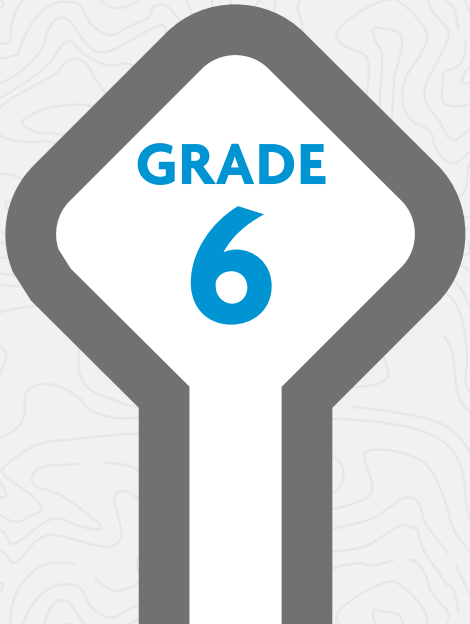
Mathematics Grade-Level Instructional Materials Evaluation Tool

Quality Review



Council of the Great City Schools

Textbooks and their digital counterparts are vital classroom tools but also a major expense, and it is worth taking time to find the best quality materials for students and teachers. While there is no perfect set of materials or textbooks, this Grade-Level Instructional Materials Evaluation Tool-Quality Review (GIMET-QR) is designed for use by professionals as a framework for evaluating the quality of instructional materials and choosing materials that are best suited to provide a coherent learning experience for students.

The district should begin its textbook adoption process by screening an entire publisher series with the Instructional Materials Evaluation Toolkit (IMET), developed by Student Achievement Partners, to see which ones are worthy of deeper consideration. The GIMET-QR can then be used to evaluate materials *for each individual grade*. But rather than providing an exhaustive list of grade-level standards, GIMET-QR starts with the progression to algebra continuum as the major area of focus, allowing for the in-depth review of a smaller set of mathematical concepts covered in the Common Core State Standards Mathematics (CCSS-M) at each grade level.

The GIMET-QR focuses on both the quality of the *content* and the instructional *design* of materials—with a specific focus on evaluating whether materials contain a balance of the three components of rigor (conceptual understanding, applications, and fluency) called for in CCSS-M. Unlike many tools that evaluate the presence or absence of required content, the GIMET-QR prompts reviewers to ask, "How *well* do the materials and assignments reflect and support the rigor of the CCSS-M?"

To answer this question, GIMET-QR contains Guiding Statements along with references to the CCSS for each statement. In response to each Guiding Statement, reviewers are asked to cite specific supporting evidence from the materials themselves, rather than relying on the table of contents or the topic headings. This supporting evidence can then be used to rate whether and to what degree the criteria have been met so that all students have access to a quality mathematics program.

It is important to keep in mind that quality is not defined as "compliance" or a mere checklist of topics. The GIMET-QR aims to help schools and districts choose materials that will provide the best overall learning experience for their students. The distinctive features of instructional materials, like style and appeal that contribute to engaging students in mathematics, should therefore be considered along with the mathematical content and cognitive demand.

The review process culminates with a summary in which reviewers cite strengths and weaknesses of the product, thus providing explicit details for the overall assessment. The summary may also indicate, prior to making a recommendation for purchase, any areas that district curriculum leaders may need to augment or supplement.

Please note: Acrobat Reader or Adobe Acrobat is required to complete this form electronically and save any data entered by users.

THE STRUCTURE OF GIMET-QR

The GIMET-QR for Mathematics is divided into four sections:

I. "CCSS-M" clusters and standards along the "progression to algebra continuum" for grade six

This first section focuses on the content of the materials under review and on the quality of the explanations and connections that develop the concepts and skills for the algebra continuum in grade six. This section features "guiding statements" that require reviewers to examine the quality of the materials, as well as the assignments that address the level of rigor in CCSS-M. The statements about materials and assignments are similar, but their focus is different. While the materials statements ask the reviewer to show evidence about the quality of how concepts and skills are attended to in the text or digital resource under review, the assignments statements ask the reviewer to cite evidence that students are given the opportunity to apply their understanding of those concepts and skills.

The statements in bold print in GIMET-QR refer to the CCSS-M clusters (i.e., 6.RP.1-2) for reviewers to use in considering the quality of materials and assignments. The reviewer may notice that the wording of the cluster heading is somewhat different than what is written in CCSS-M. This was done to address what materials and assignments could offer in support of the cluster standards. However, the essential wording of the cluster headings is maintained. The standards indicated within GIMET-QR are listed as written in CCSS-M. In grade six, the "CCSS progression documents," from the Institute of Mathematics,[1] were used to provide additional specificity and clarity for the reviewers about what to look for in *The Number System 6-8, 6-7 Ratios and Proportional Relationships*, and *6-8 Expressions and Equations*. This progression information within the document is indicated using an indentation and preceded by the symbol (▶).

II. Decision Recording Sheets: Quality Criteria for Conceptual Understanding, Applications, and Fluency with an accompanying rubric for high quality/exciting materials and assignments

The second section asks the reviewer to reflect on the findings from the first section to answer the question of how well the materials reflect and support the rigor of the CCSS-M. Reviewers are asked to consider how well the materials support teachers and engage students. Judgments are made after organizing the evidence around each of three dimensions of rigor—**conceptual understanding**, **applications**, and **fluency**. Reviewers assign one of three ratings: **High Quality/Exciting**, **Good Quality** or **Minimal Quality**. The section also includes a rubric which describes high quality/exciting materials and establishes the highest criteria for both materials and assignments.

III. Adoption Committee Recommendation Form

The third section, to be completed after reviewing multiple submissions for adoption, is an *Adoption Committee Recommendation Form*. This provides reviewers with an opportunity to list their top three choices and cite specific strengths and weaknesses for all of the materials being reviewed.

IV. Appendix

The fourth section is an Appendix that includes *The Progression to Algebra Continuum*.

GIMET-QR does not attend to all the grade six standards but rather only those listed within the progression to algebra continuum. GIMET-QR does not attend to coherence across grade levels but does look for coherence within a grade when considering the quality of materials and assignments. Similar to CCSS-M, GIMET-QR operates at a very fine grain size, while individual lessons and units might work across clusters. GIMET-QR is not a checklist that would fragment the CCSS-M, rather the "fine grain size" deliberately focuses on how well the materials reflect the intent of the CCSS-M.

1 University of Arizona Institute of Mathematics, http://ime.math.arizona.edu/progressions/

GETTING STARTED

Completing the GIMET-QR entails a five-step process. Reviewers are expected to read through each of the steps and their explanations, and locate all the pertinent tables and pages before starting. Then complete each step.

Step one – Individual reviewers will evaluate how well the materials and their accompanying assignments develop the algebra continuum content for each grade level. Use the tables that start on page four to capture the evidence of how and where the materials do this. The purpose for noting specific examples as evidence is to contribute to discussions with other reviewers in steps two through four. Cite specific examples of the explanations, diagrams, and pictorial representations in the materials and assignments that prompt students to show their understanding. Additionally, reviewers should consider the interaction of students with the materials in two areas: 1) students as receptive learners (interactions with the explanations and illustrations in the materials) and 2) students producing and showing their understanding (interacting and completing the assignments in the materials).

Step two – Discuss your findings and evidence with other reviewers. Reviewers should discuss the evidence cited and use it to confirm or assist you (individually) in reviewing and revising your findings.

Step three – Next, reviewers need to consider the interaction of students and teachers with the content of the materials along three dimensions of rigor—**conceptual understanding**, **applications**, and **fluency**—to assign a judgment of quality to each dimension. Reviewers should answer the question: How well do the materials reflect and support the rigor of the CCSS-Mathematics overall? Reviewers will use the guiding questions found in the **Decision Recording Sheet** together with the rubric describing **high quality** to assign ratings. Consider the totality of the collected evidence along the dimensions of rigor, and record your rating at the bottom of each table.

The highest level of quality is described using the words "**High Quality/ Exciting**." We use these words to indicate a high degree of excitement about the materials and the assignments. As the reviewer considers the descriptors, keep in mind that these criteria apply to each dimension of rigor for both the materials and the assignments they present to students. To earn this rating, the evidence must demonstrate grade-level rigor of the CCSS-M in an engaging way.

The other levels represent varying degrees of quality. For example, "**Good Quality**" indicates that the materials and assignments are workable or sufficient. "**Minimal Quality,**" meanwhile, indicates that the materials are sufficient on their own, but would not be conducive to motivating students.

These descriptions will be used for rating the overall quality of the program.

Step four – Discuss your findings and conclusions with other reviewers. Include the following questions as a part of the discussion:

- What are the top three strengths of the texts?
- What areas need improvement?
- What additional supports would be needed to implement the textbook series or digital materials?

Step five – After discussion, reach consensus and make final recommendations on the **Adoption Committee Recommendation Form.**

I. CCSS-M CLUSTERS AND STANDARDS

GUIDING STATEMENTS	SPECIFIC EVIDENCE FROM THE TEXT/MATERIALS
6.NS.1. The materials show connections to and extend previous understandings of multiplication and division to divide fractions by fractions. ■ For example, show that (2/3) ÷ (3/4) = 8/9 has a related multiplication problem, 3/4 x 8/9 = 2/3, just as any division *a ÷ b = c has a related multiplication b* x *c = a*. ▶ Story contexts and visual models are used to develop understanding of fraction division.	
6.NS.1. Assignments ask students to show connections to and extend previous understandings to divide fractions by fractions by requiring them to: ■ Interpret and compute quotients of fractions. ■ Solve word problems involving division of fractions by fractions, using visual fraction models and equations to represent the problem. ■ Create a story context for division of a fraction by a fraction and use a visual fraction model to show the quotient.	
6.NS.5-6. The materials extend previous understandings of numbers to the system of rational numbers which include negative numbers. ■ Use positive and negative numbers to represent quantities in real-world contexts (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge). ■ Show positive and negative rational numbers as points on the number line and in the plane with negative number coordinates. ▶ The number line is extended to include negative numbers and to investigate them in context when describing both magnitude and direction. ▶ Compare numbers on the number line by considering the relative positions of the numbers on the number line rather than their magnitudes.	

GUIDING STATEMENTS	SPECIFIC EVIDENCE FROM THE TEXT/MATERIALS
6.NS.5-6. Assignments ask students to apply and extend previous understandings to: ■ Show positive and negative rational numbers as points on the number line and in the plane with negative number coordinates. ■ Plot positive and negative rational numbers and their opposites on the number line and coordinate plane.	
6.NS.7. Materials illustrate ordering and the absolute value of rational numbers. ■ Use number line diagrams and real-world situations to interpret the absolute value of a rational number as its distance from 0 on the number line. ▶ To avoid confusion, it can help to present students with contexts where it makes sense both to compare the order of two rational numbers and to compare their absolute value, and where these two comparisons run in different directions. ■ Show statements of inequality as statements about the relative position of two numbers on a number line diagram. For example interpret -3 > -7 as a statement that -3 is located to the right of -7 on a number line oriented from left to right.	

GUIDING STATEMENTS	SPECIFIC EVIDENCE FROM THE TEXT/MATERIALS
6.NS.7. Assignments ask students to show their understanding of ordering and absolute value of rational numbers on a number line by requiring them to: ■ Write, interpret, and explain statements of the order and inequality of rational numbers in real-world contexts and on number line diagrams. ■ Interpret absolute value as magnitude for a positive or negative quantity in a real-world situation. ■ Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. ■ Use coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.	
6.RP.1-3. Materials use illustrations to help explain ratio and rate concepts and problems involving proportional relationships that can be solved by reasoning with ratios and rates. ■ Ratio language is used to describe a ratio relationship between two quantities with illustrations. ■ Rate language is used to describe a proportional relationship between two quantities. ● Understand the concept of a unit rate a/b associated with a ratio a:b with b≠0, and use rate language in the context of a ratio relationship. *For example, "This recipe has a ratio of 3 cups of flour to 4 cups of sugar so there is ¾ cup of flour for each cup of sugar." "We paid $75 for 15 hamburgers, which is a rate of $5 per hamburger."* ▶ It is important for students to focus on the meaning of the terms "for every," "for each," "for each one," and "per" because these equivalent ways of stating ratios and rates are essential to understanding the structure of ratios and rates illustrated in tables and provide a foundation for learning about proportional relationships in grade seven.	

GUIDING STATEMENTS	SPECIFIC EVIDENCE FROM THE TEXT/MATERIALS
6.RP.1-3. Assignments ask students to explain ratio and rate concepts and apply these concepts to solve problems involving proportional relationships by requiring them to: ■ Use ratio and rate language to describe a relationship between two quantities. ■ Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations. ▶ Explain why solutions make sense using tables of equivalent ratios, tape diagrams, double number line diagrams, the unit rate *a/b* associated with a ratio *a:b*, and equations. ● Make tables of equivalent ratios relating quantities with whole-number measurements, finding missing values in the tables, and plotting the pairs of values on the coordinate plane. ● Use tables to compare ratios. ● Solve unit rate problems including those with unit pricing and constant speed. *For example, if it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed*? ● Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent. ● Use ratio and rate reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities. *NOTE: The preceding list of assignment types does not require (nor prohibit) setting up proportions and cross-multiplying. However, simply explaining how to set up and execute a cross multiplication is not a sufficient explanation of why a solution makes sense. The focus is on the proportional relationship between two quantities. There are a number of strategies for solving problems that involve ratios. As students become familiar with relationships among equivalent ratios, their strategies become increasingly abbreviated and efficient.*	

GUIDING STATEMENTS	SPECIFIC EVIDENCE FROM THE TEXT/MATERIALS
6.EE.1-4. Materials show how previous understandings of arithmetic extend and apply to algebraic expressions and equations by: ■ Showing how to write and evaluate numerical expressions involving whole-number exponents. ■ Incorporating whole-number exponents into numerical expressions, for example, describe a square with side 50 feet as having an area of 50^2 square feet. ■ Explaining and showing how to evaluate expressions in which letters stand for numbers. ■ Applying the properties of operations to generate equivalent expressions. ■ Showing when two expressions are equivalent.	

GUIDING STATEMENTS	SPECIFIC EVIDENCE FROM THE TEXT/MATERIALS
6.EE.1-4. Assignments ask students to connect and extend their previous understandings of arithmetic to algebraic expressions and equations by requiring them to: ■ Write and evaluate numerical expressions involving whole-number exponents. ■ Write, read, and evaluate expressions in which letters stand for numbers. ■ Write expressions that record operations with numbers and with letters standing for numbers. *For example, express the calculation "Subtract y from 5" as 5 - y.* ● Use mathematical terms (sum, term, product, factor, quotient, coefficient) to identify parts of an expression. *For example, describe the expression 2(8 + 7) as a product of two factors; view (8 + 7) as both a single entity and a sum of two terms.* ▶ Explain how one or more parts of an expression correspond to quantities in context (a real-world situation). For example, in this situation: "Jack and Jill painted their apartment. It took twice as much time to paint the walls as the ceiling. Jack painted the ceiling for 7 hours and Jill for 8 hours." In the expression, 2(8 + 7), students explain that the 2 corresponds to "twice" and the sum (8+7) is the total time Jack and Jill painted the ceiling, and the product 2(8+7) is the time for the walls. ● Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations). *For example, use the formulas $V = s^2$ and $A = 6s^2$ to find the volume and surface area of a cube with sides of length s = 1/2.* ■ Apply the properties of operations to generate equivalent expressions. *For example, apply the distributive property to the expression 3(2 + x) to produce the equivalent expression 6 + 3x; apply the distribute property to the expression 24x + 18y to produce the equivalent expression 6(4x + 3y); apply properties of operations to y + y + y to produce the equivalent expression 3y.* ■ Construct a viable argument to show why two expressions are or are not equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them). *For example, the expressions y + y + y and 3y are equivalent because they name the same number regardless of which number y stands for.*	

GUIDING STATEMENTS	SPECIFIC EVIDENCE FROM THE TEXT/MATERIALS
6.EE.5-8. Materials ask students to reason about and solve one-variable equations and inequalities by: ■ Showing how to solve an equation or inequality as a process of answering the question: Which values from a specified set, if any, make the equation or inequality true? ■ Using variables to represent numbers and write expressions when solving a real-world or mathematical problem. ■ Showing how to write an inequality of the form x > c or x < c to represent a constraint or condition in a real-world or mathematical problem. Recognizing that inequalities of the form x > c or x < c have infinitely many solutions and representing solutions of such inequalities on number line diagrams.	
6.EE.5-8. Assignments ask students to reason about and solve one-variable equations and inequalities and explain their reasoning by: ■ Explaining how solving an equation or inequality is a process of finding which value(s) of a variable, if any, makes the equation or inequality true. Use substitution to determine whether a given number in a specified set makes an equation or inequality true. ▶ Solving is a process of reasoning to find the number which makes an equation true, which includes checking whether a given number is a solution. Although the process of reasoning will eventually lead to a standard method for solving equations, students should begin by studying examples where looking for structure pays off, such as in $4x + 3x = 3x + 20$, where they can see that $4x$ must be 20 to make the two sides equal. ■ Writing expressions with variables to represent numbers and when solving a real-world or mathematical problem; explaining what the terms in the expression correspond to in the problem. ■ Solving real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p, q, *and* x are all non-negative numbers. ■ Writing an inequality of the form x >c or x < c to represent a constraint or condition in a real-world or mathematical problem. Representing inequalities of the form x > c or x < c which have infinitely many solutions on number line diagrams.	

GUIDING STATEMENTS	SPECIFIC EVIDENCE FROM THE TEXT/MATERIALS
6.EE.9. Materials show explanations and illustrate representations and analyses of quantitative relationships between dependent and independent variables by: ■ Representing two quantities in a real-world problem that change in relationship to one another. ● Writing an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity. ● Using graphs and tables, showing the relationship between these representations to an equation. *For example, in a problem involving motion at constant speed, listing and graphing ordered pairs of distances and times, and writing the equation d = 65t to represent the relationship between distance and time.*	
6.EE.9. Assignments ask students to illustrate their understanding by representing and analyzing quantitative relationships between dependent and independent variables. ■ Using variables to represent two quantities in a real-world problem that change in relationship to one another; writing an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. ■ Analyzing the relationship between the dependent and independent variables using graphs and tables, and explaining how these relate to the equation. *For example, in a problem involving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation d = 65t to represent the relationship between distance and time.* ▶ For example, explain how the unit rate, 65, appears in the table and graph.	

II. DECISION RECORDING SHEET

Completed by: _____ Date: _____

Use the evidence that you collected for grade six to begin judging the overall quality of the program. Begin by answering the overarching question: ***How well do the materials reflect and support the rigor of the CCSS-M?*** *Use the accompanying rubric which describes the criteria for high quality/exciting materials and assignments that engage both students and teachers.*

Rigor requirement (balance): A program that emphasizes only fluency is not rigorous. Likewise, a program that only focuses on conceptual understanding or applications is not rigorous. For a program to be rigorous, there must be a balance of all three (conceptual understanding, applications, and fluency). By the end of grade six, there are specific fluency requirements for students (divide multi-digit whole numbers using the standard algorithm; and add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation), as well as standards addressing procedural skill (procedural skill refers to knowledge of procedures, knowledge of when and how to use them appropriately, and skill in performing procedures flexibly, accurately, and efficiently).

Criteria for Rigor and Quality in Conceptual Understanding, Applications, and Fluency

CONCEPTUAL UNDERSTANDING: **CONNECTIONS**	
Materials: ■ How well do the materials develop conceptual understanding of operations and algebraic thinking as defined in the CCSS-M and in the *Progression to Algebra (Appendix A)*? ■ How well do the materials connect to and extend prior knowledge? ● The materials present and describe explicit connections to prior knowledge, connections among mathematical ideas, and connections among different mathematical representations, using appropriate academic language. ■ How well do the materials develop academic language (including words, phrases, and sentences using symbols, graphs, and diagrams)?	**Assignments:** How well do the assignments prompt students to produce explanations and viable arguments? ● The set of assignments challenge students to use their mathematical knowledge, academic language, and skills to solve problems and formulate mathematical models in a variety of contexts. ■ How well do the assignments ask students to make explicit connections to prior knowledge, connections among mathematical ideas, and connections among different mathematical representations?

CONNECTIONS: CRITERIA FOR MEETING THE RATING OF **"HIGH QUALITY/EXCITING"**

	Materials *The materials present and describe explicit connections to prior knowledge, connections among mathematical ideas, and connections among different mathematical representations, using appropriate academic language.*	**Assignments** *The assignments in the materials encourage and challenge students to use their mathematical knowledge, academic language, and skills to solve problems and formulate mathematical models in a variety of contexts.*
Student	*Using high quality/exciting materials, my students will:* ■ comprehend the concepts and connections in the materials. ■ make sense of the mathematics. ■ be excited to try the problems and learn from working on them. ■ want to learn the mathematical concepts and gain confidence that effort to learn will pay off.	*Using high quality/exciting assignments, my students will:* ■ engage in the challenge of comprehension and discussion. ■ make sense of the mathematics. ■ be excited to try the problems and learn from working on them. ■ want to learn the mathematical concepts and gain confidence that their effort to learn will pay off.
Teacher	*Using high quality/exciting materials will help me:* ■ see and understand the mathematical goals of the lesson/unit. ■ understand better the mathematics that I am teaching, learn more mathematics from the materials, and want to learn more from interacting with students. ■ be excited about teaching the lessons and see how students respond to the connections in the lesson/unit. ■ focus students' efforts on the mathematical connections and give them feedback on how to do better. ■ anticipate typical misconceptions, missing connections, and which struggles will be most productive for students. ■ be confident students will be motivated to learn from and connect the mathematics, as well as gain confidence that their efforts to learn will pay off.	*Using high quality/exciting assignments will help me:* ■ want to learn more from interacting with students, analyzing their work on assignments, and re-engaging them in the concepts related to the assignments. ■ use students' responses to focus their efforts on the mathematical connections and give them feedback on how to do better. ■ anticipate typical misconceptions, missing connections, and which struggles will be most productive for students. ■ know students will be motivated to learn from and connect the mathematics as well as gain confidence that their efforts to learn will pay off.

RATING – Compared to the criteria listed above, the materials I have just reviewed would be considered:

☐ 3) High Quality/Exciting ☐ 2) Good Quality ☐ 1) Minimal Quality

CONCEPTUAL UNDERSTANDING: **EXPLANATIONS**	
Materials: ■ How well do the materials provide example explanations connecting different representations to show why a statement or steps in an argument or solution is true and under what conditions it is true? ● The materials provide example explanations, using appropriate concepts and academic language for the grade level, to show how a way of thinking about a problem makes sense using several representations and explicitly identifying correspondences across representations. ■ How well do the materials use abstractions and generalizations to communicate the mathematical structure that organizes seemingly scattered individual events or results?	**Assignments:** How well do the assignments require that student provide explanations using appropriate content and grade-level academic language? ● The set of assignments requires students to use appropriate content and grade-level academic language to explain why reasons and justifications for steps in a solution or an argument are valid and how the mathematical structure represents generalizations about a problem situation (context) mathematically to their peers and the teacher. ■ How well do the assignments ask students to use the mathematical structure to organize individual, seemingly scattered statements or results to represent generalizations mathematically to their peers and the teacher?

EXPLANATIONS: CRITERIA FOR MEETING THE RATING OF **"HIGH QUALITY/EXCITING"**		
	Materials *The materials provide example explanations, using appropriate concepts and academic language for the grade level, to show how a way of thinking about a problem makes sense using several representations and explicitly identifying correspondences across representations.*	**Assignments** *The assignments require students to use appropriate grade-level concepts and academic language to explain why reasons and justifications for steps in a solution or an argument are valid and how the mathematical structure represents generalizations about a problem situation (context) mathematically to their peers and the teacher.*
Student	*Using high quality/exciting materials, my students will:* ■ comprehend the explanations presented in the materials. ■ make sense of the mathematics of the lesson/unit. ■ be excited to try the problems and learn from working on them. ■ want to learn the related mathematical concepts and gain confidence that their effort to learn will pay off.	*Using high quality/exciting materials, my students will:* ■ engage in the challenge of comprehension and explanation with their peers and with me. ■ make sense of the mathematics of the lesson/unit. ■ be excited to try the problems and learn from working on them. ■ want to learn the related mathematical concepts and gain confidence that their effort to learn will pay off.

Teacher	*Using high quality/exciting materials will help me:* ■ see and understand the mathematical goals of the lesson/unit. ■ understand better the mathematics that I am teaching, learn more mathematics from the materials, and want to learn more from interacting with students. ■ be excited about teaching the lessons and see how students respond to the explanations in the lesson/unit. ■ focus students' efforts on the mathematical explanations and give them feedback on how to do better. ■ anticipate typical misconceptions, struggles that are most productive for students, and ways to help students to revise their explanation.	*Using high quality/exciting materials will help me:* ■ want to learn more from interacting with students, analyzing their work on assignments, and re-engaging them on the concepts related to the assignments. ■ use students' responses to focus their efforts on the mathematical connections and give them feedback on how to do better. ■ anticipate typical misconceptions, struggles that are most productive for students, and ways to help students revise their explanations. ■ know students will be motivated to learn from and connect the mathematics as well as gain confidence that their efforts to learn will pay off. ■ prompt students to make their mathematical explanations clear in a way that others can understand and critique them.

RATING – Compared to the criteria listed above, the materials I have just reviewed would be considered:

☐ 3) High Quality/Exciting ☐ 2) Good Quality ☐ 1) Minimal Quality

APPLICATIONS

Materials

How well do the materials develop students' expertise in the application of concepts appropriate for this grade level?

- The materials show how to use mathematics to analyze problem situations, appropriate for the grade level, and provide examples of deploying the Standards for Mathematical Practice to make sense of problems.

■ How well do the materials support students' understanding of how to analyze problem situations, showing how to use mathematics to help make sense of problems?

Assignments

How well do the assignments develop the application of grade-level concepts?

- The assignments prompt students to use mathematics and the Standards for Mathematical Practice to help them make sense of a variety of problems and formulate mathematical models of real-world phenomena appropriate for this grade level.

■ How well do the assignments support students' understanding of how to formulate mathematical models of real-world phenomena, including explaining assumptions and explaining why the model serves its purpose in a reasonable way?

APPLICATIONS: CRITERIA FOR MEETING THE RATING OF **"HIGH QUALITY/EXCITING"**		
	Materials *The materials show how to use mathematics to analyze problem situations appropriate for the grade level and provide examples of deploying the Standards for Mathematical Practice to make sense of problems.*	**Assignments** *The assignments prompt students to use mathematics and the mathematical practice standards to help them make sense of a variety of problems, appropriate for this grade level, by asking students to formulate mathematical models.*
Student	*Using high quality/exciting materials, my students will:* ■ apply the concepts and connect them to each other and their different representations. ■ make sense of the mathematics of the lesson/unit. ■ be excited to try the problems and learn from working on them. ■ understand how to formulate and model problem situations mathematically. ■ gain confidence that their effort to learn will pay off.	*Using high quality/exciting assignments, my students will:* ■ be challenged to use their mathematics to comprehend, analyze, and make sense of the problem situation. ■ make sense of quantities and their relationship in the math problem. ■ represent the problem concretely and pictorially and represent it as an equation and explain how the two representations relate to each other. ■ identify important quantities in a practical situation and map their relationships using such tools as concrete models, diagrams, and equations. ■ formulate and model problem situations mathematically. ■ engage in discussions with their peers and the teacher to make sense of the problem and learn from them. ■ be excited to try the problems and learn from working on them. ■ gain confidence that their effort to learn will pay off.
Teacher	*Using high quality/exciting materials will help me:* ■ see and understand the mathematical goal of the lesson/unit. ■ understand better the mathematics that I am teaching, learn more mathematics from the materials, and want to learn more from interacting with students. ■ be excited about teaching the lessons and see how students respond to the problems/tasks in the lesson/unit. ■ be confident I can focus students' efforts on the mathematical tasks/problems and give them feedback on how to do better. ■ anticipate typical misconceptions, missing connections, and which struggles will be most productive for students. ■ be confident students will be motivated to learn.	*Using high quality/exciting assignments will help me:* ■ prompt students to make their mathematical thinking clear in a way that others can understand and critique it. ■ want to learn more from interacting with students, analyzing their work on problems/tasks, and re-engaging them on making use of concepts related to them. ■ use the student's responses to focus their efforts on strategic thinking and give them feedback on generalizing to other related applications. ■ anticipate typical misconceptions, missing strategies, and which productive struggles will be most beneficial for students. ■ gain confidence that their efforts to learn will pay off.

RATING – Compared to the criteria listed above, the materials I have just reviewed would be considered:

☐ 3) High Quality/Exciting ☐ 2) Good Quality ☐ 1) Minimal Quality

FLUENCY	
Materials: ■ How well do the materials focus on developing critical procedural skills and fluency in dividing multi-digit whole numbers and adding, subtracting, multiplying, and dividing multi-digit decimals using the standard algorithm for each operation by the end of grade six? ● *Materials show how procedural skills and the standard for fluency for this grade level (dividing multi-digit whole numbers using the standard algorithm; and adding, subtracting, multiplying, and dividing multi-digit decimals using the standard algorithm for each operation) work and provide consistent opportunities for students to practice using the algorithm or procedure.*	**Assignments:** ■ How well does the set of assignments focus on developing critical procedural skills and fluency? ● *The set of assignments prompts students to develop and demonstrate fluency in dividing multi-digit whole numbers and adding, subtracting, multiplying, and dividing multi-digit decimals using the standard algorithm for each operation by the end of grade six.*

FLUENCY: CRITERIA FOR MEETING THE RATING OF **"HIGH QUALITY/EXCITING"**		
	Materials *Materials show how the standard for fluency (dividing multi-digit whole numbers and adding, subtracting, multiplying, and dividing multi-digit decimals using the standard algorithm for each operation) works and provide opportunities for students to practice using the algorithm, procedure, or formula.*	**Assignments** *The set of assignments prompts students to develop and demonstrate fluency dividing multi-digit whole numbers and adding, subtracting, multiplying, and dividing multi-digit decimals using the standard algorithm for each operation.*
Student	*Using high quality/exciting materials, my students will:* ■ have a variety of different ways to practice using an algorithm, procedure, or formula to develop fluency. ■ self-assess areas of weakness and strengths when dividing multi-digit whole numbers and adding, subtracting, multiplying, and dividing multi-digit decimals using the standard algorithm for each operation, and receive feedback on which area(s) to improve.	*Using high quality/exciting assignments, my students will:* ■ build skills in dividing multi-digit whole numbers and adding, subtracting, multiplying, and dividing multi-digit decimals using the standard algorithm for each operation flexibly, accurately, efficiently, and appropriately. ■ gain confidence that their efforts to learn will pay off.

Teacher	*Using high quality/exciting materials will help me:* ■ see and understand how the work on procedural fluency supports the mathematical goal of the lesson/unit. ■ be confident that I can focus students' efforts on building fluency, and help students understand and correct their mistakes. ■ be confident students will be motivated to learn.	*Using high quality/exciting assignments will help me:* ■ want to learn more from interacting with students. ■ use students' responses to focus their efforts on building fluency and give them feedback on how to do better. ■ see how to help students understand and correct their mistakes. ■ be confident students will be motivated to learn.

RATING – Compared to the criteria listed above, the materials I have just reviewed would be considered:

☐ 3) High Quality/Exciting ☐ 2) Good Quality ☐ 1) Minimal Quality

III. ADOPTION COMMITTEE RECOMMENDATION FORM

Based on the substantial evidence collected, please rank all the grade six materials you reviewed in the order in which you would recommend them for adoption. The program or materials with your highest recommendation should be listed as number one below. Please provide any comments you deem pertinent. Include answers to the following questions based on the evidence cited in your materials review:

- **What are the top three strengths of this text?**
- **What areas need improvement?**
- **What additional supports would be needed to implement the textbook series or digital materials?**

RECOMMENDED		
	PROGRAM NAME/EDITION:	COMMENTS:
1		
2		
3		

continued >

NOT RECOMMENDED		
PROGRAM NAME/EDITION:		COMMENTS:
1		
2		
3		

Completed by: _____ Date: _____

IV. APPENDIX: PROGRESS TO ALGEBRA IN GRADES K–8

K	1	2	3	4	5	6	7	8
Know number names and the count sequence Count to tell the number of objects Compare numbers Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from Work with numbers 11-19 to gain foundations for place value	Represent and solve problems involving addition and subtraction Understand and apply properties of operations and the relationship between addition and subtraction Add and subtract within 20 Work with addition and subtraction equations Extend the counting sequence Understand place value Use place value understanding and properties of operations to add and subtract Measure lengths indirectly and by iterating length units	Represent and solve problems involving addition and subtraction Add and subtract within 20 Understand place value Use place value understanding and properties of operations to add and subtract Measure and estimate lengths in standard units Relate addition and subtraction to length	Represent & solve problems involving multiplication and division Understand properties of multiplication and the relationship between multiplication and division Multiply & divide within 100 Solve problems involving the four operations, and identify & explain patterns in arithmetic Develop understanding of fractions as numbers Solve problems involving measurement and estimation of intervals of time, liquid volumes, & masses of objects Geometric measurement: understand concepts of area and relate area to multiplication and to addition	Use the four operations with whole numbers to solve problems Generalize place value understanding for multi-digit whole numbers Use place value understanding and properties of operations to perform multi-digit arithmetic Extend understanding of fraction equivalence and ordering Build fractions from unit fractions by applying and extending previous understandings of operations Understand decimal notation for fractions, and compare decimal fractions	Understand the place value system Perform operations with multi-digit whole numbers and decimals to hundredths Use equivalent fractions as a strategy to add and subtract fractions Apply and extend previous understandings of multiplication and division to multiply and divide fractions Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition Graph points in the coordinate plane to solve real-world and mathematical problems*	Apply and extend previous understandings of multiplication and division to divide fractions by fractions Apply and extend previous understandings of numbers to the system of rational numbers Understand ratio concepts and use ratio reasoning to solve problems Apply and extend previous understandings of arithmetic to algebraic expressions Reason about and solve one-variable equations and inequalities Represent and analyze quantitative relationships between dependent and independent variables	Apply and extend previous understanding of operations with fractions to add, subtract, multiply, and divide rational numbers Analyze proportional relationships and use them to solve real-world and mathematical problems Use properties of operations to generate equivalent expressions Solve real-life and mathematical problems using numerical and algebraic expressions and equations	Work with radical and integer exponents Understand the connections between proportional relationships, lines, and linear equations Analyze and solve linear equations and pairs of simultaneous linear equations Define, evaluate, and compare functions Use functions to model relationships between quantities*

From the K, Counting and Cardinality; K–5, Operations and Algebraic Thinking Progression p. 9