-Hill's** *Reveal Math* attend the needs of all learners.
- The interactive, write-in nature of the *Interactive Student Edition* allows students to take notes, record responses, show their work when solving problems, and take ownership of their own learning.
- *Talk About It!* **question prompts** engage students in mathematical discourse with a partner or the entire class.
- **Multiple methods** (Method 1/Method 2) are presented when solving problems. Students are encouraged to solve problems using a variety of solution strategies.
- **Multiple representations**, such as models/bar diagrams, tables, graphs, words, and algebraic/symbolic representations, help students build conceptual understanding and make connections across representations.
- Online, students engage in **exploratory activities** utilizing WebSketchpad, eTools, and other digital interactives.
- Students also watch **animations and videos** to help them learn mathematical concepts.
- The *Language Development Handbook* includes support for all students in vocabulary development, notetaking, and writing skills using word cards, vocabulary squares, three-column charts, definition maps, concept webs, and other graphic organizers. The Teacher Edition includes strategies to support students who are building English proficiency. The activities include scaffolds for Entering/Emerging, Developing/Expanding, and Bridging proficiency levels.
- The Teacher Edition includes **Language Development Activity** suggestions at point-of-use that provide strategies and activities to help students build mathematical and academic vocabulary.
- **Common student errors and misconceptions,** including methods for correction and prevention are integrated throughout the program. Each module includes a Formative Assessment Math Probe that targets one or more common misconceptions of the mathematics covered in the module. In the *Take Action* section of the teacher notes accompanying these probes, suggested resources are included to help teachers address any misconceptions that students may have. In addition, each lesson includes a Common Misconception highlighted in the Teacher Edition with suggested tips for correction or prevention.

Please see pages 30a-30b for evidence.

Rating

✔ **Meets (2)**

☐ **Partially Meets (1)**
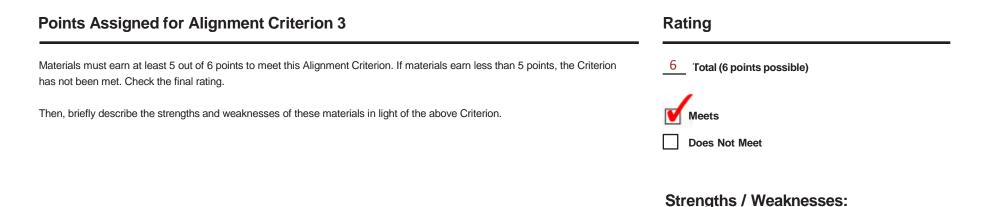
☐ **Does Not Meet (0)**

Page 30a – Additional Evidence

Reveal Math, Course 1

Multiple Representations	Variety of Instructional Tools	Language Development Support	Common Misconceptions
Interactive Student Edition and Teacher Edition: • Lesson 1-1; Learn *Understand Ratio Relationships*, pp. 3-4 (includes bar diagram representations of ratio relationships) • Lesson 1-2; Learn *Equivalent Ratios and Ratio Tables*, pp. 13-14 (includes bar diagrams and ratio tables to represent ratio relationships) • Lesson 1-3; Learn *Ratios as Ordered Pairs*, p. 23 (includes tables, graphs, and ordered pairs to represent ratio relationships)	*Student Digital Center:* • **Web Sketchpad**: Lesson 1-1, Explore activity *Compare Two Quantities* and Teacher Edition pages 3c-3d • **eTools**: Lesson 1-3, Example 2 and Teacher Edition page 25 • **Technology-Enhanced Items**: Lesson 5-7, located within the Learn resource *Use Properties to Identify Equivalent Expressions* • **Animations/Videos**: Lesson 4-1, located within the Learn resource *Use Integers to Represent Quantities* *Interactive Student Edition:* • **Foldables**: pp. FL1-FL10 in Volume 1 • **Method 1/Method 2:** pp. 40-42, Learn/Example 3	*Teacher Edition:* *Language Development Activities* • pp. 4, 37, 47, 57, 58, 86, 143, 170, 172, 202, 210, 227, 239, 278, 299, 315, 341, 351, 397, 443, 454, 512, 521, 537, 569 *Language Development Handbook,* *Teacher Edition:* • p. xiii, English Language Development Activities • p. T45, Lesson 8-2, English Learner Instructional Strategy and Leveled Activities	*Interactive Student Edition:* • p. 4, Learn *Talk About It!* • p. 5, Example 1 *Talk About It!* *Teacher Edition:* • p. 259b, Cheryl Tobey Formative Assessment Math Probe • pp. 11, 27, Common Misconception

Reveal Math, Course 2

Multiple Representations	Variety of Instructional Tools	Language Development Support	Common Misconceptions
Interactive Student Edition and Teacher Edition: • Lesson 3-1; Learn *Add Integers with the Same Sign*, Learn *Find Additive Inverses*, and Learn *Add Integers with Different Signs* pp. 127-128, 130, 131-132, (includes multiple representations and *Talk About It!* discussion questions) • Lesson 3-2; Learn *Subtract Integers* and Learn *Find the Distance Between Integers* pp. 139-140 and 142 (includes multiple representations of subtracting integers and *Talk About It!* discussion questions) • Lesson 3-3; Learn *Multiply Integers with Different Signs* and Learn *Multiply Integers with the Same Sign* pp. 149 and 151 (includes multiple representations of multiplying integers) • Lesson 3-4; Learn *Divide Integers with Different Signs* and Learn *Divide Integers with the Same Sign* pp. 159 and 161 (includes multiple representations of multiplying integers)	*Student Digital Center:* • **Web Sketchpad**: Lesson 8-1, Explore activity *Vertical and Adjacent Angle Pairs* and Teacher Edition pages 393a-393b • **eTools**: Lesson 1-4, Examples 1-2 and Teacher Edition pages 32-33 • **Technology-Enhanced Items**: Lesson 5-4, located within the Learn resource *Greatest Common Factor of Monomials* • **Animations/Videos**: Lesson 4-6, located within the Apply problem *Interactive Student Edition:* • **Foldables**: pp. FL1-FL10 in Volume 1 • **Method 1/Method 2:** p. 128 Example 1, pp. 308-310, Examples 1-2	*Teacher Edition:* *Language Development Activities* • pp. 14, 25, 31, 65, 107, 130, 177, 205, 243, 279, 294, 341, 373, 397, 413, 447, 490, 511, 534, 576, 578, 605, 614 *Language Development Handbook,* *Teacher Edition:* • p. xiii, English Language Development Activities • p. T29, Lesson 5-5, English Learner Instructional Strategy and Leveled Activities	*Interactive Student Edition:* • p. 196, Exercises 20 and 21 • p. 438, Example 3 *Talk About It!* • p. 500, Example 3 *Talk About It!* *Teacher Edition:* • p. 125b, Cheryl Tobey Formative Assessment Math Probe • p. 43, Common Misconception • p. 211, Common Misconception • p. 455, Common Misconception

Page 30b – Additional Evidence, continued

Reveal Math, Course 3			
Multiple Representations	**Variety of Instructional Tools**	**Language Development Support**	**Common Misconceptions**
Interactive Student Edition and Teacher Edition: • Lesson 4-1; Learn *Proportional Relationships* and Learn *Unit Rate and Slope* in the *Interactive Student Edition* pp. 175-176, and corresponding teacher support in the Teacher Edition pp. 175-176 (includes multiple representations of proportional relationships and *Talk About It!* conceptual discussion questions) • Lesson 4-3; Learn *Similar Triangles* and Learn *Similar Triangles and Slope* in the *Interactive Student Edition* pp. 205-207, and corresponding teacher support in the Teacher Edition pp. 205-207 (includes multiple representations of similar triangles and slope triangles and *Talk About It!* conceptual discussion questions) • Lesson 4-4; Learn *Direct Variation* in the *Interactive Student Edition* pp. 213-214, and corresponding teacher support in the Teacher Edition pp. 213-214 (includes multiple representations of direct variation proportional relationships and *Pause and Reflect* conceptual discussion questions) • Lesson 4-5; Learn *Slope-Intercept Form of a Line* in the *Interactive Student Edition* pp. 225-226, and corresponding teacher support in the Teacher Edition pp. 225-226 (includes multiple representations of linear relationships)	Student Digital Center: • **Web Sketchpad**: Lesson 4-2, Explore activity *Develop Concepts of Slope* and Teacher Edition pages 191c-191d • **eTools**: Lesson 4-6, Examples 1-4 and Teacher Edition pages 237-241 • **Technology-Enhanced Items**: Lesson 1-2, located within the Learn resource *Monomials* • **Animations/Videos**: Lesson 8-3, located within the Learn resource *Rotations About a Vertex* *Interactive Student Edition:* • **Foldables**: pp. FL1-FL4 in Volume 1 • **Method 1/Method 2:** p. 133, Learn (algebra tiles), Examples 1-2	Teacher Edition: *Language Development Activities* • pp. 13, 28, 70, 93, 105, 130, 137, 175, 225, 253, 254, 263, 266, 273, 293, 296, 305, 335, 381, 405, 437, 455, 513, 543, 554, 583 *Language Development Handbook,* Teacher Edition: • p. xiii, English Language Development Activities • p. T29, Lesson 6-1, English Learner Instructional Strategy and Leveled Activities	*Interactive Student Edition:* • p. 8, Example 4 *Talk About It!* • p. 12, Exercises 13 and 15 • p. 458, Learn *Talk About It!* Teacher Edition: • p. 127b, Cheryl Tobey Formative Assessment Math Probe: *Solve Multi-Step Equations* • p. 283, Common Misconception • p. 329, Common Misconception

Alignment Criterion 3

Access to the Standards for All Students

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

Points Assigned for Alignment Criterion 3

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

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

Rating

__6__ Total (6 points possible)

✓ **Meets**

☐ **Does Not Meet**

Strengths / Weaknesses:

McGraw-Hill's *Reveal Math* includes support, embedded in every lesson, for English Language Learners and other special populations. The materials provide appropriate scaffolding and differentiation for a broad range of learners, including materials for remediation/reteaching, intervention, enrichment/extension, and language development support. In addition, the program ensures a seamless connection for students who need extra topic support with **embedded** *Arrive Math Booster* **mini-lessons**. These mini-lessons, *Take Another Look*, are included with the program to provide students with direct support related to the lesson objective.

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

IMET Evaluation Summary 2 of 2

Program: *Reveal Math,* Courses 2-3

Name of Evaluator (s): _____

Publisher: McGraw-Hill Education

Date of Evaluation: _____

Date of Publication: ©2020

Signature of Each Evaluator (s): _____

Non-Negotiable Criteria

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

Alignment Criteria

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

Non-Negotiable 1:
Freedom from Obstacles to Focus
- ☑ Meets
- ☐ Does Not Meet

Non-Negotiable 2:
Focus and Coherence
- ☑ Meets
- ☐ Does Not Meet

Alignment Criterion 1:
Rigor and Balance

Points: 6 of 6 possible.

(Materials must receive at least 5 of 6 points to align.)
- ☑ Meets
- ☐ Does Not Meet

Alignment Criterion 2:
Standards for Mathematical Practice

Points: 6 of 6 possible.

(Materials must receive at least 5 of 6 points to align.)
- ☑ Meets
- ☐ Does Not Meet

Alignment Criterion 3:
Access to Standards for All Learners

Points: 6 of 6 possible.

(Materials must receive at least 5 of 6 points to align.)
- ☑ Meets
- ☐ Does Not Meet

Non-Negotiables Overall
- ☑ Meets
- ☐ Does Not Meet

Alignment Criteria Overall
- ☑ Meets
- ☐ Does Not Meet

IMET Evaluation Summary 2 of 2

Program: *Reveal Math,* Courses 2-3

Publisher: McGraw-Hill Education

Date of Publication: ©2020

Name of Evaluator (s): _____

Date of Evaluation: _____

Signature of Each Evaluator (s): _____

Summary

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

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

☑ Yes

☐ No

What are the specific areas of strength and weakness based on this evaluation?
Publishers or others modifying or developing assessments can use this information to make improvements and/or to remedy gaps in the alignment of assessment materials.