# Program Overview 

Grades 9-12

## Tennessee Reveal MATH

## Table of Contents

## 01

Tennessee Mathematics Standards
Tennessee Reveal Algebra 1, Tennessee Reveal Geometry, and Tennessee Reveal Algebra 2 ensures that your students can meet Tennessee Mathematics standards, while also developing the thinking and reasoning skills needed for high achievement and success on their pathway toward college and career.

## 02

## Motivate Students

Motivate students by instilling confidence and an appreciation for how mathematics goes beyond the "right" answer. Learn how Tennessee Reveal Algebra 1, Tennessee Reveal Geometry, and Tennessee Reveal Algebra 2 gives you the tools to create a classroom of learners who possess a positive mindset focused on growth and who make mathematical connections to the world around them and each other.
Establish Positivity and Habits for Growth ..... 04
Build Math Language Together ..... 06
Make Real-World Connections ..... 07

# Register to Review Tennessee Reveal Math Online 

## mheonline.com/tennessee



## 03

Elevate Learning
Elevate learning through curiosity, exploration, and questioning. With Tennessee Reveal Algebra 1, Tennessee Reveal Geometry, and Tennessee Reveal Algebra 2, your students take increased ownership of their learning while you facilitate an active classroom environment. Explore solutions together while strengthening your students' problem-solving and reasoning skills.
An Adaptable Lesson Model ..... 08
Activate Curiosity and Fuel Learning ..... 10
Exploration Leading the Way ..... 11
Problem Solving and Application ..... 12
Purposeful Practice for Challenge and Understanding ..... 14

## 04

## Achieve Success

Achieve success in the classroom using data and essential assessment insights to inform instruction and meet the needs of each learner. Discover how Tennessee Reveal Algebra 1, Tennessee Reveal Geometry, and Tennessee Reveal Algebra 2 prepare you to personalize instruction with effective instructional resources and support.
Monitor Student Understanding ..... 16
Provide Targeted Intervention and Differentiation ..... 18
Tennessee Reveal Math and ALEKS® ..... 20
Target Common Misconceptions ..... 21
Efficiently Plan for Instruction ..... 22
Instructional Design Informed by Experts ..... 24

## Designed to Meet 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. Mathematical Background Each lesson includes a point-of-use explanation of the mathematical context for teachers.


## 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-Level Learning Progression

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



## Lesson-Level Learning Progression

guidance provides a more granular analysis of the learning progression from lesson to lesson within the module.

## Establish Positivity and Habits for Growth

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 during upcoming lessons.

## Mindset Matters

View Challenges as Opportunities
Part of cultivating a growth mindset in math involves viewing challenging problems or tasks as an opportunity to learn and make new connections in your brain.

## How Can I Apply It?

Encourage students to embrace challenges by trying problems that are thought provoking, such as the Higher-Order Thinking Problems in the practice section of each lesson. Remember to regularly remind students that each new challenge is an opportunity to grow.


## 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:

Provide opportunities for students to collaborate using the Ignite! activity or within the lesson using Explore and Learn activities, which supply a framework to solve, discuss, and evaluate problems.

## Share and Narrow

Have students respond to the Talk About It! question with a partner.
As a class, narrow down to one question that they will work with their partner to answer for the duration of the activity. Have them record the question. You may wish to guide them to the target question, which targets the common misconception shown.
Target Question How many triangles can you find?
Common Misconceptions Some students will approach this problem by listing all of the potential triangles they can find. Other students will try to find a pattern in the triangles. Both methods should help them find all 42 triangles. Students may not notice that some of the triangles are being counted twice. However, working with a partner may help them identify that potential pitfall.

Focus on Inquiry:
Online Explore activities begin with an openended Inquiry Question to encourage deep thinking and reasoning. Students document their findings either online or on an Explore Recording Sheet.


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

Talk About It
Ellie believes that she can solve for $m \angle 3$ before solving for $m \angle 1$. What useful questions can you ask to understand her approach?

## 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

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

## Language Development Handbook Pages

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.


## Support for English Language Learners (ELLs)

In addition to embedded Teacher Edition language support strategies, Tennessee Reveal Math includes 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 Examples, highlighted with a globe icon, designed to provide relevant contexts in which students can see themselves.

## 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.


## Cultural Connections

These module activities highlight various cultural contributions to mathematics and require students to use a source to do additional research on the culture or topic.

## 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.


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.

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 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. Checks after several Examples provide a quick formative assessment moment for teachers to evaluate students' understanding.


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

The Practice, Extra Practice, and/or Spiral Review assignments follow the Differentiate phase and conclude the lesson.

Using the data from Checks and the
Exit Ticket, teachers can choose from
a variety of 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 extend 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.
newe $\qquad$ Bant $\qquad$



## |IGNjTEl Mathematical Modeling Who Doesn't Use the Internet?

The table shows the results of survers on internet non-usage taken every few years since 2000 . Study the table.


| What do you notice? | What questions can you ask? |
| :--- | :--- |
|  |  |

Q Talk About itt Share your observations and questions with a partner.
You will work with your partner to answer this questionc When will almost everyone use the internet?

## Analyze the Problem

1. What assumptions are you making? Why are you making these assumptions?
2. What constraints, If any, need to be considered? How might they affect the sol tion?

## Formulate the Model

3. What type of model best represents the data set?
4. What variables will you use? What do they represent and how are they related?
$\qquad$

"Let's bring curiosity, wonder, and joy back into the classroom and make math irresistible for kids."
-Raj Shah,
Contributing Author

## 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,<br>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 multi-step application exercises and higher-order thinking questions encourage productive struggle.


## Mathematical Modeling Tasks

Ignite! Mathematical Modeling activities call for students to construct and develop a model to analyze and present a solution to a real-world scenario. Students then share and discuss their findings with the entire class.


## 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 ${ }^{\circledR}$ 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.

## Pause and Reflect

Did you struggle with anything in this lesson? If so, how did you deal with it?

## Notetaking for Understanding

The Student Edition is organized with Cornell-inspired margins for students to document notes, draw figures, list key takeaways, or outline 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 ${ }^{\circ}$

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

Chords, Tangents, and Secants of a Circle
Definition of a Secant


nometrevertrosor


## Module Test Practice

Assessment practice concludes the module in the student edition for Tennessee Reveal Algebra 1 and Tennessee Reveal Geometry.


## Spiral Review

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


## ACT ${ }^{\circledR}$ and SAT ${ }^{\circledR}$ Practice

Tennessee Reveal Algebra 2 includes student-directed practice support with a McGraw Hill ACT Practice Book or McGraw Hill SAT Practice Book option. Question sets are also available for digital administration.


## Monitor Student Understanding

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 | - Are You Ready? | - Course Diagnostic <br> - Module Diagnostic <br> - Warm Up |
| Formative | - Examples <br> - Lesson Practice including Skills, Application, Higher Order Thinking <br> - Cheryl Tobey Formative Assessment Probe <br> - Check | - Items from Student Edition <br> - Extra Examples <br> - Extra Practice <br> - Spiral Review <br> - Put it All Together <br> - Exit Ticket <br> - ALEKS |
| Summative | - Module Review | - Module Tests Forms A, B and C <br> - Performance Task <br> - 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 Digital Teacher 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 ${ }^{\text {m }}$ 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.

[^0]
## Provide Targeted Remediation and Differentiation

## Identify Unfinished Learning

Before beginning the module, assign the Module
Diagnostic 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 On-Level Reteach Mini-Lessons*

Supplement core instruction with built-in reteach support, including Model, Interactive
Practice, and Data Check resources.
*Tennessee Reveal Algebra 1


## Extension Activities

Digitally assign to students who are ready for a challenge.


## Quick Review Math Handbook

This resource provides additional instruction and practice for prerequisite skills.


## 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.

## Mrs. Dawson



yes
standard form
$A x+B y=C$ $2+5 y^{*}$

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

Tennessee Reveal Math with ALEKS provides students the added advantage of a personalized learning pathway continuously adapting to them and provides teachers with an infinite number of question options.


## 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 $A L E K S$ 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



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

## 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


## 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 with 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 Teacher Digital 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, and slides.

## Scatter Plots

Bivariate data consists of pairs of values. A scatter plot is a graph of bivariate data that consists of ordered pairs on a coordinate plane. Using a scatter plot can help you see the trend, or general pattern, in the data. Trends can represent linear or nonlinear associations in the data. In this lesson, we will examine linear associations. Trends can be described as positive or negative correlations

Tap on each card to learn about correlation.


## 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 of 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 Tennessee Mathematics Standards. Inside, you will find teacher instructional supports, embedded NCTM's Effective Teaching practices, guidance on going online for additional teaching tips, incorporation of digital resources, and differentiation recommendations.


## 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 Pages
- 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 ${ }^{\circledR}$
- eToolkit (Virtual Manipulative Suite)
- Personal Tutor Lesson Support
- Practice and Assessment Word documents
- ALEKS ${ }^{\circledR}$ *
- 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.


## McGraw Hill ACT ${ }^{\ominus}$ Math Practice Book and McGraw Hill SAT ${ }^{\oplus}$ Math Practice Book

Constructed to provide students practice leading up to either the $\mathrm{ACT}{ }^{\oplus}$ or the $\mathrm{SAT}^{\oplus}$ tests, these practice books cover the concepts and question types found on each test.


## 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 Pages
－Student Edition eBook
－Dynamic Digital Practice
－Interactive Digital Practice
－Web Sketchpad ${ }^{\circledR}$
－eToolkit（Virtual Manipulative Suite）
－eGlossary
－Multilingual eGlossary
－Personal Tutor Video Lesson Support
－ALEKS ${ }^{\circledR}$＊


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

Review the Digital Student Center my．mheducation．com

## Tennessee Reveal MATH

Reveal the Full Potential in Every Student<br>Learn more at mheonline.com/tennessee


[^0]:    * For districts that use Map Growth Data

