

Program Overview

Grades K–5



Tennessee Reveal
MATH[®]



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Tennessee Reveal Math for grades K–5 will transform the way your students think about mathematics by developing a growth mindset and emphasizing the development and application of critical problem-solving skills.

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Motivate students with purpose and confidence that mathematics goes beyond the “right” answer. Discover how *Tennessee Reveal Math* K–5 can help you create a classroom community that focuses on growth mindset, where all students can engage with math as they apply what they are learning to real-world situations and reach higher depths of knowledge.

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Register to Review *Tennessee Reveal Math* Online

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Elevate learning and encourage students to ask “why” or “how” using facilitation over direction. Learn how *Tennessee Reveal Math* will help you solidify understanding through exploration driven by student curiosity as they effectively demonstrate what they know and what they want to learn.

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Designed to Meet Tennessee Mathematics Standards

01 | Tennessee Math Standards

With Tennessee's Mathematics Standards as the center of development, *Tennessee Reveal Math* is designed to ensure all students can access rigorous content through high-quality instruction and become doers of mathematics.

1. Tennessee Standards

Each lesson highlights the content standard covered.

2. Mathematical Practices and Processes

The Standards for Mathematical Practice are integrated into every lesson.

3. Lesson Focus

Each lesson has clear and concise objectives and focus.

4. Coherence

Lesson horizontal and vertical progressions demonstrate connection of mathematical topics.

5. Rigor

A clear balance of Conceptual Understanding, Fluency, and Application is outlined for each lesson.

The screenshot shows a lesson page titled "LESSON 2-1 Represent 4-Digit Numbers". It includes sections for Learning Targets, Standards, Vocabulary, Materials, Focus, Coherence, and Rigor. Numbered callouts 1 through 5 point to specific elements: 1 points to the Standards section, 2 points to the Learning Targets, 3 points to the Focus section, 4 points to the Coherence section, and 5 points to the Rigor section.

Math is... Modeling
What is another way to represent 3 groups of 6?

Standards for Mathematical Practice

Integrated into every lesson, **Math is... prompts** help students self-monitor and apply mathematical thinking and reasoning skills to the problem-solving process.

Math is... More Than Just Numbers

02 | Motivate Students

Tennessee Reveal Math looks to encourage students to see themselves as doers of mathematics. The first unit in each grade, the **Math is... Unit**, is designed to encourage all students to:

Understand that their math story is ongoing.

In this first lesson, students will:

- Develop a **growth mindset**.
- Take ownership of their math story.

Develop mathematical thinking and reasoning.

In Lessons 2 through 5, students will:

- Develop their **mathematical thinking habits**.
- Communicate about and apply these skills to the problem-solving process.

Create a collaborative classroom community.

In Lesson 6, students will:

- Develop a voice and choice in their classroom environment.
- Establish **classroom norms** of interaction.

Learn

Math is all around us. We see it in our homes. We see it on the playground. We see it when we go shopping.

We all have a math story.


Let's learn about our teacher's math story.

What did you like about math when you were in school?

Math is... Mindset
What do I like about math?

When we do math, we use different representations to help us.

I can show the problem with a drawing.



Math is... Representing
How can I show the problem in a different way?

$54 - 40 = 14$

How do we do math?

When we do math, we often work together.

- We listen to our classmates and teachers.
- We share our thinking.
- We respect the ideas of others.
- We think about the ideas of others.
- We share tools and take turns.

Math is... Mindset
What can I do to be a good listener?



Written by
contributing
authors
Linda Gojak
and John
SanGiovanni

Create an Equitable Classroom

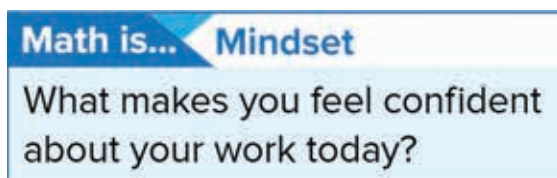
Tennessee Reveal Math emphasizes a positive and productive classroom and supports conscious lesson planning for all students.

Tennessee Reveal Math supports an equitable classroom through:

- Achievable academic goals.
- Instructional focus on exploration, discourse, and sense-making.
- Lesson access points for all students to participate.
- Multiple representations to promote understanding.
- Comprehensive language supports to access the language of mathematics.
- Embedded scaffolds and supports to promote common access to rigor for all students.
- Data-driven instructional choices.
- Multi-modal differentiation.



Focus on the Whole Child



Tennessee Reveal Math identifies clear objectives to support students' development in understanding the math content, communicating confidently about mathematics, and approaching problem-solving with a growth mindset.

Build Literacy Skills for Mathematical Proficiency

Tennessee Reveal Math was developed around the belief that mathematics is not just a series of operations but a way of communicating—listening, speaking, reading, writing, and most importantly, thinking. As a result, all students can benefit from support designed to develop and promote the use of mathematical language.

MLD

Math Language Development

Feature offers insights into one of the four areas of language competence—reading, writing, listening, and speaking.

MLR

Math Language Routines

Occur in every lesson to promote the use of mathematical language.

EL

English Learner Scaffolds

Based on WIDA levels and help students understand math vocabulary, ideas, and concepts in context.

LOM

Language Development

Graphic organizers, tools, and tips for building students' academic and math vocabulary within each lesson.

LOM

Language of Math

Promotes the development of key vocabulary terms that support how we talk about and think about math in the context of the lesson.

The screenshot displays the 'Unit Overview' page for Unit 3: Multiplication and Division. It features several sections:

- Language of Math Vocabulary:** Lists key terms like *array*, *divisor*, *dividend*, *quotient*, *product*, *factor*, *multiple*, and *divisible* with their definitions and related math concepts.
- Math Language Development:** Focuses on speaking and writing, providing strategies for students to use math language in context.
- English Language Learner:** Offers scaffolds for students who are learning English, including visual aids and sentence frames.

In the foreground, a 'Four-Square Vocabulary' graphic organizer is visible. It is titled 'Lesson 8.5 - Other Ways To Compare Fractions and Mixed Numbers' and 'Four-Square Vocabulary'. It contains a table with columns for 'Definition', 'My Own Words', and 'Sentence'. The first row is for the word 'like denominators' and the second row is for 'like numerators'.

Make Real-World Connections

STEM-Focused Units

Each unit highlights a STEM career and shows real-world applications of math to help students see math as a tool to explore the world around them. The **STEM Career Kid video** introduces a STEM career, and the **Math in Action video** applies the unit's math content to real-world situations.



REDBIRD
MATHEMATICS



Within **STEM Adventures**, students engage in experiments with the STEM Career Kids, make hypotheses, and apply mathematical knowledge to analyze the data.



Real-world STEM connections are woven throughout **Redbird Mathematics**, making math relevant for students. Many topics conclude with a digital STEM project.

Rigorous Application of Math

Every unit provides three in-depth **Application Station Cards** that help students extend their thinking and work at **higher depths of knowledge** as they connect the unit content to real-world examples.

Designing Neighborhoods

Civil engineers plan and design buildings, roads, bridges, and neighborhoods.

Plan 2 neighborhoods.

1. Draw a map of each neighborhood. Put 20-30 houses in the first neighborhood. Put 30-40 houses in the second neighborhood.
2. Include things such as roads, sidewalks, fire hydrants, and lamp posts.
3. Make a list of items that need to be ordered for each house. For example, each house will need a mailbox. Then, list how many of that item to order for the houses in both neighborhoods.
4. Build a model of each of your neighborhoods.

How Many Beats in a Song?

This is sheet music for the *Alphabet Song*.

Sheet music shows a song's musical notes. Each note (♪) tells you how long each sound lasts. Clap your hands and sing the song while you look at the music. Every clap is one beat. A, B, C, and D are each sung to 1 beat.

There are three different notes on this sheet music. Each has a different number of beats.

♪ 1 beat ♪ 2 beats ♪ 1 beat together

The top 4 of the symbol at the beginning shows that there are 4 beats in each measure. Vertical bars separate the measures. In the *Alphabet Song*, A, B, C, D is one measure. E, F, G is the next measure, and so on.

1. Circle each measure in this song and count the number of in each. How many beats are there altogether from the beginning to the end of the song?
2. Write an equation to represent what you learned about the equal groups of beats in the *Alphabet Song*.
3. Visit the music room at your school or do an Internet search
4. Find sheet music for a few simple songs in $\frac{4}{4}$ time. Then, repeat the activity, counting and representing the equal groups of beats.

State Sales Tax

When you buy goods from stores, such as a video game or a pair of jeans, you pay sales tax. The store then gives the sales tax to the state government to pay for services like preserving parks or updating highway systems.

Your *Homemade by Me* company is doing well and growing. You are thinking about opening stores in other states. The amount charged for sales tax may make a difference in which states you expand to.

Find and list the state sales tax in a table for 5 states you want to expand your business to. In column 1, order the states from least to greatest by the state's sales tax as a decimal. In column 2, write what would be the state's sales tax if it was 10 times the amount it is now. In column 3, write what would be the state's sales tax if it was $\frac{1}{10}$ the amount it is now. Use this information to determine which 3 states you are more likely to expand your business to. Justify your decision.

1. What is the purpose of a sales tax?
2. Why do you think states have different sales tax? Give at least one specific example to support and justify your reasoning.

STEM Project Card

Cross-Curricular Connection Card

Real-World Card

Performance Task

A construction team will begin building a new house.

Part A: The construction manager is planning her teams. She needs 3 different teams. Each team will have 7 people. How many people does the manager need? Justify your answer.

Part B: The manager expects to complete the house in 32 weeks. She expects to spend the same amount of time on each of 4 parts of the building project. How many weeks can the manager expect to spend on each part of the project? Explain your reasoning.

Reflect

How can you represent and explain multiplication and division?

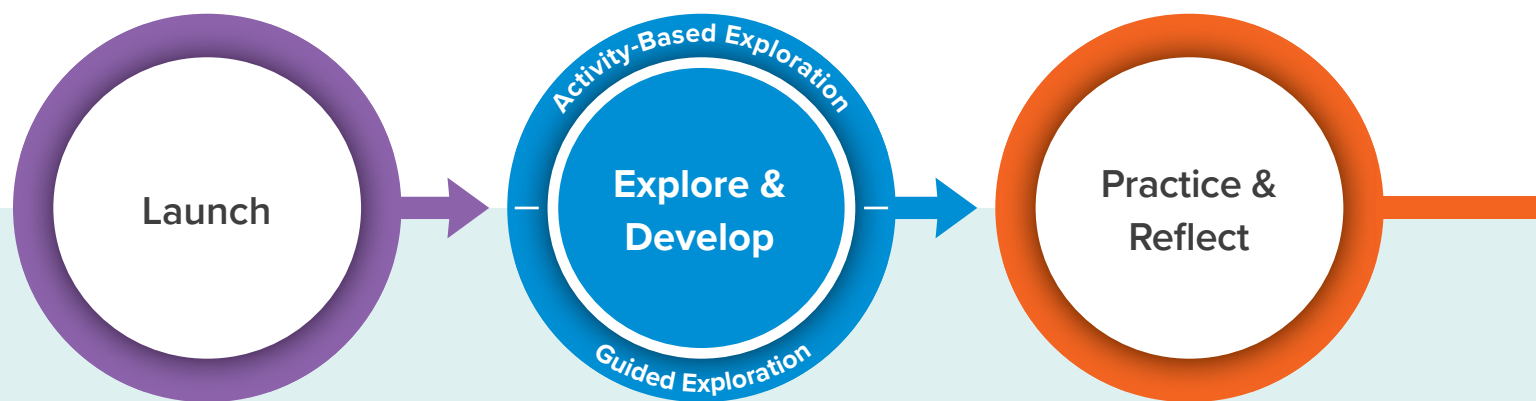
134 Unit 3 • Performance Task



Each unit includes opportunities to reach higher depths of knowledge through **Performance Tasks**.

Utilize a Flexible Lesson Model

The *Tennessee Reveal Math* lesson model keeps sense-making and exploration at the heart of learning. Every lesson provides **two instructional options** to develop the math content and tailor the lesson to the needs and structure of the classroom.



Teachers facilitate student conversations with the **Be Curious** activity to spark mathematical thinking and curiosity.

Teachers encourage student exploration through either the **Guided Exploration** or **Activity-Based Exploration** to foster student understanding.

(Two ways to teach every lesson!)

Teachers provide additional practice through **On My Own**, and students reflect on their learning.

Create Consistency in Learning

Instructional routines are embedded within every *Tennessee Reveal Math* lesson to help students become proficient doers of mathematics.

Build Fluency

Number Routines

Support the development of flexibility with numbers and fluency with operations at the start of every lesson.

MLR

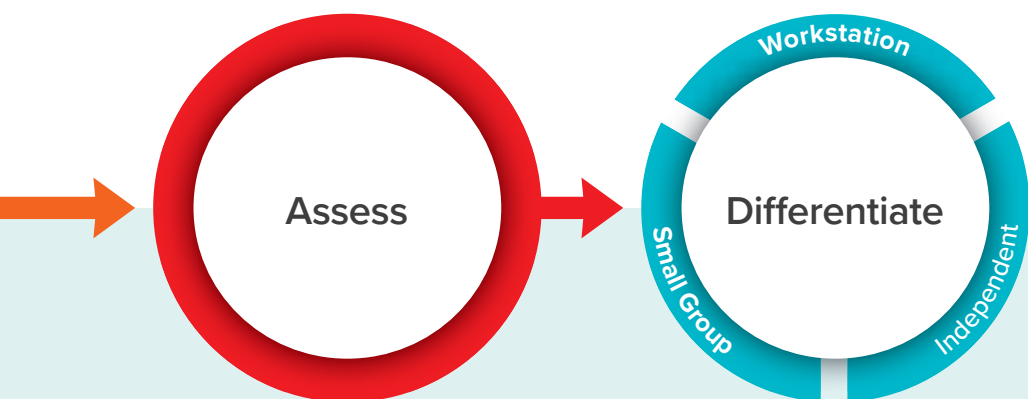
Math Language Routines

Promote mathematical language use and development as part of math instruction.



Sense-Making Routines

Build sense-making as a foundation for problem-solving and mathematical modeling.



Teachers will assign the **Exit Ticket** to inform instruction, and students communicate their confidence level with the teacher.

Teachers choose from a variety of **Daily Differentiation** activities to support every student's path to understanding, pulling small groups as needed to reinforce understanding.




Spark Curiosity Through Conversation



“Let’s bring curiosity, wonder, and joy back into the classroom and make math irresistible for kids.”


–Raj Shah
Contributing Author



Name _____


Broken Calculators

Part A: Your calculator can only add 2s and 5s.
How can you make numbers less than 100 with this calculator?



Part B: Your calculator can only add 3s and 7s.
What whole numbers less than 12 *cannot* be made with this calculator?

How can you make each of the whole numbers 12 through 16 with this calculator?



What is the quickest way to make 30 with this calculator? Explain.

Is there a number greater than 11 that *cannot* be made with this calculator? Explain.

90 Ignite! • Broken Calculators

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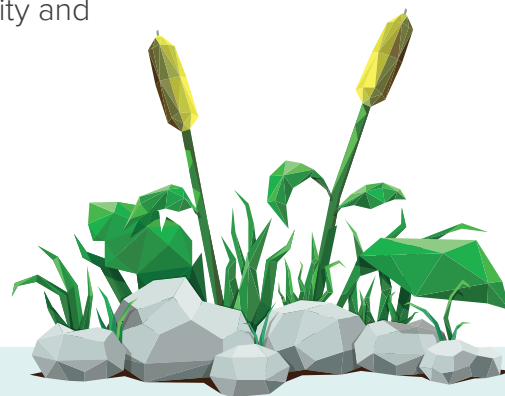


Each unit opens with an **Ignite! activity**, an interesting problem or puzzle that:

- Sparks students’ interest and curiosity.
- Provides only enough information to open up students’ thinking.
- Motivates them to persevere through challenges involved in problem-solving.

Notice and Wonder

Sense-making routines launch every lesson, creating an equitable classroom culture where all ideas are welcome and respected. Student curiosity and ideas shared in **Be Curious** become the base for the day's lesson.



“All students have ideas about math that are valid and worth talking about.”

—Annie Fetter
Contributing Author



Accessible to All Students

Be Curious offers a low floor, high ceiling routine that allows every student to explore and discuss their ideas with multiple entry points and approaches to problem-solving.

Build Understanding Through Exploration

Teachers have their **choice of two instructional strategies** to facilitate student exploration within Explore & Develop:

- **Activity-Based Exploration** allows students to explore concepts, develop and test hypotheses, and—most importantly—engage in productive struggle as they use mathematical modeling to gain understanding.
- **Guided Exploration** follows a teacher-facilitated exploration with a question-and-answer format and collaboration to promote rich discourse.

Math is... Precision

Encourage Mathematical Thinking Habits

To think like mathematicians, students must employ **mathematical processes and proficiency skills** to develop a problem-solving frame of mind.

Tennessee Reveal Math helps students build proficiency through the **Math is... prompts**. These prompts are found in the Learn stage of every lesson and model the kinds of questions students can ask themselves to become proficient problem solvers and doers of math.

Explore & Develop

20 min

Learn

How can you represent the number of peaches in the three baskets?

Each basket is one group.

Each peach is one object.

Each basket has the same number of peaches.

There are 3 **equal groups** with 5 peaches in each group.

3 equal groups of 5

$3 \times 5 = 15$

You use **multiplication** to represent equal groups.

Math is... Precision
Why is it important to use equal groups?

Work Together

Which show equal groups? Explain how you know.

Example answer: A, B, and C show equal groups because there is the same number of objects in each group.

Collect and Display

As you discuss the questions with the students, listen and write key words on the board that students use, such as groups, objects, number of, and multiplication. Display the words and phrases for student reference. Use the student-generated expressions to help them make connections between student language and math vocabulary. Update the collection with new understandings as the lesson progresses.

1 Pose the Problem

1.1 Pose Purposeful Questions

- What might you need to know before finding the total number of peaches?
- How could you find the total number of peaches in all 3 baskets?

2 Develop the Math

Choose the option that best meets your instructional goals.

2.1 Critique, Correct, and Clarify

On the board write: There are 5 groups with 3 objects in each group. Pair students to discuss whether this statement about the baskets of peaches is correct. Ask them to identify any mistakes and to make changes. Have students write a new, correct version of the sentence.

3 Bring It Together

3.1 Elicit and Use Evidence of Student Thinking

- If each basket had 5 peaches, how would the drawing be different?
- Would multiplication always work to find the total number of objects in equal groups? Why or why not?

Key Takeaway

One meaning of multiplication is equal groups.

Work Together

The Work Together activity can be used as a formative assessment opportunity to check students' understanding of equal groups. Have students work on the activity in pairs before asking them to identify whether the options show equal groups.

Common Misconception

Students may think that D shows equal groups because the total number of objects in the first and last group is the same total as the middle group. Remind students that equal groups means that each group has the same number of objects.

Language of Math

Students need multiple opportunities to describe the number of groups, the number of objects in each group, and the total number of objects. Ask students questions that require them to use these terms when describing both representations and equations.

92 Unit 3 • Multiplication and Division

12 | Tennessee Reveal Math K–5 Elevate Learning

CHOOSE YOUR OPTION

Activity-Based Exploration

Students explore and use equal groups to find the total number of objects.

Materials: counters or other countable manipulatives, yarn or string

Directions: Students will explore ways to find the total number of peaches in 5 baskets.

- Let's imagine there are five baskets and the baskets have peaches in them. How can you determine the total number of peaches in the baskets?

Guided Exploration

Students build an understanding of one meaning of multiplication as equal groups.

ETP Use and Connect Mathematical Representations

- Think About It:** What does each object represent?
- What could be another way to show the number of baskets and the number of peaches in each basket?

CHOOSE YOUR OPTION

Activity-Based Exploration

Students explore and use equal groups to find the total number of objects.

Materials: counters or other countable manipulatives, yarn or string

Directions: Students will explore ways to find the total number of peaches in 5 baskets.

- Let's imagine there are five baskets and the baskets have peaches in them. How can you determine the total number of peaches in the baskets?

Students will use yarn or string to represent the baskets and counters to represent the peaches. Students may choose to place the same number of counters in each group or a different number. Have them find the total number of peaches and record their work.

Support Productive Struggle

- How many counters are in each group?
- How can you find the total number of counters when there is a different number in each group? How can you find the total when there are the same number in each group?
- Do you always have to add to find the total? Explain.

Have students share and compare their strategies for finding the total number of counters when there was the same and different numbers in each group.

- Which was easier: finding the total when the groups had the same number of objects or when they had different numbers of objects?

Introduce the concept of multiplication.

- One way to find the total number of objects in equal groups is to use multiplication. You can multiply the number of groups by the number of objects in each group.

Model 5 groups of 3 counters and present the equation $5 \times 3 = 15$. Note the multiplication symbol and as needed discuss operation symbols they already know. Have students repeat the activity with equal groups in each basket and represent with a multiplication equation.

- What strategies can you use to find the total?

Activity Debrief: Have pairs explain how they found the total number of counters. Ask them to think about why using multiplication might be a more efficient strategy for determining the total.

Math Is... Precision

- Why is it important to say "equal groups"?

Students reflect on the importance of precise language when exploring multiplication.

English Learner Scaffolds

Entering/Emerging: Support students in understanding the meaning of "equal groups" by pointing out the pictures of the peach baskets. Have students chorally count to determine that each group has the same number of objects. Then have students explain how they know that the peaches are in equal groups.

Developing/Expanding: Provide students the following sentence starter to help them relate multiplication to equal groups:
I know the peach baskets represent multiplication because _____

Bridging/Reaching: Have students work with a partner to describe the meaning of the multiplication equation $3 \times 5 = 15$ in terms of equal groups and the number of objects in each group.

Guided Exploration

Students build an understanding of one meaning of multiplication as equal groups.

ETP Use and Connect Mathematical Representations

- Think About It:** What does each object represent?
- What could be another way to show the number of baskets and the number of peaches in each basket?

Discuss with students the meaning of equal groups. Ensure that students understand that equal groups have the same number of objects in each group.

- How could you explain to a friend that the peaches are in equal groups?

Identify the multiplication symbol in the equation and explain that it means groups of and can be read as multiplied by. Explain that you can use multiplication to find the total number of objects when the number of objects in each group is the same.

Math Is... Precision

- Why is it important to say "equal groups"?

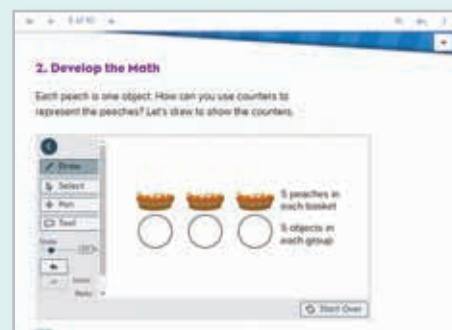
Students reflect on the importance of precise language when exploring multiplication.

- Have students work with a partner to create 2 groups with 4 objects in each group. Ask students to determine the total number of counters in the groups.



Explore & Develop also offers resources for teachers, like:

- Integrated Effective Teaching Practices** guide instruction and discourse, keeping the student at the center of the learning.
- Lesson Presentations** are available in an interactive format to demonstrate lesson concepts.




Strengthen Understanding Through Purposeful Practice

Practice & Reflect provides students with questions that address all elements of rigor to practice application along with the algorithmic procedures.


On My Own activities can be completed in the print Student Edition or eBook and are also available in Spanish.


Two additional practice pages can be completed in the **Student Practice Book** or **Interactive Digital Practice**, which embeds learning aids.

On My Own 

Name _____

How many? Fill in the blanks.

1.  _____ equal groups of _____

2.  _____ equal groups of _____

How can you represent the equal groups?

3. 2 equal groups of 7


4. 4 equal groups of 5


How many objects?

5. 4 equal groups of 4 pencils
 $4 \times 4 =$ _____ pencils


6. 3 equal groups of 2 mittens
 $3 \times 2 =$ _____ mittens

What equation represents the equal groups?

7. 

8. 

9. **STEM Connection** Finn has 3 construction sites. He assigns 8 workers to each site. How many workers does he assign? Explain how you know.



Unit 3 • Multiplication and Division 5


Lesson 3-1
Additional Practice

Name _____

Review

You can multiply the number of objects in each group by the number of equal groups to find the total number of objects.

If Jay buys five 4-packs of batteries, he buys a total of 20 batteries.



5 packs \times 4 batteries per pack = 20 batteries in all

How can you represent the equal groups?

1. 4 equal groups of 6

2. 5 equal groups of 2


3. 2 equal groups of 8

Student Practice Book
37



Every lesson contains a one- to two-minute video explanation of the lesson concept for students to reference as they complete independent work.

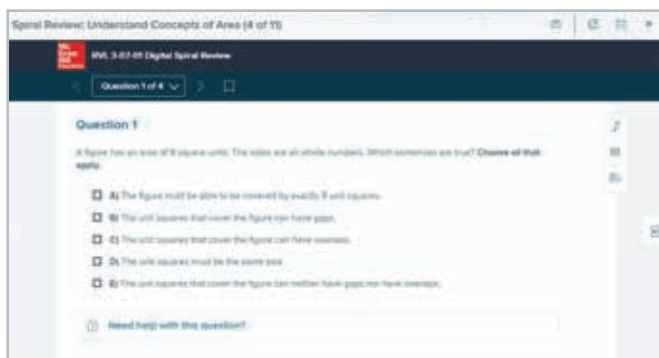
Math Replay: Understand Equal Groups



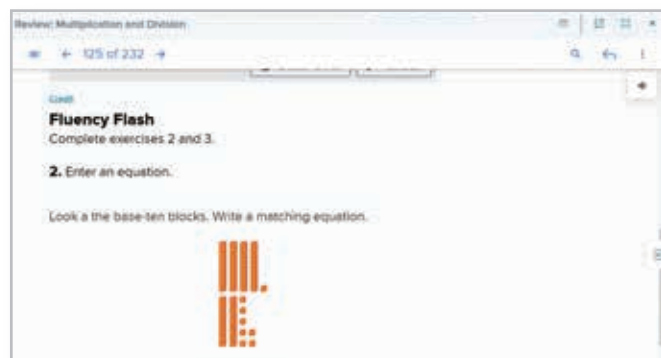
?

How can you represent the number of peaches in the three baskets?

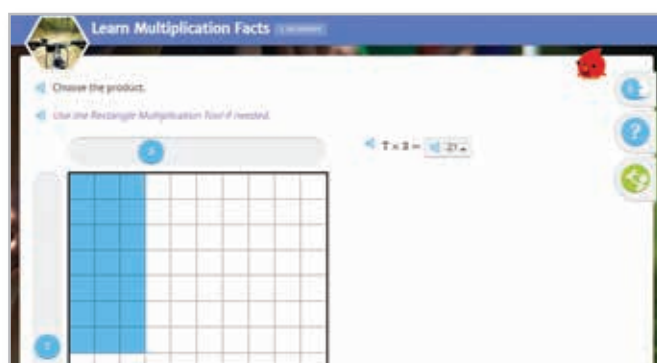
Build Fluency and Number Sense



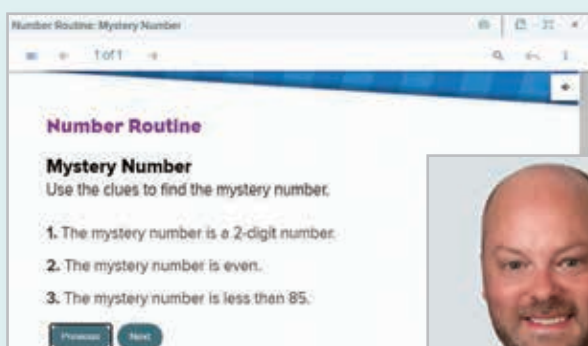
Spiral Review—Daily practice on the major concepts of each grade level in print and digital formats.



Fluency Practice—Per unit practice addressing each grade's fluency expectations in print and digital formats.



Redbird Mathematics—Adaptive instruction on the focus areas across grade levels to accelerate learning.



Daily Number Routines

Teachers utilize a **Number Routine**, written by John SanGiovanni, to build number sense and proficiency with numbers. This supports the students' ability to fluently and flexibly apply strategies to solve unknown problems.

Monitor Student Understanding

04 | Achieve Success

Tennessee Reveal Math offers a comprehensive set of assessment tools that include diagnostic, formative, and summative tools.

Diagnostic

- Course Diagnostic
- Unit Diagnostic

Formative

- Exit Ticket
- Math Probe

Summative

- Unit Assessment, Forms A and B
- Unit Performance Task
- Benchmark Assessments
- End-of-Year Assessments



Print and Digital Formats

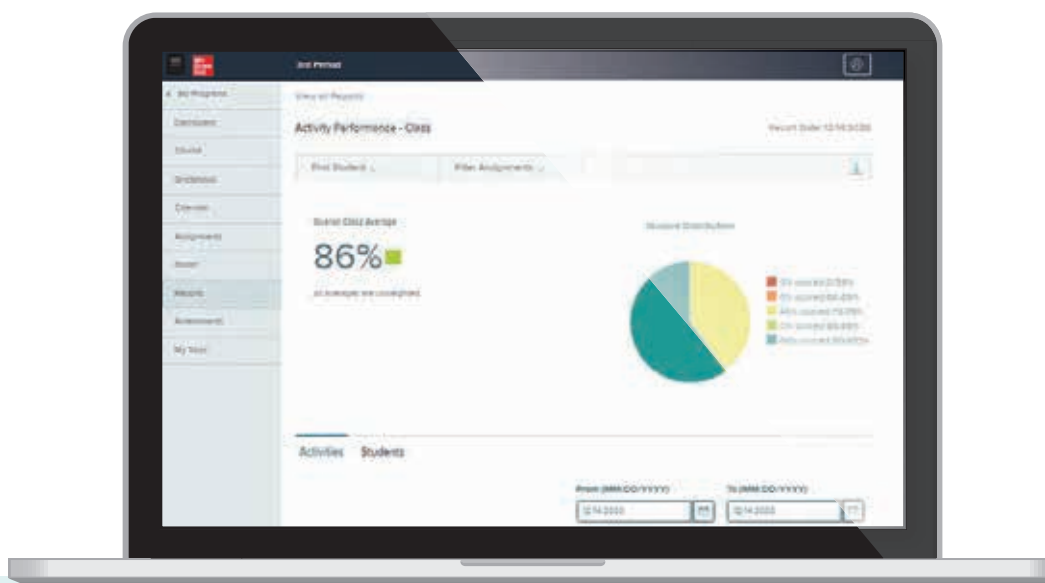
All assessments are available for either print or digital administration. Print Assessments can be found in the Assessment Resource Book or as downloadable PDFs in the Digital Center.

All digital assessment items, except for open response questions, are autoscored. Teachers can create new or customize existing assessments using additional item banks and item authoring tools.

A screenshot of a digital assessment interface. At the top, it says "Question 3 of 14". The question is titled "Question 3" and asks the user to "Look at the groups of 10 cubes." Below this, there are five vertical columns of small cubes, each containing 10 cubes. The question then asks, "How many groups of 10? Enter the numbers to complete the sentence." There are three input boxes: the first is for "tens" and the second is for "ones". The sentence is "tens and ones is". At the bottom, there are two buttons: "Next Question" and "Done and Review".

Data to Drive Instruction

Performance reports—found in the Digital Teacher Center—provide immediate feedback to teachers, which allows them to make data-driven instructional decisions.



Activity Performance Report

Teachers can review useful data points for class activities, including item analysis by student and class.

Tennessee Standards Report

Teachers can access class performance by standard, including a cumulative score by class and student.

MAP Growth Report

Teachers can view students' *MAP Growth* RIT scores and progress throughout the year.

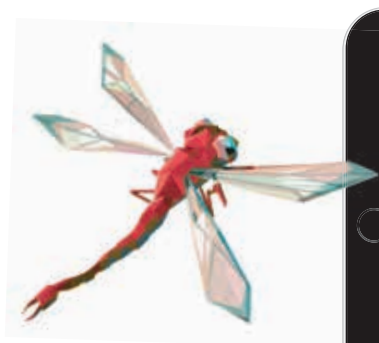
Integrate *MAP Growth* Data to Identify Gaps Early

MAP Growth™, the market's most trusted and accurate interim assessment, integrates its data with *Tennessee Reveal Math* on the Open Learning Platform.

MAP Growth data can save teachers time by identifying students who may need additional support to access grade-level content. **Auto-grouping** and **Recommended Targeted Skill Paths** provide support and review of critical prerequisite skills.

Ensure Student Readiness for Each Unit

The unit begins with a **Readiness Diagnostic** to assess each student's knowledge of essential prerequisite skills for the unit. Teachers can utilize the targeted intervention resources to address the learning gaps and ensure students can access the grade level unit content.



Unit 3
How Ready Am I?

Name _____

- Which number makes the equation true?
 $5 + 4 = 4 + ?$
 A. 3 B. 5 C. 4 D. 6
- Cara bought a package of toy cars for each of her 5 friends. Each package has 4 cars. Which equation can be used to find the total number of cars Cara bought?
 A. $5 + 4 = ?$ B. $5 + 5 + 5 + 5 + 5 = ?$
 C. $4 + 4 + 4 + 4 = ?$ D. $4 + 4 + 4 + 4 + 4 = ?$
- Marco has 3 shelves in his room. There are 3 trophies on each shelf. How many trophies does Marco have?
 B. 6 C. 9 D. 12

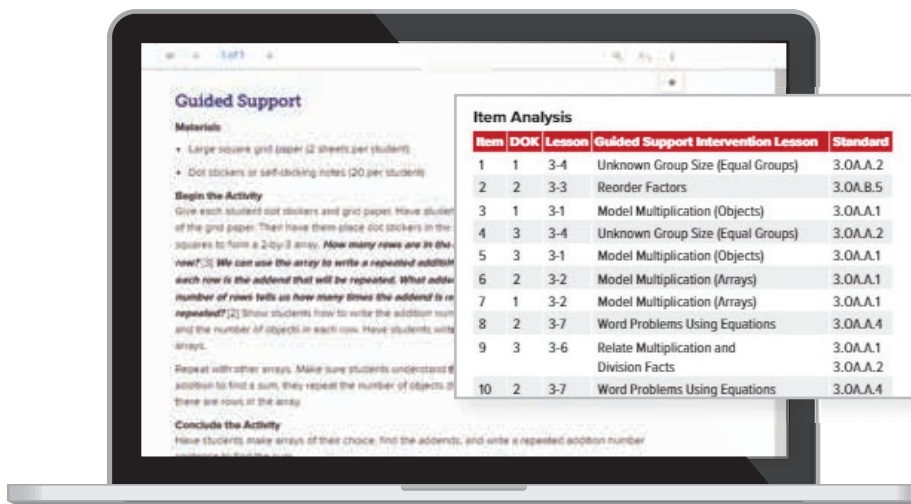
_____ buried 15 bones. Maria found 6 bones. Maria wrote the subtraction equation $15 - 6 = ?$ to find out how many bones were still buried.
 Which equation could Maria use to help solve her equation?
 A. $6 + 9 = 15$
 B. $6 + 9 = 6$
 C. $9 - 15 = 6$
 D. $9 - 15 = 3$

_____ rode his bike for a total of 10 miles in two days. On the first day, he rode his bike for 3 miles. Which equation can be used to find the number of miles he rode his bike the second day?
 A. $10 + 3 = ?$
 B. $? - 10 = 3$
 C. $10 - 3 = ?$
 D. $? + 10 = 3$

Assessment Resource Book 37

Targeted Intervention

Intervention resources, including **Guided Supports** and **Skills Support Sheets**, align to the beginning- and end-of-unit assessment items and are available at the point-of-use to quickly correct misunderstanding and target gaps with small group lessons and practice sheets.



Item-Analysis charts within the Teacher Edition provide recommended intervention resources.

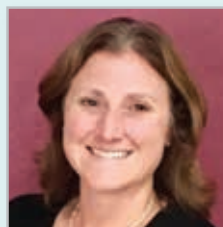
Recognize Misconceptions in the Moment

Math Probes support teachers to identify and target common misconceptions within the unit.

Short, Formative Assessment

Each Math Probe features three to four items that are split into two parts:

1. **Part One** assesses students' understanding of concepts.
2. **Part Two** asks students to share their thinking about the concepts.



Written by
contributing author
Cheryl Tobey

Unit 3
Estimation

Name _____

Four students showed their work to estimate this sum:
 $547 + 231 + 363$

Decide if each student's process provides a correct way to estimate the sum.

1

Student A

*I added: $500 + 200 + 400$.
My estimate is 1,100.*

Circle Yes or No.

Yes No

Explain why you chose Yes or No.

2

Student B

*First I added the numbers.
 $547 + 231 + 363 = 1,141$
Then I rounded. My estimate is 1,140.*

Circle Yes or No.

Yes No

Explain why you chose Yes or No.

Supports to Identify and Target

Authentic student sample responses help identify the misconception. Provided remedies help teachers correct misconceptions quickly and efficiently.

Collect and Assess Student Work			
Collect and review student responses to determine possible misconceptions. See examples in If-Then chart.			
If incorrect...	THEN the student likely...	Sample Misconceptions	
Student A: No	thinks that there is only one correct way to estimate a sum. For example, the student may think that you must round each number to the nearest 10. Watch for students who may calculate the exact answer (obtaining 1,141) and then round to the nearest 100 to obtain the estimate of 1,100 given by Student A.	<div> <p>Student 1</p> <p><i>I added: $500 + 200 + 400$. My estimate is 1,100.</i></p> <p>Circle Yes or No.</p> <p>Yes <input checked="" type="radio"/> No <input type="radio"/></p> </div>	<div> <p>Explain why you chose Yes or No.</p> <p><i>I made a mistake by showing right one.</i></p> </div>
Student B: Yes	thinks that computing the exact answer and then rounding the result is a good strategy for estimating a sum.	<div> <p>Student 2</p> <p><i>First I added the numbers.</i></p> <p>$\begin{array}{r} 547 \\ + 231 \\ + 363 \\ \hline 1141 \end{array}$</p> <p><i>Then I rounded. My estimate is 1,140.</i></p> <p>Circle Yes or No.</p> <p>Yes <input checked="" type="radio"/> No <input type="radio"/></p> </div>	<div> <p>Explain why you chose Yes or No.</p> <p><i>all of the regrouping is good and the answer.</i></p> </div>
Student C: No	may think that rounding is the only correct way to estimate the sum. In this case, the student may not realize that using compatible numbers is another estimation strategy.	<div> <p>Student 3</p> <p><i>I found this sum: $550 + 225 + 375$. My estimate is 1,150.</i></p> <p>Circle Yes or No.</p> <p>Yes <input checked="" type="radio"/> No <input type="radio"/></p> </div>	<div> <p>Explain why you chose Yes or No.</p> <p><i>if you add all the hundreds up like you got 1,000. if you add tens it would be over.</i></p> </div>

Differentiate Based on Data


Exit Tickets are daily, quick formative assessments that take the guessing out of planning meaningful differentiation to raise all student learning. Teachers use students' scores on the Exit Ticket to decide on differentiated assignments from the robust differentiated resources available.

Lesson 3-1

Exit Ticket

Name _____

1. How many brooms?




4 equal groups of 2

2. There are 5 bowls. Each bowl has 4 cherries. What equation represents the number of cherries in the 5 bowls?

$5 \times 4 = 20$


3. Which represents the beetles shown? Choose all that apply.







A. 2 equal groups of 2 B. 4×4
C. 4 equal groups of 2 D. 2×4

Reflect On Your Learning




I'm confused. I'm still learning.




Exit Ticket Recommendations

If students score	Then have students do
4 of 4	Additional Practice or any of the  or  activities
3 of 4	<i>Take Another Look</i> or any of the  activities
2 or fewer of 4	Small Group Intervention or any of the  activities

Key for Differentiation

-  Reinforce Understanding
-  Build Proficiency
-  Extend Thinking



Flexible Differentiation Options

Daily instruction includes workstations and online, independent activities to support daily differentiation:

Game Station

Small-group games engage with hands-on lesson content and opportunities for collaboration.



Written by
contributing
author
Nicki Newton

Application Station

Activities to apply unit content to higher depths of knowledge.



Digital Station

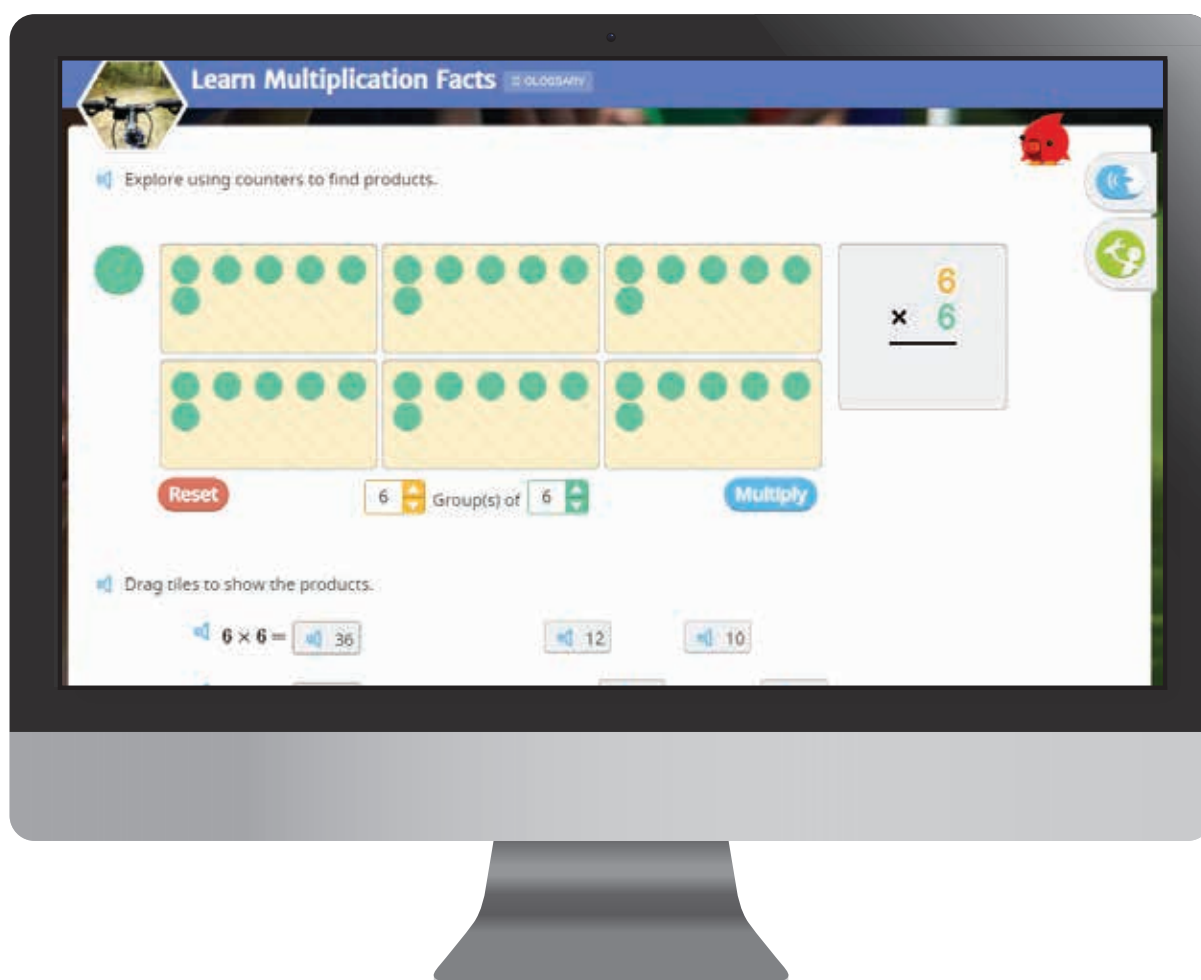
Interactive games to build proficiency throughout the unit.



Accelerate Learning for Every Student

Redbird Mathematics provides students the added advantage of a personalized learning pathway continuously adapting to them. *Redbird Mathematics* supplements *Tennessee Reveal Math* instruction and accelerates learning for all students from remedial to advanced.

- Deliver just the right level and amount of instruction and practice to propel learning forward.
- Use STEM connections to show students why algebra readiness matters and connect math to the real world.
- Identify and close algebra readiness gaps without requiring additional whole-class instructional time.
- Generate real-time data to make insightful, actionable decisions about every student's progress towards algebra readiness.



Instruction Informed by Experts

McGraw Hill's Learning Scientists teamed up with expert authors to create a program guided by validated academic research and classroom best practices.

Ralph Connelly, Ph.D.

Professor of Education at Brock University and current member of NCTM Mathematics Education Trust Board

Annie Fetter

Math Education Specialist at the 21st Century Partnership for STEM Education

Linda Gojak, M.Ed.

Past President of NCTM and NCSM

Sharon Griffin, Ph.D.

Professor Emerita of Education and Psychology at Clark University in Worcester, Massachusetts

Susie Katt, Ph.D.

K–2 Mathematics Coordinator at Lincoln Public Schools in Lincoln, Nebraska

Ruth Harbin Miles, Ed.S.

Math Coach and past NCTM (2013-2016) and NCSM (2005-2008) Board of Directors member

Nicki Newton, Ed.D.

Educational consultant and the Founder and Developer of Math Online PD Academy

Georgina Rivera, M.Ed.

Current 2nd Vice-President of NCSM

John SanGiovanni, M.Ed.

Coordinator of Elementary Mathematics in Howard County, Maryland and past NCTM Board of Directors member

Raj Shah, Ph.D.

Founder of Math Plus Academy and a founding member of the Global Math Project

Jeff Shih, Ph.D.

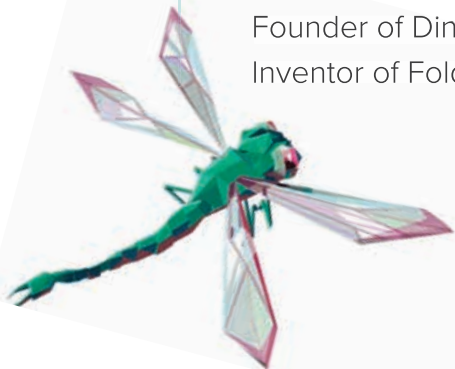
Instructor and professor at the University of Nevada and Current Member of NCTM Board of Directors

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Mathematics Program Director of the Mathematics and Science Alliance

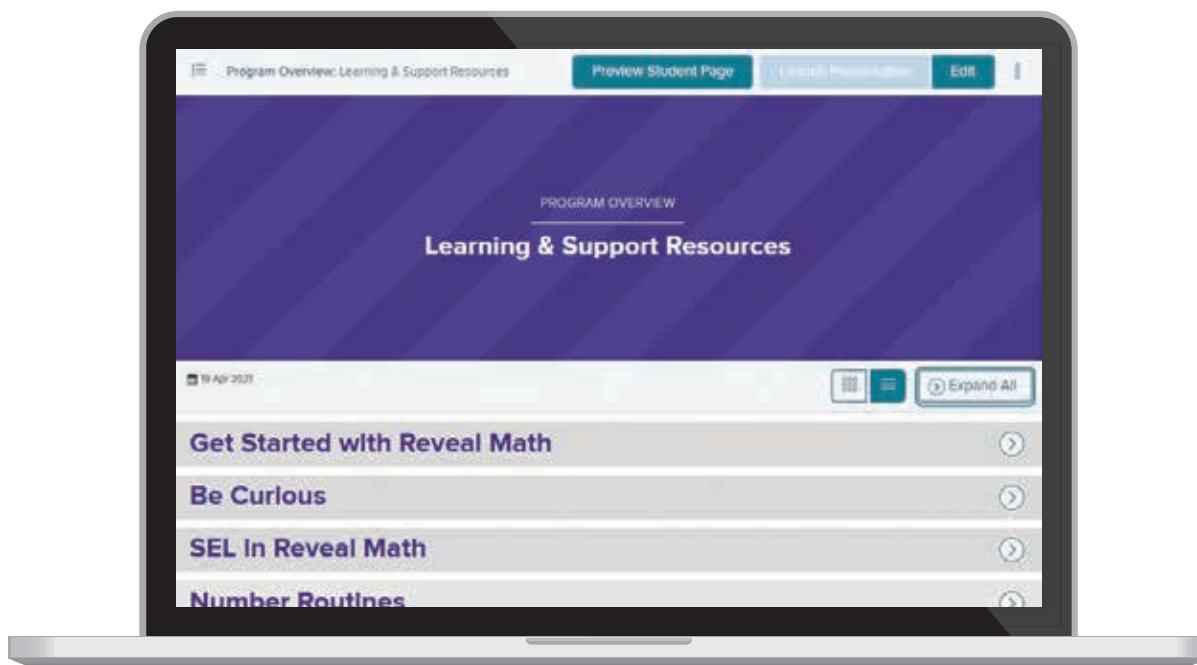
Dinah Zike, M.Ed.

Founder of Dinah Zike Academy; Inventor of Foldables®



Continued Learning Led by Experts

Teachers and administrators have access to a comprehensive set of online professional learning resources to support successful implementation and continued learning throughout the year.



Quick Start

Concise resources designed to quickly get teachers up to speed with *Tennessee Reveal Math*.

Digital Walkthrough

Short videos guide teachers and students through the digital platform.

Workshop Modules

Video-based learning modules present instructional topics that are key to *Tennessee Reveal Math*.

Expert Insights Videos

At the start of each unit, authors and experts share an overview of the concepts along with teaching tips and insights about how to implement the lesson.

Instructional Videos

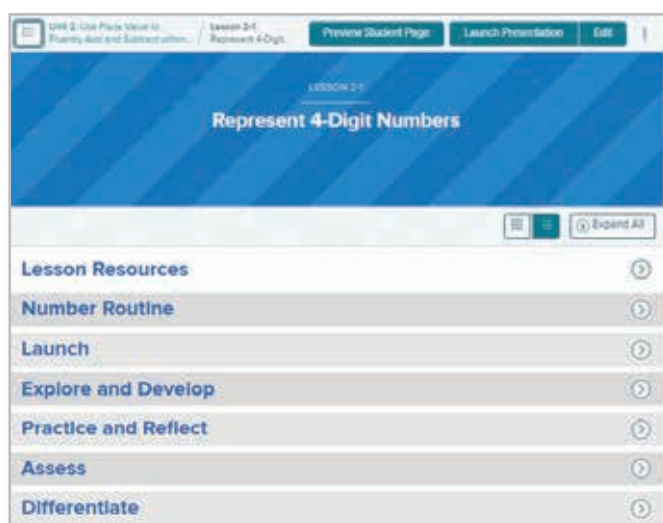
Authors showcase key features and provide implementation recommendations.

- Annie Fetter: Be Curious and Sense-Making Routines
- Raj Shah: Ignite! Activities
- Cheryl Tobey: Math Probes
- Linda Gojak: Guided and Activity-Based Exploration
- John SanGiovanni: Number Routines and Fluency

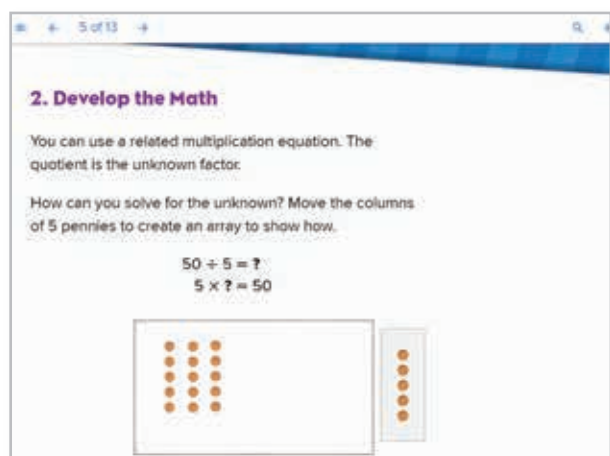
Easily Plan Lessons and Teach with Confidence

See all lesson resources at once

Teachers can view all the lesson resources and plan from organized lesson landing pages within the **Digital Teacher Center** that align to their print Teacher Edition layout. Lessons can be added to the calendar and easily accessed from the Teacher Dashboard on the day of learning.



Customize lesson presentations

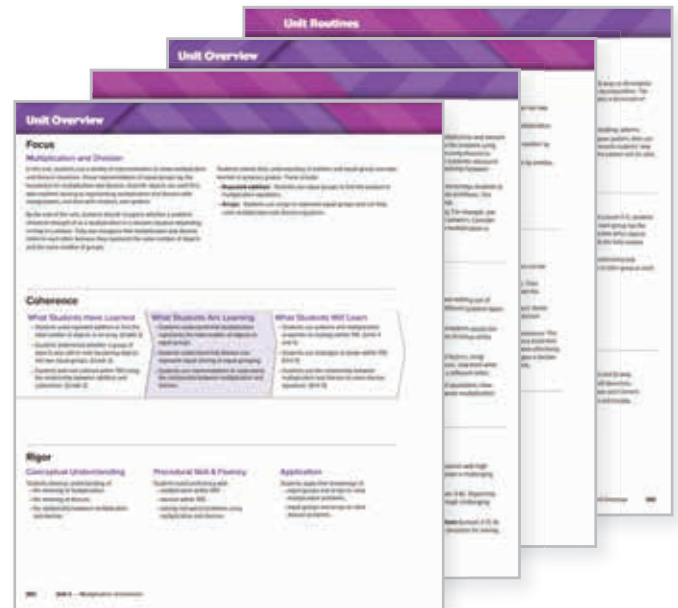


Teachers can launch interactive and engaging presentations with **embedded eTools** from their lesson landing page. Each lesson presentation can be reorganized or customized with teacher added resources.

Engage students with productive learning opportunities

The **Unit Overview** offers a comprehensive overview of the unit content for just-in-time professional support and includes:

- Content Overview.
- Pedagogical Overview.
- Language Overview.
- Unit Routines.



Access content through multiple learning management systems

McGraw Hill's Open Learning platform currently integrates with the following Federated Standards: SAML 2.0 IDP, LTI 1.0, and Clever. Integration is possible with most learning management systems that support these standards, including but not limited to:

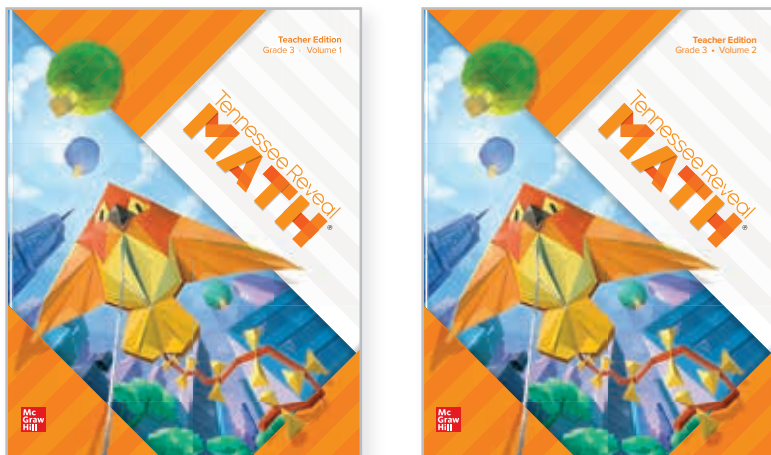
- Canvas.
- Schoology.
- Google Classroom.
- Blackboard.



Teacher Resources

Print Resources

Teacher Edition, 2-volume



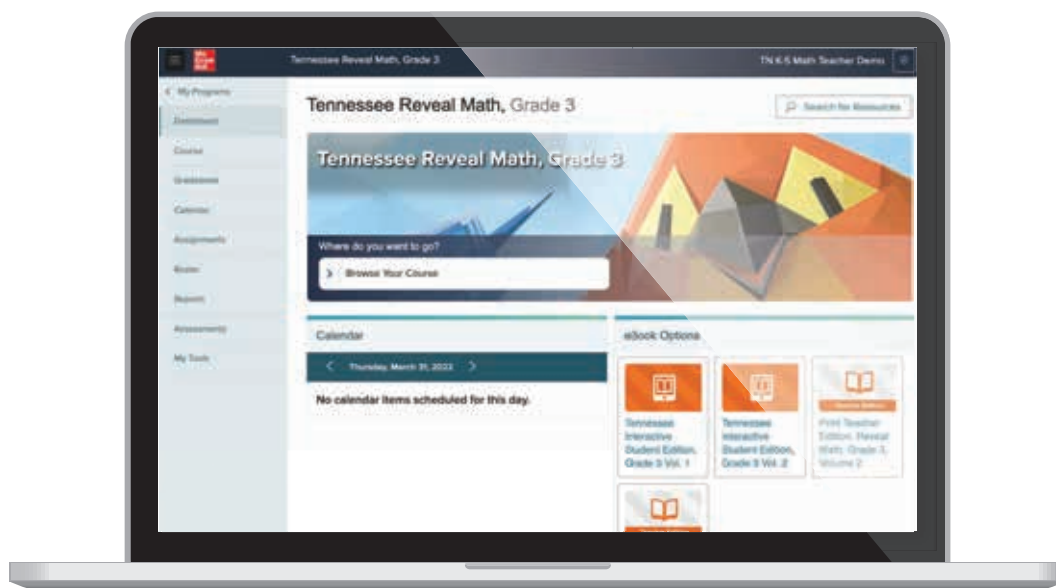
Classroom Workstation Kit

Workstation Teacher Guide
(in Digital Teacher Center)

Game Station Resource Book



Application Station Cards



Register at mheonline.com/tennessee to request login credentials.
Review the Digital Teacher Center:

my.mheducation.com

Digital Teacher Center

Teachers have access to an intuitive and easy-to-use platform where they can plan and implement engaging instruction. The teacher experience includes:

- Daily, interactive lesson presentations.
- Differentiation Resources.
- Assessment Resources.
- Auto-scored practice and assessment.
- Customizable assessment and item banks.
- Teacher and Administrator data and reporting.
- Professional Development workshops and videos.
- Ability to add resources, including presentations, website links, and more.
- Classroom management and grouping tools.

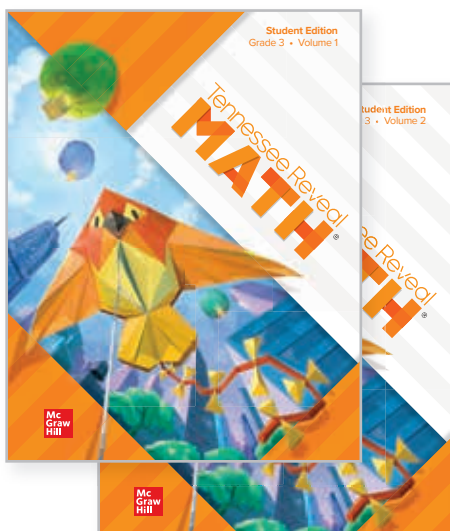
Manipulative Kits

The Classroom Manipulatives Kits include hands-on materials to support lesson instruction and are organized in plastic tubs for easy storage.

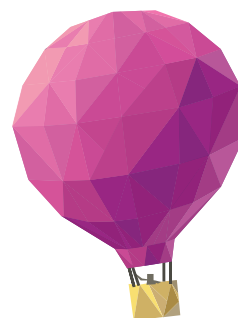
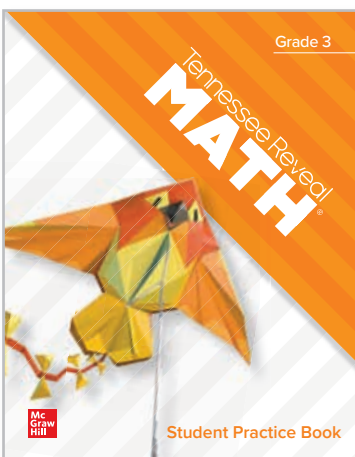
Student Resources

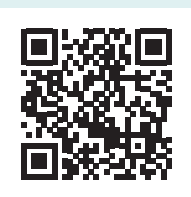
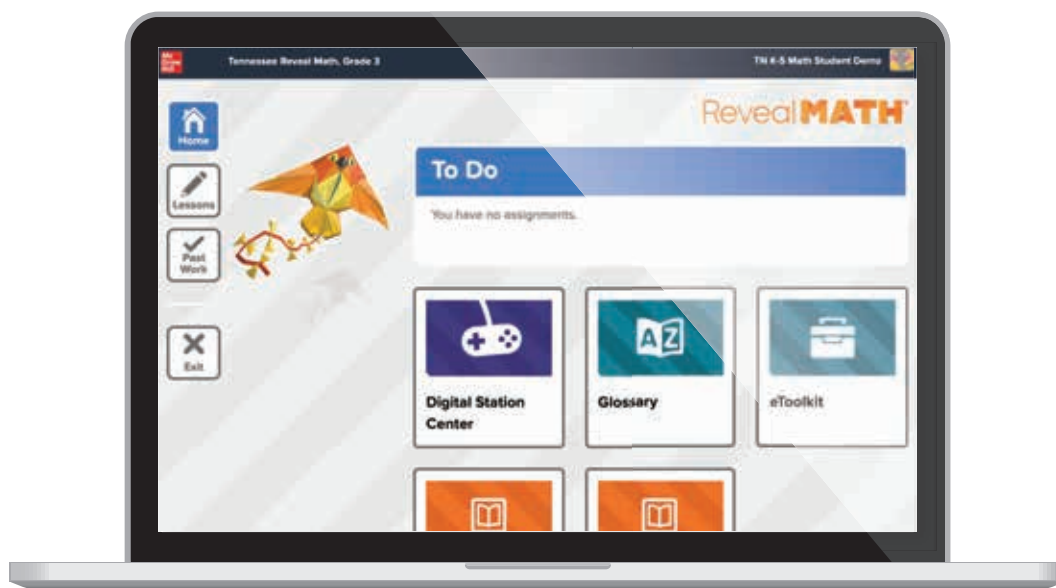
Print Resources

Student Edition, 2-volume



Student Practice Book





Register at mheonline.com/tennessee to request login credentials.

Review the Digital Student Center:

my.mheducation.com

Digital Student Center

Designed with the needs of elementary students in mind, the Digital Student Center offers access to a robust set of engaging digital tools and interactive learning aids, including:

- Interactive Student Editions.
- Daily, interactive practice with embedded learning aids.
- Online assessments with interactive question types.
- Adaptive instruction and practice through *Redbird Mathematics*.
- Animations, glossary, videos, and eTools.
- Digital games designed for purposeful practice.
- Instructional mini-lessons to reinforce understanding.
- Rich exploratory STEM Adventures.
- Visual and dynamic Web Sketchpad® activities.

Tennessee Reveal **MATH**[®]

Reveal the Full Potential in Every Student
Learn more at [**mheonline.com/tennessee**](http://mheonline.com/tennessee)