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**EUREKA
MATH²**

Getting Started Guide
Level 3 Module 1

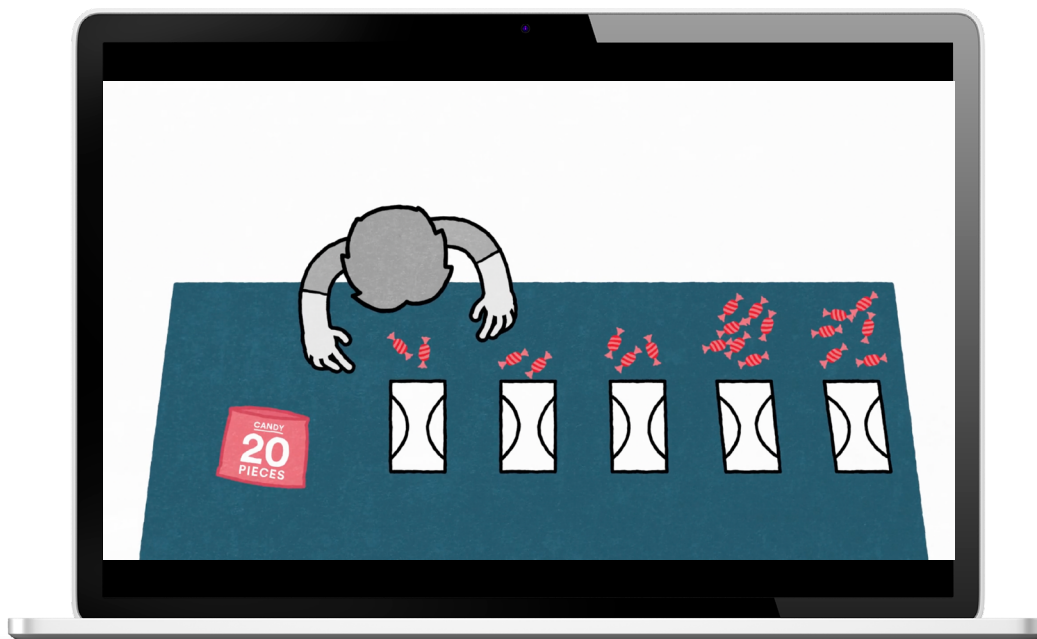
Getting Started

This Getting Started Guide provides contextual information as you review *Eureka Math*². Follow along as we explore the contents of the *Teach*, *Learn*, and *Apply* books. The guide also highlights some **key components of the digital experience** that are seamlessly integrated into *Eureka Math*².

Exponentially More

Eureka Math[®] revolutionized math teaching in the United States. The curriculum has helped students understand the *why* behind the math, not just the *how*. It has become the most widely used K-5 math curriculum in the country—so why would we change it? Because we listened to feedback from our dedicated team of *Eureka Math* teachers throughout the country and studied the findings of current educational research. Armed with this knowledge, we decided to expand the accessibility and efficacy of our materials so that even more students can achieve greatness in math.

*Eureka Math*² is exponentially more efficient. Exponentially more engaging. Exponentially more accessible. And this adds up to exponentially more knowledge and joy for students and teachers alike.



$$\text{Teachability}^2 + \text{Engagement}^2 + \text{Accessibility}^2 = \text{Joy}^2$$

Thinking and Talking *About Math*

The teacher-writers who crafted *Eureka Math*² realize the value of student discourse. Starting in kindergarten, *Eureka Math*² students engage with the teacher and with one another to make their thinking visible. Students work in pairs and in groups as they engage in a variety of instructional routines and participate in whole class discussions to explore mathematical ideas. The Talking Tool, detailed on the inside cover of every *Learn* book, provides sentence frames and sentence starters to help guide student discourse.

Similar to the Talking Tool, the Thinking Tool, on the inside back cover of the *Learn* book, is a scaffold to support students in developing and applying metacognitive skills. It provides a set of questions students can ask themselves before, during, and after engaging in a task.

Thinking and talking about math helps students develop a deeper understanding of the topics they learn. These activities are key factors in creating an equitable classroom culture—and in helping students find the joy in mathematics.

How Students *Build Knowledge*

*Eureka Math*² is organized into three coherent stories that build from year to year: *A Story of Units*[®] for Grade Levels K–5, *A Story of Ratios*[®] for Grade Levels 6–8, and *A Story of Functions*[®] for Grade Levels 9–12.

Each grade level is organized into six modules. Within each module, related lessons are organized into topics.

A close look at the module map reveals that the major work of the grade level is delivered earlier in the school year. This allows students to have ample opportunities to establish strong foundational knowledge. *Eureka Math*² reinforces this knowledge later in the year by connecting supporting content to major grade-level work and providing students with real-world context.

Talking Tool	
I Can Share My Thinking 	My drawing shows I did it this way because I think _____ because
I Can Agree or Disagree 	I agree because I disagree because I did it a different way. I
I Can Ask Questions 	How did you . . . ? Why did you . . . ? Can you explain . . . ?
I Can Say It Again 	I heard you say _____ said Can you say it another way?

EUREKA MATH²

Implement with Fidelity and *Confidence*

The same team of teacher-writers who crafted *Eureka Math*² also developed an Implementation Guide to help educators bring the curriculum into their classrooms. The guide provides a detailed map of the resources built into the curriculum and offers advice on how to prepare to teach each module. [Access the full Grade Levels 3–5 Implementation Guide.](#)

Below we'll highlight some of the information covered in the Implementation Guide to help you explore *Eureka Math*² Level 3 Module 1.

An Intentional and Meaningful Integration of *Digital Learning*

The *Eureka Math*² writers strategically integrated digital components with K–5 lessons so that technology enhances instruction without the need for individual student devices. *Eureka Math*² Equip™, a companion product to *Eureka Math*², is a digital diagnostic tool that offers a Pre-Module Assessment for every student. It identifies learning gaps and provides teachers with content tailored to address those gaps so that all students can access grade-level content. The curriculum's digital platform includes teacher facilitation slides that display lesson visuals such as mathematical representations, images, videos, or digital interactives. Students also participate in a teacher-led class demo with interactive tools on the Great Minds® Digital Platform to visualize various mathematical models.

When students have their own devices, they can access the *Learn* book content and complete assignments digitally.

Every module includes at least one context video that shows an application of the module's math in real-life scenarios. Each video in our *Eureka Math*² digital experience has been crafted with special care to ensure representation of students from different backgrounds and abilities. These videos do not include spoken words because we want to make them accessible to multilingual learners and striving readers and keep the focus on the math story instead of the dialogue. You can access the video for this lesson on the webpage where you accessed this guide.

[Access the Great Minds Digital Platform](#) to review *Eureka Math*² assessments, digital interactives, context videos, and more.

Bringing Fine Art *into Math*

Among all math curricula, *Eureka Math*² is unique in its integration of fine art. The cover of each module features an impressive work of fine art that is visually or conceptually connected to the math. Level 3 Module 1 features the painting *Farbtafel "qu 1"* by Paul Klee, and a note on the inside cover helps students understand how the artwork is connected to the math they will learn.



A Map to the *Learning*

Every *Teach* book begins with an Overview. In Level 3 Module 1, the Overview begins on page 2. The Overview notes any previous knowledge students use and build upon in the module, summarizes the student learning taking place on each topic in the module, and shows where in the curriculum students will next access the module's learning to build new layers of understanding and more complex knowledge.

Following the Overview is the Why section. The Why section gives insight into the decisions made during the writing of the module, helping you understand the underlying structure of the module, the flow of the content, and the coherence of the different parts of the curriculum.

What Does Understanding *Look Like*?

Beginning on page 10, the *Teach* book highlights the Achievement Descriptors addressed in the module. Achievement Descriptors are clear, concise, standards-aligned descriptions that detail what students should know and be able to do based on the instruction. The first page of each lesson identifies the Achievement Descriptors aligned with that lesson. Proficiency Indicators for each Achievement Descriptor support teachers with interpreting student work in the module. The Proficiency Indicators begin on page 374 in the Level 3 Module 1 *Teach* book.

History of the Math

Math Past is another way that *Eureka Math*² helps students build knowledge—by telling the history of some of the big ideas that shape the mathematics in the module. Math Past frames mathematics as a human endeavor by telling the story of the discipline through artifacts, discoveries, and other contributions from cultures around the world. Math Past provides material that can inform your teaching and offers lesson-specific ideas about how to engage students in the history of mathematics. The Math Past summary for Level 3 Module 1 appears on page 386.

Math Past

Olden ×

**Who first used the symbol × for multiplication?
Were there other multiplication symbols?
Do we still use any of them today?**

Tell your class that you will write 3 times 5 on the whiteboard. Your students probably expect you to write the following expression:

$$3 \times 5$$

That is, after all, the way modern elementary students learn to write multiplication. In fact, the × symbol to represent multiplication has been in use for over 400 years. It was first used in print in the early 1600s by English mathematician William Oughtred. But along the way, scholars tried, and eventually discarded, several other notations for multiplication.

Instead of writing what students expect, build wonder by writing this:

$$3 \text{ M } 5$$

Tell students that mathematicians in mid-1500s Germany represented multiplication by using an *M* instead of the × symbol. Ask your students to guess why mathematicians picked the letter *M* to represent multiplication. Some students may observe that *M* is the first letter in the word *multiply*. In fact, the *M* stands for the German word *multiplizieren*, meaning "to multiply."

Again, build wonder by writing a different notation:

$$\square 3, 5$$

This should start some interesting student discussion. What could the rectangle mean? If it is supposed to mean "multiply," then why isn't it between the 3 and the 5? And why is there a comma?

This way of writing multiplication was introduced in France in the mid-1600s. The rectangular symbol is a shortcut way of saying "find the area of an array containing 3 rows of 5." The comma is actually the multiplication symbol.

Once more, build wonder by writing yet another multiplication notation. Students might be quite amused by this one.

$$3 \text{ O } 5$$

What do students think of the symbol between 3 and 5? Some may see it as a letter *C* drawn sideways or even a pair of headphones.

This way of writing multiplication was invented by mathematician Gottfried Leibniz in 1666. It was Leibniz's first attempt to invent a symbol for multiplication. We do not know why he chose this particular symbol, but it was indeed just a letter *C* drawn sideways. Over the years, Leibniz experimented with other symbols for multiplication and finally discarded the sideways *C* in favor of using a simple dot.

$$3 \cdot 5$$

We still use the dot today, but students have not yet seen it at this stage of learning. In algebra, the dot helps students avoid confusion between the variable *x* and the multiplication symbol ×. Leibniz even predicted this problem. He wrote,

I do not like × as a symbol for multiplication, as it is easily confounded with *x*...

Challenge your students to create a multiplication symbol of their own!

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Dive into a *Topic*

It's time to dive into a topic to better understand the *Eureka Math*² learning design. On page 91 in Level 3 Module 1, we begin Topic B: Conceptual Understanding of Division. Every topic begins with an overview that summarizes the development expected as students engage with the upcoming content. In the Topic B overview, the teacher can see that students will be presented with two interpretations of division—sometimes the number of groups is known (partitive division), and sometimes the number in each group is known (measurement division). The teacher can also see how this learning will continue in the topic.


The topic also includes a Progression of Lessons list on page 92. This list shows sample content from each lesson along with a student-friendly statement about the major learning.

3 • M1 • TB

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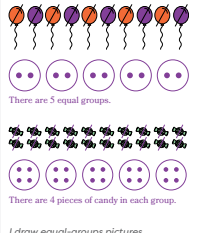
Progression of Lessons

Lesson 6
Explore measurement and partitive division by modeling concretely and drawing.



My strategy for equal sharing when I know the total and the number in each group is different from my strategy when I know the total and the number of groups.

Lesson 7
Model measurement and partitive division by drawing equal groups.

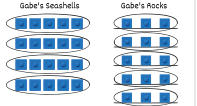


There are 5 equal groups.

There are 4 pieces of candy in each group.

I draw equal-groups pictures to represent division situations. Sometimes I know the total and the number in each group, and sometimes I know the total and the number of groups.

Lesson 8
Model measurement and partitive division by drawing arrays.



$10 \div 5 = 2$	$15 \div 5 = 3$
total number in each row	total number of rows in each row

I use arrays and equations to represent division situations. The \div symbol means "divided by," and I use the symbol when I write division expressions and equations.

92

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Lesson Structure *and Support*

Every Grade Level K–5 *Eureka Math*² lesson is organized into four sections, providing the teacher with a clear lesson plan for the day's learning.

- **Fluency** opens each lesson and provides distributed practice with previously learned material. This practice prepares students for new learning by activating prior knowledge and bridging small learning gaps.
- **Launch** creates an accessible entry point to the day's learning with activities that build context and create productive struggle, which helps build new knowledge.
- **Learn** presents new math concepts related to the lesson objective, usually through a series of instructional segments.
- **Land** provides time for teachers to facilitate a brief closing discussion and for students to complete the Exit Ticket.

Throughout the lesson, margin notes provide information about facilitation, differentiation, and coherence. The curriculum has six types of margin notes: Teacher Notes, Universal Design for Learning, Language Support, Differentiation, Promoting the Standards for Mathematical Practice, and Math Past.

Dive into a *Lesson*

The lesson overview on page 128 helps teachers prepare to teach Lesson 8.

- The **Lesson at a Glance** is a snapshot of the lesson framed through what students should know, understand, and do while engaging with the lesson.
- The **Key Question** helps focus instruction and classroom discourse.
- The **Achievement Descriptors** appear again, this time mapping what students should know and be able to do based on the instruction of the specific lesson to the standards covered.
- An image of the **Exit Ticket** from the end of the lesson shows what this formative assessment includes.

Finally, page 129 lays out the learning agenda as well as the materials list and lesson preparation notes. These are all shared up front to help teachers feel organized and ready for the lesson from the start.

During the Lesson 8 Fluency exercises on page 130, students first construct a number line with their fingers while counting aloud to build fluency with counting by twos and fives and develop a strategy for multiplying. Then they tap and clap to count with an emphasis on multiples of three. Over the course of the other lessons in this topic, students will count in a variety of ways to build fluency with multiples.

In Launch, students are presented with images of eggs and discuss the similarities and differences between equal groups and arrays. Then they consider whether the images represent multiplication or division.

Teachers guide students to solve two types of division word problems by representing the problems with arrays and division equations. Next, students use the Read–Draw–Write process to solve a pair of related division word problems. Then they turn to their *Learn* books to work on a Problem Set. Before students begin this work, teachers should note the guidance provided on page 143 and that the problems students will work through have been organized from simple to complex.

Page 142 includes a teacher margin note that suggests different ways to support students while they work through division word problems.

Language Support

Consider having students restate the problem in their own words. Ask students to state what is known and highlight it in the problem. Use a different color to highlight the question in the problem. Ask students to restate the question as a solution statement with a blank for the unknown. Repeat this procedure as needed when students are working through contextual problems involving division.

Teacher Note

To support the discussion, consider displaying a sample of student work for problem 3 instead of the picture provided.

The Student Experience:

Learn

On page 61 of the *Learn* book, students begin the Problem Set for Lesson 8. Notice the gears icon in the top corner of the page. This icon is used to indicate a Problem Set section. Other icons that may appear in lessons include a magnifying glass and a ticket with a check mark. The magnifying glass icon indicates a lesson page that students use during the guided or directed portion of the lesson, and a ticket with a check mark icon indicates that the page is the Exit Ticket for the lesson.


Let's look at readability. You will notice that the student materials are intentionally designed to be readable by students while maintaining the rigor that you've come to expect from Great Minds curricula. We have reduced wordiness—eliminating unnecessary wording entirely—and we have been intentional in our language choices and sentence length.

EUREKA MATH² 3 • M1 • TB • Lesson 8

Name _____

Fill in the blanks to match the arrays.

1. There are 8 pencils in equal rows.




a. The number in each row is ____.

b. The number of rows is ____.

c. $\frac{\text{total}}{\text{number in each row}} =$ _____

2. There are 12 stars in equal rows.



a. The number in each row is ____.

b. The number of rows is ____.





c. $\frac{\text{total}}{\text{number in each row}} =$ _____

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EUREKA MATH² 3 • M1 • TD • Lesson 15

Name _____

1.

Picture	Multiplication Equations	Division Equation
a. 		
b. 		
c. 		
d. 		

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EUREKA MATH² 3 • M1 • TB • Lesson 8


Problem Set

Differentiate the set by selecting problems for students to finish independently within the timeframe. Problems are organized from simple to complex.


Land 15

Debrief 5 min

Objective: Model measurement and partitive division by drawing arrays.



Picture A



Picture B

Show the pictures of the eggs arranged in groups and an array.

Gather the class and facilitate a discussion about arrays and division.

How can arrays be used to represent division?

Arrays show the total, the number of rows, and the number in each row.

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After students work independently on their Problem Set, the class comes back together for the Land portion of the lesson. For Lesson 8, this section begins on page 143 of the *Teach* book. In this portion of the lesson, the teacher facilitates a discussion by using suggested questions related to the lesson's objectives and guides students to synthesize the day's learning. Following the discussion, students complete the Exit Ticket on page 65 of their *Learn* book. This gives teachers a sense of what students understand so they can help make instructional decisions for the next lesson.

Continued Practice *at Home*

The final book in the module series is *Apply*. The *Apply* book offers students more practice with the concepts learned in class. It has three components that support students in deepening their understanding of the concepts covered in the daily lesson.

- **Family Math** is a letter to families that describes the major concepts in the current topic. The letter uses words and phrases that should be familiar to the students from the class lessons. It also includes visual supports that students can use to explain the concepts or strategies to their family or that can help adults at home understand a concept.
- **Practice** problems interleave and distribute practice, providing students with opportunities to discern and recall which knowledge, concepts, and strategies are appropriate for solving different problems.
- **Practice Partners** provide a unique kind of support. Students work through the thinking of an imagined partner who is solving problems like those in the Practice.

Module 1
Topic 8

FAMILY MATH

Conceptual Understanding of Division

Dear Family,

Your student is exploring how multiplication connects to division. They represent real-world division situations with equal-groups models, arrays, and equations using the division symbol.

Sometimes the total and the number of groups are known, and sometimes the total and the number in each group are known.

Share 10 crackers.

2 equal groups of 5 crackers

5 equal groups of 2 crackers

Key Terms and Symbols

divide
division
division symbol ÷

Mia puts 10 pencils into equal groups. She puts 2 pencils in each group. How many equal groups of pencils are there?

There are 5 equal groups.

$20 \div 5 = 4$
total number in each row = 4
number of rows

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EUREKA MATH[™] 3 • M1 • TB • Lesson 8

Name _____

8

Fill in the blanks to match the array.

1. There are 15 soccer balls in equal rows.

a. The number in each row is 3.

b. The number of rows is 5.

c. $\frac{15}{\text{total}} \div \frac{3}{\text{number in each row}} = \frac{5}{\text{number of rows}}$

I know a row is a horizontal group. I see there are 3 balls in each row.

I can count the number of rows. There are 5 rows.

Now I can write a division equation with the division symbol.

$15 \div 3 = 5$

EUREKA MATH[™] 3 • M1 • TB • Lesson 8

Name _____

8

Fill in the blanks to match the array.

1. There are 12 keys in equal rows.

a. The number in each row is _____.

b. The number of rows is _____.

c. $\frac{\text{total}}{\text{number in each row}} \div \frac{\text{number in each row}}{\text{number of rows}} = \frac{\text{number of rows}}{\text{number of rows}}$

2. Carla hangs 10 pictures on the wall. She hangs the pictures in 2 equal rows. How many pictures does Carla put in each row?

a. Draw an array to represent the problem.

b. Write a division equation to represent the problem.

c. Carla puts _____ pictures in each row.

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EUREKA MATH[™] 3 • M1 • TB • Lesson 8

Name _____

8

Fill in the blanks to match the array.

1. There are 12 keys in equal rows.

a. The number in each row is _____.

b. The number of rows is _____.

c. $\frac{\text{total}}{\text{number in each row}} \div \frac{\text{number in each row}}{\text{number of rows}} = \frac{\text{number of rows}}{\text{number of rows}}$

2. Carla hangs 10 pictures on the wall. She hangs the pictures in 2 equal rows. How many pictures does Carla put in each row?

a. Draw an array to represent the problem.

b. Write a division equation to represent the problem.

c. Carla puts _____ pictures in each row.

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Assessment with *Eureka Math*²

The assessment system for Grade Levels 3–5 helps teachers understand student learning by generating data from many perspectives. The system includes three components.

- **Exit Tickets** are formative assessment opportunities that use at least one problem or question to assess whether a student has learned the basic skills and concepts needed for success in upcoming lessons. Items reflect the minimum that students must demonstrate to meet the lesson objective.

Students complete Exit Tickets independently on paper, with directions or problems read aloud as necessary, and they are not graded. Most students with a basic understanding of the math can finish within 3–5 minutes. Generally, teachers should strictly observe this time frame because a student's inability to finish within 5 minutes can be valuable proficiency information.

- **Topic Quizzes** replace the Exit Ticket in the final lesson of each topic, serving as short sets of items that assess proficiency with the major concepts and skills from the topic.
- **Module Assessments** consist of 6–10 items that assess proficiency in the major concepts, skills, and applications taught in the module. Module Assessments represent the most important content, but they may not assess all the strategies and standards taught in the module.


In addition to the assessments above, *Eureka Math*² Equip diagnostic assessments are available for print and digital administration.


[Click to review the *Eureka Math*² assessments](#) on the Great Minds Digital Platform.


EUREKA MATH² 3 • M1 • TB • Topic Quiz B-1


Topic Quiz B _____
Name _____

1. Miss Wong divides 20 grapes equally among 5 students. She wants to know how many grapes each student gets. Which picture represents this problem?

A. 

B. 

C. 

D. 

2. Which situation can be represented by $28 \div 4$?

A. Ivan has 28 stickers. He gives 4 of them to Liz.
B. Ivan has 28 stickers. He puts them into rows of 4.
C. Ivan has 28 stickers. Liz gives him 4 more stickers.
D. Ivan has 4 pieces of paper. Each piece has 28 stickers.

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EUREKA MATH² 3 • M1 • Module Assessment 1

Module Assessment _____
Name _____

1. Which number makes this equation true?
 $3 \times \underline{\quad} = 12$

A. 4
B. 6
C. 9
D. 15

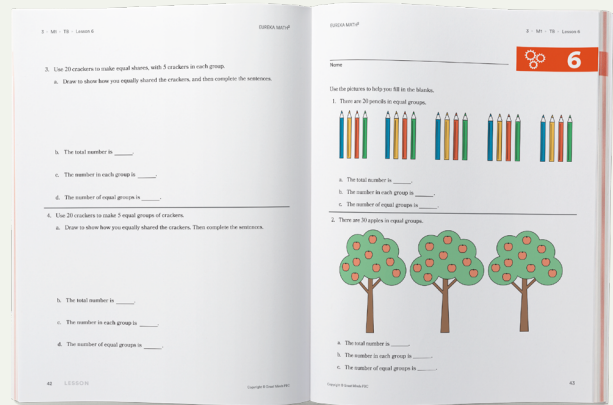
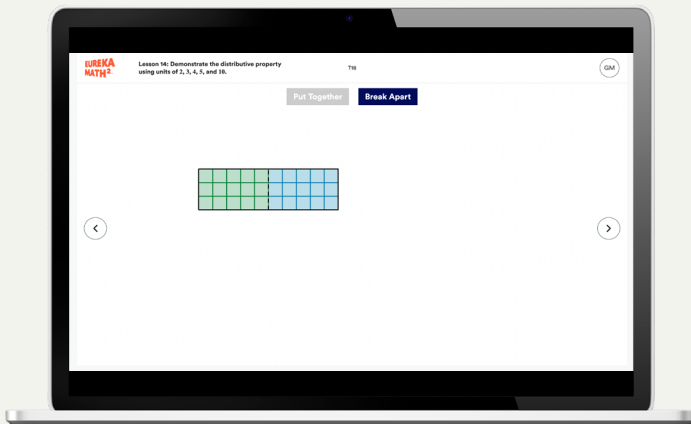
2. Multiply or divide.

$6 \times 5 = \underline{\quad}$
 $8 \div 2 = \underline{\quad}$
 $20 \div 4 = \underline{\quad}$
 $7 \times 3 = \underline{\quad}$

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Raising the Bar to the *Second Power*

In the world of math curricula, *Eureka Math*² stands alone. Our curriculum invites student discourse, provides accessibility, and advances equity. Its combination of digital and print resources helps *all* students build a strong foundation of mathematical knowledge that they will build upon, module after module and year after year.



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