Empower Learning with Big Ideas Math

Designed to the Common Core State Standards, Big Ideas Math® Algebra 1, Geometry, and Algebra 2 is a robust and research-based program that uses the Standards for Mathematical Practice as its foundation. It ensures that students not only grasp key mathematical concepts, but enjoy making connections between concepts and the world around them.

Create Confident Learners With:

• Dynamic Technology for the 21st-Century Classroom
• Complete Support for Teachers in Lesson Planning and Lesson Presentation
• Dynamic Assessment System
• Research-Based Content and Delivery
• Rigorous, Focused, and Coherent Curriculum
• Balanced Approach to Instruction
• Continuous Preparation for High-Stakes Assessment
• Embedded RTI, Differentiated Instruction, and ELL Support

PANTHERA TIGRIS SUMATRAE

White Tiger

COVER: The Sumatran tiger (Panthera tigris sumatrae) is a rare tiger subspecies that inhabits the Indonesian island of Sumatra. It was classified as critically endangered by IUCN in 2008 as the population was estimated at 441 to 679 individuals, with no subpopulation larger than 50 individuals and a declining trend.


PHOTO CREDIT: MirasWonderland/iStock by Getty Images
Expert Authors

The *Big Ideas Math* authors are dedicated to fostering curiosity and confidence in learners.

Dr. Larson and Dr. Boswell began writing together in 1992. Since that time, they have authored over three dozen textbooks. In their collaboration, Ron is primarily responsible for the Student Edition while Laurie is primarily responsible for the Teaching Edition.

**Ron Larson, Ph.D.,** is well known as the lead author of a comprehensive program for mathematics that spans middle school, high school, and college courses. He holds the distinction of Professor Emeritus from Penn State Erie, The Behrend College, where he taught for nearly 40 years. He received his Ph.D. in mathematics from the University of Colorado. Dr. Larson’s numerous professional activities keep him actively involved in the mathematics education community and allow him to fully understand the needs of students, teachers, supervisors, and administrators.

**Laurie Boswell, Ed.D.,** is the former Head of School at Riverside School in Lyndonville, Vermont. In addition to textbook authoring, she provides mathematics consulting and embedded coaching sessions. Dr. Boswell received her Ed.D. from the University of Vermont in 2010. She is a recipient of the Presidential Award for Excellence in Mathematics Teaching and is a Tandy Technology Scholar. Laurie has taught math to students at all levels, elementary through college. In addition, Laurie has served on the NCTM Board of Directors and as a Regional Director for NCSM. Along with Ron, Laurie has co-authored numerous math programs and has become a popular national speaker.

We created *Big Ideas Math* because we recognized the need for a truly balanced approach to learning, using discovery learning and scaffolded instruction.

—Ron Larson, Ph.D.

*Big Ideas Math* encourages productive struggle. It’s not about being hard. The entire program is accessible for all students.

—Laurie Boswell, Ed.D.
Program Philosophy: Rigor and Balance with Embedded Mathematical Practices

The Big Ideas Math program balances conceptual understanding with procedural fluency. Real-life applications create connections to content and help turn mathematical learning into an engaging and meaningful way to explore the real world.

Embedded Mathematical Practices in grade-level content promote a greater understanding of how mathematical concepts are connected to each other and to real-life scenarios.

Mathematical Practices

Mathematically proficient students use dynamic geometry software strategically.

4.1 Translations

Essential Question: How can you translate a figure in a coordinate plane?

Exploration 1: Translating a Triangle in a Coordinate Plane

Work with a partner:

a. Use dynamic geometry software to draw any triangle and label it $\triangle ABC$.

b. Copy the triangle and translate (or slide) it to form a new figure, called an image, $\triangle A'B'C'$ (read as “triangle A prime, B prime, C prime”).

c. What is the relationship between the coordinates of the vertices of $\triangle ABC$ and those of $\triangle A'B'C'$?

Sample

Points:

$A(-1, 2)$
$B(3, 2)$
$C(-2, 1)$

Segments:

$AB = 4$
$BC = 3.16$
$AC = 4.26$

Angles:

$m\angle A = 45^\circ$
$m\angle B = 71.57^\circ$
$m\angle C = 63.43^\circ$

Using Tools Strategically

To be proficient in math, you need to use appropriate tools strategically, including dynamic geometry software.
In writing the Activities and Explorations, I wanted to provide ALL students with the opportunity to start them with some success.

—Ron Larson, Ph.D.

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Scaffolded lessons allow for procedural fluency and provide the opportunity to use clear, precise mathematical language.

Real-life applications provide students with opportunities to create connections between classroom lessons and realistic scenarios.
Ignite Learning with Dynamic Technology

Dynamic Classroom
The Dynamic Classroom is a digital lesson presentation tool built to engage students. Teachers can progress through each lesson from opening to closing with one simple click. The Dynamic Classroom includes daily lesson resources like the Dynamic Investigations and Student Journal, as well as a variety of interactive teaching tools.

Student Dynamic eBook
The Student Dynamic eBook is a complete electronic version of the Student Edition that includes interactive digital resources. The eBook allows students to navigate through the textbook, highlight important information, and add notes or bookmarks. While this eBook is available off-line, with a data or internet connection, students can access embedded, digital enhancements.

Audio available in English and Spanish

Dynamic Investigations
The Dynamic Investigations in the Big Ideas Math program allow students and teachers to interactively complete the Big Ideas Math explorations.

CREATE CONNECTIONS THROUGH EXPLORATION!
Real-Life STEM Videos
Every chapter in the *Big Ideas Math* program contains a *Real-Life STEM Video* allowing students to further engage with mathematical concepts. Students learn about the Parthenon, natural disasters, solar power, and more!

**ENCOURAGE CURIOSITY WITH STEM CONCEPTS!**

Dynamic Teaching Tools
These tools feature the *Interactive Whiteboard Lesson Library*. Teachers can present any *Big Ideas Math* lesson from an interactive whiteboard. Standard whiteboard lessons and customizable templates are included.

**VISUALLY RICH PRESENTATIONS!**

Dynamic Assessment System
The *Dynamic Assessment System* allows teachers to track and evaluate their students’ advancement through the curriculum. Developed exclusively for *Big Ideas Math*, this technology provides teachers and students an intuitive and state-of-the-art tool to help students effectively learn mathematics. Built for ease of use, the tool is available on a wide range of devices.
The **Big Ideas Math Dynamic Assessment System**

**Homework and Assessment That Informs**
- Includes multiple, customizable assignments for each chapter
- Assign homework and assessments for the entire class or a select group of students
- Offers progress monitoring assessments for an adaptive testing experience

**Direct Ties to Remediation**
- Includes direct links to Lesson Tutorial Videos and relevant lesson sections
- Allows students to access live chat tutors for selected exercises

**Assessment Reporting with Precision**
- Offers real-time reporting at both the class and student levels
- Tracks progress through Assignment Performance, Remediation, and Standards reports.
Assessment Delivery

• Provides embedded tools for students
• Includes auto-scored, technology-enhanced items such as drag and drop, graphing, point plotting, multiple select, and fill in the blank using math expressions
• Allows teachers to include reminders or notes to students

Intuitive Design

• Operates on a wide range of devices with large and clear icons for visibility
• Allows for multiple reporting views through toggle options
• Includes intelligent presets and easy navigation

Formative practice has to have feedback and action. Use assessments to drive instructional decisions.

—Laurie Boswell, Ed. D.
Preparation for the Journey Toward High-Stakes Testing

Each chapter of the *Big Ideas Math* program features question types frequently found on standardized tests. The balanced approach to instruction also helps students develop the habits of mind required to be successful on high-stakes tests.

### Exercises
The Exercises in the *Big Ideas Math* program provide students with opportunities to use multiple approaches to solve problems.

### Dynamic Assessment System
This tool allows teachers to provide customizable homework directly related to the *Big Ideas Math* program. Assignments are automatically scored and students have access to immediate remediation on homework questions.

### Explorations
The Explorations that begin each section require students to use higher-level thinking to work through each problem and to explain their reasoning in the solution.

### Cumulative Assessments
Each chapter in the *Big Ideas Math* program includes a Cumulative Assessment. The questions in each assessment were carefully chosen to represent problem types and reasoning patterns frequently found on standardized tests.

### Quizzes and Tests
The Quizzes and Tests in the *Big Ideas Math* program assess the concepts students learned in each lesson.

### Online Test Practice
Self-grading tests are available online, allowing students to receive immediate feedback on their progress.

### Performance Tasks
Each chapter of the *Big Ideas Math* program contains a Performance Task in the Assessment Book and an online Performance Task that correlates to the STEM video of the chapter. Each Performance Task allows students to work with multiple standards.

### Alternative Assessments
Alternative Assessments provide teachers with the opportunity to assess students on the same content in a variety of ways.
Robust Print Support for All Learners

**Student Edition**
The Student Edition was designed using the Universal Design for Learning Guidelines (CAST © 2011) and features carefully chosen images that increase student engagement and enhance the mathematical content.

**Teaching Edition**
The Teaching Edition provides teachers with complete support for every *Big Ideas Math* lesson. Master educator Laurie Boswell incorporates instructional insights and recommendations in Laurie’s Notes.

**Student Journal**  *Available in English and Spanish*
This consumable workbook serves as a valuable resource where students can solve extra practice problems, take notes, and internalize new concepts by expressing their findings in their own words.

**Resources by Chapter**
- Start Thinking
- Warm Up
- Cumulative Review Warm Up
- Extra Practice (Practice A and B)
- Enrichment and Extension
- Puzzle Time
- Family Communication Letters  *Available in English and Spanish*

**Assessment Book**
- Performance Tasks
- Prerequisite Skills Tests with Item Analysis
- Cumulative Tests
- Mid-Chapter Quizzes
- Chapter Tests
- Alternative Assessments with Scoring Rubrics
- Pre-Course Test with Item Analysis
- Post-Course Test with Item Analysis

CONVENIENTLY ACCESS ALL PRINT COMPONENTS ONLINE AT BIGIDEASMATH.COM!
Count on us for your Larson solutions from Grade 6 through AP®

MIDDLE SCHOOL

High School

Precalculus/ AP® Calculus

Algebra 1

1. Solving Linear Equations
2. Solving Linear Inequalities
3. Graphing Linear Functions
4. Writing Linear Functions
5. Solving Systems of Linear Equations
6. Exponential Functions and Sequences
7. Polynomial Equations and Factoring
8. Graphing Quadratic Functions
9. Solving Quadratic Equations
10. Radical Functions and Equations
11. Data Analysis and Displays

Geometry

1. Basics of Geometry
2. Reasoning and Proofs
3. Parallel and Perpendicular Lines
4. Transformations
5. Congruent Triangles
6. Relationships Within Triangles
7. Quadrilaterals and Other Polygons
8. Similarity
9. Right Triangles and Trigonometry
10. Circles
11. Circumference, Area, and Volume
12. Probability

Algebra 2

1. Linear Functions
2. Quadratic Functions
3. Quadratic Equations and Complex Numbers
4. Polynomial Functions
5. Rational Exponents and Radical Functions
6. Exponential and Logarithmic Functions
7. Rational Functions
8. Sequences and Series
9. Trigonometric Ratios and Functions
10. Probability
11. Data Analysis and Statistics

Learn more!

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