Mc Graw Hill

Program Overview

Grades 9–12

Indiana Reveal MATH®

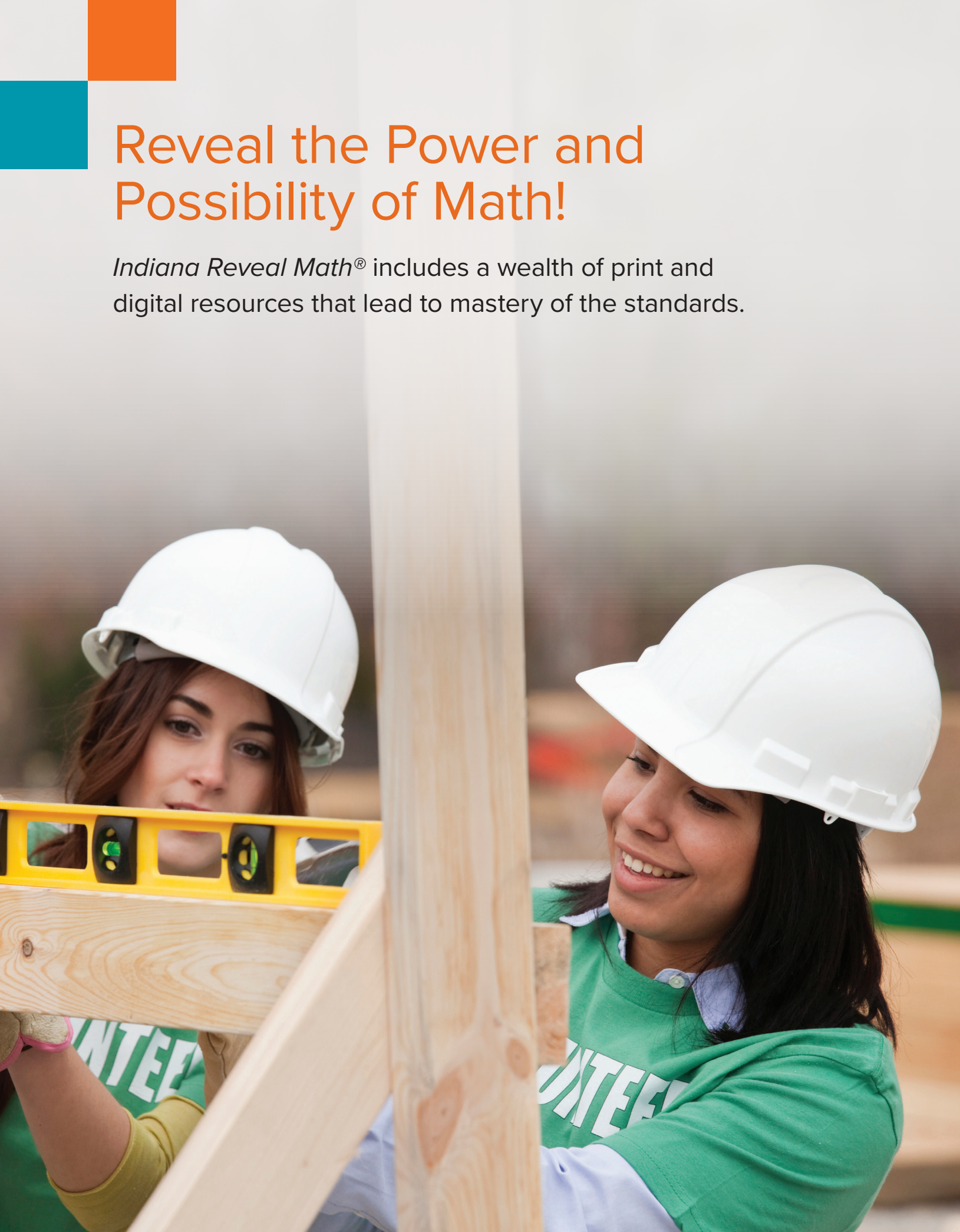
Algebra 1 • Geometry • Algebra 2

Reveal the Full Potential in Every Student

mheonline.com/Indiana

Reveal the Power and Possibility of Math!

Indiana Reveal Math® includes a wealth of print and digital resources that lead to mastery of the standards.



Every classroom is unique, and each student is different in terms of knowledge level and learning style. Teachers need a set of tools as diverse as their students. *Indiana Reveal Math* meets this need by providing students the positive mindset, confidence, and skills to achieve mastery of math standards while giving teachers an effective, flexible way to assess understanding and adapt instruction for every learner. Informed by the latest research on how students learn best, *Indiana Reveal Math* ensures students don't just meet the standards—they master them!

Reveal **curiosity** with mathematical exploration and discovery that deepens conceptual understanding.

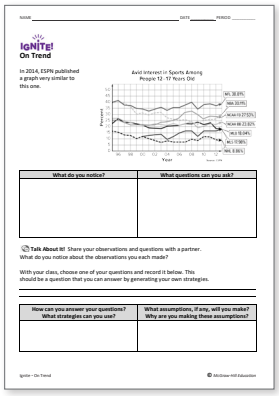
Reveal **understanding** with insightful instructional resources to more effectively differentiate and promote a positive student mindset.

Reveal **possibilities** with purposeful technology that creates an active classroom experience.

The Science of Learning Meets the Art of Teaching

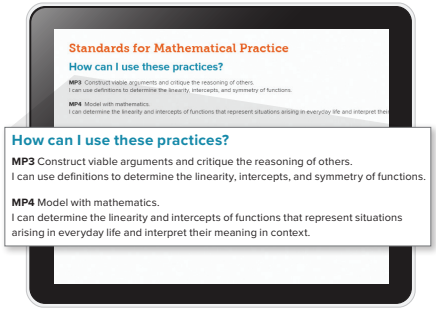
The evolving field of educational research drove the approach of *Indiana Reveal Math*. Our team was inspired by esteemed publications such as *Principles to Actions* (NCTM), *Mathematical Mindsets* (Jo Boaler), and *Making Sense of Math* (Cathy Seeley), as well as learning models including Bloom's Taxonomy and Webb's Depth of Knowledge Guide. This solid foundation of academic research and direct feedback from hundreds of educators just like you ensures that *Indiana Reveal Math* represents the cutting-edge of best practices in mathematics instruction.

Research-Based Best Practices



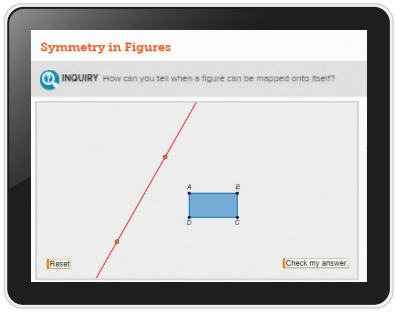
Spark Students to Ask "Why?"

Ignite! Activities are designed to spark student curiosity and motivate them to ask questions, solve complex problems, and develop a can-do approach to mathematics.



Build Students' Confidence in Their Abilities

Learning targets in the form of **"I Can"** statements appear at the beginning of each lesson to communicate the lesson objective in student-friendly language.



Nurture Curiosity with Rich Tasks

Online **Explore** activities begin with an open-ended question and require deep conceptual thinking from the learner. At the end of the **Explore** activity, students apply their learning in order to answer the **Inquiry Question.** The focus is on student exploration and reasoning, not just getting the right answer.

The expert advisor team behind *Indiana Reveal Math* includes thought leaders at the forefront of mathematics education.

Cathy L. Seeley, Ed.D.
Author, Educator, and NCTM President 2004–2006

Raj Shah, Ph.D.
Founder of Math Plus Academy, a STEM enrichment program

Indiana Reveal Math teaches students *how* to think—not *what* to think!

Talk About It!
What values of x might be easiest to use when graphing a linear equation when the x-coefficient is a whole number? Justify your argument.

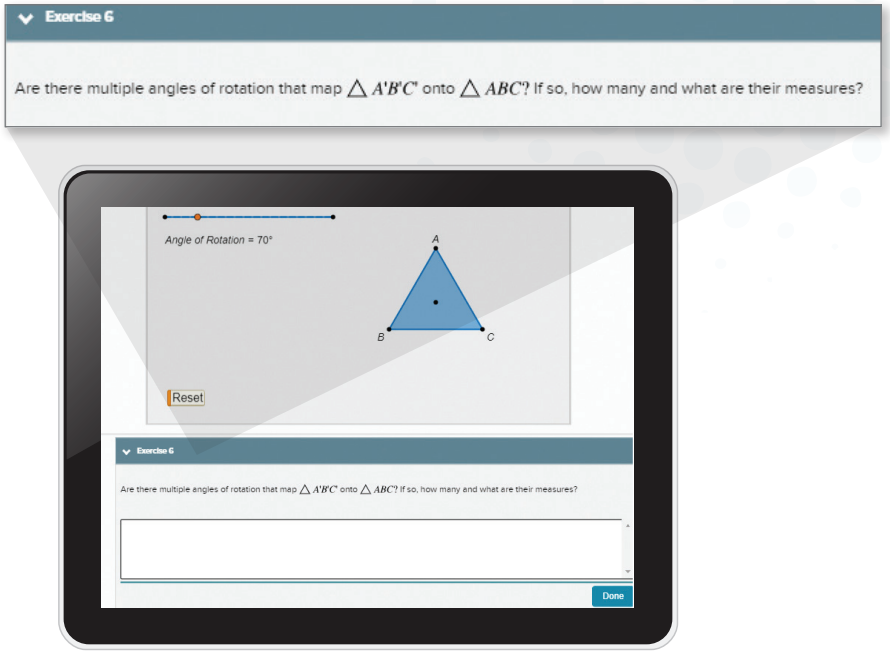
Talk About It!
Why is the slope for vertical lines always undefined? Justify your argument.

Talk About It!
What do you notice about the symmetry, extrema, and end behavior of the function?

Talk About It!
How is the value of a in an absolute value function related to slope? Explain.

Improve Communication While Deepening Comprehension

Talk About It! prompts build mathematical discourse skills as students learn to clarify their thinking and defend their rationale.



Teach the Value of Perseverance

Problems with multiple solution paths encourage **productive struggle** and challenge student thinking.

Cheryl R. Tobey, M.Ed.
Mathematics Program Director at Maine Mathematics and Science Alliance (MMSA)

Nevels Nevels, Ph.D.
PK–12 Mathematics Curriculum Coordinator for Hazelwood School District

Dinah Zike, M.Ed.
President of Dinah.com in San Antonio, Texas, and Dinah Zike Academy

Walter Secada, Ph.D.
Professor of Teaching and Learning at the University of Miami

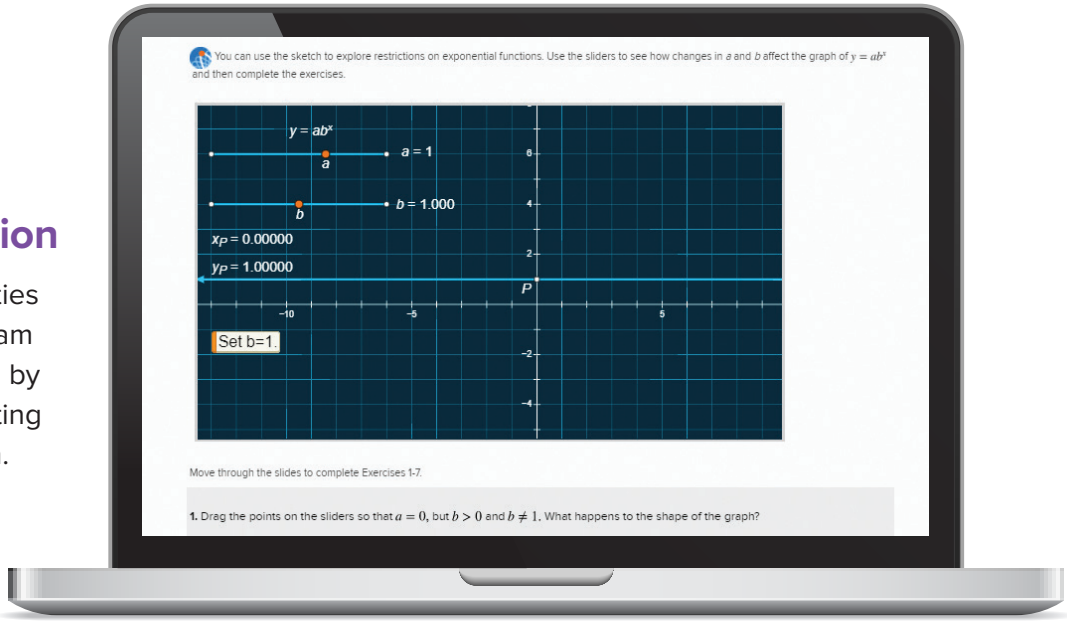
What If Math Class Were the Most Exciting Class of the Day? It Can Be!

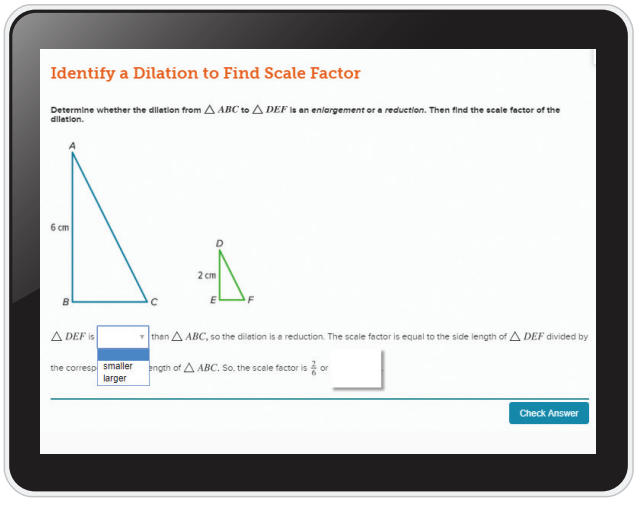
Indiana Reveal Math supports both low-tech and high-tech classrooms. The blended print and digital instructional model captures the best of both modalities and brings them together in a seamless experience that makes math meaningful for your students.

Web Sketchpad®

Visualize Math Concepts in Action

Web Sketchpad® activities included with the program enhance understanding by dynamically demonstrating math concepts in action.





Prepare Students for Computer-Based Testing

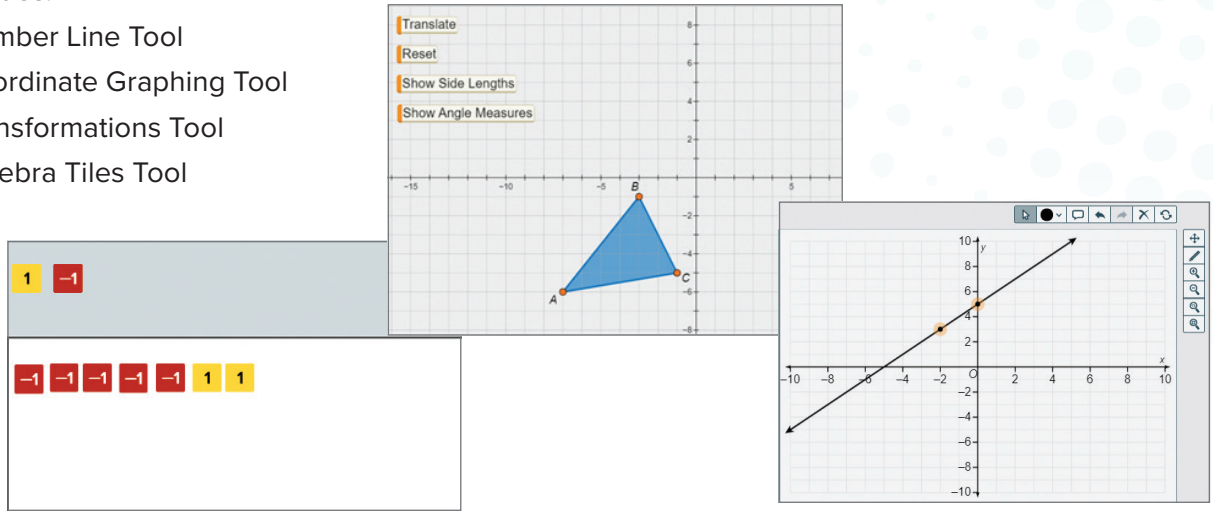
Technology-enhanced items provide students the valuable practice they need to master computer-based assessments. These items include:

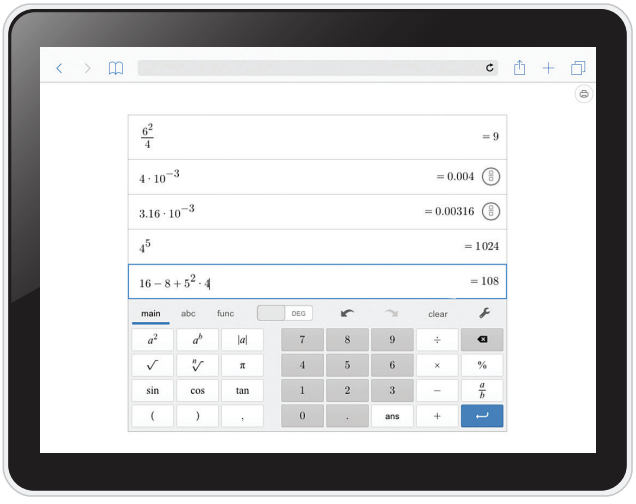
- Drag-and-drop
- Equation editor problems
- Multiselect
- Open response

Utilize Digital Tools for Problem-Solving

Embedded within lessons, this convenient collection of **eTools** builds a bridge from conceptual understanding to procedural fluency. It includes:

- Number Line Tool
- Coordinate Graphing Tool
- Transformations Tool
- Algebra Tiles Tool

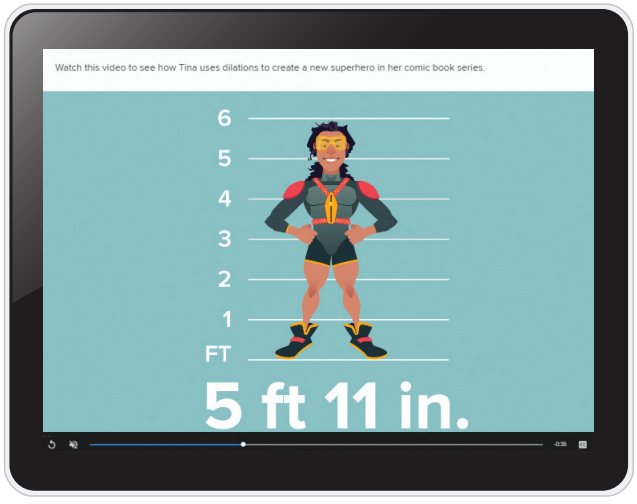




desmos

Explore, Model, and Apply Math

The best-in-class **Desmos scientific calculator,** easily accessible in *Indiana Reveal Math,* allows students to utilize the same resource that appears on many common standardized tests.



Motivate with Truly Enjoyable Technology

Designed with student engagement in mind, the digital resources in *Indiana Reveal Math* include **animations, videos,** and **interactive problems** to enhance context and learning.

Drive Learning With Student-Centered Instructional Tools

In *Indiana Reveal Math,* the Teacher Edition centers around opportunities to promote mathematical discourse, collaboration, and a positive student mindset.

Develop Habits of Mind With Standards for Mathematical Practices Tips

These strategies illustrate ways teachers can integrate the practices in their classroom in a practical and meaningful way.

Encourage Student Discourse

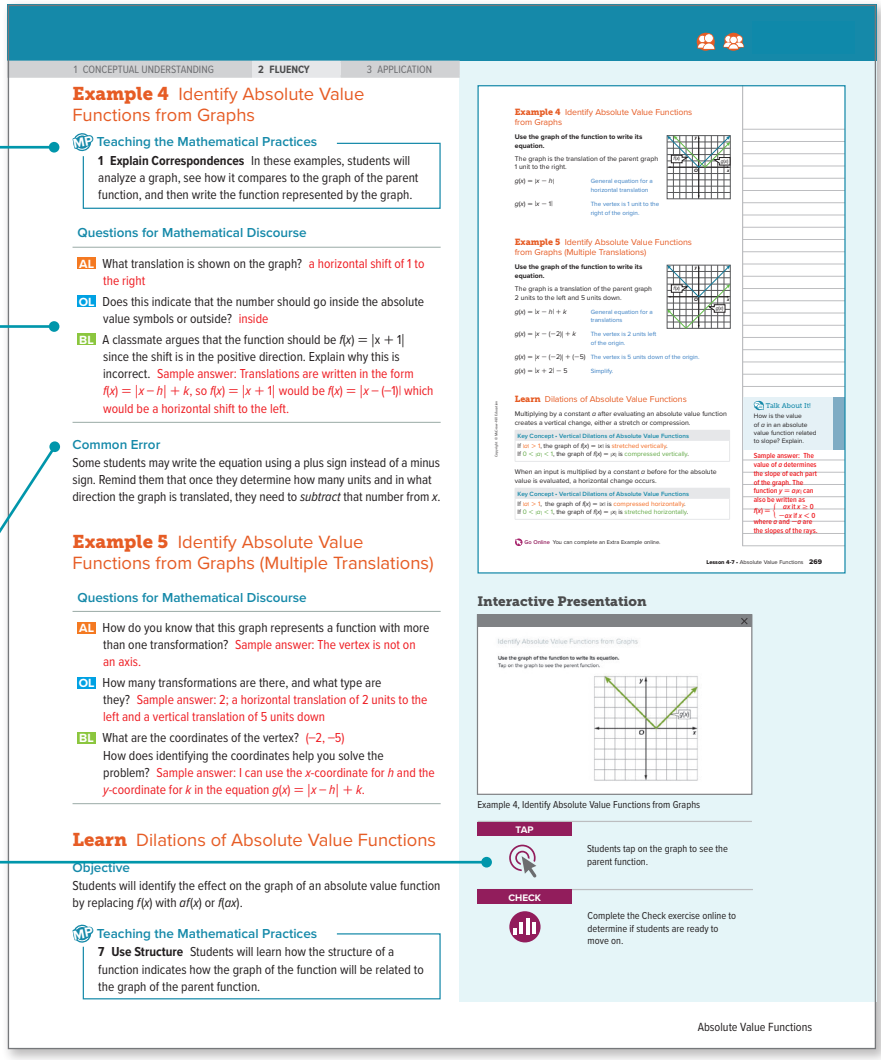
Questions for Mathematical Discourse provide point-of-use discussion prompts that teachers can use to facilitate classroom discussion.

Identify Student Misconceptions

Common Error tips help teachers identify where students may be making mistakes.

Integrate Technology in a Way That Makes Sense

User-friendly tips in the Teacher Edition suggest when and how to integrate technology purposefully.



1 CONCEPTUAL UNDERSTANDING | 2 FLUENCY | 3 APPLICATION

Example 4 Identify Absolute Value Functions from Graphs

Teaching the Mathematical Practices

1 Explain Correspondences In these examples, students will analyze a graph, see how it compares to the graph of the parent function, and then write the function represented by the graph.

Questions for Mathematical Discourse

AL What translation is shown on the graph? a horizontal shift of 1 to the right

OL Does this indicate that the number should go inside the absolute value symbols or outside? inside

BL A classmate argues that the function should be $f(x) = |x + 1|$ since the shift is in the positive direction. Explain why this is incorrect. Sample answer: Translations are written in the form $f(x) = |x - h| + k$, so $f(x) = |x + 1|$ would be $f(x) = |x - (-1)|$ which would be a horizontal shift to the left.

Common Error

Some students may write the equation using a plus sign instead of a minus sign. Remind them that once they determine how many units and in what direction the graph is translated, they need to *subtract* that number from *x*.

Example 5 Identify Absolute Value Functions from Graphs (Multiple Translations)

Questions for Mathematical Discourse

AL How do you know that this graph represents a function with more than one transformation? Sample answer: The vertex is not on an axis.

OL How many transformations are there, and what type are they? Sample answer: 2; a horizontal translation of 2 units to the left and a vertical translation of 5 units down

BL What are the coordinates of the vertex? (−2, −5)
How does identifying the coordinates help you solve the problem? Sample answer: I can use the *x*-coordinate for *h* and the *y*-coordinate for *k* in the equation $g(x) = |x - h| + k$.

Learn Dilations of Absolute Value Functions

Objective

Students will identify the effect on the graph of an absolute value function by replacing $f(x)$ with $af(x)$ or $f(ax)$.

Teaching the Mathematical Practices

7 Use Structure Students will learn how the structure of a function indicates how the graph of the function will be related to the graph of the parent function.

Interactive Presentation

Example 4, Identify Absolute Value Functions from Graphs

TAP — Students tap on the graph to see the parent function.

CHECK — Complete the Check exercise online to determine if students are ready to move on.

Absolute Value Functions

Online Professional Learning Support: Ready When You Are

Indiana Reveal Math includes access to a library of self-paced professional learning videos and modules, including:

Program Implementation Support

The **Quick Start eLearning Module** explains program basics.

Plan, Teach, and Assess eLearning Modules provide deep-dives of the program instructional model and resources.

Digital Platform Support

The **Technical Support Resource Library** provides step-by-step instructions for the digital tools.

Mindset Matters

Reward Effort, Not Talent

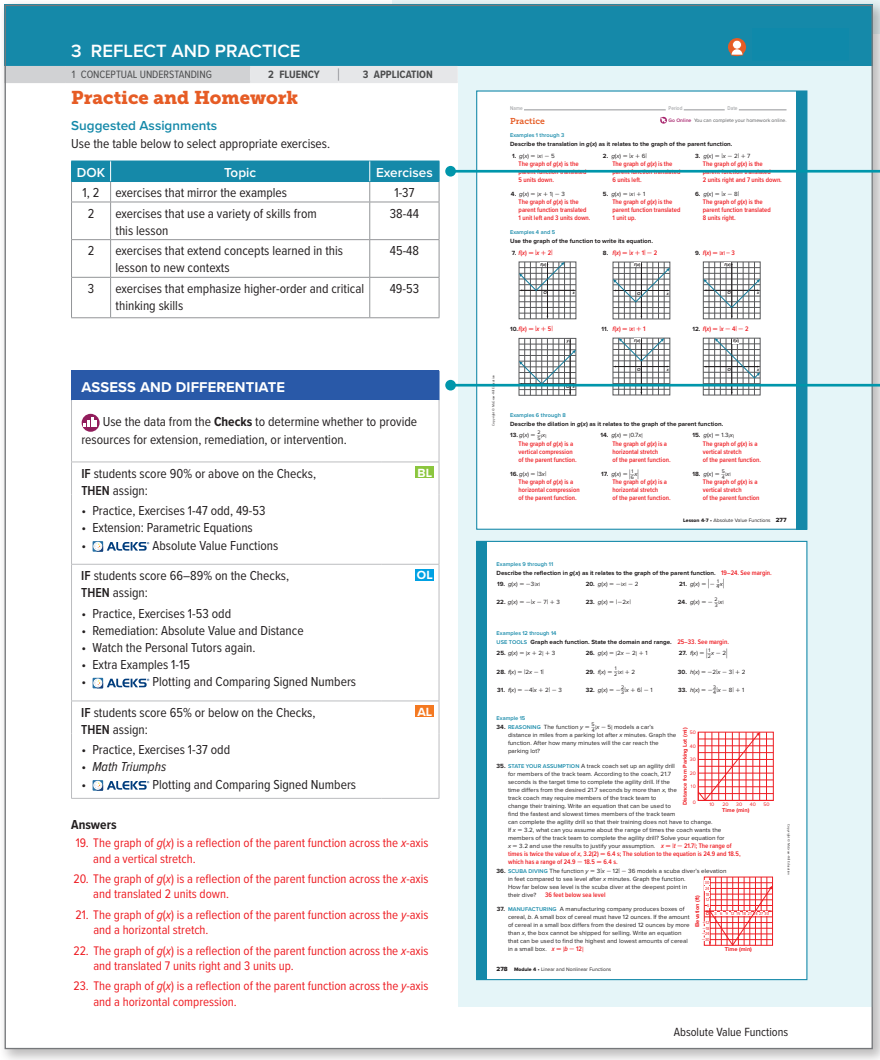
When adults praise students for their hard work toward a solution, rather than praising them for being smart or talented, it supports students' development of a growth mindset. Reward *actions* like hard work, determination, and perseverance instead of *traits* like inherent skill or talent.

How Can I Apply It?

Have students complete the Performance Task for the module. Allow students a forum to discuss their process or strategy that they used and give them positive feedback on their diligence in completing the task.

Fuel Growth by Encouraging a Positive Mindset

Mindset Matters tips at the beginning of each module provide strategies for encouraging a growth mindset and productive approaches to problem-solving.



3 REFLECT AND PRACTICE

1 CONCEPTUAL UNDERSTANDING | 2 FLUENCY | 3 APPLICATION

Practice and Homework

Suggested Assignments

Use the table below to select appropriate exercises.

DOK	Topic	Exercises
1, 2	exercises that mirror the examples	1-37
2	exercises that use a variety of skills from this lesson	38-44
2	exercises that extend concepts learned in this lesson to new contexts	45-48
3	exercises that emphasize higher-order and critical thinking skills	49-53

ASSESS AND DIFFERENTIATE

Use the data from the **Checks** to determine whether to provide resources for extension, remediation, or intervention.

IF students score 90% or above on the Checks, **THEN** assign: BL

- Practice, Exercises 1-47 odd, 49-53
- Extension: Parametric Equations
- ALEKS Absolute Value Functions

IF students score 66–89% on the Checks, **THEN** assign: OL

- Practice, Exercises 1-53 odd
- Remediation: Absolute Value and Distance
- Watch the Personal Tutors again.
- Extra Examples 1-15
- ALEKS Plotting and Comparing Signed Numbers

IF students score 65% or below on the Checks, **THEN** assign: AL

- Practice, Exercises 1-37 odd
- *Math Triumphs*
- ALEKS Plotting and Comparing Signed Numbers

Answers

19. The graph of $g(x)$ is a reflection of the parent function across the x-axis and a vertical stretch.
20. The graph of $g(x)$ is a reflection of the parent function across the x-axis and translated 2 units down.
21. The graph of $g(x)$ is a reflection of the parent function across the y-axis and a horizontal stretch.
22. The graph of $g(x)$ is a reflection of the parent function across the x-axis and translated 7 units right and 3 units up.
23. The graph of $g(x)$ is a reflection of the parent function across the y-axis and a horizontal compression.

Absolute Value Functions

Address Student Needs Based on Their Depth of Knowledge (DOK)

DOK charts in the Teacher Edition recommend which exercises to assign to students based on their needs.

Provide In-the-Moment Differentiation

An **Assess and Differentiate** feature at the end of each lesson provides suggestions to reach every learner.

Ongoing Pedagogy Support

- **Classroom Videos** model lessons from a real classroom.
- **Math Misconception Videos** address common misconceptions and strategies to help students overcome them.
- **Interviews with Experts** examine the "why" behind the math and best practices.

Indiana Reveal Math Meets You Where You Are and Goes Where You're Growing

Lesson Model

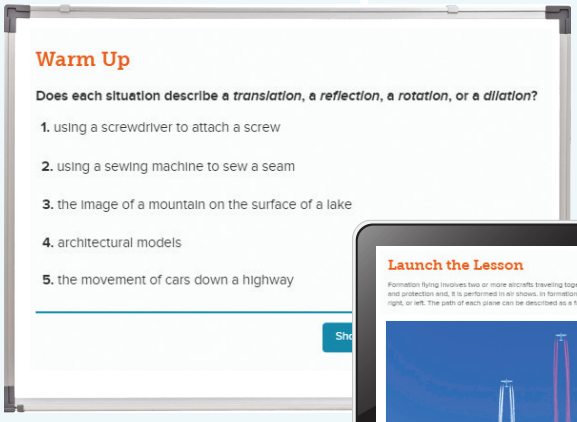
Launch

WARM UP

The **Warm Up** covers the prerequisite skills needed for the lesson.

Teachers can also project the "**What Vocabulary Will You Learn?**" and "**Today's Standards**" slides to review what topics will be covered in the lesson with their class.

Warm Up



LAUNCH THE LESSON

In **Launch the Lesson,** teachers utilize a hook to engage students and pique their interest.

Talk About It! prompts initiate student thinking about the lesson content.

Launch the Lesson

INDIVIDUAL ACTIVITY

GROUP ACTIVITY

CLASS ACTIVITY

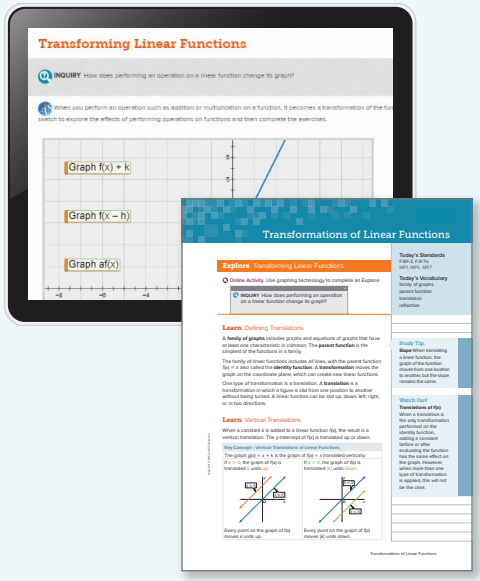
Explore and Develop

EXPLORE

Students complete rich tasks in online **Explore** activities while working in collaborative groups, allowing them to share ideas and approaches with their peers.

Study Tips and **Watch Out!** tips in the print Interactive Student Edition help focus student attention.

Explore



Teachers can project the digital features, or students can access them on their own devices.

The abundant print and digital resources within *Indiana Reveal Math* intersect in a meaningful way to heighten the learning experience. Interactive print and digital tools increase student engagement while simultaneously deepening comprehension. The *Indiana Reveal Math* classroom is an active classroom experience that brings math to life!

Reflect and Practice

LEARN

In the **Learn** portion of the lesson, students' understanding is formalized through guided instruction.

Teachers can use the aligned print and digital content to create the most effective instructional pathway for their students.

EXAMPLES & CHECK

Students work through one or more **Examples** tied to the key concepts, followed by a quick **Check** (formative assessment) to measure their understanding.

Examples and **Checks** can be completed in the print **Interactive Student Edition** or online. When **Checks** are completed online, performance data is instantly captured for the teacher.

EXIT TICKET

The **Exit Ticket** provides a quick formative assessment opportunity that encourages students to reflect on their learning.

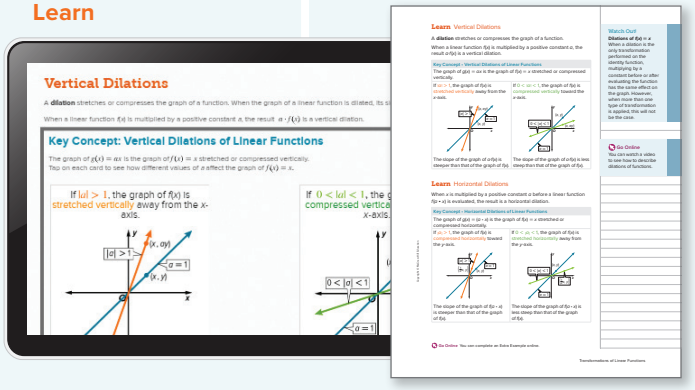
Write About It! prompts provide an opportunity for students to integrate writing skills in the math classroom.

PRACTICE

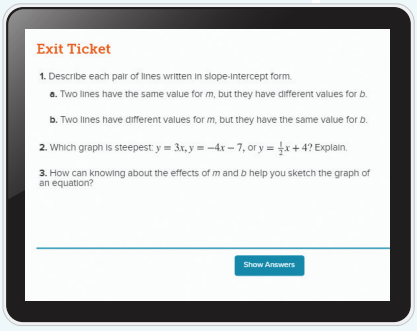
Students complete the **Practice** either online or in their print **Interactive Student Edition** to apply what they've learned and build procedural fluency.

When the **Practice** is completed online, performance data is instantly captured for the teacher.

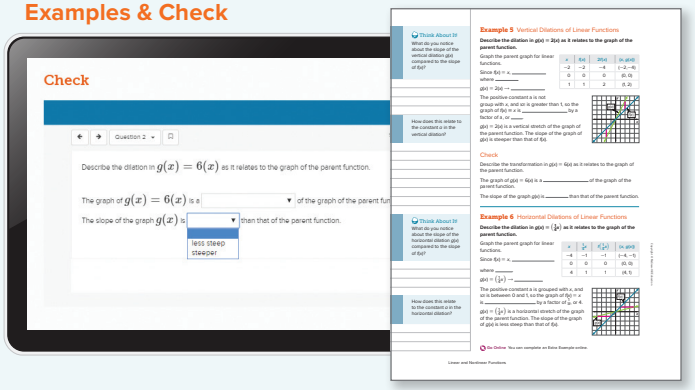
Learn



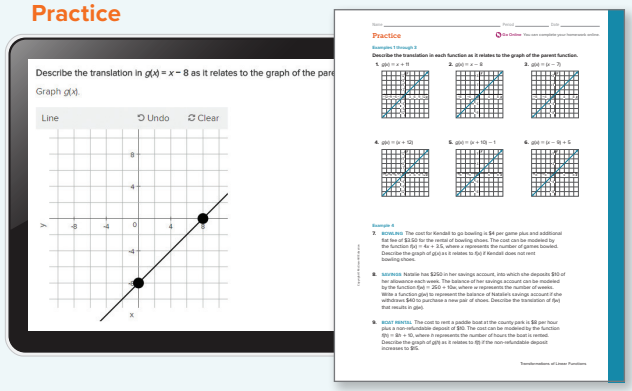
Exit Ticket



Examples & Check

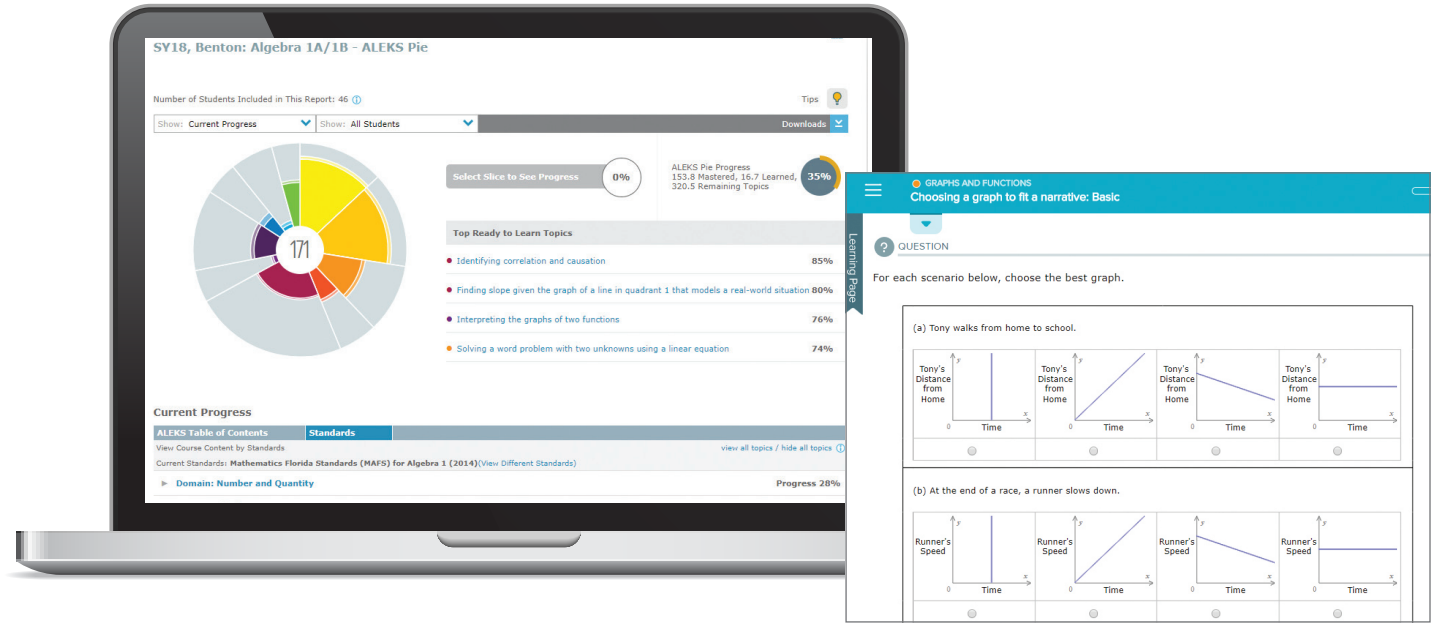


Practice



Support Every Student

Indiana Reveal Math empowers teachers with the tools they need to provide in-the-moment differentiation and deliver insightful instruction that reaches every learner.



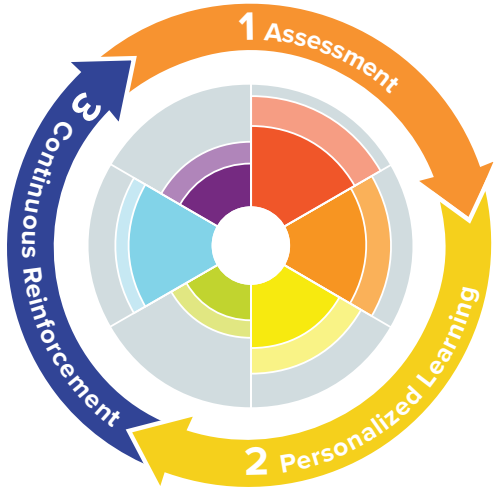
ALEKS®

Reveal the Power of Personalized Learning

ALEKS® is an online math solution for Grades 6–12 that uses adaptive technology to identify and provide instruction on the topics each student is most ready to learn. Through a continuous cycle of assessment, learning, and reinforcement, *ALEKS* develops a personalized learning path for each student to ensure measurable success.

Benefits of Using *ALEKS*:

- Provide standards-based instruction
- Focus on appropriate topics to prevent boredom or frustration
- Offer bilingual courses in English and Spanish
- Easily differentiate with remediation, on-level, and enrichment opportunities
- Pie reports allow you to see which students know the concepts in each module's topic and adjust instruction as appropriate
- Access dynamic data at the student, class, school, and district level to inform classroom instruction



Build Language Skills in the Math Classroom

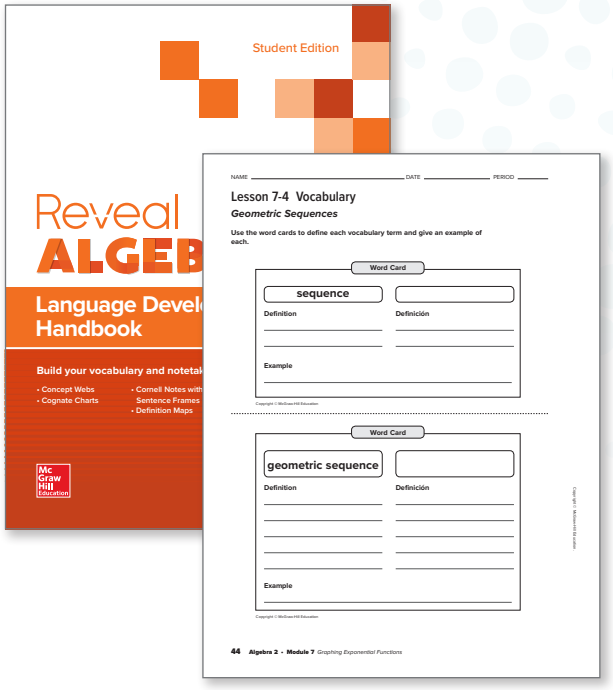
The **Language Development Handbooks** empower teachers to meet the language needs of all learners.

The **Language Development Handbook Student Edition** includes:

- Word Cards.
- Vocabulary Squares.
- Three-Column Charts (with English/Spanish cognates).
- Definition Maps.
- Concept Webs.
- Cornell Notes.

The **Language Development Handbook Teacher Edition** includes:

- English Learner Instructional Strategies.
- English Language Development Leveled Activities.
- Multicultural Teacher Tips.



Resources for Spanish Speakers

- Spanish Interactive Student Edition for Algebra 1, Geometry, and Algebra 2
- Language Development Handbook for Algebra 1, Geometry, and Algebra 2 *(Teacher and Student Editions)*
- Spanish Personal Tutors
- Multilingual eGlossary
- *ALEKS* Bilingual Courses in Spanish

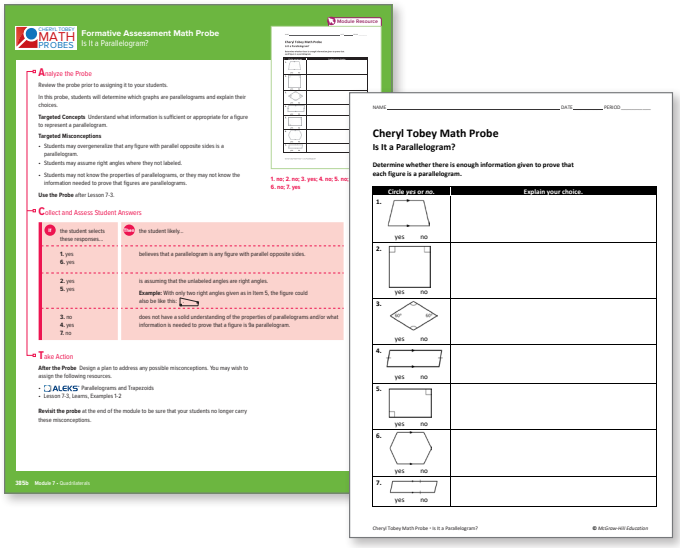
Practice and Assessment

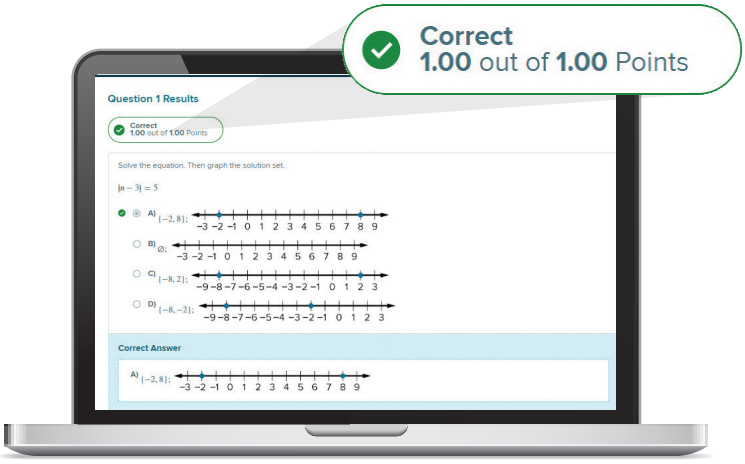
With *Indiana Reveal Math,* students apply their learning in a variety of practice options and assessments to demonstrate that they can explain both the what and the why of mathematics—not just the *how.*

Teach Students That Mistakes Are an Opportunity for Growth

Each module features a **Cheryl Tobey Formative Assessment Math Probe**—exclusive to McGraw Hill!

Students complete an activity that is designed to target common misconceptions about a particular mathematical concept. Teacher resources include support for diagnosing and correcting these misconceptions.





Provide Students Rich Practice Opportunities

Every lesson includes a variety of practice sets that provide students varied question type formats, immediate feedback, support, and multiple question attempts. Extra practice sets are also available to be assigned at the teacher's discretion. When assigned digitally, student work is auto-scored to reduce the time invested in manual grading.

Assessment Options

Diagnostic Assessment

- Diagnostic and Placement Test with Scoring Guide
- Module Pretests

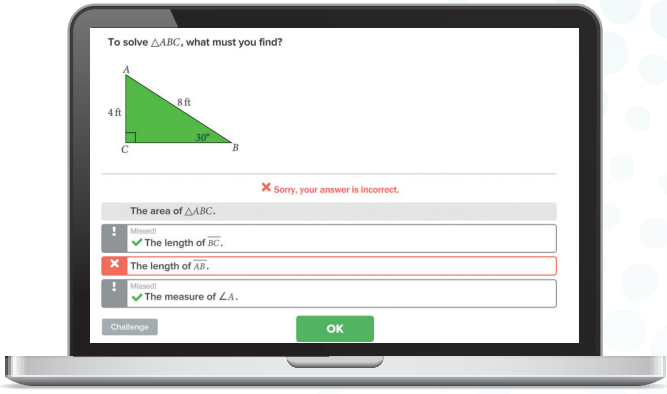
Formative Assessment

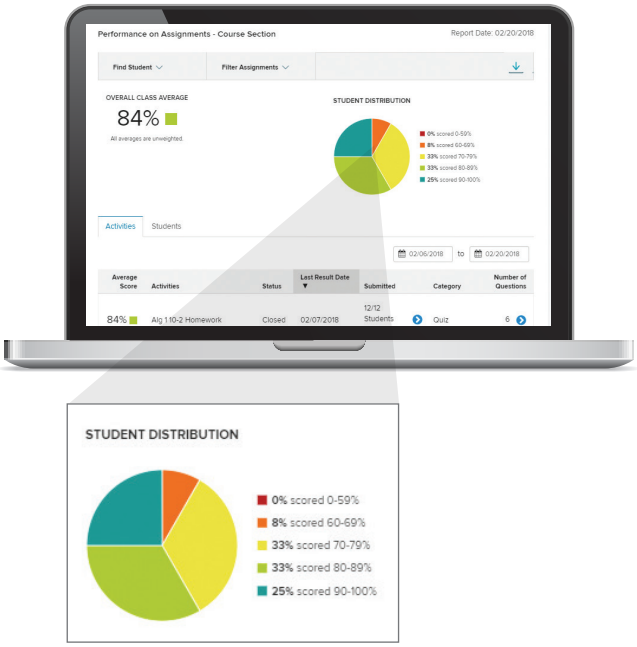
- Cheryl Tobey Formative Assessment Math Probes
- Checks
- Exit Tickets
- Put It All Together
- *LearnSmart®*

Ensure Topic Mastery

LearnSmart®, included with *Reveal Math,* provides students with access to an online, interactive study tool.

LearnSmart assesses a student's proficiency and knowledge within a specific course, tracks which topics have been mastered, and identifies areas that need more study prior to mid-year or end-of-course assessments.





Drive Instruction With Actionable Data

Drawing on performance data from student assessments and activities, the *Indiana Reveal Math* reports and recommendations provide teachers and administrators with the information they need to monitor and adjust instruction on a daily basis.

Activity Report

- Overall class or student average score
- Overall class or student progress over time
- Performance by activity type (e.g., homework, quiz, exam)
- Average score per activity

Standards Report

Class and individual average score per standard, skill, or objective

Administrator Report

Activity, standards, progress, and usage reports

Summative Assessment

- Leveled Module Tests
- Module Review
- Module Vocabulary Tests
- Performance Tasks
- End-of-Course Test

PLUS

Build your own assessments with access to question banks featuring technology-enhanced items.

Indiana Reveal
MATH®
Algebra 1 • Geometry • Algebra 2

The K–12 Solution for Today's Mathematics Classroom

Indiana Reveal Math is a coherent, vertically aligned K–12 core math solution that empowers educators to uncover the mathematician in every student through powerful explorations, rich mathematical discourse, and timely individualized learning opportunities.

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Learn more about *Indiana Reveal Math!*

Visit **mheonline.com/Indiana** to sample online and access a trial of the digital resources.

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