

Math Textbook Reviews:

Section 1, August 2014

Publisher: McGraw Hill

Textbook Title: My Math

Grade band: 3-5

Focus Metrics	
A. In any grade, materials are designed so teachers and students spend the large majority of their time on the major work of the grade (see Appendix A, page 8), with the majority of major work introduced early in the year.	No
B. Topics from future grades are clearly identified as such in the materials and do not detract from focus	Yes
C. Topics from earlier grades are used to support grade-level work. Content from prior grades is clearly indicated as such.	Yes
D. The following topics are not introduced before the appropriate grade level: Gr. 8 - similarity, congruence, or geometric transformations; Gr. 7 - probability; Gr. 6 - statistical distributions and statistical association or trends; Gr. 4 - symmetry of shapes	Yes
Does this textbook meet the requirements for focus?	No
Justification/Notes: See below for specific notes	

Rigor Metrics	
A. In the major work of the grade, the three aspects of rigor are given full attention: conceptual understanding, procedural fluency, and application.	No
B. High quality problems and questions designed to invite exploration and support conceptual understanding are included for content standards and clusters that explicitly call for it. A variety of conceptual problems enable students to connect mathematical ideas and representations, and transfer understandings to new situations.	No
C. The development of procedural fluency is robust for those standards that set explicit expectations for fluency. Sometimes problems are purely procedural, and none are based on non-mathematical tricks or mnemonics.	Yes
D. Students are given opportunity to apply mathematical knowledge and skills for standards that set a clear expectation for solving real-world problems. A variety of grade-level appropriate problems provide students the opportunity to apply mathematical models in a variety of contextual situations.	Yes
Does this textbook meet the requirements for rigor?	No
Justification/Notes: See below for specific notes	

Were both non-negotiables in Section I met? No

Optional Additional Comments from Reviewers:

Grade	Comments
3	<p>Focus: The time spent on fractions is insufficient. There is only one lesson on equivalency (Unit 10 lesson 6). Area with a rectangular model (3.MD.5, 3.MD.6, 3.MD.7) is not introduced until the thirteenth unit near the end of year. Both are part of the major work of the grade.</p> <p>Rigor: Conceptual understanding is lacking. For example, 3.NF.3d includes the stipulation of reasoning about the size of numerators and denominators when comparing fractions. The related lessons do not actually ask questions or instruct teachers in how to ensure that students have this Essential Understanding. Instead, justification is only given based on comparing fractions strips or points on a number line. While a numberline can be one effective tool for reasoning about size, it should be combined with other methods that help students grapple with concepts like distance from one whole, what the denominator tells about unit fraction size, etc.</p> <p>Opportunities for students to explore the “why” in the mathematics through problem solving is weak throughout the text. A review of the student pages marked “Problem Solving” shows them to typically be procedures with connections. No high-level tasks were observed.</p> <p>More varied representations of multiplication and division in fluency practice in the student text would make it more robust (see, for example pgs. 351-352 where two forms are presented for each). Different notation, mixing representations, and algebraic format would give students broader experience. Additional resources provided by the company including electronically based materials do provide several opportunities to practice fluency in a variety of mediums.</p>
4	<p>Focus: 4.NF.1, 4.NF.2 only have recommended 6 days of lessons. Three of fourteen chapters (21%) are devoted to fractions. Fractions represent 50% of the major clusters for fourth grade. The work on fractions isn’t in-depth enough to truly cover the standards. It lacks the vocabulary and specific connections leading to conceptual understanding between the Number and Operations and Fraction Standards. Each skill seems to be taught in isolation rather than connecting the concepts to show relationships and build on the conceptual understanding of fractions and decimals.</p> <p>Rigor: Opportunities for students to explore the “why” in the mathematics through problem solving is weak throughout the text. Most pages labeled “Problem Solving” are procedures with connections. The text is lacking high-level tasks. Application is only in problem-solving sections and there is limited opportunity for problem solving. There is very little emphasis on conceptual understanding and application. Length of fraction tiles is given as an explanation for equivalency (pg. 499) as opposed to a deeper exploration that involves actual reasoning about portions. The explanation is better for finding equivalency using a number line (distance from 0) (pgs. 499-500), but does not</p>

	<p>adequately address the conceptual understanding required by the standard. Fraction strips are used to compare fractions to provide reasoning about numerator and denominator size (4.NF.2, pgs. 521-523) and referring to the same whole is not noted. Actual mathematical reasoning to understand the numerator and denominator size is lacking. The questioning on pgs. 669-672 does not lead to a robust experience for students of reasoning about decimal size. More varied representations in fluency practice would make it more robust (see, for example pgs. 119-120 where all exercises for addition and subtraction are presented in one format). Mixing notations and presenting arithmetic exercises with missing numbers would give students broader experiences. There are too many fill-in-the-blank and non-mathematical tricks. For example, when simplifying or creating equivalent fractions, the lesson just teaches to multiply/divide the numerator and denominator by the same number, rather than relating it to the identity property. There is too much scaffolding because the book shows representations of models for everything rather than allowing the student to explore multiple solution paths.</p>
5	<p>Focus: Volume is part of the major work of the grade. It is not introduced until the sixth lesson of the last unit (and this lesson is only preparatory of the standard). Volume standards are directly addressed in four lessons. 5.NF.2 seems to be taught in fragmented sections in such a way that the integrity of the whole standard is compromised leading to review instead of teaching the standard as it is written (example: pg. 619).</p> <p>Rigor: Opportunities for students to explore the “why” in the mathematics through problem solving is weak throughout the text.</p> <p>Most exercises are procedures or procedures with connections. High-level questions that get at concepts and high-level tasks where students learn through problem-solving are missing. Practice often presented with one kind of representation and format (examples: pgs. 515, 735, 841). Mixing notations and presenting arithmetic exercises with missing numbers, for example, would give students broader experience.</p>