Access the Great Minds Digital Platform
to review *Eureka Math²* assessments, digital interactives, context videos, and more.

GREAT MINDS™

EUREKA MATH²®

Getting Started Guide

Level 5 Module 1

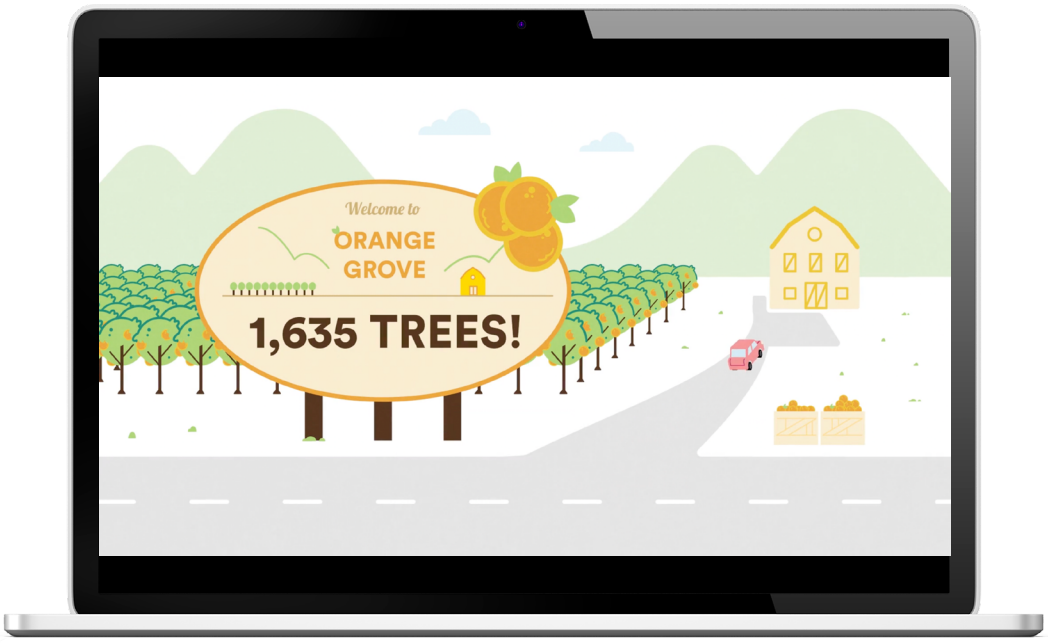
Getting *Started*

This Getting Started Guide provides contextual information as you review *Eureka Math²®*. 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 Math²*.

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 Math² 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.



Teachability² + Engagement² + Accessibility² = Joy²

Thinking and Talking *About Math*

The teacher–writers who crafted *Eureka Math²* realize the value of student discourse. Starting in kindergarten, *Eureka Math²* 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 Math² 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 Math²* reinforces this knowledge later in the year by connecting supporting content to major grade-level work and providing students with real-world context.

Implement with Fidelity and *Confidence*

The same team of teacher–writers who crafted *Eureka Math²* 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 Math²* Level 5 Module 1.

An Intentional and Meaningful Integration *of Digital Learning*

The *Eureka Math²* writers strategically integrated digital components with K–5 lessons so that technology enhances instruction without the need for individual student devices. *Eureka Math² Equip™,* a companion product to *Eureka Math²*, 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. Every module includes at least one context video that shows an application of the module's math in real-life scenarios. 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.

Access the Great Minds Digital Platform to review *Eureka Math²* assessments, digital interactives, context videos, and more.

Bringing Fine Art *into Math*

Among all math curricula, *Eureka Math²* 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 5 Module 1 features the painting *Thirteen Rectangles* by Wassily Kandinsky, 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 5 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.

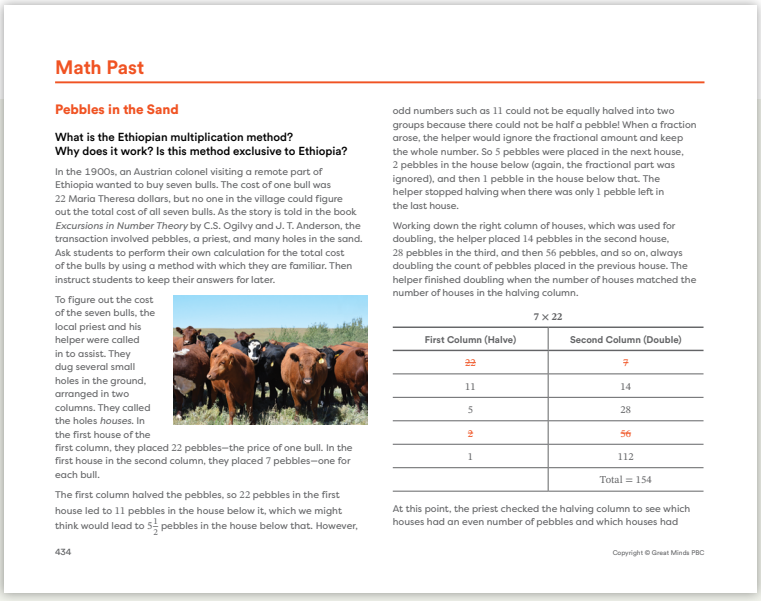
Following the Overview is the Why section. The Why section gives insight into the decisions made during the writing of the module, helping you understand the underlying structure of the module, the flow of the content, and the coherence of the different parts of the curriculum.

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 422 in the Level 5 Module 1 *Teach* book.

History *of the Math*

Math Past is another way that *Eureka Math²* 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 5 Module 1 appears on page 434.



Math Past

Pebbles in the Sand

What is the Ethiopian multiplication method? Why does it work? Is this method exclusive to Ethiopia?

In the 1900s, an Austrian colonel visiting a remote part of Ethiopia wanted to buy seven bulls. The cost of one bull was 22 Maria Theresa dollars, but no one in the village could figure out the total cost of all seven bulls. As the story is told in the book *Excursions in Number Theory* by C.S. Ogilvy and J. T. Anderson, the transaction involved pebbles, a priest, and many holes in the sand. Ask students to perform their own calculation for the total cost of the bulls by using a method with which they are familiar. Then instruct students to keep their answers for later.

To figure out the cost of the seven bulls, the local priest and his helper were called in to assist. They dug several small holes in the ground, arranged in two columns. They called the holes *houses*. In the first house of the first column, they placed 22 pebbles—the price of one bull. In the first house in the second column, they placed 7 pebbles—one for each bull.

The first column halved the pebbles, so 22 pebbles in the first house led to 11 pebbles in the house below it, which we might think would lead to $5\frac{1}{2}$ pebbles in the house below that. However, odd numbers such as 11 could not be equally halved into two groups because there could not be half a pebble! When a fraction arose, the helper would ignore the fractional amount and keep the whole number. So 5 pebbles were placed in the next house, 2 pebbles in the house below (again, the fractional part was ignored), and then 1 pebble in the house below that. The helper stopped halving when there was only 1 pebble left in the last house.

Working down the right column of houses, which was used for doubling, the helper placed 14 pebbles in the second house, 28 pebbles in the third, and then 56 pebbles, and so on, always doubling the count of pebbles placed in the previous house. The helper finished doubling when the number of houses matched the number of houses in the halving column.

7 × 22

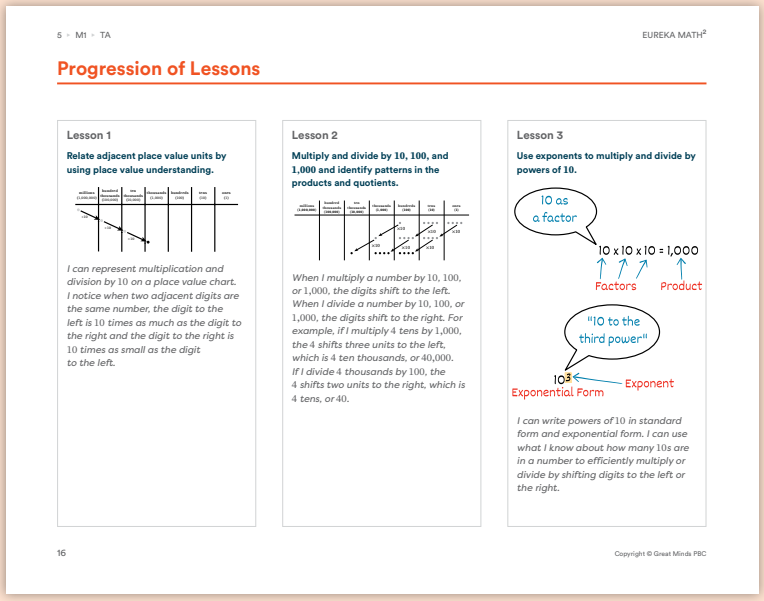
First Column (Halve)	Second Column (Double)
~~22~~	~~7~~
11	14
5	28
~~2~~	~~56~~
1	112
	Total = 154

At this point, the priest checked the halving column to see which houses had an even number of pebbles and which houses had

Dive into a *Topic*

It's time to dive into a topic to better understand the *Eureka Math²* learning design. On page 14 in Level 5 Module 1, we begin Topic A: Place Value Understanding for Whole Numbers. Every topic begins with an overview that summarizes the development expected as students engage with the upcoming content. In the Topic A overview, the teacher can see that students will apply their understanding of place value to multiply and divide by powers of 10 and their multiples. The teacher can also see how this learning will continue in the topic.

The topic also includes a Progression of Lessons list on page 16. This list shows sample content from each lesson along with a student-friendly statement about the major learning.



5 > M1 > TA

EUREKA MATH²

Progression of Lessons

Lesson 1

Relate adjacent place value units by using place value understanding.

I can represent multiplication and division by 10 on a place value chart. I notice when two adjacent digits are the same number, the digit to the left is 10 times as much as the digit to the right and the digit to the right is 10 times as small as the digit to the left.

Lesson 2

Multiply and divide by 10, 100, and 1,000 and identify patterns in the products and quotients.

When I multiply a number by 10, 100, or 1,000, the digits shift to the left. When I divide a number by 10, 100, or 1,000, the digits shift to the right. For example, if I multiply 4 tens by 1,000, the 4 shifts three units to the left, which is 4 ten thousands, or 40,000. If I divide 4 thousands by 100, the 4 shifts two units to the right, which is 4 tens, or 40.

Lesson 3

Use exponents to multiply and divide by powers of 10.

10 as a factor

10 x 10 x 10 = 1,000

Factors Product

"10 to the third power"

10^3

Exponential Form Exponent

I can write powers of 10 in standard form and exponential form. I can use what I know about how many 10s are in a number to efficiently multiply or divide by shifting digits to the left or the right.

16

Lesson Structure *and Support*

Every Grade Level K–5 *Eureka Math²* 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 120 helps teachers prepare to teach Lesson 5.

- 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 121 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 5 Fluency exercise on page 122, students engage in a whiteboard exchange as they round to estimate the product of a one-digit by two-digit multiplication expression to prepare for upcoming work. Then on page 123 students convert metric units to prepare for work of the lesson.

In Launch, students watch a math context video as they notice and wonder about the measurement units shown while the runner in the video prepares to run. Each video in our *Eureka Math²* digital experience has been crafted with special care to ensure representation of students from different backgrounds and with different 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.

In Learn, students analyze a meter stick to identify relationships between metric units. After partners convert from a larger metric unit to a smaller metric unit by using multiplication, students turn to their *Learn* books to work on a Problem Set. Before students begin this work, teachers should note the guidance provided on page 133 and that the problems students will work through have been organized from simple to complex.

Page 131 shows a teacher margin note that provides problem customization for students who are ready for a challenge.

Differentiation: Challenge

For students who need a challenge, consider asking them to convert a unit larger than a meter (or a gram or a liter) to a unit smaller than a meter (or a gram or a liter). For example,

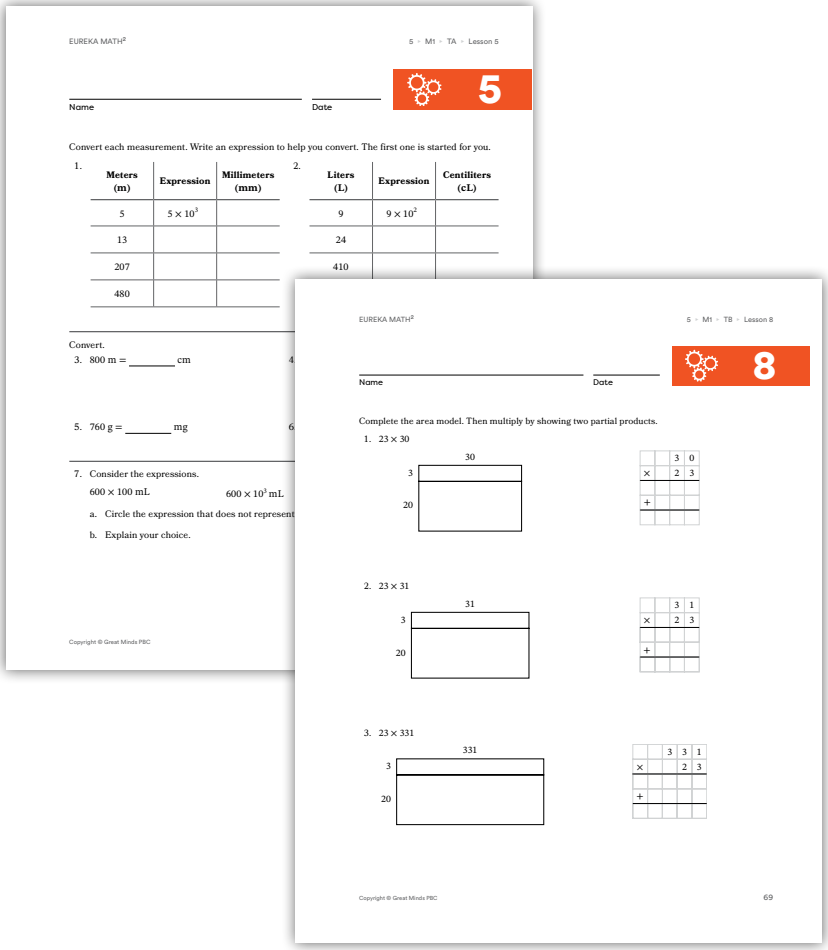
$$\begin{aligned} 4 \text{ km} &= \_\_\_\_\_ \text{ cm} \\ &= 4 \times 1 \text{ km} \\ &= 4 \times 1{,}000 \text{ m} \\ &= 4 \times 1{,}000 \times 1 \text{ m} \\ &= 4 \times 1{,}000 \times 100 \text{ cm} \\ &= 400{,}000 \text{ cm} \end{aligned}$$

Encourage students to use multiple conversions if they are unsure of a direct conversion from kilometers to centimeters.

The Student Experience: *Learn*

On page 49 of the *Learn* book, students begin the Problem Set for Lesson 5. 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 indicates a lesson page that students use during the guided or directed portion of the lesson, and a ticket with a check mark 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 young 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 5 › M1 › TA › Lesson 5

Name Date 5

Convert each measurement. Write an expression to help you convert. The first one is started for you.

1.

Meters (m)	Expression	Millimeters (mm)
5	5×10^3	
13		
207		
480		

2.

Liters (L)	Expression	Centiliters (cL)
9	9×10^2	
24		
410		

Convert.

3. 800 m = _____ cm

5. 760 g = _____ mg

7. Consider the expressions.

600×100 mL 600×10^3 mL

a. Circle the expression that does not represent

b. Explain your choice.

Copyright © Great Minds PBC

EUREKA MATH² 5 › M1 › TB › Lesson 8

Name Date 8

Complete the area model. Then multiply by showing two partial products.

1. 23×30

30

3

20

	3	0
×	2	3
+		

2. 23×31

31

3

20

	3	1
×	2	3
+		

3. 23×331

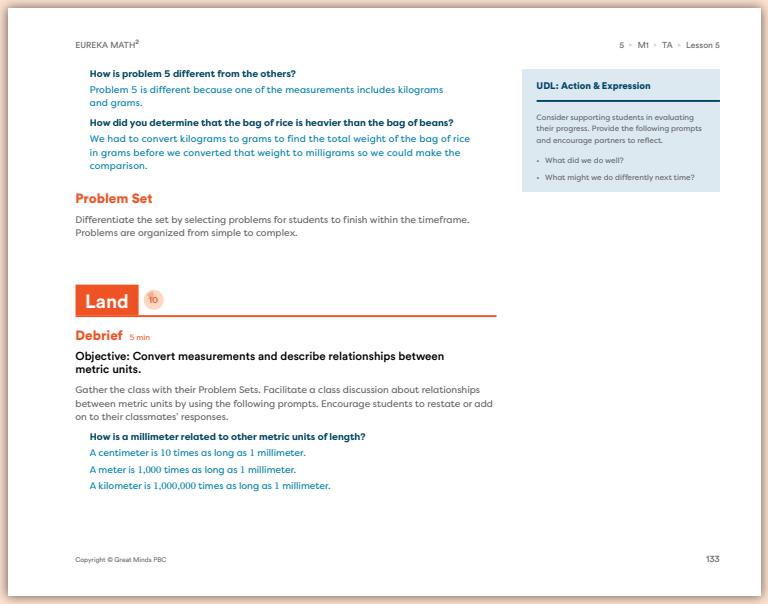
331

3

20

	3	3	1
×		2	3
+			

Copyright © Great Minds PBC 69



EUREKA MATH² 5 › M1 › TA › Lesson 5

How is problem 5 different from the others?

Problem 5 is different because one of the measurements includes kilograms and grams.

How did you determine that the bag of rice is heavier than the bag of beans?

We had to convert kilograms to grams to find the total weight of the bag of rice in grams before we converted that weight to milligrams so we could make the comparison.

Problem Set

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

UDL: Action & Expression

Consider supporting students in evaluating their progress. Provide the following prompts and encourage partners to reflect.

- What did we do well?
- What might we do differently next time?

Land 10

Debrief 5 min

Objective: Convert measurements and describe relationships between metric units.

Gather the class with their Problem Sets. Facilitate a class discussion about relationships between metric units by using the following prompts. Encourage students to restate or add on to their classmates' responses.

How is a millimeter related to other metric units of length?

A centimeter is 10 times as long as 1 millimeter.

A meter is 1,000 times as long as 1 millimeter.

A kilometer is 1,000,000 times as long as 1 millimeter.

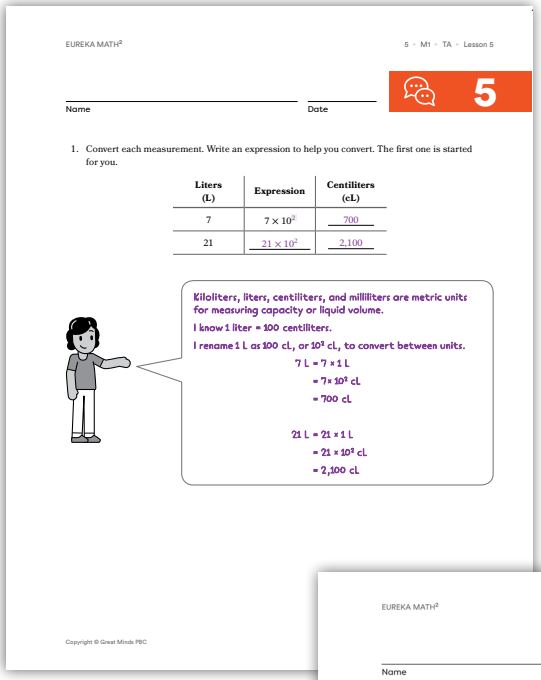
Copyright © Great Minds PBC 133

After students work independently on their Problem Set, the class comes back together for the Land portion of the lesson. For Lesson 5, this section begins on page 133 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 51 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.



EUREKA MATH² 5 • M1 • TA • Lesson 5

Name Date

5

1. Convert each measurement. Write an expression to help you convert. The first one is started for you.

Liters (L)	Expression	Centiliters (cL)
7	7×10^2	700
21	21×10^2	2,100

Kiloliters, liters, centiliters, and milliliters are metric units for measuring capacity or liquid volume.

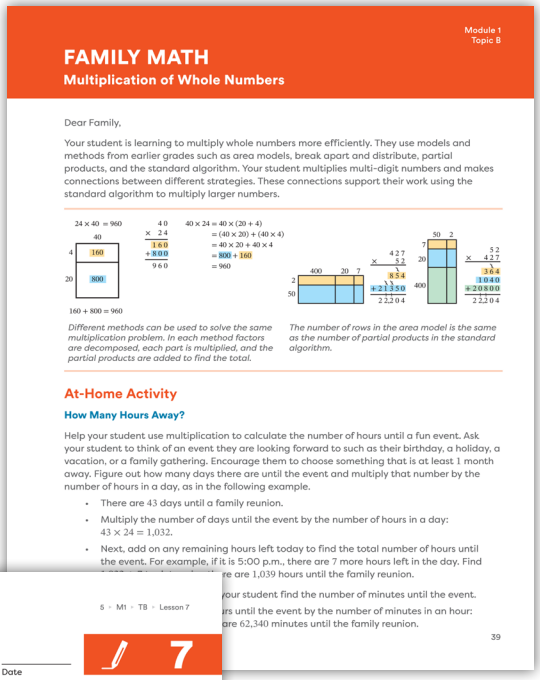
I know 1 liter = 100 centiliters.

I rename 1 L as 100 cL, or 10^2 cL, to convert between units.

7 L = 7 × 1 L
= 7 × 10^2 cL
= 700 cL

21 L = 21 × 1 L
= 21 × 10^2 cL
= 2,100 cL

Copyright © Great Minds PBC



Module 1 Topic B

FAMILY MATH

Multiplication of Whole Numbers

Dear Family,

Your student is learning to multiply whole numbers more efficiently. They use models and methods from earlier grades such as area models, break apart and distribute, partial products, and the standard algorithm. Your student multiplies multi-digit numbers and makes connections between different strategies. These connections support their work using the standard algorithm to multiply larger numbers.

$24 \times 40 = 960$

$40 \times 24 = 40 \times (20 + 4)$
$= (40 \times 20) + (40 \times 4)$
$= 40 \times 20 + 40 \times 4$
$= 800 + 160$
$= 960$

Different methods can be used to solve the same multiplication problem. In each method factors are decomposed, each part is multiplied, and the partial products are added to find the total.

The number of rows in the area model is the same as the number of partial products in the standard algorithm.

At-Home Activity

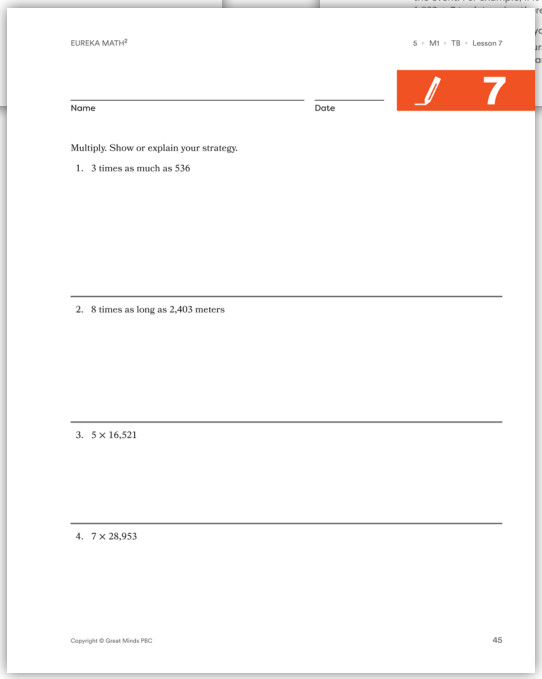
How Many Hours Away?

Help your student use multiplication to calculate the number of hours until a fun event. Ask your student to think of an event they are looking forward to such as their birthday, a holiday, a vacation, or a family gathering. Encourage them to choose something that is at least 1 month away. Figure out how many days there are until the event and multiply that number by the number of hours in a day, as in the following example.

- There are 43 days until a family reunion.
- Multiply the number of days until the event by the number of hours in a day: $43 \times 24 = 1{,}032$.
- Next, add on any remaining hours left today to find the total number of hours until the event. For example, if it is 5:00 p.m., there are 7 more hours left in the day. Find re are 1,039 hours until the family reunion.

our student find the number of minutes until the event.
rs until the event by the number of minutes in an hour: are 62,340 minutes until the family reunion.

39



EUREKA MATH² 5 • M1 • TB • Lesson 7

Name Date

7

Multiply. Show or explain your strategy.

1. 3 times as much as 536

2. 8 times as long as 2,403 meters

3. $5 \times 16{,}521$

4. $7 \times 28{,}953$

Copyright © Great Minds PBC

45

Assessment with *Eureka Math²*

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.

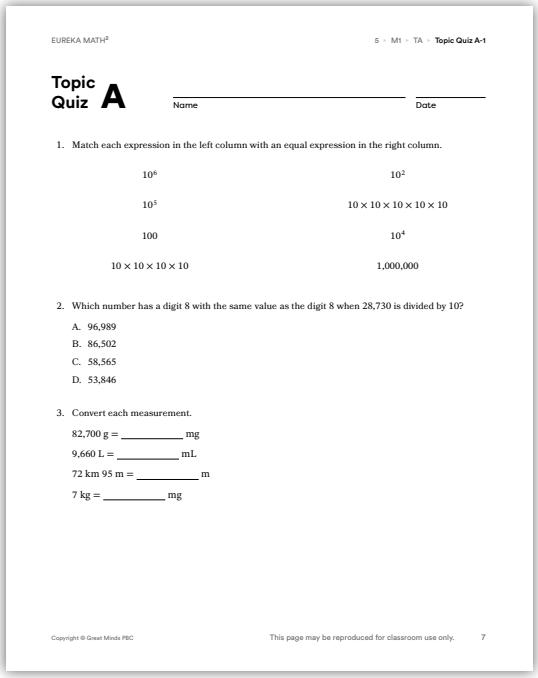
  Students complete Exit Tickets independently on paper, with directions or problems read aloud as necessary, and they are not graded. Most students with a basic understanding of the math can finish within 3–5 minutes. Generally, teachers should strictly observe this time frame because a student's inability 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 Math² Equip* diagnostic assessments are available for print and digital administration.

Click to review the *Eureka Math²* assessments on the Great Minds Digital Platform.



EUREKA MATH² 5 › M1 › TA › Topic Quiz A-1

Topic Quiz A

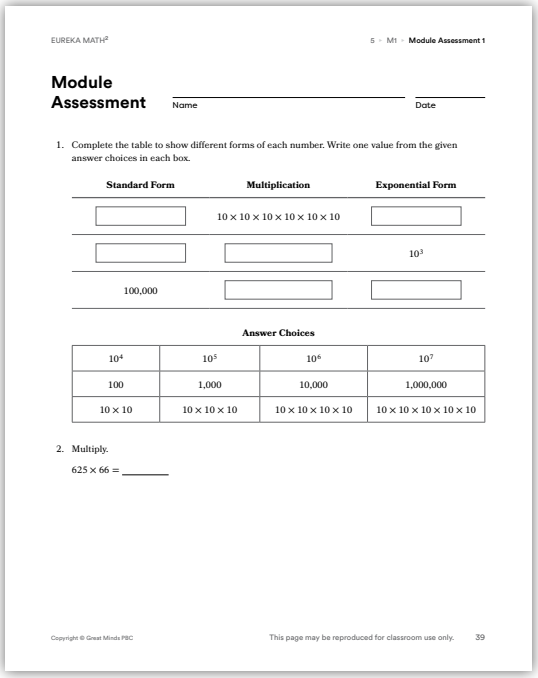
Name _____ Date _____

1. Match each expression in the left column with an equal expression in the right column.

10^6	10^2
10^5	$10 \times 10 \times 10 \times 10 \times 10$
100	10^4
$10 \times 10 \times 10 \times 10$	1,000,000

2. Which number has a digit 8 with the same value as the digit 8 when 28,730 is divided by 10?
   A. 96,989
   B. 86,502
   C. 58,565
   D. 53,846

3. Convert each measurement.
   82,700 g = _____ mg
   9,660 L = _____ mL
   72 km 95 m = _____ m
   7 kg = _____ mg



EUREKA MATH² 5 › M1 › Module Assessment 1

Module Assessment

Name _____ Date _____

1. Complete the table to show different forms of each number. Write one value from the given answer choices in each box.

Standard Form	Multiplication	Exponential Form
	$10 \times 10 \times 10 \times 10 \times 10 \times 10$	
		10^3
100,000		

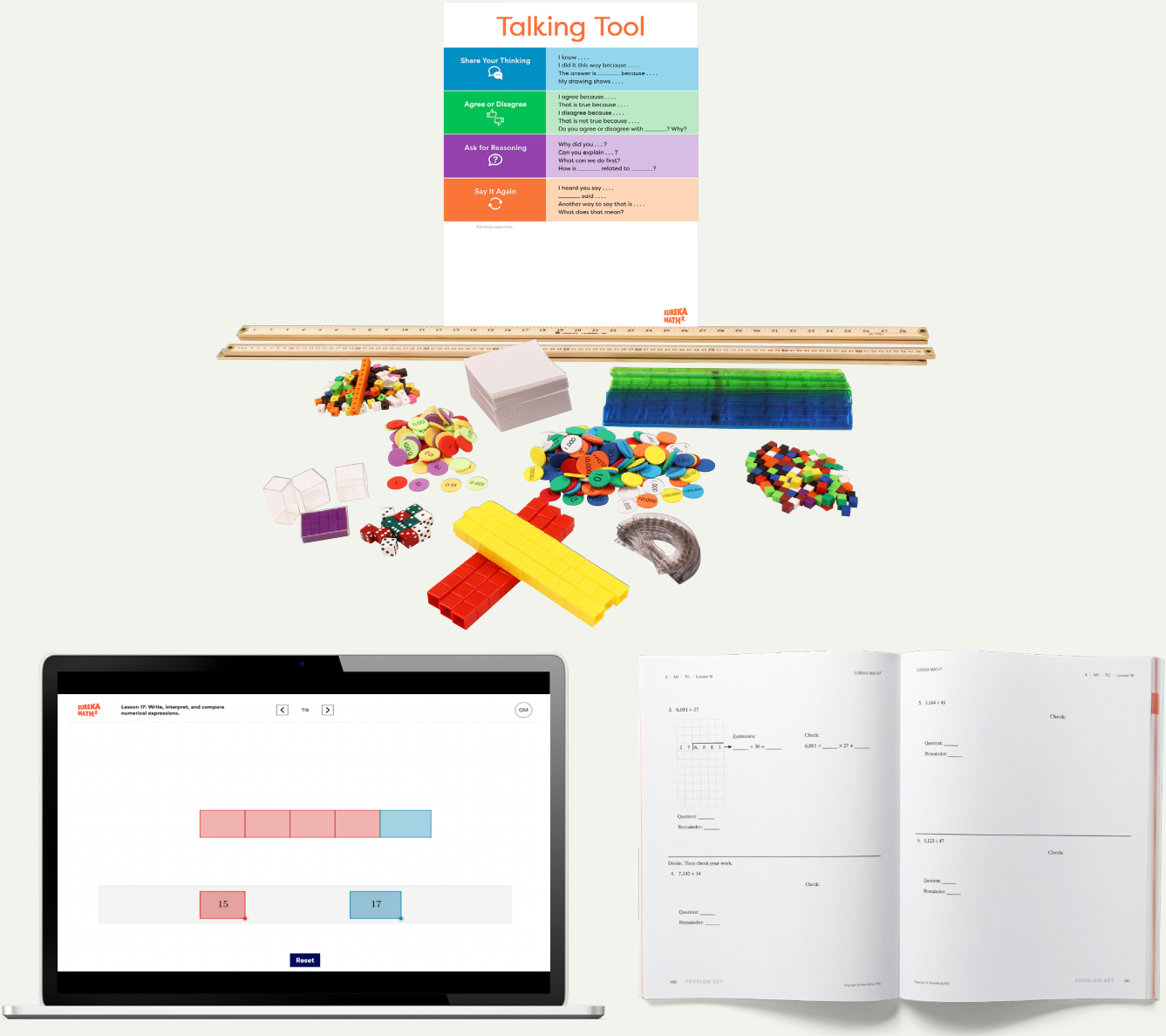
Answer Choices

10^4	10^5	10^6	10^7
100	1,000	10,000	1,000,000
10×10	$10 \times 10 \times 10$	$10 \times 10 \times 10 \times 10$	$10 \times 10 \times 10 \times 10 \times 10$

2. Multiply.
   $625 \times 66 =$ _____

Raising the Bar to the *Second Power*

In the world of math curricula, *Eureka Math²* 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.



Access the Great Minds Digital Platform to review *Eureka Math²* assessments, digital interactives, context videos, and more.