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Kendall Hunt appreciates the opportunity to address the EdReports.org review of *Math Trailblazers*® grades K-2. As publisher of the program, we believe in both our curriculum and the notion that school systems must maintain their right to choose and implement educational content models that best meet locally determined learning objectives and the specific needs of their community's students, teachers, and parents.

To most effectively address the EdReports.org review, we have asked the *Math Trailblazers* author team from the Teaching Integrated Math and Science (TIMS) Project at the Learning Sciences Research Institute at the University of Illinois at Chicago to clarify the curriculum's philosophy and instructional design, as it seems to be the source of misunderstandings about the program. Their response follows:

The following beliefs informed the development and instructional design of *Math Trailblazers*® Fourth Edition (MTB4):

- Curricula should focus on developing students' abilities to think critically while solving relevant and complex problems.
- Districts must have autonomy and flexibility to decide how to address the Standards to best meet the needs of their students.
- Teachers need tools to guide their choices, not a script, because one size curriculum does not fit all.

It appears that EdReports.org's assessment of our program was done without a clear understanding of how MTB was designed to address these beliefs. MTB4 has been designed to engage students through challenging, problem-solving contexts that reveal the thinking of emerging mathematicians and build on that knowledge to formalize understanding. While EdReports.org's goals are admirable and welcome, the results of its cursory review of MTB4's focus and alignment misrepresent the program's instructional design.

Based on research and field test data, our curriculum underwent substantial revision by a team of mathematicians, scientists, education researchers, and teachers. This work did not result in a skeletal curriculum designed to simply cover the Standards. MTB4 was written with the belief that all children deserve a challenging mathematics curriculum and an educational experience resulting in students who enjoy and think flexibly about mathematics, see connections between the math they learn in school and everyday life, and have critical-thinking and problem-solving skills applicable to other disciplines and required for future success.

Use of MTB4 proves that a curriculum can support students and teachers to meet the expectations outlined in the Standards while acknowledging students' desires to engage in relevant and interesting problem solving.
We invite educators to contact us directly to obtain materials that meticulously detail MTB4's alignment to the Standards, the ways its instructional materials focus on the major cluster topics, and how the majority of class time is devoted to such work.

A more comprehensive review than the one EdReports.org has provided would illustrate the many ways that MTB4 focuses on the major work of the grade level and is coherent within and between grades, as well as show that EdReports.org's assessment of this requirement at each grade level contains numerous errors. For example, the report incorrectly claims that only 2 of the 17 units in first grade cover the major work of addition and subtraction within 20. In fact, 77 of the 115 first grade lessons include work on addition and subtraction within 20, and does not even factor in time spent on the highly effective distributive practice in Daily Practice and Problems and Home Practice included with *every* unit in order to build a strong Home-School connection.

By design, MTB4 is not designed to "cover" one isolated topic in one unit or one month because research shows that is not how students learn. Students in the primary grades enter school with a vast array of experiences with numbers and mathematics. Perhaps when reviewers did not find units neatly entitled "Add and Subtract to 20," they were unable to easily find the topics, and evaluated the curriculum incorrectly. We think reviewers simply counted the number of units where the topic was easily identified, resulting in its underrepresentation. It also appears that the number of major work expectations was compared to the total number of expectations for the grade. Each of these probable scenarios gives entirely distorted views of the amount of time actually spent studying the major topics. A more precise assessment shows that 28 of 36 Kindergarten lessons (78%), 95 of 109 first grade lessons (85%), and 85 of 104 second grade lessons (82%) focus on major work.

In response to the claim that MTB4 contains material not within the grade-level focus, reviewers seem to have misunderstood the reason for including such material and may have missed the fact that MTB4 is rich with grade-level appropriate content. As a result, the curriculum was penalized. The inclusion of this additional material is intentional, with content specifically placed to help teachers who work with young mathematicians to access and understand the critical areas of study.

For example, many topics are contexts for students to explore number and operations. While the report criticizes MTB4 for including a volume context in a Kindergarten lesson, this secondary story gives kindergarteners interesting, real reasons to count, compare, and understand addition— all major clusters of study in Kindergarten. Learners need time to explore, develop, build upon, revise, solidify, and make their own meaning of a topic well before the grade where it is assessed.

With this cross-grade level design, students gradually access material such as volume, area, and mass through developmentally appropriate contexts without distracting from the main topics of the grade level, allowing their conceptual understanding of the ideas to grow naturally.

Similarly, we must address a misunderstanding concerning content and assessment. MTB4 provides numerous assessment opportunities, both formal and informal, embedded throughout the lessons, so timely feedback can effectively guide instruction and improve learning. Instead of a system that relies only on summative assessment after student work is complete, this research-based, balanced approach gives teachers better information about where they are going, what students know, and how to make instructional decisions in a timely manner. Items that refer to above grade-level expectations were included to assess problem solving and the standards for math practices, and to provide teachers with developmentally appropriate information about students' understanding of grade-level work within a context, not their mastery of the above grade-level Standard.

Another comment addressed the quantity of material in each grade. MTB4 intentionally includes more material than a teacher can cover in a school year. This allows teachers to listen to their students, make instructional choices, and choose the materials that will move their students forward. MTB4 has added practice so that teachers do not have to invent their own, but that does not mean that every problem needs to be completed, discussed, reviewed, or graded. While we see merit in the standardization of math goals, not all students and classrooms are the same, and Standards are not scripted curriculum. MTB4's materials allow teachers to make instructional decisions that meet the individual needs of their students and provide practice to help advance all learners.

A coherent curriculum purposefully and systematically sequences specific ideas to support conceptual understanding and reasoning. Students are challenged to make connections between representations, ideas, and concepts. In MTB4, authentic situations and strategic reasoning are threads that connect these experiences and concepts. MTB4's strategic approach to the math facts and whole number computation within and across the grade levels is well illustrated by looking at the strategies menus introduced at the lesson level and reinforced for home use in the student Reference sections. In MTB4, concepts are revisited within new contexts to see if students can apply what they understand, recognize the limits of their understanding, and seek new ways to make connections between concepts and representations.

Had EdReports.org completed the analysis of Gateways 2 and 3, and had reviewers explored MTB4's rigor and attention to the mathematical practices, it would show that MTB4's rich and deep mathematics presents ongoing opportunities for students to apply math concepts in real-world situations. A more thorough study would reveal the balance between developing students' conceptual understanding,

procedural skills, and fluency. Equally important is MTB4's focus upon teachers as learners, supporting and transforming instruction to improve student achievement.

We look forward to seeing results from our users as they report data from their standardized assessments and anticipate that an item analysis will show that MTB4's material is an effective fit. While we acknowledge EdReports.org's intent, its analysis process does a disservice to all who are looking for a research and standards-based mathematics program that not only presents well on a Standards rubric, but is also powerful for students and transformative for teachers.

For a more detailed analysis of the major work addressed by *Math Trailblazers* at each grade level, go to kendallhunt.com/edreportsrebuttal

To request review access to *Math Trailblazers*, contact Kendall Hunt at KHinfo@kendallhunt.com.

To speak with the *Math Trailblazers* author team, contact the TIMS Project at mathtrailblazer@uic.edu.