Inspire a Culture of Math Achievement

with Professional Learning for Grades PreK–12

Math Solutions

From Houghton Mifflin Harcourt.
Marilyn Burns, founder of Math Solutions®, is one of today’s most highly respected mathematics educators. In 1984, Marilyn formed Math Solutions®, dedicated to improving students’ learning of mathematics by providing educators with the highest-quality professional learning services and resources. Working with a team of mathematics teaching and learning experts to offer specialized professional learning to teachers and administrators, Marilyn and the Math Solutions team have contributed to the transformation of thousands of school districts nationwide. High quality teaching and learning is the single most important factor for raising student achievement. Hear about the impact of our work at www.mathsolutions.com/about-us.
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How We Inspire a Culture of Math Achievement

Learning is a journey. When we activate students’ curiosity and elevate teachers’ potential, we are shaping the future of education, one learning moment at a time.

Whether you are looking to focus on your mathematical instructional goals, deepen content knowledge in each grade level, or implement your program effectively, Math Solutions will provide a consistent focus on your needs. We’ll identify your goals and create a plan that builds the foundation, deepens and builds capacity, and ensures sustained progress.

Each of us are learners and every day we encounter new learning moments. What we do with those moments makes the difference. Math Solutions professional learning creates these learning moments by driving teacher engagement and student achievement.

YOUR LEARNING JOURNEY WITH MATH SOLUTIONS

For those implementing our HMH programs, our Implementation Support and Follow-Up incorporate specific strategies related to your program implementation.
Plan Your Journey
Create a strategic plan that not only identifies where you are and where you need to be, but includes the tactical steps necessary to help you reach your goals. Together, we will help set specific student learning targets and develop a focused plan to support instruction and get results!

Build the Foundation
Designed to strengthen math content and pedagogical knowledge and build the foundations to improve instruction and achieve the desired student outcomes.

Initial Implementation Support and Follow-Up
For those implementing HMH programs, you’ll be provided the support you need to get started with your implementation and Follow Up focuses allows you to gain momentum in the first and second year of your implementation.

Deepen Learning
Content courses designed to explain math content by grade level necessary for growth on assessments, and instructional strategy courses that support all learning, providing the tools that every teacher can bring into their classroom.

Monitor Progress
Measure results and analyze student progress data to ensure that school improvement plans are moving forward successfully.

Sustain Your Practice with Coaching
Coaches from HMH use a research-based model focused on your goals. They’ll be there to support you as you analyze and set your goals, learn new instructional practices, and apply them in your classroom.

Measure Results and Ensure Sustainable Success
With data to measure and maintain performance, Math Solutions is the ultimate partner for long-term math achievement.
The Backbone of Everything We Do
Your Guide to an Effective Math Classroom

Schools and districts need examples of model math classrooms that provide observable guidelines to help teachers implement best practices quickly and efficiently. Based on more than 35 years of focusing exclusively on the teaching and learning of math, Math Solutions has developed the Instructional Practices Inventory, a comprehensive guide to instructional excellence for both teachers and students.

These instructional practices help schools focus on and improve four key areas of instruction in order to reach math achievement goals: learning environment, reasoning and sense making, focus and coherence, and formative assessment. This tool is also used by administrators to recognize what to look for in math classrooms and is the foundation of our Needs Assessment and Progress Monitoring.
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<tr>
<th><strong>LEARNING ENVIRONMENT</strong></th>
<th><strong>TEACHER</strong></th>
<th><strong>STUDENTS</strong></th>
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<tbody>
<tr>
<td>Provides a respectful, safe learning environment in which mistakes are seen as an opportunity to learn.</td>
<td>Takes an academic risk and rely on their own thinking and the thinking of other students.</td>
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<tr>
<td>Structures the class for independent work, pairs, groups, and whole class in a thoughtful and deliberate way.</td>
<td>Listen and ask questions to each other to clarify information; respectfully challenge ideas; make conjectures.</td>
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<tr>
<td>Asks questions that both build and reveal new understanding of content and practice. Avoids yes/no questions unless they also ask for justification.</td>
<td>Explain their reasoning; construct viable arguments and critique the reasoning of others.</td>
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<tr>
<td>Makes appropriate tools available and encourages their use.</td>
<td>Communicate using appropriate mathematical language both orally and in writing.</td>
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<tr>
<td>Selects rigorous learning experiences.</td>
<td>Work well in a variety of grouping structures.</td>
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<tr>
<td>Makes learning experiences accessible to all students without compromising the rigor in the problem.</td>
<td>Persevere in making sense of rigorous problems.</td>
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<tr>
<td>Expects students to justify their reasoning for all answers, whether correct or incorrect.</td>
<td>Seek out multiple approaches to solving a problem.</td>
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<tr>
<td>Selects learning experiences that represent a balance of conceptual understanding and procedural fluency.</td>
<td>Use multiple representations when solving problems, such as symbols, diagrams, graphs, words, etc.</td>
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<tr>
<td>Understands the expectation of the standard to be taught and its connection to previous standards; aligns the lesson to grade-level content and practice standards.</td>
<td>Use appropriate tools strategically, including mental calculations, that fit the situation.</td>
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<tr>
<td>Differentiates instruction based on student needs.</td>
<td>Look closely to discern a pattern or structure.</td>
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<td>Uses data to make instructional decisions based on student need.</td>
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<td>Provides feedback to students or structures opportunities for students to provide feedback to each other.</td>
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<tr>
<td>Identifies and communicates the learning target( s) of the lesson.</td>
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<tr>
<td>Implements a variety of strategies to monitor student learning.</td>
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Partnering with Math Solutions Is Proven to Work

Math Solutions services are based on the most current research in the field of instruction and deliver proven results. Our partner districts report high educator satisfaction and student achievement. Whether you are a rural school or a large urban district, Math Solutions can help you reach your goals. Over the last 35 years, we have partnered with thousands of districts and schools across the country and have learned that every school has its own unique set of strengths, challenges, and resources.

North Kansas City Schools, MO

In 2012 the North Kansas City School District student test scores in mathematics had plateaued. Chad Sutton, Assistant Superintendent – PreK–8, decided to target a solution that centered on enhancing the skills and competency of the classroom teacher. The school district identified two main challenges. The first challenge was deepening the content knowledge of teachers to align with new standards. The second challenge was identifying instructional methods that would support students’ ability to think abstractly about math and develop conceptual understanding—allowing kids to talk about and make sense of math as opposed to only memorizing computations.

Beginning in the spring of 2012, the school district implemented the use of Math Solutions in elementary and secondary schools and established a sustainable, collaborative model for training and self-sufficiency across the district.
**Numbers Are Just the Beginning** In state exams, the district achieved its highest level of third-grade math proficiency in over ten years with about 71% earning scores in the advanced or proficient categories in 2016, an increase of 14% in two years. In Grade Four, achievement scores jumped from 44% in 2014 to 72% in 2016 in advanced or proficient categories and from 55% to 65% in the same categories in Grade Five, outperforming the state by 23% and 17% respectively. At the secondary level, the district reported a 7% increase in proficient and advanced scores for Algebra I, Geometry, and Algebra II. This success was not measured solely by achievement scores, but also by a noticeable change in the energy in classrooms, increased pride in teachers, and positive attitudes toward math among students.

“The kids feel powerful. They know it’s changing them, and it’s also empowering the teachers. **It’s eye opening to see students excited and believing that they can do the hard math. And it’s because of the practices that have been introduced to teachers.**”

—Dr. Chad Sutton  
Assistant Superintendent, NKC
Coaching That Drives Instructional Improvement into the Classroom

The Math Solutions Coaching Model is designed to deepen teachers’ math content and pedagogical knowledge for immediate implementation in the classroom. Based on your goals, coaches, leaders, and teachers work collaboratively to improve teaching skills and student learning. Our coaches have years of in-classroom teaching and coaching experience. They are experts at helping educators plan for instruction that meets the needs of all students while maintaining the level of rigor required by today’s standards. From the classroom to the district office, our experienced coaches provide sustained support, both in-Person and virtually, to help you see results and continuous improvement.
Our Research-Based Coaching Model

**OUR MODEL:**
- Analyze student data and Set your goals.
- Learn new instructional practices.
- Apply your learning in the classroom.
- Review your progress and reflect on your results.
Assess and Address Immediate and Long-Term Needs

Turning Challenges into Strengths . . . The Math Solutions team will help you identify your journey and develop a plan of action to address them!

Through a series of online surveys, classroom observations, and interviews with administrative and instructional leadership, Math Solutions helps your team pinpoint what you do well and, in turn, address critical challenges needing immediate attention.

Following this assessment, Math Solutions will deliver:

- A data-rich Instructional Needs Assessment Report and Professional Learning Plan that identifies math instruction strengths and opportunities for improvement
- Specific, prioritized recommendations to address critical challenges required to meet state standards and assessments

Plan your Journey

Implementation Support and Follow-Up

Build the Foundation

Deepen Learning

Monitor Progress

Sustain your Practice with Coaching

Measure Results

Your Learning Journey Continues...
Plan your Journey

The following instructional needs – absolutely essential to improving instruction, program implementation, and student outcomes – drive the design of all Math Solutions courses, consulting, coaching, and resources.

BUILD THE FOUNDATION:

Leadership ..................................................................................................................................14
Designed to help leaders define a vision for their role as instructional leaders of mathematics and increase their understanding of and ability to communicate about current state standards.

Mathematical Practices ........................................................................................................... 15
Designed to strengthen math content and pedagogical knowledge as well as provide instructional strategies, these courses promote thinking, reasoning, and sense making.

Implementation Support and Follow-Up .............................................................................19
For those implementing HMH programs, a Getting Started Course, Professional Learning Guide, and embedded support are provided so you have the tools you need to be successful and implement program with fidelity. Follow-Up will focus on how to hone your craft when teaching the program and allow you to ramp up quickly and effectively.

SUSTAIN YOUR PRACTICE

Coaching ..................................................................................................................................46
Our coaches are there to support you as you analyze and set your goals, learn new practices, and apply them in the classroom.

DEEPEN LEARNING:

Content Standards by Grade Level ...........................................................................................50
Content courses explain math content by grade level necessary for growth on assessments and how to achieve your instructional goals. Each course is aligned to your particular state standards.

Instructional Strategies ...........................................................................................................53
Supporting all learning—every teacher needs a toolkit of instructional strategies to bring into his or her classroom.
Leadership

Leading the Transformation of Mathematics Teaching and Learning

**Target Audience:** Administrators, Curriculum Directors/Specialists, Principals, Superintendents

**Grades:** K–12

**Format:** Full Day

A strategic plan is only as effective as the team that implements it. Ensuring quality instruction requires the support of a strong instructional leadership team with the vision and confidence to initiate and sustain a cultural and tactical shift in instruction.

Math Solutions courses and coaching will guide the members of your leadership team as they learn how to observe, assess, and support the incorporation of “best-practice” instructional strategies that promote thinking, reasoning, and sense making in the classroom.

This full-day course refines participants’ vision for their role as instructional leaders of mathematics. Participants increase their understanding of and ability to communicate about current state standards. They engage in mathematical tasks and discover the use of tools and structures to lead stakeholders toward effective mathematics teaching and learning.

“**We really appreciate your commitment to excellence and support regarding our delivery of math instruction, analysis of data, and the ongoing push to create the most productive math learning environments throughout our school. We really believe we have the momentum to make dramatic gains in math and know your support will only strengthen our efforts. Thank you!”**

—Dominic Cipollone
Principal, New York City Schools, NY

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**OUTCOMES**

- Identify and support math instruction that promotes thinking, reasoning, and sense making.
- Provide instructional leadership and support to empower teachers to become more effective in their teaching of mathematics.
- Articulate a vision for leadership that includes collaboration among all stakeholders to promote effective mathematics teaching and learning.
Mathematical Practices

Making Sense of Math—Reasoning and Discourse

**Target Audience:** Math Coaches, Teacher Leaders, Teachers  
**Grades:** K–2, 3–5, 6–8, 9–12  
**Format:** Full Day

Students need to build a deep understanding of mathematics and use that understanding to reason about problems, make sense of new learning, and communicate their thinking to others. This course is designed to introduce participants to the processes and habits of mind students need to develop, with particular emphasis on the role of reasoning and discourse in mathematics. In addition, they will analyze the complexity of mathematical tasks and consider strategies for transforming grade-level tasks to increase the level of rigor.

**DEVELOPING TASKS THAT PROMOTE REASONING**

For students to develop habits of mind that rely on reasoning and making sense of mathematics, teachers must provide multiple practice opportunities with mathematical tasks and questions that require students to do more than memorize a procedure or answer. The National Council of Teachers of Mathematics (NCTM®) recommends that teachers use tasks that:

- Invite exploration of important mathematical concepts
- Allow students the opportunity to solidify and extend knowledge
- Encourage students to make connections and develop a coherent framework for mathematical ideas
- Call for problem formulation, problem solving, and mathematical reasoning
- Provide more than one solution path
- Promote the development of all students’ dispositions to do math

**OUTCOMES**

- Use strategies to help all students deepen and communicate their mathematical reasoning.
- Identify the difference between social conventions of mathematics and mathematical knowledge that students need to make sense of for themselves.
- Select tasks and use classroom discussions to develop students’ mathematical habits of mind and to assess understanding.

“Words would not do justice to articulate and express how productive, effective, and mind-altering an experience it was for us.”

—E.S. Bherwani  
Assistant Principal, NYC School District, NY
Students need to develop knowledge of computational procedures along with knowledge of when and how to use them appropriately. The goal is for students to become skillful in performing computational procedures flexibly, accurately, efficiently, and with understanding.

**FLEXIBLE, ACCURATE, AND EFFICIENT**

For many students, procedures have been the mainstay of learning mathematics. “Yours is not to reason why, just invert and multiply” was a phrase used by teachers to help students remember the procedure for dividing fractions. The approach to learning computational procedures was based on a set of steps, or an algorithm, learned through repeated practice and memorization.

This full-day course provides teachers with a deeper understanding of procedural fluency beyond merely the ability to memorize procedures and apply them with little understanding. In addition, teachers will learn strategies to support students in representing ideas visually, symbolically, and verbally, as well as strategies for helping students make connections between these different representations.

**OUTCOMES**

- Expand understanding of procedural fluency to include carrying out procedures appropriately with flexibility and accuracy.
- Connect multiple representations for the purpose of helping all students better understand underlying mathematical ideas.
- Consider students’ use of tools and representations for the purpose of assessing student understanding of math and reasoning.

“I am so glad that I signed up for this course. **It has helped me to take a closer look at the way I teach math and realize the changes I need to make. I’ve always wanted students to enjoy math and now I have some tools to begin to make this happen.**“

—Teacher, Grade 4

Savannah-Chatham County, Georgia
Students need to make sense of problems and persevere in solving them. Teachers’ instructional practices directly affect students’ confidence in their mathematical skills and their willingness to persevere to solve difficult problems. This full-day course provides teachers with a deeper look at building perseverance in problem solving and applying mathematics to everyday situations. Participants will learn strategies for engaging students in appropriate levels of constructive struggle, thus allowing all students to approach mathematics with confidence and competence.

**SUPPORTING CONSTRUCTIVE STRUGGLING**

It is important for all students to experience some struggle in order to make sense of mathematics and develop new knowledge. Students will not persevere and be confident in their mathematical skills if we do not provide opportunities to make sense of the math and support them in the process.

Teachers maintain the integrity of high-level tasks by structuring lessons to allow students to make connections and develop new mathematical knowledge.

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**OUTCOMES**

- Describe the features of a classroom environment that support student learning and promote confidence and perseverance in students.
- Engage students in constructive struggle that develops mathematical habits of mind.
- Structure lessons in ways that require critical thinking and sense making.

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“Thank you for the wealth of knowledge you shared as we learned with you. It was truly an interesting and awakening time for me to improve my teaching and my coaching practices”

—Dr. Nefertitti T. Washington
Math Specialist, Fort Bend Independent School District, TX
Initial Implementation Support and Follow-Up

HMH® math core and intervention programs focus on building student competency. We provide extensive professional learning services to help schools and districts implement with fidelity while building teachers’ content knowledge and providing instructional strategies to enhance the effectiveness of the program.

You’ll start with implementation support that includes our Getting Started Course, a Professional Learning Guide to use in your first year of implementation, and embedded professional learning within your platform including videos, teacher tips, and more.

In the first and second year of implementation our Follow-Up provides additional guidance to deepen mastery, hone teaching skills, and build confidence when teaching the program.

Our professional learning is flexible so you can choose to learn in-person, via live, online sessions or a blend of both.
Getting Started

In Getting Started introductory courses, participants will learn to use the program components in the context of lesson planning and classroom instruction, and they will experience lessons from both the teacher and student perspectives. Additionally, participants will get hands-on practice accessing and integrating the digital resources into their teaching.

**OUTCOMES**

- Build understanding and confidence to ensure a strong implementation
- Support differentiation, assessment, and effective whole and small group instruction using program resources and instructional tools
- Enhance instructional delivery and student learning using program technology

**AGENDA ITEMS**

- Interact with program components and instructional strategies from student perspective
- Examine resources for lesson planning and differentiation, along with assessment tools to monitor progress
- Explore your digital resources including managing classes, assigning work, and reporting
- Collaboratively plan for the first/next three weeks of instruction

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**K–8**

- HMH
- intoMath
- math expressions
- Go Math!
- Math in Focus
- Saxon Math
- Science Fusion

**9–12**

- HMH
- intoAGA
- AGA
- Integrated Mathematics
- HMH Science Dimensions
Embedded Professional Learning Support

Your implementation will begin with a Getting Started Course. But, we know how important initial support is when you start using your program, so we also provide a Professional Learning Guide to use in your first year of implementation and embedded professional learning within your platform like videos, teacher tips, and more.
### Professional Learning Guide
This interactive guide allows for detailed note-taking and reflection, serving as a reference for the Getting Started course and for your first year of implementation. They complement the Teacher Editions (print or digital).

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### Getting Started Modules
Find a library of on-demand professional learning topics that support your understanding of the pedagogy and components.

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### Teacher Tips
Aligned to NCTM’s Mathematics Teaching Practices these tips were written by educators for educators. They are included at the beginning of each module.

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### Professional Learning Cards
When planning your daily and weekly lessons, these cards give you the real examples you can use to guide students learning including Talk Moves and Language Routines.

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### Classroom and Expert Videos
These videos showcase real experts and real classrooms and help give you an example of how to guide student learning in your classroom.

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In the first and second year of implementation our Follow-Up provide additional guidance to deepen mastery, hone teaching skills, and build confidence when teaching the program. Our professional learning is flexible so you can choose to learn in-person, online, or with a blended model.

Follow-Up helps inspire and empower teachers by giving them the confidence to use their math program classroom and digital resources.

Topics are offered as full-day courses, or choose to focus on multiple topics and choose the amount of time you’d like to devote to each.

**Target Audience:** Leaders and Teachers  
**Grades:** K–12  
**Format:** In-Person (Full-Day, Half-Day) or Live, Online sessions  
Full-Day, 90 minutes in length, but can be condensed to 60 minutes or extended to 2 hours
Follow-Up

Personalized Follow-Up inspire and empower teachers by giving them the confidence to use their math program classroom and digital resources. Topics are 90 minutes in length, but can be condensed to 60 minutes or extended to 2 hours.

**Target Audience:** Leaders and Teachers  
**Grades:** K–12  
**Format:** In-Person, Webinar

CREATE AN EFFECTIVE LEARNING ENVIRONMENT
Participants will evaluate and refine the learning environment to ensure students are accountable for their learning and feel confident, safe, and respected.

**LEARNING OUTCOMES**
- Establish clear expectations for math instruction.
- Identify student and teacher actions that support effective facilitation of learning tasks.
- Employ strategies for engaging students through classroom discourse.
- Implement best practices to develop social emotional skills using the Learning Mindset features.

MAKE MATH ACCESSIBLE FOR ALL LEARNERS THROUGH DIFFERENTIATION
To ensure equity, participants will explore the powerful teaching support and differentiation options to help all students access the mathematical content.

**LEARNING OUTCOMES**
- Use strategies to support instruction before, during, and after math to provide access to all learners.
- Connect language, culture, and literacy to math to deepen student understanding.
- Plan instruction that explicitly addresses varying needs and supports for all learners.

LEVERAGE DATA AND REPORTING TOOLS TO ACCELERATE GROWTH
To accelerate student growth, participants will utilize a collaborative model that focuses on data, instructional skills, and results.

**LEARNING OUTCOMES**
- Describe the roles of formative and summative assessment.
- Select appropriate assessments and use data to monitor student learning.
- Identify and use instructional strategies and resources to accelerate growth.
MAXIMIZE LEARNING WITH DIGITAL RESOURCES
Participants will identify and integrate program-specific digital resources to enhance learning.

LEARNING OUTCOMES
- Understand current research around effective Blended Learning.
- Explore digital resources to determine how they can support instruction.
- Prepare lessons that meaningfully integrate digital resources, including projectibles, interactive lessons, and assessments.

PLAN EFFECTIVE MATH LEARNING EXPERIENCES
Participants will learn to plan effective, student-centered learning experiences that increase learner engagement throughout instruction.

LEARNING OUTCOMES
- Understand how to support productive perseverance throughout instruction.
- Practice and apply strategies to increase student engagement.
- Structure instruction to build shared understanding.

EXPLORE THE EIGHT EFFECTIVE MATHEMATICS TEACHING PRACTICES
Participants will understand the NCTM® Mathematics Teaching Practices, make connections to effective student practices, and use program-specific resources to implement each practice.

LEARNING OUTCOMES
- Explore and unwrap the NCTM® Mathematics Teaching Practices.
- Connect effective teaching practices to effective student practices.
- Implement the Mathematics Teaching Practices using Into Math resources.

TEACH THE LANGUAGE OF MATHEMATICS TO SUPPORT ENGLISH LEARNERS
Participants will learn strategies to promote the use and development of math language for all learners, especially English learners.

LEARNING OUTCOMES
- Understand the design principals from the Stanford Center for Assessment, Learning, and Equity (SCALE).
- Explore and select resources that support language development.
- Practice and apply Language Routines to everyday instruction.
Getting Started with Into Math™

Target Audience: Leaders and Teachers
Grades: K–5, 6–8
Format: In-Person (Full-Day, Half-Day) or Live Webinar

OVERVIEW
Into Math emphasizes the importance of the “why” behind the “how” with an inverted gradual release model that asks students to first figure out a problem on their own before learning the best practices for solving the problem.

In this introductory course, participants have meaningful, hands-on or virtual experiences to learn about this gradual release model by using the program resources from both a student and teacher perspective.

Follow-Up

Choose from the following topics.
Topics are 90 minutes in length, but can be condensed to 60 minutes or extended to 2 hours.

Format: In-Person Full Day, 2-hour webinar, or webinar bundle

- Into Math: Create an Effective Learning Environment
- Into Math: Maximize Learning with the Digital Resources
- Into Math: Plan Effective Math Learning Experiences
- Into Math: Leverage Data and Reporting Tools to Accelerate Growth
- Into Math: Make Math Accessible for ALL Learners through Differentiation
- Into Math: Teach the Language of Mathematics to Support English Learners
- Into Math: Explore the 8 Effective Mathematics Teaching Practices
Getting Started with GO Math!®

Target Audience: Leaders and Teachers
Grades: K–5, 6–8
Format: In-Person (Full-Day, Half-Day) or Live Webinar

OVERVIEW
GO Math! is flexible and has parallel print and digital pathways. No matter what the technology situation is in your classroom, GO Math! has an abundance of resources to keep students engaged and on track. Learn about them in this introductory course.

Follow-Up

Choose from the following topics.
Topics are 90 minutes in length, but can be condensed to 60 minutes or extended to 2 hours.

Format: In-Person Full Day, 2-hour webinar, or webinar bundle

- Go Math!: Create an Effective Learning Environment
- Go Math!: Maximize Learning with the Digital Resources
- Go Math!: Plan Effective Math Learning Experiences
- Go Math!: Leverage Data and Reporting Tools to Accelerate Growth
- Go Math!: Make Math Accessible for ALL Learners through Differentiation
- Go Math!: Teach the Language of Mathematics to Support English Learners
- Go Math!: Explore the 8 Effective Mathematics Teaching Practices
Getting Started with Saxon Math™

Target Audience: Leaders and Teachers
Grades: K–5, 6–8
Format: In-Person (Full-Day, Half-Day) or Live Webinar

OVERVIEW
In this introductory course, participants engage in a variety of hands-on activities to learn about program organization and design. Through direct instruction and guided practice, participants will also experience program resources both from a student and teacher perspective.

OUTCOMES
- Build understanding and confidence to ensure a strong implementation.
- Support differentiation, assessment, and effective whole- and small-group instruction using HMH program resources and instructional tools.
- Enhance instructional delivery and student learning using HMH technology.

1. Power up
Focuses on reinforcing and building foundational skills, mental math, and problem-solving strategies.

2. New Concepts
Introduces new material with hands-on activities, concise explanations, and meaningful discussion.

3. Written Practice
Gives students the opportunity to review, maintain, and build on concepts and skills.
Getting Started with *Math Expressions*

**Target Audience:** Leaders and Teachers  
**Grades:** Pre-K–6  
**Format:** In-Person (Full-Day, Half-Day) or Live Webinar

**OVERVIEW**

*Math Expressions* combines elements of standards-based instruction with the best traditional approaches. Through drawings, conceptual language, and real-world examples, it helps students make sense of mathematics. National Science Foundation (NSF) funded and research-based, *Math Expressions* is proven to be effective in raising student achievement. Put your students on the path to becoming lifelong learners—and lovers—of all things math and get started with your implementation in this introductory course.

**Follow-Up**

Choose from the following topics.  
Topics are 90 minutes in length, but can be condensed to 60 minutes or extended to 2 hours.

**Format:** In-Person Full Day, 2-hour webinar, or webinar bundle

- Plan effective Math Expressions lessons.  
- Differentiate Math Expressions instruction using the HMH Player®.  
- Personalize and adapt student learning with the Personal Math Trainer®.
Getting Started with Math in Focus®

**Target Audience:** Leaders and Teachers  
**Grades:** K–8  
**Format:** In-Person (Full-Day, Half-Day) or Live Webinar

**OVERVIEW**
During this course, participants gain an understanding of lesson structure, problem-solving strategies, and the Math in Focus trajectory. Special attention is paid to how students learn and the role of the teacher in Math in Focus.

In addition to investigating specific grade-level content, teachers are introduced to key program components and gain an understanding of how carefully sequenced and paced instruction enhances students’ math achievement. Finally, teachers examine the available technology and explore ways to implement these important resources to support transition and enhance instruction.
Follow-Up

FLEXIBLE INSTRUCTIONAL TOPICS DESIGNED TO SUSTAIN YOUR IMPLEMENTATION
They are designed to be 90 minutes in length and can be condensed to 60 minutes or expanded to 120 minutes. They can be delivered In-Person or in a live webinar format.

- Plan Effectively
- Maximize Learning with Digital Resources
- Leverage Assessment Data to Accelerate Student Growth
- Engage and Empower Diverse Learners in Math

Most Popular!

Move Students from Understanding to Mastery using the Singaporean Math Approach
To deepen understanding and build confidence in facilitating learning experiences using the Singapore Math® approach, participants engage in hands-on activities that simulate what students encounter in the classroom.

Stimulate Student Thinking through Problem Solving and Discourse
During this session, participants will investigate what it means to teach for, about, and through problem-solving. Participants uncover the significant role of discourse in mathematical thinking and sense-making and how to utilize program features to encourage student voice.

“Math Solutions, in general, is making the teaching of math more accessible—helping teachers use their tools wisely by evaluating the learning situation in front of them.”

—Valerie Samn
Math Coach, New York

Singapore Math® is a trademark owned by Singapore Math Inc. and Marshall Cavendish Education Pte. Ltd.
**Getting Started with Into AGA™**

**Target Audience:** Leaders and Teachers  
**Grades:** 9–12  
**Format:** In-Person (Full-Day, Half-Day) or Live Webinar

**OVERVIEW**  
Through insightful, data-driven assessments and professional learning opportunities that can be tailored to any teacher’s preference, Into AGA invests in you.

This introductory Getting Started Course focuses on developing deeper understanding of concepts and procedural fluency.

**Follow-Up**

**Choose from the following topics.**  
Topics are 90 minutes in length, but can be condensed to 60 minutes or extended to 2 hours.

**Format:** In-Person Full Day, 2-hour webinar, or webinar bundle

- **Into AGA:** Create an Effective Learning Environment  
- **Into AGA:** Maximize Learning with the Digital Resources  
- **Into AGA:** Plan Effective Math Learning Experiences  
- **Into AGA:** Leverage Data and Reporting Tools to Accelerate Growth  
- **Into AGA:** Make Math Accessible for ALL Learners through Differentiation  
- **Into AGA:** Teach the Language of Mathematics to Support English Learners  
- **Into AGA:** Explore the 8 Effective Mathematics Teaching Practices
Getting Started with *HMH AGA* & *Integrated Mathematics 1, 2, 3*

**TARGET AUDIENCE:** Leaders and Teachers  
**GRADES:** 9–12  
**FORMAT:** In-Person (Full-Day, Half-Day) or Live Webinar

**OVERVIEW**
Teachers engage in a variety of hands-on experiences to learn about program organization, design, and resources. Through direct instruction, guided practice, and cooperative exploration, teachers experience *HMH AGA* and *Integrated Math 1, 2, 3* resources both from a student and teacher perspective.

**OUTCOMES**
- Enrich daily instruction by applying knowledge of program organization and pedagogy.
- Support differentiation, assessment, and effective whole- and small-group instruction using *HMH AGA* and *Integrated Math 1, 2, 3* resources and instructional tools.
- Enhance instructional delivery and student learning using HMH technology.

“We were amazed at the professionalism, knowledge, and way each one delivered the services. We could not be happier.”

—Tara Nichols  
Director of Instruction, Mesquite School District, TX
Getting Started with *HMH Science Dimensions*®

**Target Audience:** Leaders and Teachers  
**Grades:** K–5, 6–8  
**Format:** In-Person (Full-Day, Half-Day) or Live Webinar

**OVERVIEW**
In this introductory course, participants engage in a variety of hands-on activities to learn about program organization and design. Through direct instruction and guided practice, participants will also experience program resources both from a student and teacher perspective.

**OUTCOMES**
- Build understanding and confidence to ensure a strong implementation.
- Support differentiation, assessment, and effective whole- and small-group instruction using HMH program resources and instructional tools.
- Enhance instructional delivery and student learning using HMH technology.

Follow-Up

**Choose from the following topics.**
Topics are 90 minutes in length, but can be condensed to 60 minutes or extended to 2 hours.

**Format:** In-Person Full Day, 2-hour webinar, or webinar bundle

- Make Science Assessable for all Learners
- Maximize Learning with Digital Resources
- Plan Effective Science Learning Experiences
- Integrate Meaningful STEM Experiences
- Build Literacy and Science Content Knowledge
Getting Started with *Science Fusion*®

**Target Audience:** Leaders and Teachers  
**Grades:** K–5, 6–8  
**Format:** In-Person (Full-Day, Half-Day) or Live Webinar

**OVERVIEW**
In this introductory course, participants engage in a variety of hands-on activities to learn about program organization and design. Through direct instruction and guided practice, participants will also experience program resources both from a student and teacher perspective.

**OUTCOMES**
- Build understanding and confidence to ensure a strong implementation.  
- Support differentiation, assessment, and effective whole- and small-group instruction using HMH program resources and instructional tools.  
- Enhance instructional delivery and student learning using HMH technology.

**Follow-Up**

**Choose from the following topics.**
Topics are 90 minutes in length, but can be condensed to 60 minutes or extended to 2 hours.

**Format:** In-Person Full Day, 2-hour webinar, or webinar bundle

- Make Science Assessable for all Learners  
- Maximize Learning with Digital Resources  
- Plan Effective Science Learning Experiences  
- Integrate Meaningful STEM Experiences  
- Build Literacy and Science Content Knowledge

Videos that feature our consulting authors who guide you through the key approaches to ensuring NGSS success.
Moment by moment each student builds his or her own learning journey. Watch Olvin’s journey take shape.

hmhco.com/math180
Initial Implementation Support and Follow-Up for Supplemental Intervention Solutions

For students who need extra support, targeted intervention accelerates math achievement using explicit instruction and growth mindset strategies.

We offer personalized learning to help all students accelerate achievement and prepare for success.
Getting Started with *Do The Math*®

**Target Audience:** Leaders and Teachers  
**Grades:** K–5  
**Format:** In-Person (Full-Day, Half-Day) or Live Webinar

**OVERVIEW**

This professional learning develops teachers’ understanding of the *Do The Math* methodology and how it supports students who are below grade level in math. Teachers learn how to support the development of whole-number and fraction proficiency for struggling students. Teachers consider what it means to provide intervention instruction as they spend time exploring the program and planning for their first week of instruction.

**OUTCOMES**

- *Do The Math* Getting Started professional learning is designed to help teachers:
  - Develop an understanding of the *Do The Math* program design and how it supports struggling students
  - Investigate the print and digital resources of *Do The Math* for the purpose of effectively implementing the program

Follow Up

*Do The Math: Addition and Subtraction*

**Format:** In-Person (Full-Day)

**OVERVIEW**

This course deepens participants’ understanding of addition and subtraction concepts and the *Do The Math* methodology. Participants gain familiarity with lessons and increase their confidence in the use of the eight instructional principles. They explore the Instructional Practices Inventory and consider how it can elevate instructional decisions.

**OUTCOMES**

- Articulate key concepts and strategies from the addition and subtraction modules.
- Support students’ ability to make sense of addition and subtraction concepts, solve problems, reason, and use appropriate tools.
- Make learning experiences accessible to all students without compromising the rigor in the lessons.
- Utilize the Instructional Practices Inventory to reflect on effective *Do The Math*
Do The Math: Multiplication

Format: In-Person (Full-Day)

OVERVIEW
This course deepens participants’ understanding of multiplication and the Do The Math methodology. Participants gain familiarity with the mathematical content of the modules and increase their confidence in the use of the eight instructional principles. They explore the Instructional Practices Inventory and consider how it can elevate instructional decisions.

OUTCOMES
- Articulate key concepts and strategies from the multiplication modules.
- Support students’ ability to make sense of multiplication concepts, solve problems, reason, and use designated strategies.
- Make learning experiences accessible to all students without compromising the rigor in the lessons.
- Utilize the Instructional Practices Inventory to reflect on effective Do The Math instruction.

Do The Math: Division

Format: In-Person (Full-Day)

OVERVIEW
This course prepares participants to develop students’ essential understanding of division, and strengthens their own number sense. Participants gain confidence in the progression of learning in the modules and value the importance of fidelity to the program. They explore the Instructional Practices Inventory and consider how it can elevate their instructional decisions.

OUTCOMES
- Articulate key concepts and strategies from the division modules.
- Support students’ ability to make sense of division concepts, solve problems, reason, and use designated strategies.
- Make learning experiences accessible to all students without compromising the rigor in the lessons.

Do The Math: Fraction

Format: In-Person (Full-Day)

OVERVIEW
This course prepares participants to develop students’ essential understanding of fractions, and strengthens their own fraction sense and ability to meaningfully compare, add, and subtract fractions. Participants gain confidence in the progression of learning in the modules and value the importance of fidelity to the program. They explore the Instructional Practices Inventory and consider how it can elevate their instructional decisions.

OUTCOMES
- Articulate key concepts and strategies from the fraction modules.
- Use designated strategies to support students’ ability to reason and make sense of essential fraction understandings.
- Make learning experiences accessible to all students without compromising the rigor in the lessons.
Getting Started with MATH 180

Course I

Target Audience: Leaders and Teachers
Grades: 5–12
Format: In-Person (Two-Day) or Webinar

OVERVIEW
This course is designed to help teachers consider how MATH 180 prepares students to meet rigorous college and career readiness standards. Teachers understand the MATH 180 Instructional Model from the teacher’s and student’s perspective looking closely at the role of classroom discourse to support learning of mathematics. Teachers discover how SAM Central supports teaching, planning, and progress monitoring. They interpret MATH 180 progress, performance, and assessment data to inform instruction and prepare for the first six weeks with MATH 180.

Getting Started with MATH 180

Course II

Format: In-Person (Two-Day) or Webinar

OVERVIEW
This two-day course helps teachers gain a deeper understanding of instructional strategies and underlying mathematics content embedded in MATH 180 Course II. Teachers learn alternative teaching approaches that engage and motivate struggling students, pace students for success, and bolster their confidence and competence. Teachers learn how to use the dynamic software of MATH 180 and progress monitoring to make informed choices about the instruction as they plan for the first six weeks.

OUTCOMES

MATH 180 professional learning is designed to help teachers:
- Understand the research behind MATH 180.
- Learn how State Standards and assessments impact teaching, curriculum, and learning.
- Experience the MATH 180 Instructional Model from the student’s perspective.
- Explain and use the role of talk to support learning of mathematics.
- Use SAM™ Central to support teaching, planning, and progress monitoring.
- Interpret MATH 180 progress, performance, and assessment data to inform instruction.
- Prepare for the first two weeks with MATH 180.
**Follow-Up**

### Exploring Content, Tools, and Strategies in MATH 180

**Format:** In-Person (Two-Day)

**OVERVIEW**
This MATH 180 course uses models, tools, and alternative strategies to help students understand content and communicate their learning. This course provides the opportunity for collaboration between MATH 180 teachers and core teachers as they focus on mathematical content using the tools and strategies introduced in MATH 180. Explicit connections between core content and MATH 180 content promote instructional practices that impact student learning.

### Data & Differentiation

**Format:** In-Person (Full-Day)

**OVERVIEW**
This professional learning option is designed to help teachers understand how both the learning environment and classroom culture impact the differentiated mathematics classroom. They review and interpret progress, performance, and assessment data of their current MATH 180 students to make instructional decisions that meet the needs of all students.

### Classroom Discourse

**Format:** In-Person (Full-Day)

**OVERVIEW**
During this professional learning day, participants take a deeper look at the high-leverage teaching practices that improve classroom discourse. Teachers identify strategies that can help even the most reluctant learner to communicate mathematically and discover how the MATH 180 instructional routines support classroom discourse.

### OUTCOMES
- Identify common misconceptions and errors in students’ mathematical thinking.
- Demonstrate knowledge of MATH 180 models, tools, and alternative strategies.
- Enhance classroom discourse in the MATH 180 classroom.
- Use instructional strategies that exemplify process standards and support students’ understanding.
- Connect the foundational math content and representations of MATH 180 to middle school core content.
Getting Started with **FASTT Math**

**Target Audience:** Leaders and Teachers  
**Grades:** K–5, 6–8  
**Format:** In-Person (Full-Day, Half-Day) or Live Webinar

**OVERVIEW**  
In this introductory course, participants engage in a variety of hands-on activities to learn about program organization and design. Through direct instruction and guided practice, participants will also experience program resources both from a student and teacher perspective.

**OUTCOMES**  
- Build understanding and confidence to ensure a strong implementation.  
- Support differentiation, assessment, and effective whole- and small-group instruction using HMH program resources and instructional tools.  
- Enhance instructional delivery and student learning using HMH technology.

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Getting Started with **Fraction Nation**

**Target Audience:** Leaders and Teachers  
**Grades:** K-5, 6-8  
**Format:** In-Person (Full-Day, Half-Day) or Live Webinar

**OVERVIEW**  
In this introductory course, participants engage in a variety of hands-on activities to learn about program organization and design. Through direct instruction and guided practice, participants will also experience program resources both from a student and teacher perspective.

**OUTCOMES**  
- Build understanding and confidence to ensure a strong implementation.  
- Support differentiation, assessment, and effective whole- and small-group instruction using HMH program resources and instructional tools.  
- Enhance instructional delivery and student learning using HMH technology.
Getting Started with Math Reads®

**OUTCOMES**
- Build understanding and confidence to ensure a strong implementation.
- Support differentiation, assessment, and effective whole- and small-group instruction using HMH program resources and instructional tools.
- Enhance instructional delivery and student learning using HMH technology.

**OVERVIEW**
In this introductory course, participants engage in a variety of hands-on activities to learn about program organization and design. Through direct instruction and guided practice, participants will also experience program resources both from a student and teacher perspective.

**Target Audience:** Leaders and Teachers  
**Grades:** K–5, 6–8  
**Format:** In-Person (Full-Day, Half-Day) or Live Webinar

Getting Started Math Inventory™

**OUTCOMES**
- Build understanding and confidence to ensure a strong implementation.
- Support differentiation, assessment, and effective whole- and small-group instruction using HMH program resources and instructional tools.
- Enhance instructional delivery and student learning using HMH technology.

**OVERVIEW**
In this introductory course, participants engage in a variety of hands-on activities to learn about program organization and design. Through direct instruction and guided practice, participants will also experience program resources both from a student and teacher perspective.

**Target Audience:** Leaders and Teachers  
**Grades:** K–5, 6–8  
**Format:** In-Person (Full-Day, Half-Day) or Live Webinar
Coaching for Individuals and Teams

Coaches from HMH do not use a one-size-fits-all approach. They know you have individual and team goals and they also know your time is valuable.

Meet with an HMH coach in-person, online, or a combination of both and stay connected with them and your colleagues with the Coaching Studio. Using a blended approach, our professional learning creates an experience that is flexible, collaborative, sustainable, and personalized to your needs. Your goals are our focus.

**INDIVIDUAL COACHING**
With individual coaching, educators work side by side, which enables them to integrate new skills immediately into their practice.

**TEAM COACHING**
Team coaching builds a community of learners through collaboration and fosters a culture of achievement in a group setting. It is the fastest way to synchronize your teams across grade levels, share experience and expertise, and collaborate on plans and protocols.

**BLENDED COACHING**
For individuals and teams includes in-person and online coaching, sessions and utilizes the Coaching Studio platform to provide teachers with an ongoing and personalized coaching experience.
COACHING SERVICES PROVIDE:

- Model lessons to illustrate instructional techniques
- Support for implementing effective teaching practices
- Differentiation strategies to meet the needs of all students
- Focus on developing and deepening math content knowledge
- Analysis of student work samples to assess learning and determine instructional next steps
- Leadership strategies for innovation and instructional change
- Facilitation of professional learning communities, cadres, and collaborative planning

Coaching Studio

Coaching Studio is the platform where you’ll continue your progress and stay connected with your HMH coach and your colleagues.
Monitor Progress

Monitoring and assessing progress during implementation allows you to make adjustments in your professional learning plan and provides accountability for your investment with data and reporting.

Deepen Learning

Math Solutions provides content courses designed to explain math content by grade level necessary for growth on assessments, and instructional strategy courses that support all learning, providing the tools that every teacher can bring into their classroom.
OUTCOMES

- Articulate key aspects of the standards for number and operations and algebraic reasoning for Grades K–5.
- Consider instructional shifts needed to foster the depth of understanding communicated in current standards.
- Describe the interconnectedness of place value and the base-ten number system to operations and algebraic thinking.
- Characterize teaching strategies that exemplify mathematical processes.
- Implement instructional strategies including the use of classroom discussions, small-group work, and the use of concrete materials and contexts to support students’ learning.

This three-day course focuses on Number and Operations in Base Ten, for students in Grades K–5. The emphasis of this course is on developing a foundation of understanding of multiplication and division, and on extending understanding of place value with whole numbers to decimals. Experiences and discussions help participants discern the role of place-value understanding and properties of operations.

Number & Operations—
Base Ten

Target Audience: Math Coaches, Teacher Leaders, Teachers
Grades: K–2, 3–5
Format: Three Day | Additional Options May Be Available

This three-day course focuses on Number and Operations in Base Ten, for students in Grades K–5. The emphasis of this course is on developing a foundation of understanding of multiplication and division, and on extending understanding of place value with whole numbers to decimals. Experiences and discussions help participants discern the role of place-value understanding and properties of operations.

Ratios &
Proportional Relationships

Target Audience: Math Coaches, Teacher Leaders, Teachers
Grades: 6–8
Format: Two Day | Additional Options May Be Available

This two-day course explores proportionality, proportional relationships, and proportional reasoning, acknowledging that the ability to reason proportionally is at the forefront of the middle school mathematics curriculum. The course supports teachers with strategies to help make this content accessible to all students.
**Geometry—Elementary School**

**Target Audience:** Math Coaches, Teacher Leaders, Teachers  
**Grades:** K–5  
**Format:** Two Day

This course focuses on content from the strand of Geometry and Measurement. Participants gain an understanding of the levels of geometric thinking, the important measurement decisions students need opportunities to make, and types of learning experiences that promote rigorous thinking.

**OUTCOMES**

- Formulate questions that promote rigorous thinking.
- Select problem-solving activities that develop students’ skills in geometry and geometric measurement.
- Incorporate effective strategies for teaching mathematics vocabulary into lessons.

**Geometry—Middle School**

**Target Audience:** Teachers  
**Grades:** 6–8  
**Format:** Two Day

This course focuses on strategies and tools that build on students’ thinking and spatial reasoning skills developed in elementary school. Teachers gain an understanding of levels of geometric thinking and the types of learning experiences that promote rigorous thinking. Specific attention is paid to area, surface area, volume, congruence, the Pythagorean theorem, coordinate geometry, and transformations.

**OUTCOMES**

- Analyze problem-solving activities that deepen understanding and develop participants’ skills in geometry, geometric measurement, and informal proof.
- Apply an understanding of the Van Hiele levels of geometric thought to lesson design choices.
- Challenge participants with rigorous math problems that require the habits of mind called for in the Standards for Mathematical Practice.

**Geometry—High School**

**Target Audience:** Math Coaches, Teacher Leaders, Teachers  
**Grades:** 9–12  
**Format:** Two Day

This course focuses on geometry experiences that formalize high school students’ geometry work in elementary and middle school by utilizing more precise definitions and developing careful proofs. During the course participants engage in activities devoted to plane Euclidean geometry, both synthetically (without coordinates) and analytically (with coordinates).

**OUTCOMES**

- Apply a fundamental understanding of standards in the conceptual category of Geometry to implement effective tasks.
- Integrate effective instructional strategies such as the use of classroom discourse, real-world applications, and appropriate tools to facilitate the learning of all students.
Expressions, Equations, and Functions

**Target Audience:** Math Coaches, Teacher Leaders, Teachers  
**Grades:** 6–8  
**Format:** Two Day

This course focuses on how students develop algebraic reasoning and an understanding of the different representations for functions. Teachers and coaches explore the progression of middle school content that develops an understanding of expressions, equations, and functions and prepares students for success in high school and beyond.

**OUTCOMES**
- Engage with current state standards that address expressions, equations, and functions.
- Analyze problem-solving activities that develop students’ skills in these areas.
- Design problem-solving lessons that address expressions, equations, and functions focus standards.
- Integrate effective instructional strategies to facilitate the learning of all students.
- Challenge students with rigorous math problems that require habits of mathematical thinking called for in current state standards.

Algebra and Functions—High School

**Target Audience:** Math Coaches, Teacher Leaders, Teachers  
**Grades:** 9–12  
**Format:** Two Day | Additional Options May Be Available

This two-day course focuses on the conceptual aspects of algebra and functions for students in high school, with an emphasis on strategies and tools to help leverage students’ ways of thinking so they can approach any type of function, work with it, and understand how it behaves.

**OUTCOMES**
- Apply a fundamental understanding of standards addressing algebra and functions to implement effective tasks.
- Integrate effective instructional strategies such as the use of classroom discourse, real-world applications, and multiple representations to facilitate the learning of all students.
- Challenge students with rigorous math problems that require the habits of mind called for in current state standards.
- Identify purposeful ways to organize the classroom—whole-class, small-group, and individual learning—to maximize the learning of all students.
### Instructional Strategies

#### Math Workshop: Structures and Practices for Student Learning

- **Target Audience:** Curriculum Directors/Specialists, Math Coaches, Teacher Leaders, Teachers, Principals
- **Grades:** K–5
- **Format:** Two Day | Additional Options May Be Available

Standards and student needs drive mathematics instruction. This course highlights Math Workshop, a model for organizing standards-based instruction to support all learners in the mathematics classroom. Participants engage in the Math Workshop model of instruction, reflect on how the structures and learning environment leverage increased learning for all students, and create a plan to implement Math Workshop in the classroom.

#### English Learners in Math

- **Target Audience:** Curriculum Directors/Specialists, Math Coaches, Teacher Leaders, Teachers, Principals
- **Grades:** K–8
- **Format:** Full Day | Additional Options May Be Available

English learners need ongoing and explicit language instruction to access mathematical content. This course focuses on the types of support needed for English learners to be successful in mathematics. Participants gain the understanding and skills required to design lessons that increase English proficiency while simultaneously developing mathematical understanding as they analyze lessons designed for English learners. As the sessions build, participants learn how to use, and experience the benefits of, a lesson design process that supports differentiation for the varied levels of English learners in classrooms.
Instructional Strategies

Number Talks: Whole Number Computation

**Target Audience:** Math Coaches, Teacher Leaders, Teachers  
**Grades:** K–2, K–5, 3–5  
**Format:** Full Day

This one-day course introduces teachers, math coaches, and curriculum specialists to the theory, structure, and focus of number talks. As participants interact throughout the day, they reflect on their current practices and target essential understandings about numbers and operations called for in their state standards.

OUTCOMES

- Recognize number talks as a valuable classroom routine for making sense of mathematics, developing efficient computation strategies, communicating reasoning, and proving solutions.
- Characterize the key components of number talks and understand the importance of each.
- Recognize and support students’ development of common strategies for addition and subtraction.
- Describe student strategies that emphasize the important mathematical ideas inherent in the strategies.
- Use models and tools that support student understanding and proficiencies with whole-number operations.

Number Talks: Fractions, Decimals, and Percentages

**Target Audience:** Math Coaches, Teacher Leaders, Teachers  
**Grades:** 3–5, 6–7  
**Format:** One Day | Additional Options May Be Available

This full-day course focuses on number talks that build conceptual understanding of fractions, decimals, and percentages. Participants learn how to use this routine as a vehicle to focus on the essential understandings of rational numbers and develop a robust fluency.

OUTCOMES

- Facilitate number talks to draw attention to student thinking and bring their reasoning to the forefront of the class.
- Shift instruction about rational numbers from procedure- and rule-based toward sensemaking and understanding.
- Highlight contexts and models during number talks to develop and anchor flexible and efficient strategies for reasoning and computing with rational numbers.
Differentiating Mathematics Instruction

Target Audience: Math Coaches, Teacher Leaders, Teachers
Grades: K–2, K–5, K–8, 3–5, 6–8
Format: Two Day

This course helps teachers understand what it means to support all students by differentiating three aspects of the math curriculum—content, process, and product. Teachers examine a variety of approaches that help them make instructional adjustments to content, provide activities that accommodate different students’ learning styles, and offer a variety of ways for students to demonstrate what they’ve learned.

Teaching Preschool and Kindergarten Math

Target Audience: Math Coaches, Teacher Leaders, Teachers
Grades: PreK–K
Format: Four Day | Additional Options May Be Available

This course offers teachers of young children hands-on experiences with instructional strategies that promote thinking and reasoning. Video clips are used to bring teachers into the young child’s classroom to see students grapple with counting and building and dealing with data. Participants have multiple and varied opportunities to consider instructional decisions, differentiation, and assessment.

OUTCOMES

● Experience and analyze strategies to adapt classroom practices to address the wide range of learners in classrooms and make learning accessible for all students.
● Gather and use information about what students already know, their interests, and how they learn best.
● Choose, analyze, and adjust tasks to accommodate students’ varying levels of readiness.
● Experience a classroom atmosphere that stimulates and supports learning of mathematics.

OUTCOMES

● Strengthen math content and pedagogical knowledge to make math accessible to all students.
● Increase understanding of how young children learn mathematics.
● Identify ways to develop students’ number sense and flexibility around numerical reasoning.
● Implement instructional strategies that promote thinking, reasoning, and sense making.
● Appreciate and delight in working with young children as they build foundations in number.
Developing Number Sense

**Target Audience:** Math Coaches, Teacher Leaders, Teachers  
**Grades:** K–5  
**Format:** One Day | Additional Options May Be Available.

Number sense is a broad concept that covers a range of numerical thinking. This course helps teachers gain an understanding of what number sense is, why it is important, and what strategies they can use to help promote their students’ number sense. Through firsthand experiences, teachers explore their own number sense and are introduced to instructional approaches that promote thinking and communicating about numbers. Samples of student work help connect course investigations to teachers’ classroom needs.

Supporting Students Who Struggle with Mathematics

**Target Audience:** Math Coaches, Teacher Leaders, Teachers  
**Grades:** K–2, K–5, K–8, 3–5, 6–8  
**Format:** Three Day | Additional Options May Be Available

Offers guidance to classroom teachers, special educators, and math specialists in understanding and supporting children who struggle with mathematics. The struggles that children encounter may be the result of cognitive learning challenges, background and experience, or previous instruction. The approach in this course is to use a framework of assessments to understand student thinking and to examine and choose instructional strategies to help struggling students be successful in the regular mathematics classroom.

OUTCOMES

- Strengthen math content and pedagogical knowledge for the purpose of making math accessible to all students.
- Understand how students learn mathematics.
- Identify ways to develop students’ sense of number, which enables them to become flexible in their ability to reason numerically.

OUTCOMES

- Broaden perspectives about students who have difficulties with mathematics.
- Provide a sequential system of assessment to identify struggling students and understand their difficulties.
- Incorporate instructional strategies that promote student confidence and understanding in mathematics.
Teaching Math through Problem Solving

**Target Audience:** Math Coaches, Teacher Leaders, Teachers

**Grades:** K–5, 6–8

**Format:** One Day. Additional Options May Be Available

This full-day course provides teachers with a firsthand experience of learning mathematics through problem solving. Through this experience, participants are introduced to approaches and strategies to help students build new mathematical knowledge and use a range of problem-solving strategies. Throughout the course, teachers experience and learn how to provide a classroom environment that encourages students to explore, take risks, and share their thinking.

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OUTCOMES

- Characterize problem-solving experiences that require mathematical reasoning and communication of that reasoning.
- Understand how current state standards impact teaching, curriculum, and learning in mathematics.
- Implement instructional strategies to support student learning as called for in state standards.
- Use strategies to help all students deepen and communicate their mathematical reasoning.

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Using Formative Assessment to Impact Student Learning—6–12*

**Target Audience:** Math Coaches, Teacher Leaders, Teachers

**Grades:** 6–8, 9–12

**Format:** Two Day | Additional Options May be Available

Based on Math Solutions’ experience with the Gates Foundation Mathematics Design Collaborative, this course helps high school teachers engage students in the rigorous mathematics called for in the Common Core State Standards. Using formative assessment lessons, produced by the Shell Centre in England and the University of California at Berkeley, participants extend and apply a fundamental understanding of formative assessment for the purpose of promoting student learning.

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OUTCOMES

- Shift classroom culture to one in which students take responsibility for their own work and teachers prompt students to reflect and reason through their ideas.
- Conduct classroom dialogue in ways that support students’ mathematical thinking.
- Provide feedback that promotes understanding and supports students’ metacognition about the quality of their arguments.
- Formulate questions to extend students’ thinking.
- Select and use tasks for formative assessment that exemplify the Standards for Mathematical Practice.

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*Using Formative Assessment to Impact Student Learning—K–5 also available.*
Measure Results

From the initial Instructional Needs Assessment to implementation of the Professional Learning Plan, Math Solutions will help you identify areas of success and areas in need of improvement. This analysis and reporting (based on leader, teacher, and student data) helps you understand where you are in meeting your math achievement goals.
International Center for Leadership in Education

Driven by our belief that instruction must be rigorous and relevant for all students, we partner with schools and districts to make best practices and innovative approaches to instruction and leadership a reality in today’s classrooms.

Over the past two decades, the International Center for Leadership in Education® has been devoted to observing, studying, and supporting the transformation of the nation’s most rapidly improving schools.

Through years of extensive research, Founder and Chairman Bill Daggett concluded that the key to improving student performance is a tireless focus on providing rigorous and relevant instruction, and that every level of the education organization must be tightly aligned and carefully coordinated around that singular goal.

These conclusions are the basis for the frameworks and tools that guide our collaborations with districts, schools, and teachers.

Each year, over 5,000 educators come to the Model Schools Conference to share innovative ideas and best practices for developing the classrooms of the future. This four-day event brings together like-minded educators—teachers, leaders, and education visionaries—who are focused on raising the bar on instruction, revolutionizing school leadership, engaging students in real-world learning opportunities, and looking at emerging innovations in teaching and learning.
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Math Experts, Authors, and Consultants

**Matt Larson**
Dr. Matthew R. Larson is past-president of the National Council of Teachers of Mathematics and a Senior Fellow for Math Solutions. A prolific speaker and writer, he was a member of the writing teams for major publications including *Principles to Actions: Ensuring Mathematical Success for All* (2014) and *Catalyzing Change in High School Mathematics: Initiating Critical Conversations* (2018). Key areas of focus include access and equity and effective stakeholder communication.

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