

Program Overview

Grades 6–8



Tennessee Reveal
MATH[®]



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Tennessee Reveal Math for grades 6–8 ensures that your students can meet Tennessee’s Mathematics Standards expectations while also developing the thinking and reasoning skills needed for high achievement and success on their pathway toward high school mathematics.

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Motivate students with confidence and purpose that mathematics goes beyond the “right” answer. Learn how *Tennessee Reveal Math* gives you the tools to create a classroom of learners with a positive mindset focused on growth and who make mathematical connections to the world around them and each other.

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Register to Review *Tennessee Reveal Math* Online

mheonline.com/tennessee



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Elevate learning through curiosity, exploration, and questioning. With *Tennessee Reveal Math*, your students participate in their own learning while you facilitate an active classroom environment. Explore solutions together while strengthening your students’ problem-solving and reasoning skills.

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Designed to Meet Tennessee Mathematics Standards

01 | Tennessee Mathematics Standards

With Tennessee Mathematics Standards as the center of development, *Tennessee Reveal Math* is designed to ensure teachers have the tools to deliver the high-quality instruction needed for student success in math class and beyond.

1. Lesson Goal and Contents

The focused goal of the lesson and the segments within is outlined. Note the icons recommending class, pair, and individual student activities.

2. Differentiated Resources

At-a-glance resources for lesson differentiation make planning easy.

3. Pacing

Lesson pacing for each activity is represented for 45 or 90 minute periods.

4. Tennessee Mathematics Standards

Each Lesson Opener specifies the Domain, Major Cluster(s), Content, and Standards for Mathematical Practice.

5. Balanced Structure

The tasks, problems, and exercises reflect a balance of the three pillars of rigor: Conceptual Understanding, Procedural Skill & Fluency, and Application.

6. Vertical Alignment

Coherence shows what what students have learned, what they are going to learn in the lesson, and what they will learn in the future.

7. Mathematical Background

Each lesson includes a point-of-use explanation of the mathematical context for teachers.

1 LESSON GOAL
Students will understand the concept of a ratio.

2 EXPLORE AND DEVELOP
Launch the Lesson with a warm-up and an introduction.
Explore: Compare Two Quantities
Learn: Understand Ratios
Example 1: Understand Ratios
Example 2: Part to Whole and Part to Part Ratios
Example 3: Part to Part Ratios
Apply: Fundraising
Have your students complete the Checks online.

3 Suggested Pacing
30 min 1 day
45 min 2 days

4 Focus
Domain: Ratios and Proportional Relationships
Major Cluster(s): In this lesson, students address major cluster 6.RP.A by solving problems by understanding the concept of a ratio.
Tennessee Standards for Mathematical Content: 6.RP.A.1
Tennessee Standards for Mathematical Practice: MP1, MP2, MP3, MP4, MP5

5 Rigor
Use Three Pillars of Rigor
1. CONCEPTUAL UNDERSTANDING In this lesson, students develop understanding of ratios and ratio language to describe the relationship between two quantities. They come to understand that ratios can be part to whole and part to part and write ratios in different forms that express different relationships. They apply their understanding of ratios to solve real-world problems.

6 Coherence
Vertical Alignment
Previous: Students understood a fraction as part of a whole, and fraction equivalences: 5.NF.B.3
Now: Students understand the concept of a ratio. 6.RP.A.1
Next: Students will use ratio tables and double number lines to find equivalent ratios. 6.RP.A.1, 6.RP.A.3a

7 Mathematical Background
A ratio is a comparison between two quantities, in which the units of one quantity, there are units of another quantity. The for every and for each are used to define and describe ratios. Ratios can be written in different ways and can be modeled using bar diagrams and other representations. A part-to-whole ratio compares one part of a group to the whole group. A part-to-part ratio compares one part of a group to another part of the same group.

Progression Alignment

The scope and sequence within *Tennessee Reveal Math* feature the logical learning progression of mathematical content across all grades and within each grade, from kindergarten to high school. Vertical and horizontal progressions help strengthen each students' learning.

Module 1: Ratios and Rates

Standards Alignment

Lesson	Standards	Grade 6	Grade 7
1.1 Understanding Ratios	6.RP.A.1	1	1
1.2 Understanding Ratios	6.RP.A.2, 6.RP.A.3	2	1
1.3 Understanding Ratios	6.RP.A.2, 6.RP.A.3	3	1
1.4 Comparing Ratios	6.RP.A.2, 6.RP.A.3	4	1
1.5 Using Ratio Tables	6.RP.A.2, 6.RP.A.3	5	1
1.6 Using Ratio Tables	6.RP.A.2, 6.RP.A.3	6	1
1.7 Using Ratio Tables	6.RP.A.2, 6.RP.A.3	7	1
1.8 Using Ratio Tables	6.RP.A.2, 6.RP.A.3	8	1
1.9 Using Ratio Tables	6.RP.A.2, 6.RP.A.3	9	1
1.10 Using Ratio Tables	6.RP.A.2, 6.RP.A.3	10	1
1.11 Using Ratio Tables	6.RP.A.2, 6.RP.A.3	11	1
1.12 Using Ratio Tables	6.RP.A.2, 6.RP.A.3	12	1

Coherence

Vertical Alignment

Previous

Students understood a fraction as part of a whole, and fraction equivalence. **3.NF.A.1, 4.NF.A.1**

Now

Students use ratio and rate reasoning to solve real-world and mathematical problems. **6.RP.A.1, 6.RP.A.2, 6.RP.A.3**

Next

Students will use ratio reasoning to find the percent of a number. **6.RP.A.3, 6.RP.A.3.c**

Module-Level Learning Progression helps teachers understand previously learned concepts and skills, the focus of the upcoming module, and follow-on concepts and skills.

Coherence

Vertical Alignment

Previous

Students understood a fraction as part of a whole, and fraction equivalence. **5.NF.B.3**

Now

Students understand the concept of a ratio. **6.RP.A.1**

Next

Students will use ratio tables and double number lines to find equivalent ratios. **6.RP.A.3, 6.RP.A.3.a**

Lesson-Level Learning Progression guidance provides a more granular analysis of the learning progression from lesson to lesson within the module.

Module 1: Understand Ratios

Standards Alignment

Lesson	Standards	Grade 6	Grade 7
1.1 Understanding Ratios	6.RP.A.1	1	1
1.2 Understanding Ratios	6.RP.A.2, 6.RP.A.3	2	1
1.3 Understanding Ratios	6.RP.A.2, 6.RP.A.3	3	1
1.4 Comparing Ratios	6.RP.A.2, 6.RP.A.3	4	1
1.5 Using Ratio Tables	6.RP.A.2, 6.RP.A.3	5	1
1.6 Using Ratio Tables	6.RP.A.2, 6.RP.A.3	6	1
1.7 Using Ratio Tables	6.RP.A.2, 6.RP.A.3	7	1
1.8 Using Ratio Tables	6.RP.A.2, 6.RP.A.3	8	1
1.9 Using Ratio Tables	6.RP.A.2, 6.RP.A.3	9	1
1.10 Using Ratio Tables	6.RP.A.2, 6.RP.A.3	10	1
1.11 Using Ratio Tables	6.RP.A.2, 6.RP.A.3	11	1
1.12 Using Ratio Tables	6.RP.A.2, 6.RP.A.3	12	1

Establish Positivity and Habits for Growth

02 | Motivate Students

Tennessee Reveal Math is infused with research-based best practices designed for teachers to establish a culture of positivity and success where students find purpose in effort and learning opportunities through questions, errors, and discourse.

Mindset Matters

Teachers are prompted at the beginning of every module with **Mindset Matters** to implement strategies for encouraging a growth mindset, including suggestions on how to implement them during upcoming lessons.

Mindset Matters

“Not Yet” Doesn’t Mean “Never”

Students with a growth mindset understand that just because they haven’t yet found a solution, that does not mean they won’t find one with additional effort and reasoning. It can take time and continued effort to reason through different strategies that can be used to solve a problem.

How Can I Apply It?

Assign students the **Formative Assessment Math Probes** that are available for each module. Have them complete the probe before starting the module, and then again at the specified lesson within the module, or at the end of the module so that they can see their progress.



Mathematical Discourse

As a discourse-driven program, *Tennessee Reveal Math* makes class discussion part of the norm through Student Edition **Talk About It!** prompts and corresponding Teacher Edition **Mathematical Discourse** prompts.

Talk About It!

SLIDE 2

Mathematical Discourse

What steps did you take to model the expression? **Sample answer:** Begin by placing two -1 tiles on the workspace. Then add three -1 tiles. The sum of the tiles on the workspace is five -1 tiles.

Purposeful Tasks to Deepen Understanding

Tennessee Reveal Math tasks are designed to provide students structure to explore, uncover ideas, justify thinking, and ask each other questions to deepen understanding.



Encourage Collaboration:

Collaborative Practice prompts in the Teacher Edition focus students to work together to solve, discuss, and evaluate problems.

Collaborative Practice

Have students work in pairs or small groups to complete the following exercise.

Solve the problem another way.

Use with Exercise 16 Have students work in groups of 3–4. After completing Exercise 16, have one student from each group rotate to form a different group of students. Each student should share the solution method they previously used to solve the problem. Have students compare and contrast the different methods for solving the problem, and determine if each method is a viable solution. If the solutions were the same, have them brainstorm another way to solve the problem. Have one group present two viable solution methods to the class, and explain why each method is a correct method.

Focus on Inquiry:


Online **Explore** activities begin with an open-ended **Inquiry Question** to encourage deep thinking and reasoning. Students document their findings either online or on an **Explore Recording Sheet**.

NAME _____
DATE _____
PERIOD _____

Explore Systems of Equations

Online Activity In this Explore, you will use Web Sketchpad to explore what it means when two linear equations intersect and make a conjecture about the point of intersection.

Introducing the INQUIRY Question What does it mean when the graphs of two linear equations intersect?




Complete the activities on Slides 2-5. Then respond to these questions.

- Talk About It!** Approximately when do the hikers meet? You can run the simulation again, or select *Show One Hour Buttons* to see their progress hour by hour. You can also select *Show Time Slider* to move the hikers along the trail.
- Talk About It!** From the table, what can you predict about when the hikers will meet? Explain your reasoning.

Explore • Systems of Equations
© McGraw-Hill Education

Talk About It! prompts ask students to explain their reasoning and discuss their thinking.



Talk About It!

Give an example of adding integers with different signs. Does your example reinforce the statements about the sign of a sum?

Build Math Language Together

Tennessee Reveal Math was developed around the belief that mathematics is about communication: listening, speaking, reading, and writing. All students will benefit from support designed to develop and promote the use of mathematical language.

MLR

Math Language Routines

Found in the Language Development Handbook, Teacher Edition, each lesson includes routine to promote the use of mathematical language.

Language Development Handbook

Graphic organizers, tools, and tips to build students' academic and math vocabulary within each lesson.

EL

English Learner Scaffolds

Embedded in each lesson and based on combined WIDA proficiency levels to help students understand math vocabulary, ideas, and concepts in context.

Language of Math

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



Walter Secada, Ph.D.
—Expert Advisor, ELL

Support for English Language Learners (ELLs)

In addition to embedded Teacher Edition language support strategies, Tennessee resources to assist ELLs with context and language proficiency.

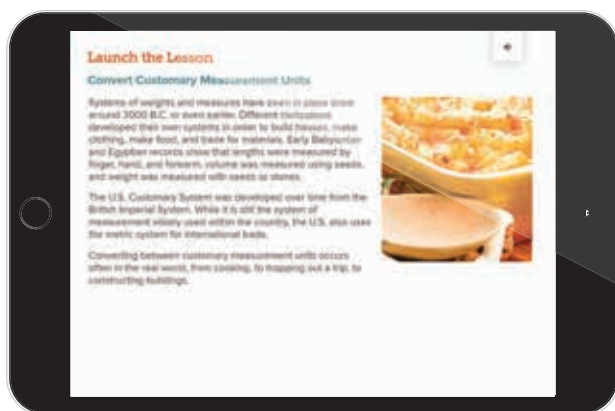
- Spanish Videos
- Audio to Improve Listening Comprehension Skills
- English/Spanish Glossary
- Multilingual eGlossary
- *ALEKS* Bilingual Courses in Spanish

Make Real-World Connections

Tennessee Reveal Math is about students recognizing that math is everywhere in the world around them and that the world offers them an infinite number of problem-solving opportunities.

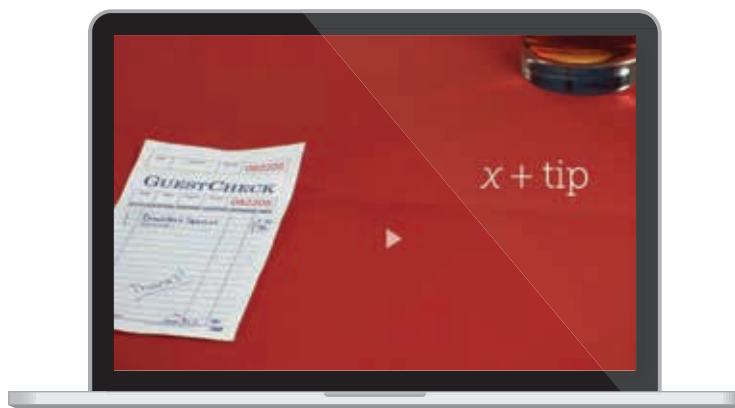
Relatable Scenarios

A **Launch the Module** video highlighting an authentic, recognizable scenario engages students in the upcoming lesson topics.



Relevant Connections

A **Launch the Lesson** real-world situation related to the mathematics in the upcoming lesson helps students make connections.



Example

Lessons also contain real-world **Examples** and **Apply** problems, highlighted with a globe icon, designed to provide relevant contexts in which students can see themselves.

Math History Minute

Mathematician and astronomer **Muhammad al-Khwarizmi** (around 780–850) wrote the first known text in elementary algebra. The word *algebra* is derived from the word *al-jabr*, part of the title of this text. It means *reunion of broken parts* in Arabic. His texts were influential in bringing algebraic knowledge to Europe and were the first Arabic mathematics texts translated into Latin.

Multicultural Contributions

To provide students with diverse perspectives, **Math History Minutes** highlight the contributions of leading mathematicians, past and present, from all over the world.

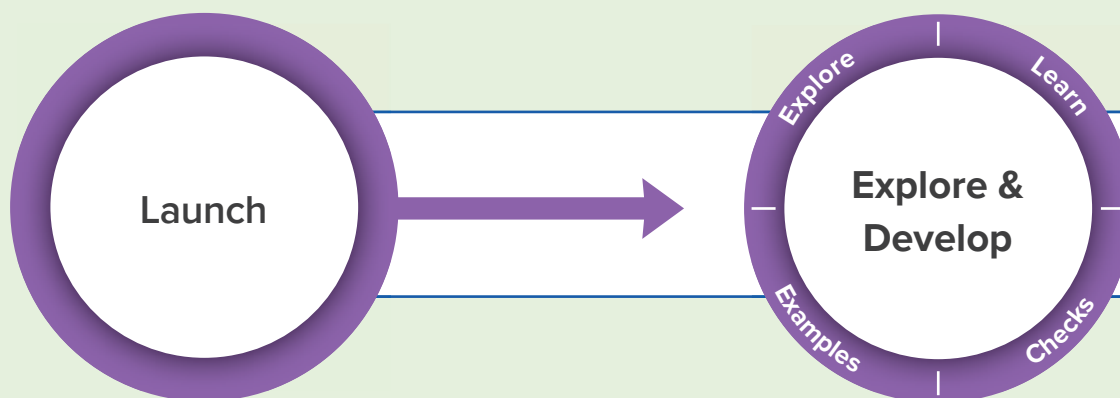
Lesson Model Overview

03

Elevate
Learning

An Adaptable Lesson Model

The *Tennessee Reveal Math* lesson is organized into a three-part instructional model supported by differentiation throughout. Each lesson includes opportunities for flexibility using both print and digital resources.



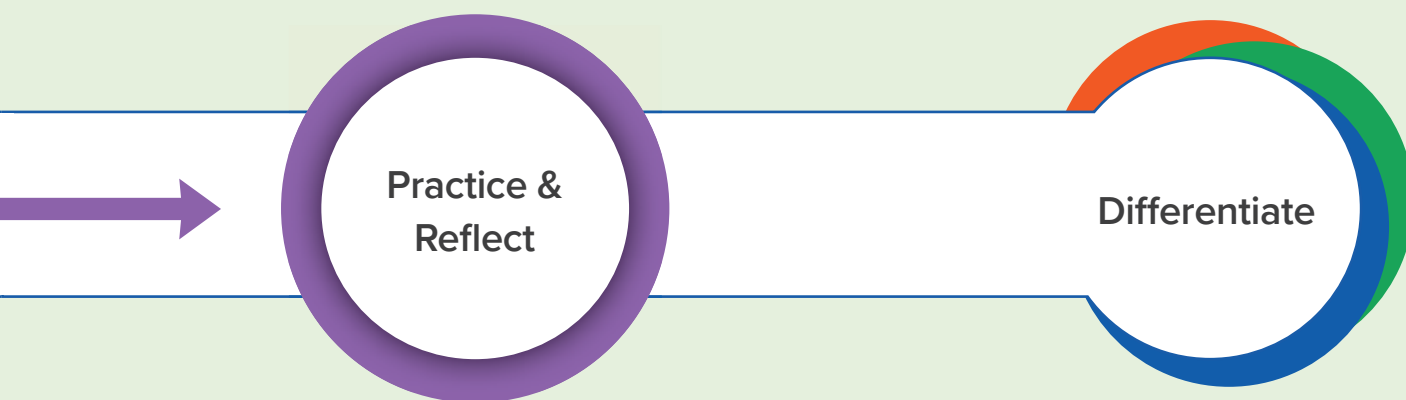
Launch

Teachers use the **Warm Up** at the start of the lesson for a brief review of prerequisite skills before leading into **Launch the Lesson**, designed as a real-world problem to interest students and introduce them to questions they can answer by the end of the lesson.

Explore & Develop

Teachers introduce the **Explore** activity and have the option to break students into pairs or small groups to work together on this exploratory mathematical task to build a shared understanding. This activity is followed by a whole group share out and **Learn** activity to formalize student understanding.

Students continue to take ownership of learning by working through **Examples** and **Talk About It!** prompts to encourage math discourse. A **Check** after every **Example** provides a quick formative assessment moment.



Practice & Reflect

At the conclusion of the lesson, the teacher displays the **Exit Ticket** to evaluate student understanding.

The assignment of **Practice**, **Extra Practice**, or **Spiral Review** follows the Differentiate phase and concludes the lesson.

Differentiate

Teachers can use the **Exit Ticket** or data from **Checks** to choose from various Differentiated Resources to support student learning needs.

AL Approaching Level

Resources designed to provide prerequisite skill support.

OL On Level

Resources for on-level instructional needs.

BL Beyond Level

Resources to enrich lesson concepts.

Activate Curiosity and Fuel Learning



Each module includes an **Ignite!** activity designed to:

- Spark students' interest and curiosity
- Provide multiple entry points
- Motivate students to persevere through problem-solving challenges.



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

–Raj Shah,
Contributing Author

NAME _____ DATE _____ PERIOD _____

IGNITE!
School Breakfast

Nine students each bring in either banana nut or blueberry muffins for a breakfast. Each student places his or her muffins on 9 separate tables.

Student 1: Let's reorganize the muffins so that each table has the same number of muffins.

Student 2: We should keep the banana nut muffins on separate tables from the other muffins in case someone has a nut allergy.

Student 3: I also brought 10 chocolate chip muffins. I want to place those on the tables too.

Student 1: Let's make sure each of the 9 tables has the same number of muffins.

Tables of Blueberry Muffins

Tables of Banana Nut Muffins

What do you notice?	What questions can you ask?

Talk About It! Share your observations and questions with a partner. What do you notice about the observations you each made and the questions you each asked?

With your class, choose one of your questions and record it below. This should be a question that you can answer by generating your own strategies.

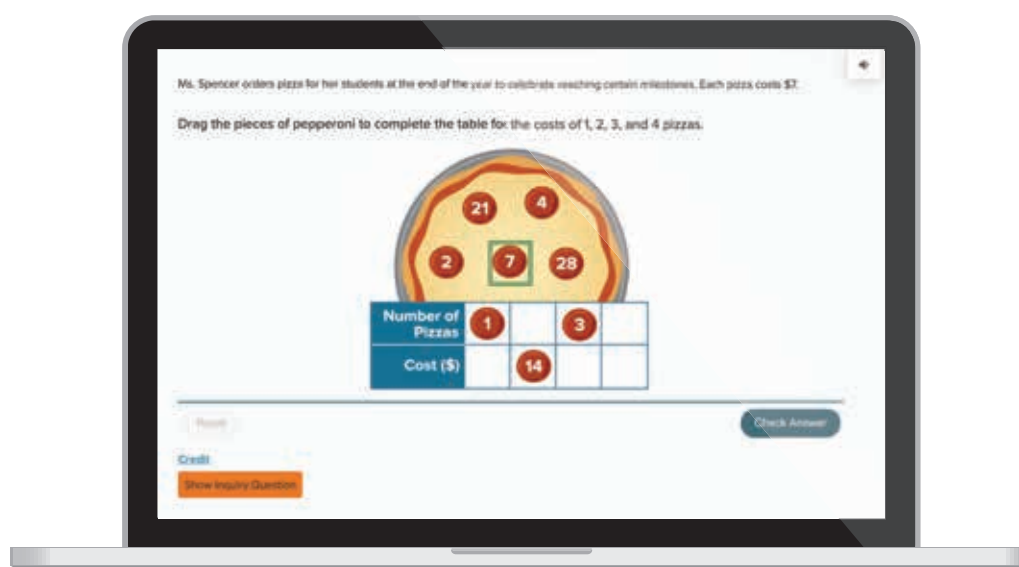
How can you answer your question? What strategies can you use?	What assumptions, if any, will you make? Why are you making these assumptions?

ignite • School Breakfast ©McGraw-Hill Education

Exploration Leading the Way

Sense-Making and Reasoning

Online **Explore** activities focus on an **Inquiry Question** and place a unique emphasis on student discovery, exploration, sense-making, and reasoning, rather than focusing solely on the correct answer.



“We have a huge opportunity today in helping students become such strong, fluid, and flexible thinkers that they are able to use mathematics and see opportunities to use it in places we may not even imagine.”

—Cathy Seeley,
Expert Advisor

Problem Solving and Application

Tennessee Reveal Math provides a foundation for students to take increased ownership of learning to become effective problem solvers and critical thinkers.

Demonstrating Perseverance

Rich contextual problem-solving problems with multiple solution paths encourage productive struggle.

Apply Bake Sale

The Spanish Club is having a bake sale. You can buy a bag of trail mix and a loaf of pumpkin bread for \$11 or three bags of trail mix and two loaves of pumpkin bread for \$24. This situation can be represented with the system $x + y = 11$ and $3x + 2y = 24$, where x represents the cost of a bag of trail mix and y represents the cost of a loaf of pumpkin bread. How much does each bag of trail mix and each loaf of pumpkin bread cost?


1 What is the task?
Make sure you understand exactly what question to answer or problem to solve. You may want to read the problem three times. Discuss these questions with a partner.

First Time: Describe the context of the problem, in your own words.
Second Time: What mathematics do you see in the problem?
Third Time: What are you wondering about?

2 How can you approach the task? What strategies can you use?

3 What is your solution?
Use your strategy to solve the problem.

4 How can you show your solution is reasonable?
Write About It! Write an argument that can be used to defend your solution.



2 How can you approach the task? What strategies can you use?

Record your observations here

Talk About It

How do you know the solution cannot be \$9 for each bag of trail mix and \$2 for each loaf of pumpkin bread?

Encourage Productive Struggle
As students work, monitor their progress. Instead of instructing them on a particular strategy, encourage them to use their own strategies to solve the problem and to evaluate their progress along the way. They may or may not find that they need to change direction or try out several strategies.

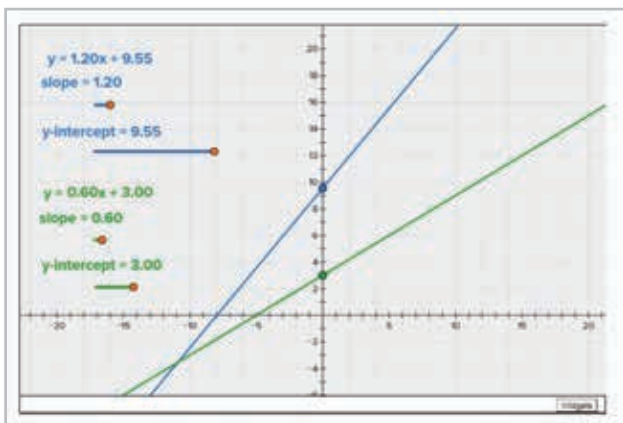
Signs of Non-Productive Struggle
If students show signs of non-productive struggle, such as feeling overwhelmed, frustration, or disengagement, intervene to encourage them to think of alternate approaches to the problem. Some sample questions are shown.

- How might it help if the equations were rewritten in a different form?
- What could the graphs of the equations tell you about the price of each item?
- What does the value of x represent? the value of y ?

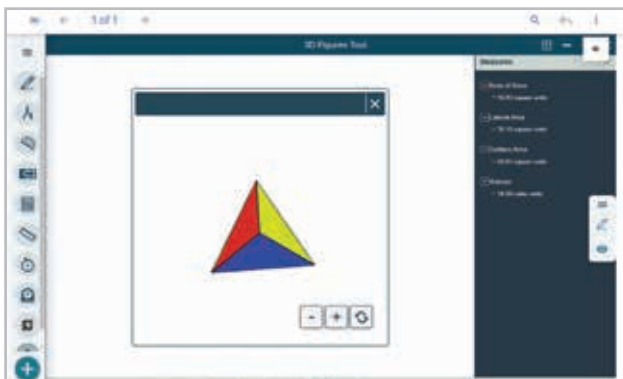
12 | Tennessee Reveal Math 6–8 Overview Brochure

Tools to Support Visualization and Modeling

As math increases in complexity, students will benefit from tools that allow them to represent mathematics in different ways. *Tennessee Reveal Math* includes **Web Sketchpad®** and virtual manipulatives at the point-of-use within the lessons.

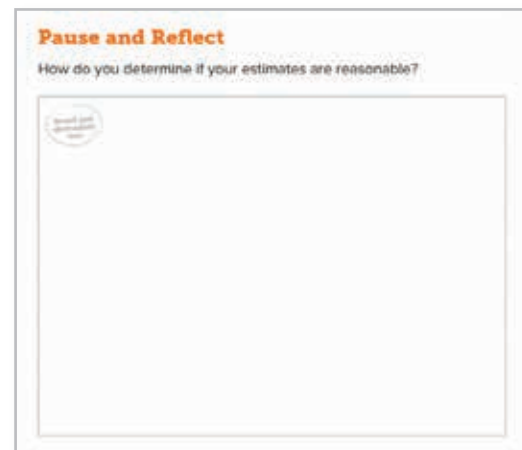


An **eToolkit** accessible from inside the Digital Student Center enables students to learn through dynamic mathematical models.



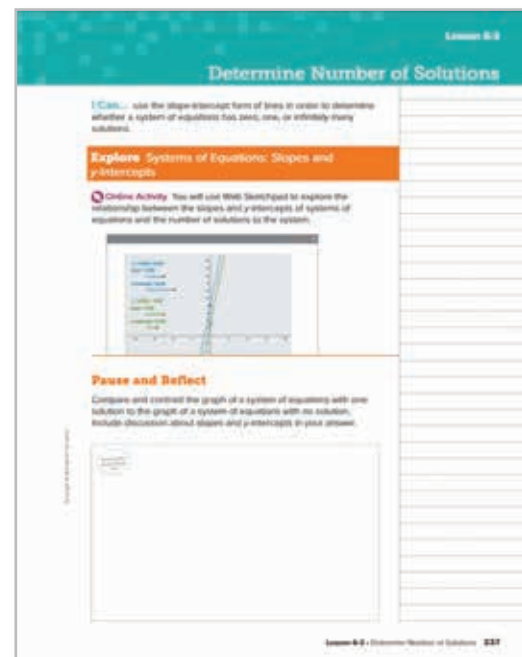
Pause and Reflect

Reflection helps drive accountability and gives students the opportunity to think and write about their learning. Students are regularly asked during **Pause and Reflect** to explain what they have learned.



Notetaking for Understanding

The **Student Edition** is organized with Cornell-inspired margins for students to document notes, draw figures, key takeaways, or strategies.

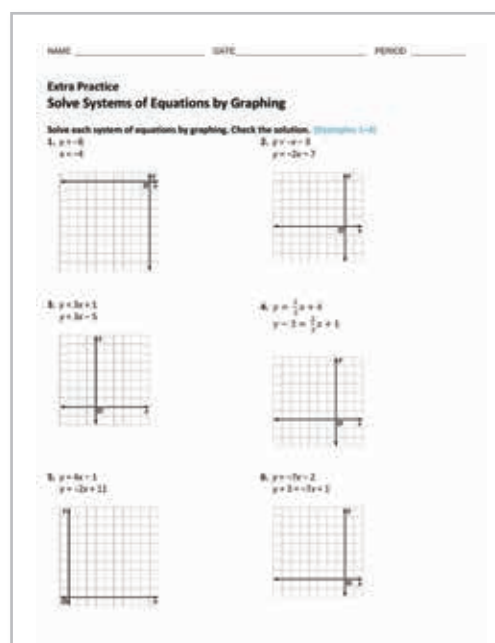
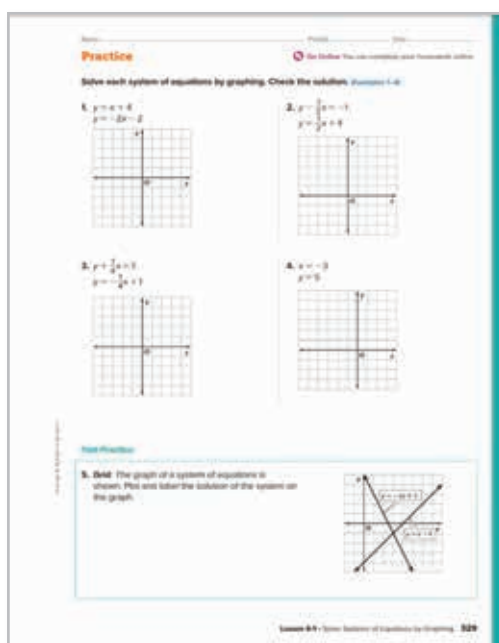


Purposeful Practice for Challenge and Understanding

Practice in *Tennessee Reveal Math* provides students with ample opportunity to demonstrate conceptual understanding and procedural fluency. Teachers may choose to fully customize pre-built practice sets and questions.

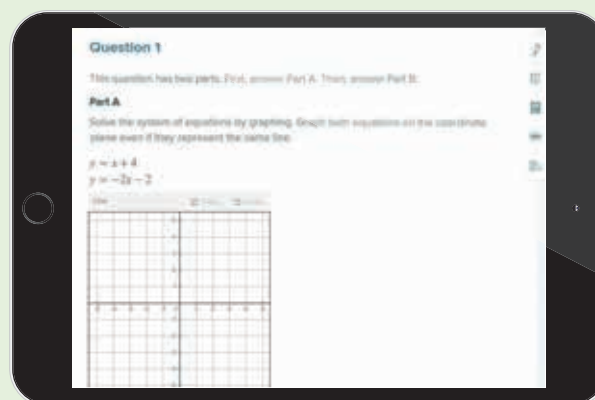
Practice assignments can be completed in the print Student Edition, using a printable worksheet, or within the Digital Student Center.

Extra Practice assignments contain additional questions for each lesson on a printable worksheet or within the Digital Student Center.



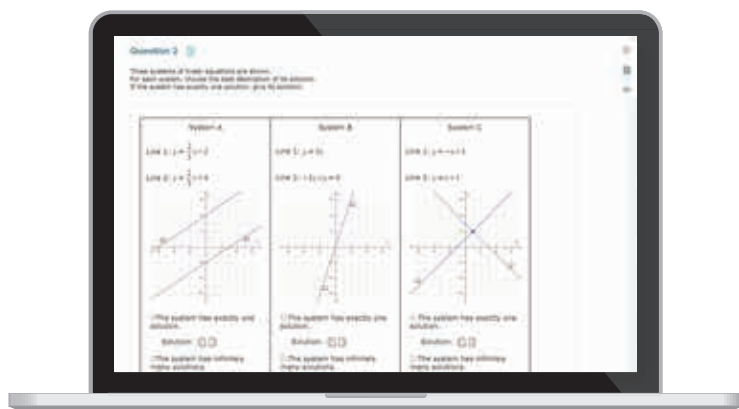
Benefits of Digital Practice

- Multiple Attempts
- Embedded Student Learning Aids
- Tech-Enhanced Question Types
- Dynamic Question Functionality
- Auto-Scoring
- Thousands of Practice Bank Questions



Dynamic Practice

Questions that change value for each student and each attempt are found in Extra Practice, Spiral Review, and Dynamic Module Practice sets.



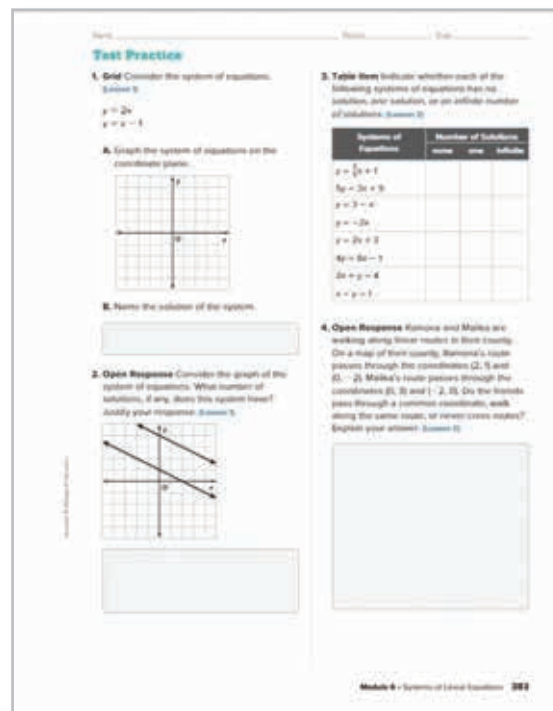
LearnSmart®

After several modules, assign students personalized, adaptive practice focused on learning objectives.



Module Test Practice

Assessment practice concludes the module in the Student Edition.



Spiral Review

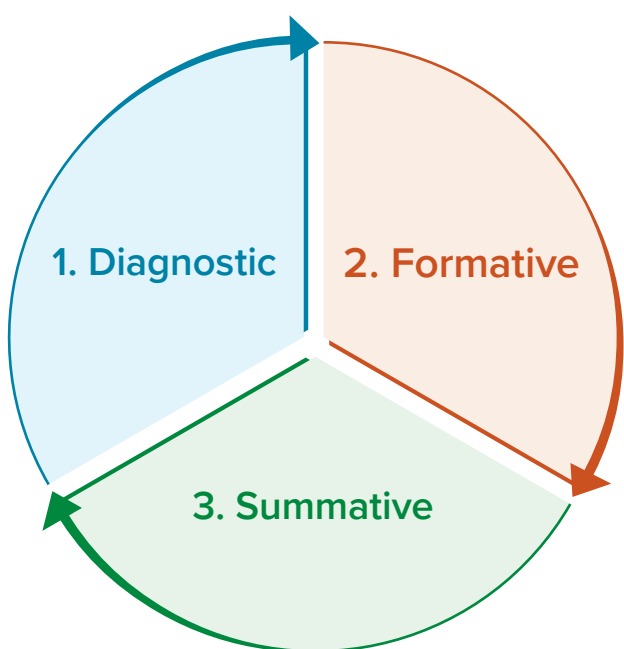
End-of-lesson practice on concepts presented in prior lessons.



Monitor Student Understanding

04 | Achieve Success

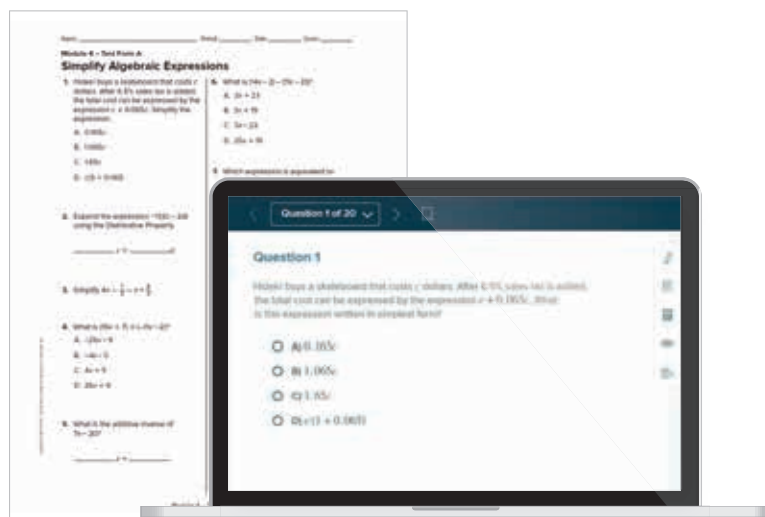
Tennessee Reveal Math offers a comprehensive set of assessments, including diagnostic, formative, and summative options for teachers to effectively evaluate what students know and where they need support.



Type	Student Edition	Online Resources
Diagnostic	<ul style="list-style-type: none"> Are You Ready? 	<ul style="list-style-type: none"> Course Diagnostic Module Diagnostic Warm Up
Formative	<ul style="list-style-type: none"> Examples Lesson Practice including Skills, Application, Higher Order Thinking Cheryl Tobey Formative Assessment Probe Check 	<ul style="list-style-type: none"> Items from Student Edition Extra Examples Extra Practice Spiral Review Put it All Together Exit Ticket ALEKS
Summative	<ul style="list-style-type: none"> Module Review 	<ul style="list-style-type: none"> Module Tests Forms A, B, and C Performance Task Benchmark Assessments End-of-Course Assessment

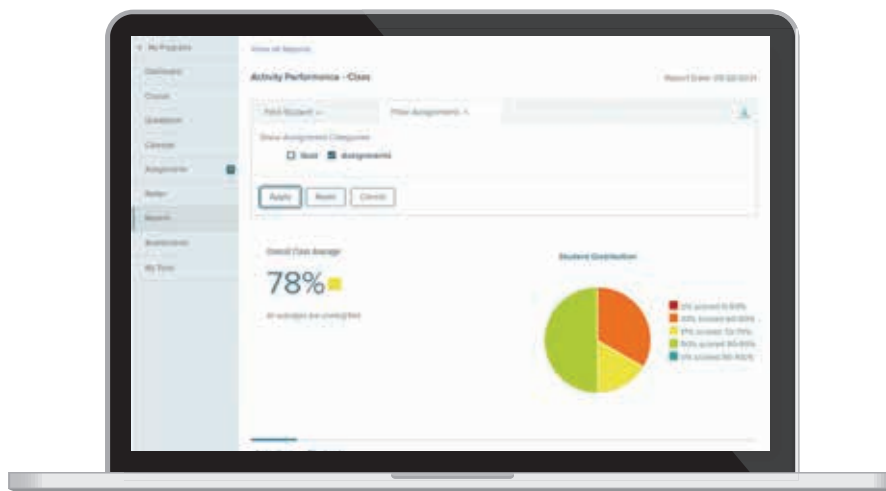
Print and Digital Formats

All *Tennessee Reveal Math* assessments are available for either print or digital administration. Print assessments can be found in the **Teacher Digital Center** as editable Word documents.



Data to Drive Instructional Insights

Actionable data is a click away in the Digital Teacher Center with the *Tennessee Reveal Math* Reporting Dashboard.



Activity Performance Report

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

Tennessee Standards Report

Teachers can access information on class performance by Tennessee Mathematics Standards, 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 Quickly

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

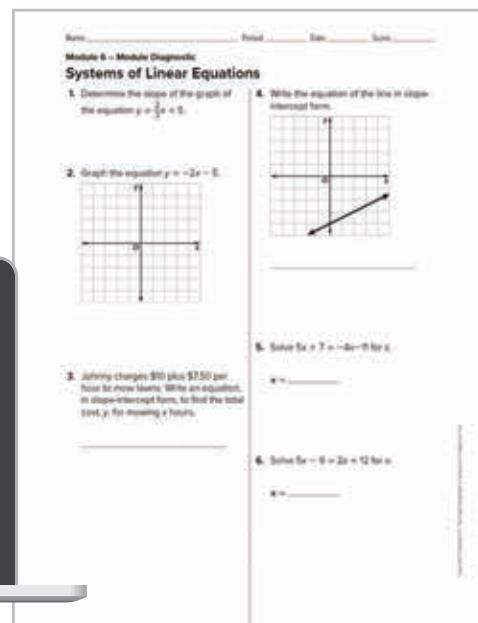
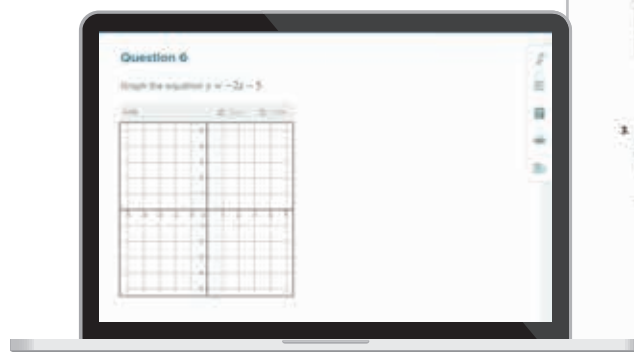
MAP Growth data can save teachers time by identifying students who may need additional support to access grade-level content. **Auto-Grouping** and **Recommended Targeted Skill Paths** provide support and review of critical prerequisite skills.

* For districts that use Map Growth Data

Provide Targeted Remediation and Differentiation

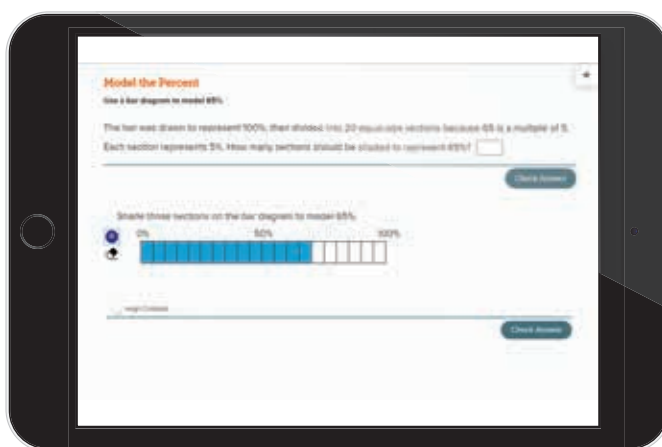
Identify Unfinished Learning

Before beginning the module, assign the **Module Pretest** to evaluate student readiness for the module content.



Targeted Remediation

Review student scores to evaluate and determine the appropriate resources to assign.



ALEKS

Using adaptive questioning, *ALEKS* quickly and accurately determines what topics a student knows and is ready to learn next.

Review Activities

Each **Review Learn** and **Review Example** provides students with a key concept overview and several examples to meet their prerequisite skill needs.

Enrich Learning with Differentiated Resources

During instruction, after reviewing formative assessment sources and data, choose from a variety of differentiation options to meet the needs of your students.

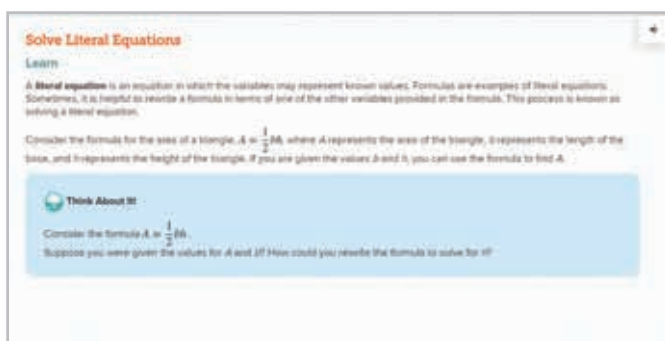
Take Another Look Mini-Lessons

Supplement core instruction with built-in reteach support, including **Model**, **Interactive Practice**, and **Data Check** resources.



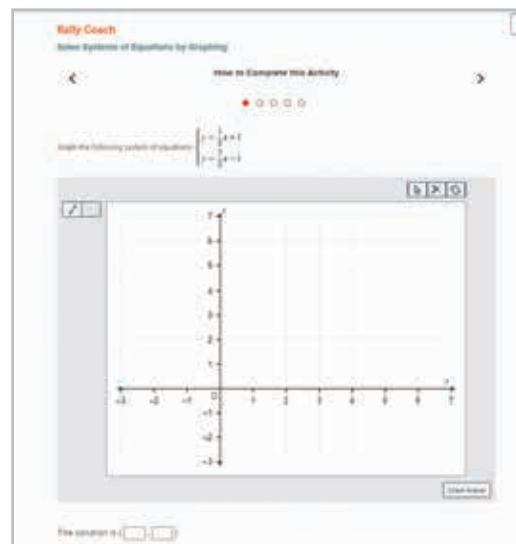
Extension Activities

Digitally assign to students who are ready for a challenge.



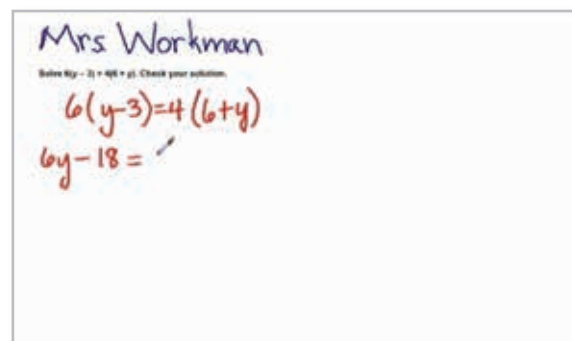
Collaboration Strategies

Students reinforce and practice the lesson concept in collaborative groups.



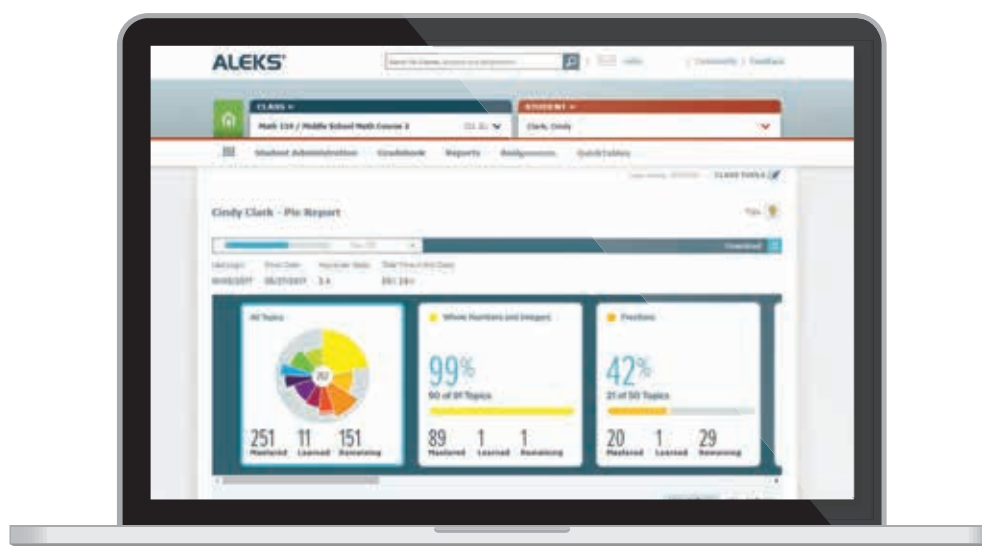
Video Library

Students have access to help videos, **Foldables** support videos, and **Personal Tutor** concept videos for reference. Teachers may choose to assign them for additional student support.



Meet Students at Their Level with *Tennessee Reveal Math* and *ALEKS*

Tennessee Reveal Math and *ALEKS* provide students the added advantage of a personalized learning pathway continuously adapting to them.



The Perfect Pairing for Personalized Math Learning

- *ALEKS* can be used effectively for all students, targeting the exact topics each is most ready to learn. This approach minimizes frustration, accelerates learning momentum, and builds confidence.
- Teachers can create *ALEKS* assignments directly connected to *Tennessee Reveal Math*, so students work on lesson-level content with prerequisite topic support.
- For students who need more challenge, *ALEKS* provides additional extension opportunities and allows students to progress at their own pace.
- *ALEKS* course content spans from Grade 3 to Precalculus for infinite options for course content support.
- An automatic cycle of assessment in *ALEKS* ensures each student's learning pathway is continually refreshed.
- *ALEKS* reports provide visibility at a granular level to measure progress by student, topic, or Tennessee Mathematics Standards.

Target Common Misconceptions

Math Probes, written by Cheryl Tobey, are designed to uncover students' misconceptions within every module. These probes, placed at the point-of-use, allow teachers to make sound instructional choices targeting specific mathematics concepts.

Short, Formative Assessment

NAME _____ DATE _____ PERIOD _____

Cheryl Tobey Math Probe

Equivalent Expressions

Decide if the expressions are equivalent.

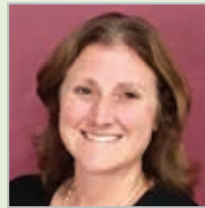
Circle your choice:	Explain your choice:
1. a. $3m + 4 + 5m$ b. $12m$ Equivalent? YES NO	
2. a. $3x + 5 + 7x$ b. $10x + 5$ Equivalent? YES NO	
3. a. $4(x - 8)$ b. $4x - 8$ Equivalent? YES NO	
4. a. $-5(x - 8) + 2$ b. $-5x - 38$ Equivalent? YES NO	
5. a. $(-2 + x) - (3x - 8)$ b. $-2x + 4$ Equivalent? YES NO	
6. a. $(n - 8) + (n - 8)$ b. $2(n - 8)$ Equivalent? YES NO	

Cheryl Tobey Math Probe - Equivalent Expressions

Math.com-6th Edition

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

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



Written by
Contributing Author,
Cheryl Tobey

Take Action

The teacher support materials that accompany the Math Probes are designed around a three-part ACT cycle:

- Analyze** the Probe
- Collect** and Assess Student Work
- Take Action.** Provided remedies help teachers correct misconceptions quickly and efficiently.

A Analyze the Probe

Review the probe prior to assigning it to your students. In this probe, students will determine if each pair of expressions is equivalent.

Targeted Concept Expressions can look different but still be equivalent. Strategies such as combining like terms, factoring, and distribution can be used to determine whether expressions are equivalent.

Targeted Misconceptions

- Students may incorrectly combine like terms.
- Students may not distribute to each term.
- Students may not factor out a common factor.

Assign the probe after Lesson 1.

C Collect and Assess Student Work

the student selects... **Then** the student likely...

1. Yes with various other No selections. **Then** incorrectly combined unlike terms.

3. Yes. 4. Yes. 5. Yes. 6. No. **Then** did not distribute to each term or factored only part of the expression.

T Take Action

After the Probe Design a plan to address any possible misconceptions. You may wish to assign the following resources:

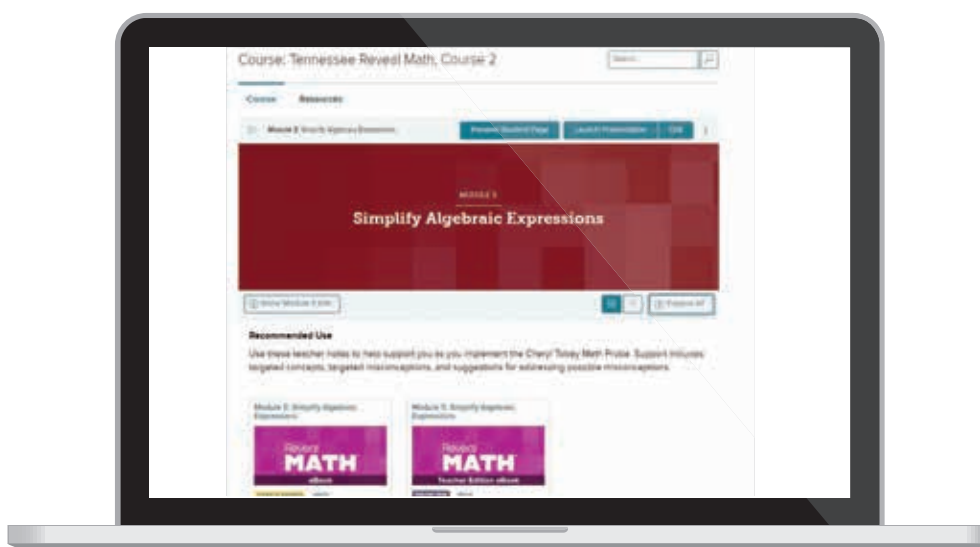
- ALEKS® Whole Numbers and Integers, Fractions, Decimals
- Lesson 1, Examples 1-6
- Lesson 2, Examples 1-2
- Lesson 3, Examples 1-3
- Lesson 4, Examples 1-5
- Lesson 5, Examples 1-3

Revisit the probe at the end of the module to be sure your students no longer carry these misconceptions.

Efficiently Plan for Instruction

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.



Plan to Facilitate Productive Learning

Each research-based routine of NCTM's Effective Teaching Practices can be found in the structure of the *Tennessee Reveal Math* Teacher Edition and Digital Teacher Center.

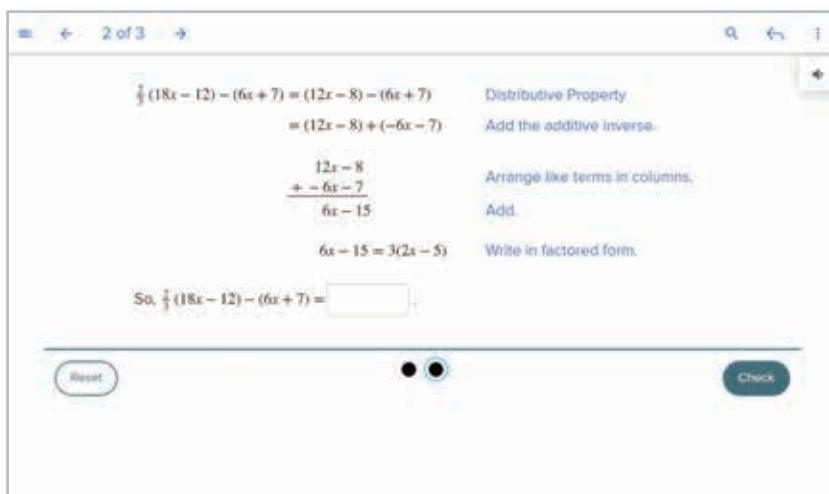
These eight practices include:

- **ESTABLISH** mathematical goals to focus learning.
- **IMPLEMENT** tasks that promote reasoning and problem-solving.
- **USE AND CONNECT** mathematical representations.
- **FACILITATE** meaningful mathematical discourse.
- **POSE** purposeful questions.
- **BUILD** procedural fluency from conceptual understanding.
- **SUPPORT** productive struggle in learning mathematics.
- **ELICIT AND USE** evidence of student thinking.

Access and Customize Lesson Presentations

Interactive Lesson Presentation

Teachers have a ready-made Interactive Lesson Presentation with embedded eTools, videos, and animations. This presentation is easily customizable: hide resources or upload teacher files, links or slides.



The screenshot shows a digital workspace for solving the equation $\frac{1}{3}(18x - 12) - (6x + 7) = (12x - 8) - (6x + 7)$. The interface includes a top navigation bar with '2 of 3' and search icons. The main area displays the equation being solved, with steps: $(12x - 8) + (-6x - 7)$, a vertical addition of $12x - 8$ and $-6x - 7$ resulting in $6x - 15$, and the final factored form $6x - 15 = 3(2x - 5)$. To the right, hints are provided: 'Distributive Property', 'Add the additive inverse', 'Arrange like terms in columns', 'Add', and 'Write in factored form'. At the bottom, there is a 'Reset' button, a progress indicator with two dots (the second is filled), and a 'Check' button.

Access Content Through Multiple Learning Management Systems

The McGraw Hill 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



Instructional Design Informed by Experts

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

Authors/Advisors

Cathy Seeley, Ed.D.

Past President of NCTM, 2004–2006

Thought leader and facilitator of high-quality mathematics education for every student.

Walter Secada, Ph.D.

Professor of Teaching and Learning at the University of Miami

Advocate for improving education for English Language Learners and equity in mathematics education.

Raj Shah, Ph.D.

Founder, The Math Plus Academy and The Global Math Project

Expert in strong mathematics instruction.

Cheryl Tobey, M.Ed.

Co-Author on 12 books on formative assessment

Facilitator of strategies that drive informed instructional decisions.

Dinah Zike, M.Ed.

Founder, Dinah Zike Academy, an accredited K12 professional development center

Creator of learning tools that make connections through visual-kinesthetic techniques.

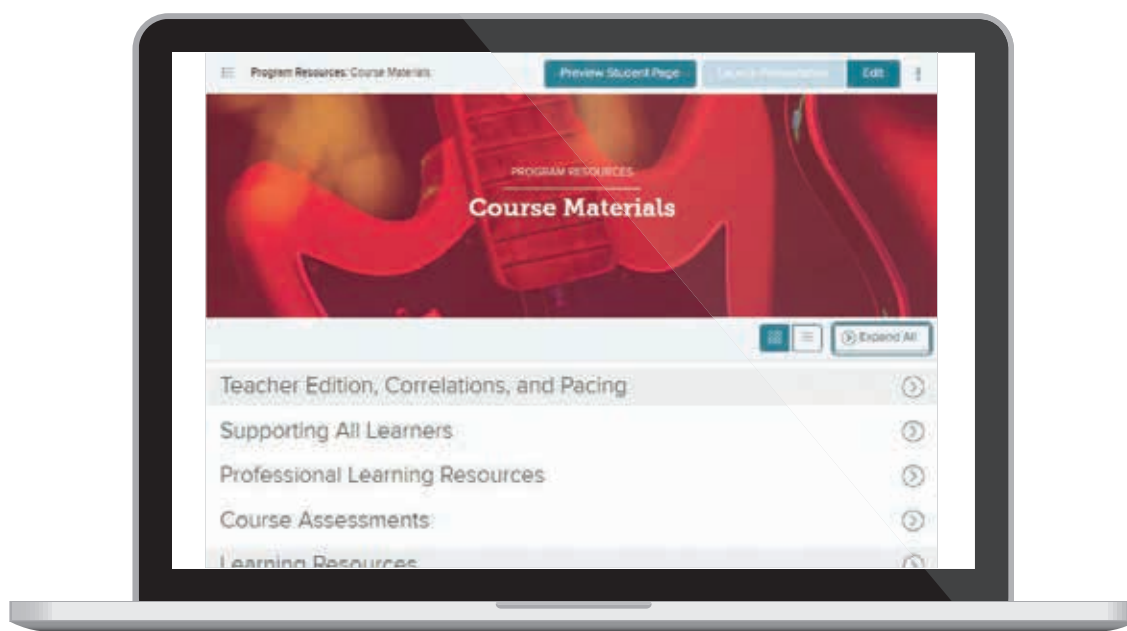
Professional Learning Advisor

Nevels Nevels, Ph.D.

Expertise in the development of mathematics knowledge for teachers.

Expert-Led Professional Learning

Teachers and administrators have access to a comprehensive set of self-paced digital resources available within the Digital Teacher Center for each grade.



Quick Start

Teachers can get up to speed quickly with the *Tennessee Reveal Math* resources and curriculum overview.

Digital Walkthrough

Digital platform guidance from a teacher view and a student view.

Instructional Videos

Tennessee Reveal Math authors and experts present guidance and tips on the program.

Cathy Seeley:

- Productive Struggle and Discourse
- Fostering a Positive Math Mindset

Raj Shah:

- Ignite! Activities

Cheryl Tobey:

- Math Probes

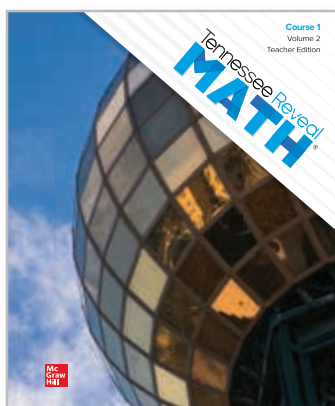


Teacher Resources

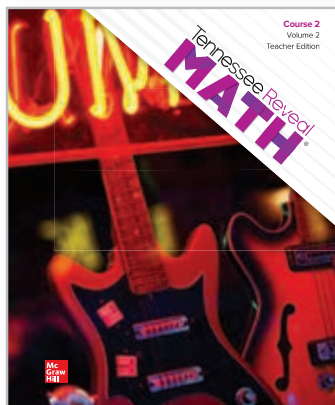
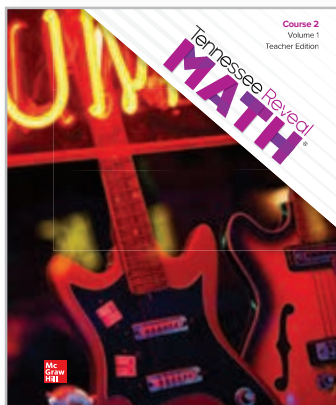
Print Resources

Teacher's Edition, 2-Volume

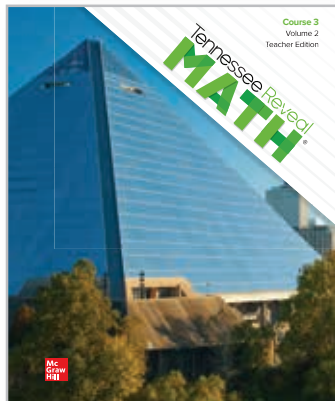
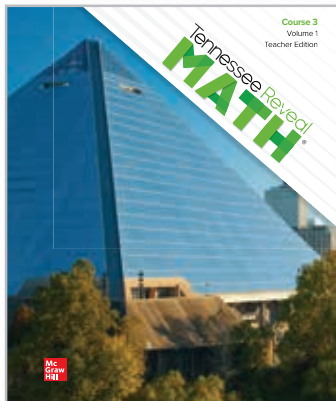
These spiral-bound Teacher Editions provide the essentials to plan and implement classroom instruction focused on the Tennessee Mathematical Standards. Inside, you will find teacher instructional supports, including embedded NCTM's Effective Teaching practices, guidance on going online for additional teaching tips, incorporation of digital resources, and differentiation recommendations.



COURSE 1 Teacher Edition Volume 1 and 2



COURSE 2 Teacher Edition Volume 1 and 2

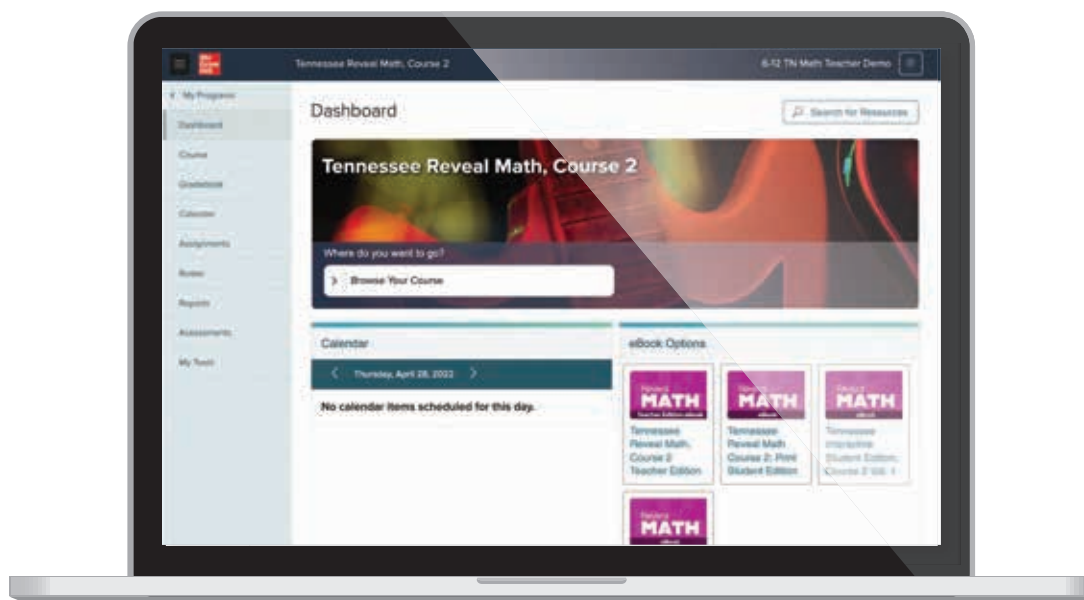


COURSE 3 Teacher Edition Volume 1 and 2

Digital Teacher Center Resources

Through the Open Learning Platform, teachers have an easy-to-use portal for planning, teaching, and validation of learning. The teacher experience includes:

- Teacher Edition eBook
- Language Development Handbook, Teacher Edition
- Interactive Lesson Presentations
- Program Quick Start Course
- Expert Insight Videos
- Auto-Scored, Customizable
- Online Assessment Differentiated Resources
- Dynamic Digital Practice
- Auto-scored, Customizable Interactive Practice
- Spiral Review
- Web Sketchpad®
- eToolkit (Virtual Manipulative Suite)
- Personal Tutor Lesson Support
- Practice and Assessment Word documents
- ALEKS® *
- Teacher and Administrator Reporting



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

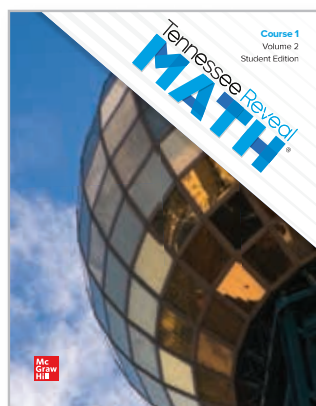
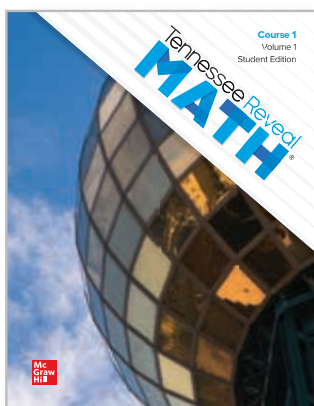
Review the Digital Teacher Center
my.mheducation.com

Student Resources

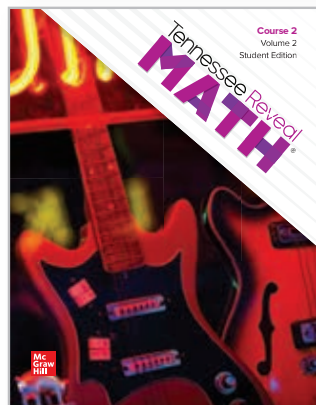
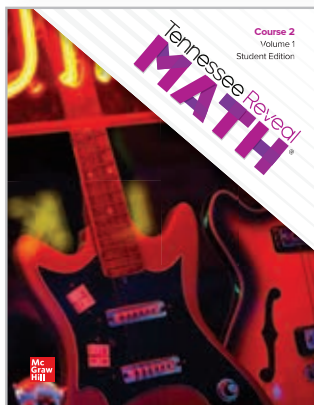
Print Resources

Student Edition, 2-Volume

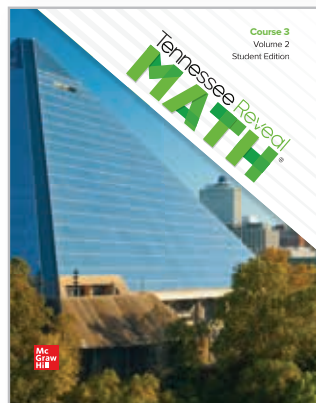
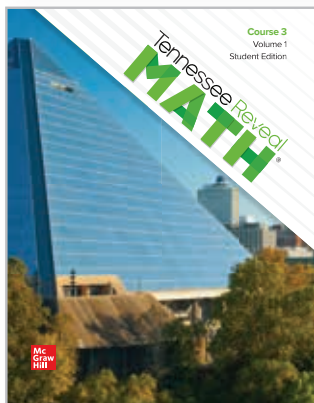
Available in print and interactive formats, the Student Editions are write-in, three-hole punched, and perforated for easy organization in a binder. Students engage in learning through the use of notetaking, problem-solving, discourse, and reflection.



COURSE 1 Student Edition Volume 1 and 2



COURSE 2 Student Edition Volume 1 and 2

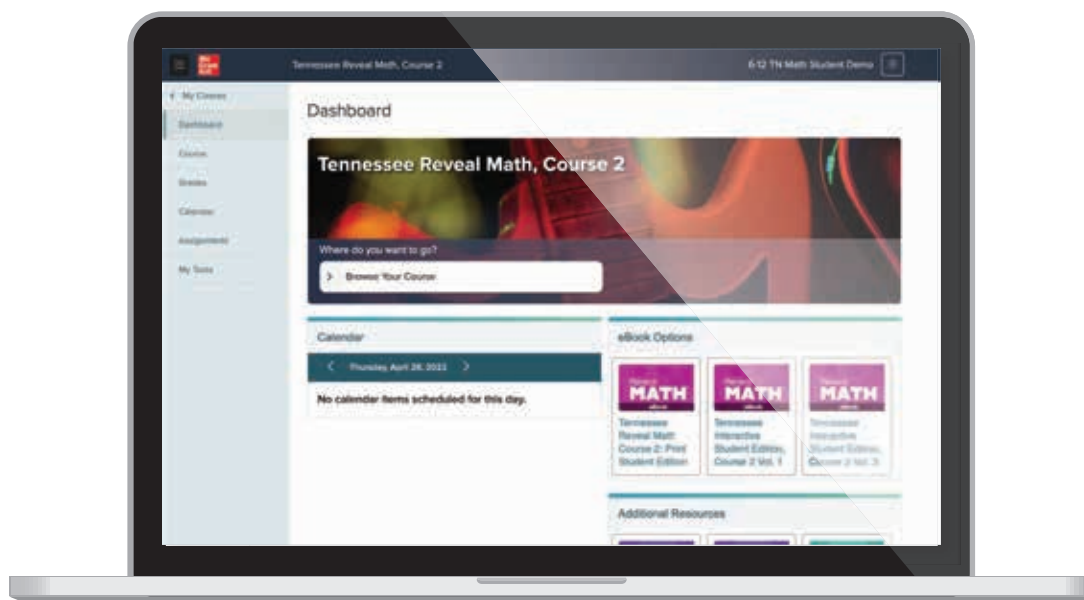


COURSE 3 Student Edition Volume 1 and 2

Digital Student Center Resources

Students have access to a robust set of engaging digital tools and interactive learning aids, including:

- Interactive Student Edition eBook
- Language Development Handbook
- Student Edition eBook
- Dynamic Digital Practice
- Interactive Digital Practice
- Web Sketchpad®
- eToolkit (Virtual Manipulative Suite)
- eGlossary
- Multilingual eGlossary
- Personal Tutor Video Lesson Support
- ALEKS® *



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