CHAPTER 1

Introduction to Eureka Math

VISION AND STORYLINE

Eureka Math is a comprehensive, content-rich PreK–12 curriculum and professional development platform. It follows the focus and coherence of the new college- and career-ready standards and carefully sequences the mathematical progressions into expertly crafted instructional modules.

The new standards and progressions set the frame for the curriculum. We then shaped every aspect of it by addressing the new Instructional Shifts that teachers must make. Nowhere are the Instructional Shifts more evident than in the fluency, application, concept development, and debriefing sections that characterize lessons in the PreK–5 grades of *Eureka Math*. Similarly, Eureka's focus in the middle and high school grades on problem sets, exploration, Socratic discussion, and modeling helps students internalize the true meaning of coherence and fosters deep conceptual understanding.

Eureka Math is distinguished not only by its adherence to the new standards, but also by its foundation in a theory of teaching math that has been proven to work. This theory posits that mathematical knowledge is conveyed most effectively when it is taught in a sequence that follows the story of mathematics itself. This is why we call the elementary portion A *Story of Units*, followed by A *Story of Ratios* in middle school, and A *Story of Functions* in high school. Mathematical concepts flow logically from one to the next in this curriculum.

The sequencing has been joined with proven methods of instruction. These methods drive student understanding beyond process to deep mastery of mathematical concepts. The goal of *Eureka Math* is to produce students who are fluent, not merely literate, in mathematics.

In spite of the extensiveness of these resources, *Eureka Math* is not meant to be prescriptive. Rather, we offer it as a basis for teachers to hone their own craft. Great Minds believes deeply in the ability of teachers and in their central, irreplaceable role in shaping the classroom experience. To support and facilitate that important work, *Eureka Math* includes

both scaffolding hints to help teachers support Response to Intervention (RTI) and maintains a consistent lesson structure that allows teachers to focus their energy on engaging students in the mathematical story.

In addition, the online version of *Eureka Math* (www.eureka-math.org) features embedded videos that demonstrate classroom practices. The readily navigable online version includes progressions-based search functionality to permit navigation between standards and related lessons, linking all lessons in a particular standards strand or mathematical progression and learning trajectory. This functionality also helps teachers identify and remediate gaps in prerequisite knowledge, implement RTI tiers, and provide support for students at a variety of levels.

The research and development on which *Eureka Math* is based was made possible through a partnership with the New York State Education Department, for which this work was originally created. The department's expert review team, including renowned mathematicians who helped write the new standards, progressions, and the much-touted "Publishers' Criteria" (http://achievethecore.org/page/686/publishers-criteria) strengthened an already rigorous development process. We are proud to offer *Eureka Math*, an extended version of that work, to teachers all across the country.

ADVANTAGES TO A COHERENT CURRICULUM

Great Minds believes in the theory of teaching content as a coherent story from PreK to Grade 12—one that is sequential, scaffolded, and logically cohesive within and between grades. Great Minds' *Eureka Math* is a program with a three-part narrative, from A *Story of Units* (PreK–5) to A *Story of Ratios* (6–8) to A *Story of Functions* (9–12). This curriculum shows Great Minds' commitment to provide educators with the tools necessary to move students between grade levels so that their learning grows from what comes before and after.

A coherent curriculum creates a common knowledge base for all students that supports effective instruction across the classroom. Students' sharing of a base of knowledge engenders a classroom environment of common understanding and learning. This means that the effectiveness of instruction can be far more significant than when topics are taught as discrete unrelated items, because teachers can work with students to achieve a deep level of comprehension and shared learning.

This cohesiveness must be based on the foundation of a content-rich curriculum that is well organized and thoughtfully designed in order to facilitate learning at the deepest level. A coherent curriculum should be free of gaps and needless repetition, aligned to standards but also vertically and horizontally linked across lessons and grade levels. What students learn in one lesson prepares them for the next in a logical sequence. In addition, what happens in one second-grade classroom in one school closely matches what happens in another second-grade classroom, creating a shared base of understanding across students, grades, and schools.

Lack of coherence can lead to misalignment and random, disordered instruction that can prove costly to student learning and greatly increase the time that teachers spend on preparation, revisions, and repetition of material. The model of a sequential, comprehensive

curriculum, such as *Eureka Math*, brings benefits within the uniformity in time spent on content, approach to instruction, and lesson structure, facilitating a common base of knowledge and an environment of shared understanding.

The commitment to uniformity influenced Great Minds' approach to creating *Eureka Math*. This curriculum was created from a single vision spanning PreK–12, with the same leadership team of mathematicians, writers, and project managers overseeing and coordinating the development of all grades at one time. By using the same project team throughout the course of *Eureka Math*'s development, Great Minds was able to ensure that *Eureka Math* tells a comprehensive story with no gaps from grade to grade or band to band.