EUREKA MATH²®

# Build Enduring Math Knowledge

READ THE REPORT edreports REVIEW YEAR 2023

Research shows that conceptual understanding, procedural fluency, and application are all essential for learning math successfully. For too long, however, math curricula have failed to enable students to deeply understand math concepts so they can better apply their math knowledge in new and increasingly complex ways.

*Eureka Math²*® is a revolutionary curriculum designed to help every child achieve greatness in mathematics. The program's thoughtfully coherent instructional content engages students across concepts, lessons, and grade levels, ensuring students build math knowledge that sticks. *Eureka Math²* lessons are designed to showcase our balanced, **Dynamic Middle** approach to instruction. Some lessons within a topic may be student-driven and focus on conceptual understanding and application, while other lessons may be more content-driven and lean into procedural fluency. Over the course of topics and modules, the curriculum achieves a nimble balance of each aspect. That means students are taught underlying concepts—the why, not just the how, of mathematics—and learn multiple strategies and models to solve math problems rather than just tricks or mnemonic devices to pass a test.

Innovative, interactive digital features and embedded learning supports ensure all students can access grade-level content. Every module of the curriculum features a piece of fine art that is connected to the math being taught, providing a novel point of entry to develop a deeper understanding of math concepts. And every lesson includes opportunities for rich student discourse because peer-to-peer discussion helps students solidify their understanding.

Over time, this balanced, Dynamic Middle instructional approach empowers students to successfully tackle complex problems and apply procedures more flexibly and accurately to unfamiliar material.

GREAT MINDS™

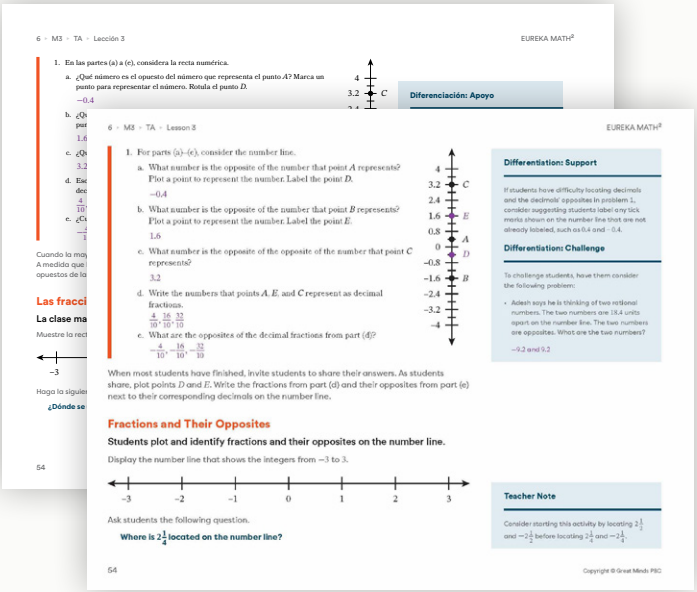
every child is capable of greatness

# *Eureka Math²* Promotes Rigorous Math Learning for All Students

## Advancing Equity in the Classroom

Every child deserves access to high-quality instructional materials, and teachers deserve the instructional supports necessary to confidently meet the demands of today's classrooms. By design, *Eureka Math²* advances equity and empowers students and teachers, honoring every individual as a valuable contributor to the mathematics classroom. **Spanish versions** of our teacher and student materials are also available.

- **Point-of-use margin notes** are found in every lesson and topic. They include teacher notes to build teacher content and pedagogical knowledge and opportunities to Promote Mathematical Practice. They also include Universal Design for Learning (UDL) suggestions, language support, and differentiation suggestions to account for learner variance.
- Lessons and modules are **intentionally organized to leverage connections** between concepts, and they progress conceptual understanding from simple to complex to help students access new learning and problem-solving abilities for a coherent learning experience.
- Straightforward and concise language greatly **improves readability for all students**—making the curriculum more accessible to multilingual learners and students with dyslexia.




## Student Engagement with Rigorous Math Content

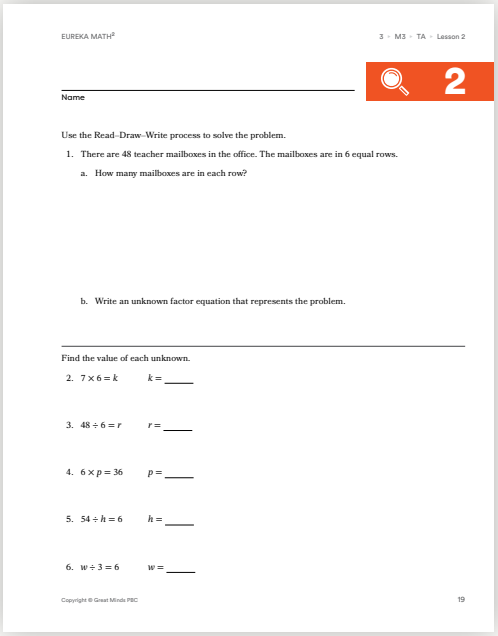
Through a focused approach to encouraging student discourse, intentional integration of digital interactives, and by connecting lessons to real-world math, the curriculum keeps students engaged.

- The instructional design of *Eureka Math²* lessons supports students in math discourse and provides scaffolds for their successful engagement.
  - The **Talking Tool** is a scaffold to support students in producing language to engage in discourse about mathematics with other students by providing general sentence frames and sentence starters that are broadly applicable.
  - **Recurring instructional routines** encourage students to talk about math, and the repetition of the routines within grades and across grade levels helps students develop ownership over the routines.
- Digital interactives and demonstrations help illuminate student learning and deepen knowledge building.
  - All students will experience authentic, relevant problems and **digitally-powered interactive content, designed to engage** students from different cultures, backgrounds, and abilities.
  - Every module includes engaging and accessible low-floor, high-ceiling **context videos** that show diverse characters and people using math in real-world situations.

## Instructional Design Supports Knowledge Building

An intense focus on key concepts that layer over time supports students in creating enduring knowledge. Students gain a complete and coherent body of math knowledge, not just a discrete set of skills.

- **Integrated distributed practice and interleaving** provide students opportunities to revisit and practice concepts in different formats and contexts over time to help build enduring knowledge.
- **Similar models and problem-solving processes recur** grade to grade, so math concepts stay with students, year after year. For example, students will engage with the Read-Draw-Write (RDW) process in Grade Levels K–5 and Read-Represent-Solve-Summarize (RRSS) routine in Grade Levels 6–Algebra I so they can make sense of and complete word problems. As students enter high school level courses like Algebra I or Mathematics I, the familiar RRSS routine from middle school builds students towards the mathematical modeling cycle .
- Students engage in **open-middle and open-ended tasks**, which provide them opportunities to apply their knowledge to solve math problems.



EUREKA MATH² 3 • M3 • TA • Lesson 2

2

Name _____

Use the Read–Draw–Write process to solve the problem.

1. There are 48 teacher mailboxes in the office. The mailboxes are in 6 equal rows.
   a. How many mailboxes are in each row?

   b. Write an unknown factor equation that represents the problem.

Find the value of each unknown.

2. $7 \times 6 = k$ $k =$ _____
3. $48 \div 6 = r$ $r =$ _____
4. $6 \times p = 36$ $p =$ _____
5. $54 \div h = 6$ $h =$ _____
6. $w \div 3 = 6$ $w =$ _____

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## Cross-Content Connections

- *Eureka Math²* includes a **diverse collection of carefully curated pieces of art and cultural artifacts** that connect to the math being taught. As students discuss and analyze the art, they learn how math connects to history and human experiences.
- **Math Past** is included in most modules to help share the history of some big ideas of the module. It tells the story of the mathematics through artifacts, discoveries, and other contributions from cultures around the world.

1 • M3 • TB • Lesson 10 EUREKA MATH²

Direct students to Sprint B.

**Take your mark. Get set. Improve!**

Time students for 1 minute on Sprint B.

**Stop! Underline the last problem you did.**

**I'm going to read the answers. As I read the answers, call out "Yes!" and mark your answer if you got it correct.**

Read the answers to Sprint B quickly and energetically.

**Count the number you got correct and write the number at the top of the page.**

**Stand if you got more correct on Sprint B.**

Celebrate students' improvement.

**Teacher Note**

Count forward by ones from 15 to 25 for the fast-paced counting activity.

Count backward by ones from 25 to 15 for the slow-paced counting activity.

**Launch** 15

**Students study artwork and represent what they observe with a number sentence.**

Gather students with their personal whiteboards. Display *The Migrants Arrived in Great Numbers* by Jacob Lawrence. Do not reveal any information about the painting. Invite students to notice and wonder about the artwork.

If necessary, stimulate discussion by asking questions:

- What do you think the people are doing?
- Why do you think they are in groups?
- What questions would you ask the artist?

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# *Eureka Math²* Provides Assessment & Data Tools to Inform Instructional Decisions

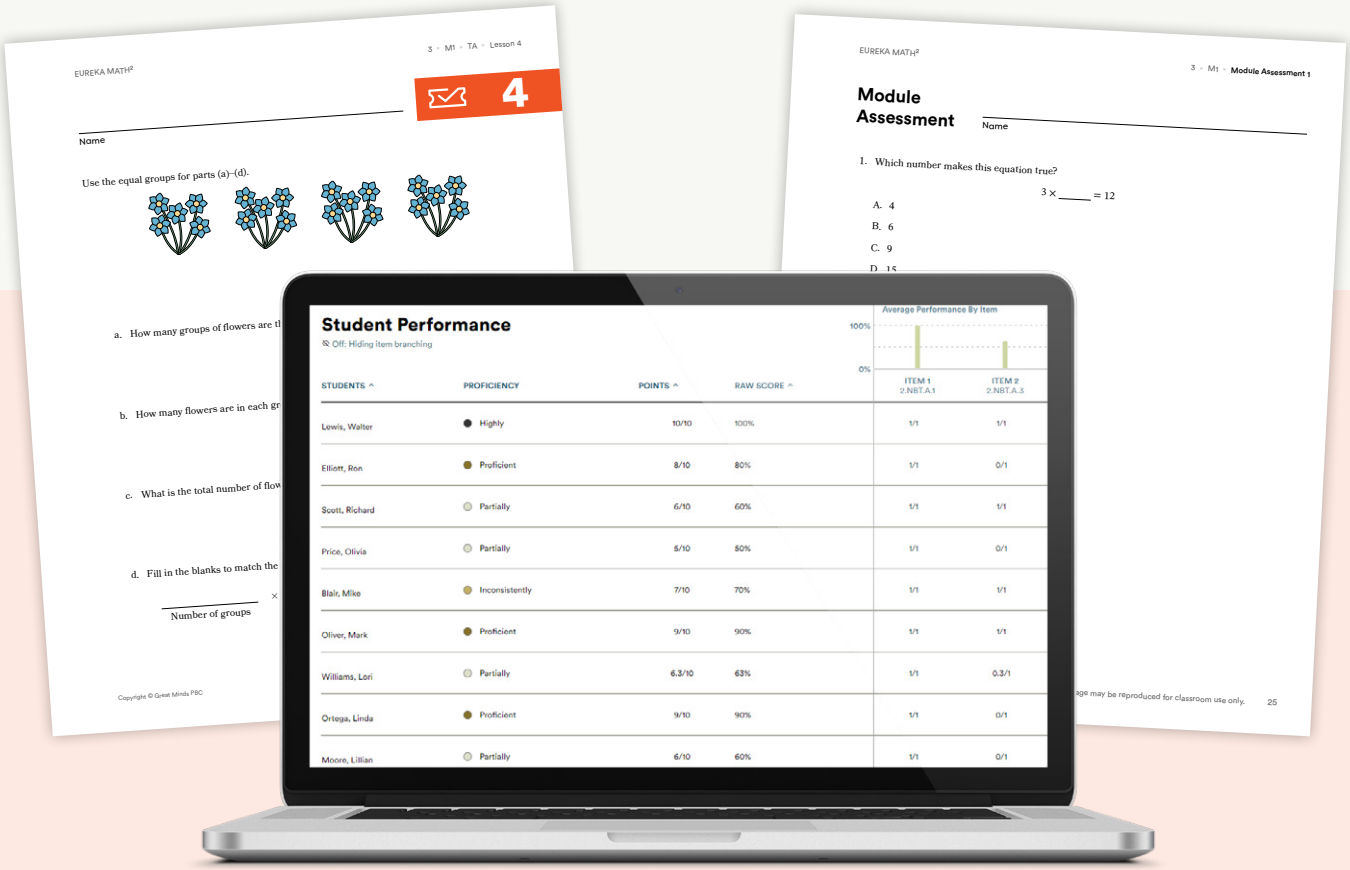
## Cohesive System of Assessment

From Pre-Module Assessments that measure foundational knowledge to end-of-module and benchmark tests that assess student progress, to Exit Tickets and Topic Quizzes in between, our assessments provide meaningful diagnostic, formative, and summative feedback and data to help guide instructional decisions and ensure student proficiency.

- ***Eureka Math² Equip***™ begins with a diagnostic Pre-Module digital assessment for Level 1 through Algebra I that identifies a student's last point of success with the essential foundational knowledge for the module to help teachers pinpoint unfinished learning. A detailed report and linked supporting activities help teachers seamlessly bridge any gaps identified by the assessment.
- **Formative assessments** include Observational Assessment Recording Sheets in Levels K–2, Exit Tickets in Level 1–Algebra I, Topic Tickets in Levels 1–2, and Topic Quizzes in Level 3–Algebra I.
- **Summative assessments** include Module Assessments and Benchmark Assessments. Benchmark Assessments measure student proficiency with math skills and concepts from the two previous modules and select review skills reflecting the major work of the grade.

  *Eureka Math² Equip* and Benchmark Assessments are premium assessment options.

Scan the QR code to learn more about *Eureka Math²* assessments.



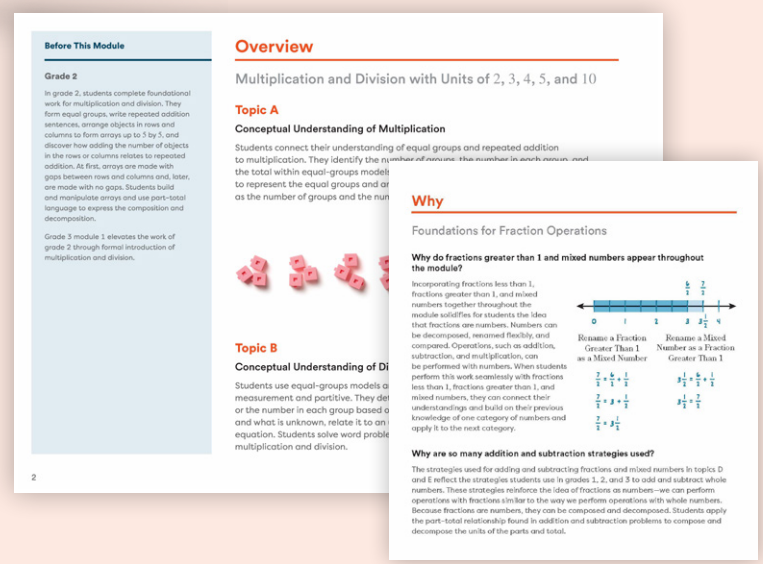
# *Eureka Math²* Print and Hands-On Resources


## Teacher Edition

Available for each module at each grade level, the *Teach* book is the Teacher Edition, which provides all the instructional guidance educators need to engage in the module's learning with students. The book includes the following components.

The **Overview**, a topic-by-topic summary that shows the development of learning throughout the module. It also provides connections to work done before and after the module, helping educators understand the module's place in the overall development of learning in and across grade levels.

The **Why** section gives insight into the decisions made during the writing of the module to help educators understand the underlying structure of the model, the flow of the content, and the coherence of the different parts of the curriculum.



Before This Module

Grade 2

In grade 2, students complete foundational work for multiplication and division. They form equal groups, write repeated addition sentences, arrange objects in rows and columns to form arrays up to 5 by 5, and discover how adding the number of objects in the rows or columns relates to repeated addition. At first, arrays are made with gaps between rows and columns and, later, are made with no gaps. Students build and manipulate arrays and use part-total language to express the composition and decomposition.

Grade 3 module 1 elevates the work of grade 2 through formal introduction of multiplication and division.

Overview

Multiplication and Division with Units of 2, 3, 4, 5, and 10

Topic A

Conceptual Understanding of Multiplication

Students connect their understanding of equal groups and repeated addition to multiplication. They identify the number of groups, the number in each group, and the total within equal-groups models to represent the equal groups and as the number of groups and the

Topic B

Conceptual Understanding of Di

Students use equal-groups models measurement and partitive. They or the number in each group based and what is unknown, relate it to an equation. Students solve word proble multiplication and division.

2

Why

Foundations for Fraction Operations

Why do fractions greater than 1 and mixed numbers appear throughout the module?

Incorporating fractions less than 1, fractions greater than 1, and mixed numbers together throughout the module solidifies for students the idea that fractions are numbers. Numbers can be decomposed, renamed flexibly, and compared. Operations, such as addition, subtraction, and multiplication, can be performed with numbers. When students perform this work seamlessly with fractions less than 1, fractions greater than 1, and mixed numbers, they can connect their understandings and build on their previous knowledge of one category of numbers and apply it to the next category.

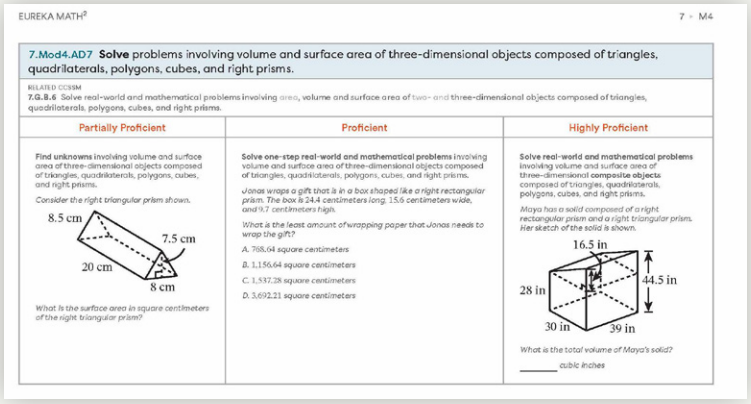
Rename a Fraction Greater Than 1 as a Mixed Number

Rename a Mixed Number as a Fraction Greater Than 1

Why are so many addition and subtraction strategies used?

The strategies used for adding and subtracting fractions and mixed numbers in topics D and E reflect the strategies students use in grades 1, 2, and 3 to add and subtract whole numbers. These strategies reinforce the idea of fractions as numbers—we can perform operations with fractions similar to the way we perform operations with whole numbers. Because fractions are numbers, they can be composed and decomposed. Students apply the part-total relationship found in addition and subtraction problems to compose and decompose the units of the parts and total.

Each lesson includes **Achievement Descriptors**, standards-aligned descriptions that detail what students should know and be able to do based on instruction they receive, and **Proficiency Indicators**, which reveal how well students understand the concepts taught, for each Achievement Descriptor.



EUREKA MATH²

7 • M4

7.Mod4.AD7 **Solve** problems involving volume and surface area of three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.

RELATED CCSSM

7.G.B.6 Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.

| Partially Proficient | Proficient | Highly Proficient |
|---|---|---|
| **Find unknowns** involving volume and surface area of three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms. | **Solve one-step real-world and mathematical problems** involving volume and surface area of three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms. | **Solve real-world and mathematical problems** involving volume and surface area of three-dimensional **composite objects** composed of triangles, quadrilaterals, polygons, cubes, and right prisms. |
| *Consider the right triangular prism shown.* 8.5 cm, 7.5 cm, 20 cm, 8 cm. *What is the surface area in square centimeters of the right triangular prism?* | *Jonas wraps a gift that is in a box shaped like a right rectangular prism. The box is 24.4 centimeters long, 15.6 centimeters wide, and 9.7 centimeters high.* *What is the least amount of wrapping paper that Jonas needs to wrap the gift?* A. 788.64 square centimeters B. 1,156.64 square centimeters C. 1,537.28 square centimeters D. 3,692.21 square centimeters | *Maya has a solid composed of a right rectangular prism and a right triangular prism. Her sketch of the solid is shown.* 16.5 in, 28 in, 44.5 in, 30 in, 39 in. *What is the total volume of Maya's solid?* _____ cubic inches |

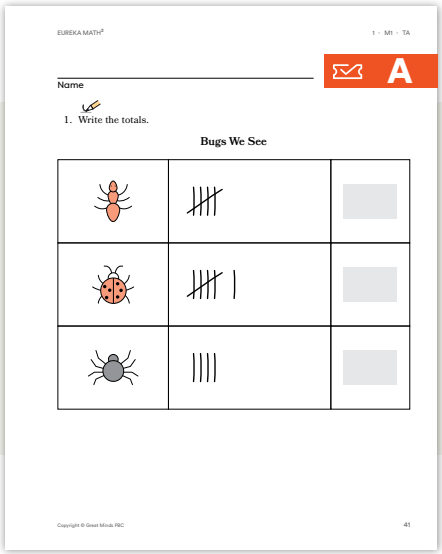
# *Eureka Math²* Print and Hands-On Resources

## Student Books and Family Resources

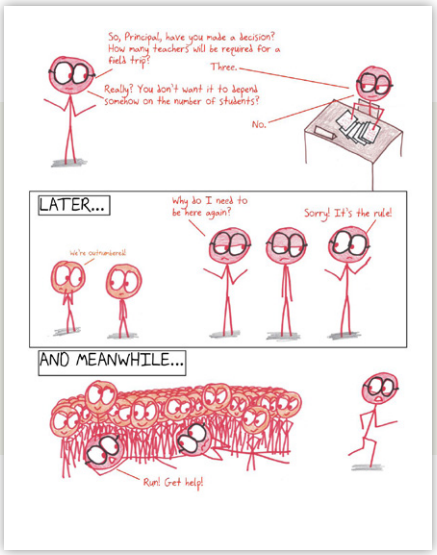
Available for each module at each grade level, these student-facing books are designed for students to use in the classroom and to practice their skills and hone their knowledge outside of the classroom.

The ***Learn*** books are students' companion text to the instruction in the *Teach* books. They contain all the pages students need as educators implement each lesson.

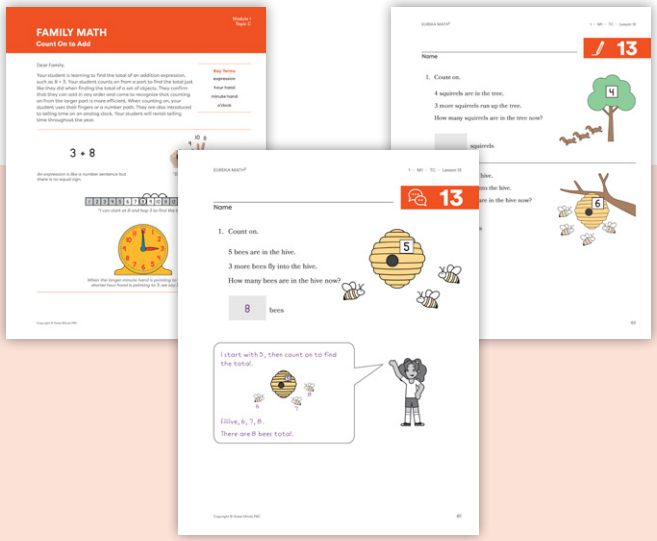
- In **Levels K–5**, student workbooks include the Lesson Pages, Problem Sets, Exit Tickets (except in Kindergarten), the Talking Tool, and the Thinking Tool, eliminating the need for printing pages from the Teacher Edition or transcribing information from the classroom whiteboard for student assignments.
- In addition to the above, **Level 6–Algebra I, or Mathematics I**, include Ben Orlin's Math with Bad Drawings as Topic Openers, Practice problems, Recap problems, Mixed Practice, and Fluency resources.








The ***Apply*** books give students more practice with the concepts learned in class in Levels 1–5. There are three components in *Apply* that support students in deepening their understanding of the concepts covered in the daily lesson: Family Math (included in the Prekindergarten and Kindergarten *Learn* book), Practice, and Practice Partners.

## Math Manipulatives

A curated collection of digital and physical classroom materials and tools that help students develop mathematical understanding and maximize learning coherence between grades while minimizing classroom distractions.

# *Eureka Math²* Digital Resources

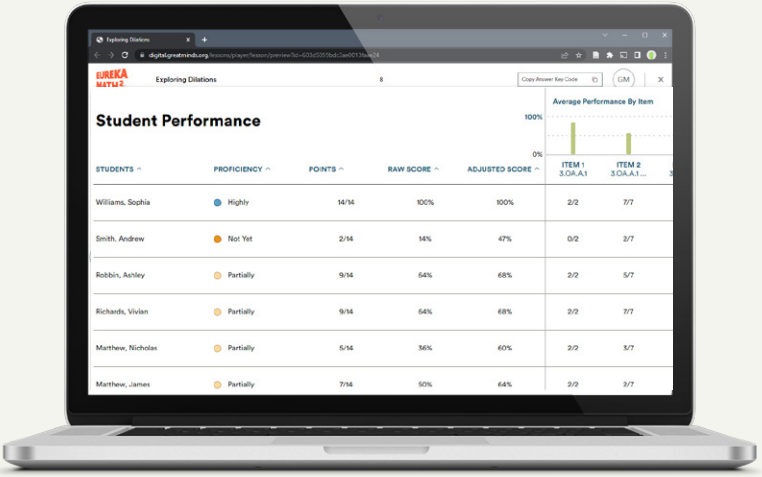
There's exponentially more to *Eureka Math²* than can fit on the pages of a book. That's why we created a Great Minds digital platform, which is organized into three key spaces: Teacher Resources, Digital Assessment and Reporting, and Student Experience.

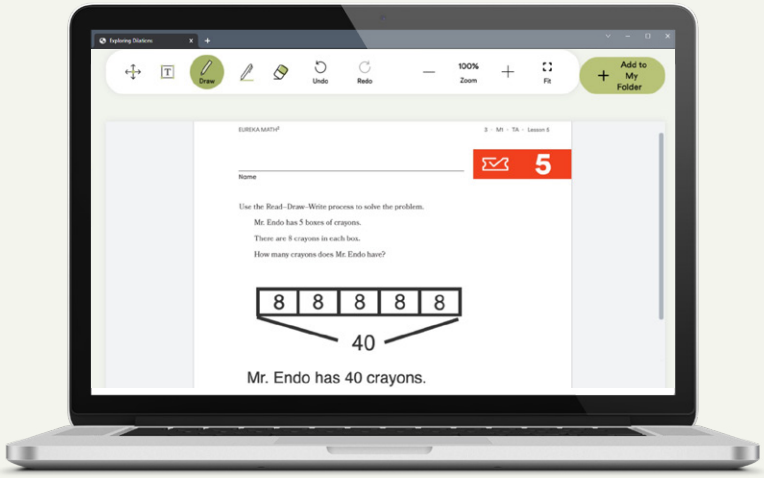

## Teacher Experience

- Context videos and interactive lesson demonstrations create a unique point of engagement for students to explore mathematics.
- Teachers have access to their digital Teacher Edition modules (*Teach* books) with annotation tools that assist in planning.
- Downloadable lesson slides include everything a teacher needs to engage students in whole group instruction and collaborative conversation.
- Implementation resources, such as Implementation Guides, Scope and Sequence documents, and more, help teachers plan and teach *Eureka Math²*. Certain resources are available in both English and Spanish.

## Digital Assessments and Reports

- Digitally assigned assessments can be given to individual students, groups of students, or entire classes of students, aiding in educator flexibility and getting real time results.
- Generate highly visual reports that outline student performance and proficiency at the student, class, school, and district level so responsive teaching and resource decisions can be easily made with data.




## Student View

- Access to-do lists that showcase assigned lesson and practice problem work on one convenient screen.
- Leverage math tools like virtual manipulatives and math applets to help build math understanding.
- Locate and launch digitally assigned assessments in class.
- Review a year-long portfolio of student work including lesson work with teacher comments and assessment scores.

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