

Inspire a Culture of Math Achievement

with Professional Learning for Grades PreK–12



Math Solutions
FOUNDED BY MARILYN BURNS

From Houghton Mifflin Harcourt.



INTRODUCTION



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 are the most important factors for raising student achievement.



Twitter

@mburnsmath



www.mathsolutions.com/about-us/marilyn-burns



Marilyn Burns Math Blog

Read about Marilyn's current thinking about math education and her ongoing classroom experiences and learning▶

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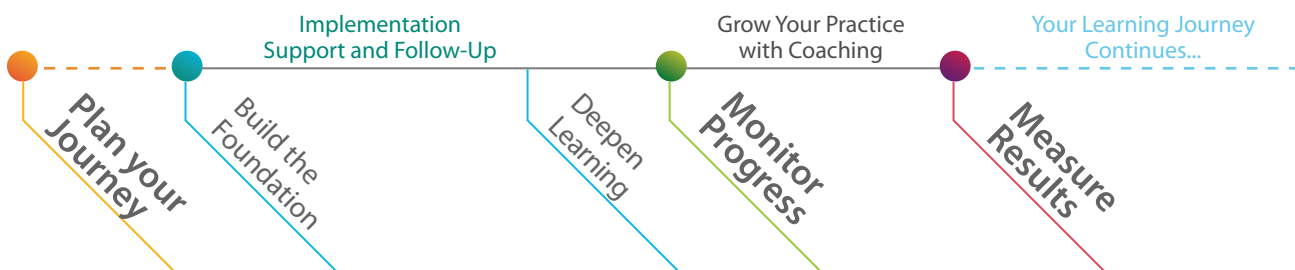
How We Inspire a Culture of Math Achievement

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.

All 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

We will 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

Courses are 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 focus on how to gain momentum in the first and second year of your implementation.

- Getting Started 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.
- Follow-Up provides additional guidance to deepen mastery, hone teaching skills, and build confidence when teaching the program.



Grow 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.



Deepen Learning

Content courses are designed to explain math content by grade level necessary for growth on assessments, and instructional strategy courses 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.



Measure Results and Ensure Sustainable Success

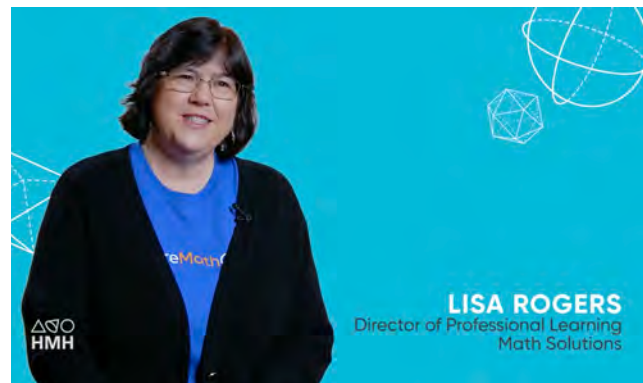
With data to measure and maintain performance, Math Solutions is the ultimate partner for long-term math achievement.

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** (IPI), 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.



Hear Lisa Rogers, Director of Professional Learning explain the impact of the IPI.

Math Solutions Instructional Practices Inventory



TEACHER	STUDENTS
Provides a respectful, safe learning environment in which mistakes are seen as an opportunity to learn.	Take an academic risk and rely on their own thinking and the thinking of other students.
Structures the class for independent work, pairs, groups, and whole class in a thoughtful and deliberate way.	Listen and ask questions to each other to clarify information; respectfully challenge ideas; make conjectures.
Asks questions that both build and reveal new understanding of content and practice. Avoids yes/no questions unless they also ask for justification.	Explain their reasoning; construct viable arguments and critique the reasoning of others.
Makes appropriate tools available and encourages their use.	Communicate using appropriate mathematical language both orally and in writing. Work well in a variety of grouping structures.



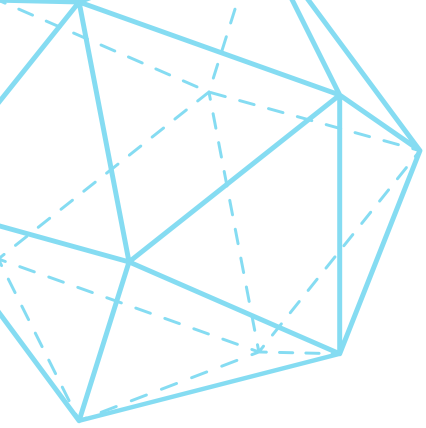
Selects rigorous learning experiences.	Persevere in making sense of rigorous problems.
Makes learning experiences accessible to all students without compromising the rigor in the problem.	Seek out multiple approaches to solving a problem.
Expects students to justify their reasoning for all answers, whether correct or incorrect.	Use multiple representations when solving problems, such as symbols, diagrams, graphs, words, etc.
Selects learning experiences that represent a balance of conceptual understanding and procedural fluency.	Understand math concepts and use procedures appropriately. Use appropriate tools strategically, including mental calculations, that fit the situation.



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.	Connect their current learning to previously learned standards.
Differentiates instruction based on student needs.	Use math to contextualize and/or decontextualize problems.
Selects problems that provide opportunities for students to contextualize and/or decontextualize.	Apply the math they know to solve real-world problems.
Selects problems that provide opportunities for students to apply math to real-world situations.	



Uses data to make instructional decisions based on student need.	Take responsibility for their learning by monitoring their progress toward a learning target.
Provides feedback to students or structures opportunities for students to provide feedback to each other.	Evaluate the reasonableness of their results using feedback from the teacher or a peer.
Identifies and communicates the learning target(s) of the lesson.	Articulate what they are learning and why.
Implements a variety of strategies to monitor student learning.	



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 – Pre-K–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.

DISTRICT PROFILE

Metro Status: Large City

Total Schools: 31

Grades: Kindergarten–Grade 12

Total Enrollment: 19,300 Students

Student Demographics:

■ EL Students: 1,289

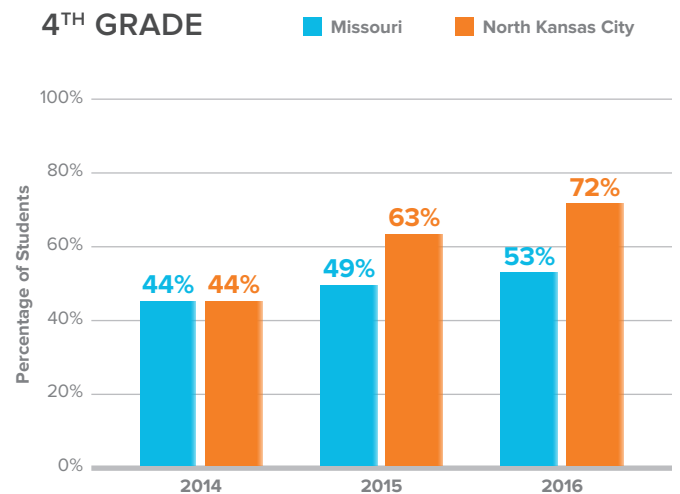
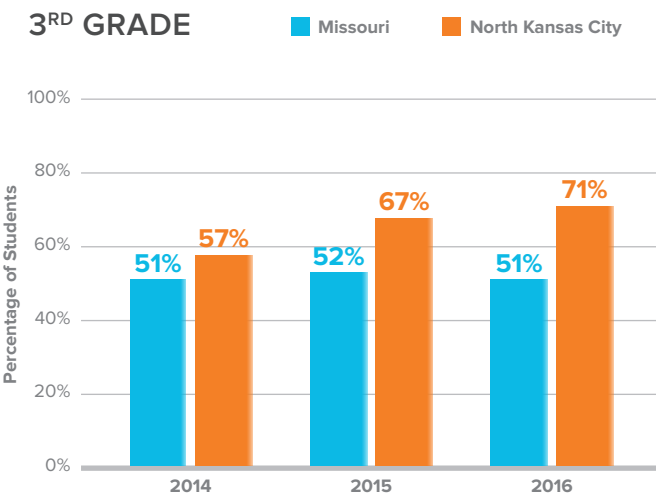
■ Students with IEPs: 1,687

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

Hear from other district partners here:
<https://mathsolutions.com/our-solutions/research-and-resources/case-studies/>





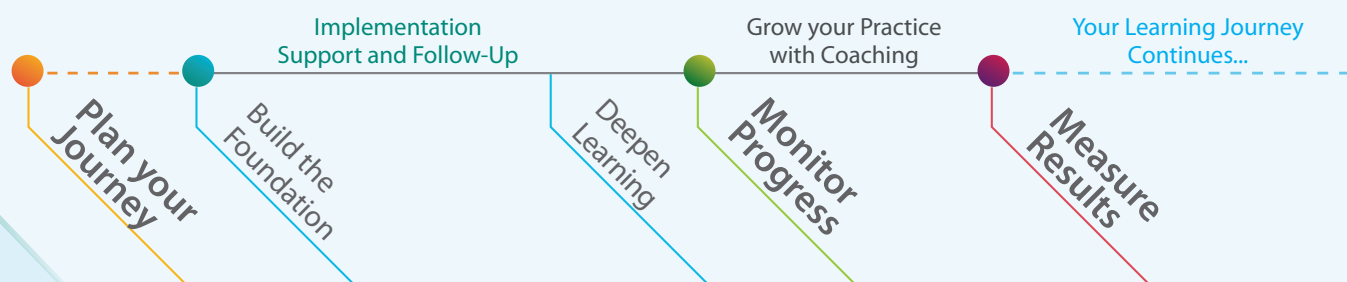
Assess and Address Immediate and Long-Term Needs

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

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:

Leadership12

This course is 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 Practices13

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:

Getting Started and Follow-Up21

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.

DEEPEN LEARNING:

Content Standards by Grade Level48

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..... 51

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

GROW YOUR PRACTICE

Coaching60

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



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.

*“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

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

For more professional learning resources visit store.mathsolutions.com.

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



Mathematical Thinking— Representation and Procedural Fluency

Target Audience: Math Coaches, Teacher Leaders, Teachers

Grades: K–2, 3–5, 6–8, 9–12

Format: Full Day

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

Problem Solving— Developing Disposition, Competence, and Confidence

Target Audience: Math Coaches, Teacher Leaders, Teachers

Grades: K–2, 3–5, 6–8, 9–12

Format: Full Day

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.



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.

*“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

Student-Centered Science: An Overview of the Next Generation Science Standards

Target Audience: Science Coaches, Teacher Leaders,
Teachers and Leaders

Grades: K–12

Format: 6-hour session or combine this with another topic in 2,
3-hour sessions.

The Next Generation Science Standards* (NGSS) open the door to more effective, student-centered science exploration. It also presents an opportunity for teachers to combine their tried and true instructional practices with the latest research on student success in the science classroom. In this session, you will explore Performance Expectations, Science and Engineering Practices, Disciplinary Core Ideas, and Crosscutting Concepts as they join forces to comprise the NGSS. Through an understanding of these dimensions of learning, coupled with collaboration around ways to increase student engagement, you will complete this session with an action plan that can be implemented in your classroom.

OUTCOMES

- Gain a deeper understanding of the design and organization of the science standards.
- Examine the three dimensions of science learning in the document (Science and Engineering Practices, Disciplinary Core Ideas, and Crosscutting Concepts).
- Identify strategies to increase student engagement in science.

Develop Scientific Thinking: Claims, Evidence, and Reasoning

Target Audience: Science Coaches, Teacher Leaders, Teachers
and Leaders

Grades: K–12

Format: 6-hour session or combine this with another topic in 2,
3-hour sessions.

In this course participants explore the Claim-Evidence-Reasoning-Rebuttal process and how it ties into the Three Dimensions of Learning. Through several engaging and interactive activities, participants analyze each part of Claim-Evidence-Reasoning-Rebuttal and identify examples and non-examples of CER while building and refining their own understanding of the CER process. Finally, participants discuss the use of CER to deepen student understanding in multiple curricular areas, find opportunities in their science curriculum for CER, and establish a plan for how they will implement CER with their students.

OUTCOMES

- Explain the Claim-Evidence-Reasoning-Rebuttal process and its importance with the scientific and engineering inquiry practices.
- Analyze the CER process by focusing on each part of Claim-Evidence-Reasoning-Rebuttal and identifying examples and non-examples of CER.
- Connect and apply principles of how students learn science to constructing a CER related to a scientific phenomenon.
- Identify where opportunities exist in your science curriculum for CER and establish a plan for how you will implement CER with your students.
- Relate the use of CER to benefit student understanding across the curriculum. (K–5).

Mathematical Practices

Science Is All Around You: Phenomenon-Based Learning

Target Audience: Science Coaches, Teacher Leaders,
Teachers and Leaders

Grades: K–12

Format: 6-hour session or combine this with another topic in 2,
3-hour sessions.

In this course, you will take part in learning experiences that introduce and explore the practice of phenomenon-based learning. Through experiential professional learning you will learn what constitutes phenomena, evaluate phenomena for alignment with your instructional goals, and incorporate anchor, investigative, and everyday phenomena in your instruction to engage and challenge student concept development.

OUTCOMES

- Explore the concept of phenomena and its role in the standards.
- Determine how different types of phenomena can be used in academically productive ways.
- Develop a practical classroom model for using phenomena to develop Disciplinary Core Ideas and Cross-Curricular Connections through application of the Science and Engineering Practices.
- Develop a plan for implementation of phenomena that are culturally relevant and accessible for all students.

Inspire Problem Solvers: Engineering Design Process

Target Audience: Science Coaches, Teacher Leaders,
Teachers and Leaders

Grades: K–12

Format: 6-hour session or combine this with another topic in 2,
3-hour sessions.

In this course, participants will explore the relationship between science and engineering, the roots of the Engineering Design Process (EDP), and how the EDP is used by many to design solutions to real-world problems. Participants will relate the EDP to a growth mindset and consider its application within science classrooms.

OUTCOMES

- Trace the evolution of problem-solving in the sciences, from the scientific method to the Engineering Design Process.
- Explore the steps of the EDP and discuss their interrelatedness.
- Discuss the role of the EDP in the standards and how it strengthens three-dimensional learning.
- Develop strategies for developing a school-wide emphasis on problem solving using the EDP.



Initial
Implementation
Support
and Follow-Up



Initial Implementation Support and Follow-Up

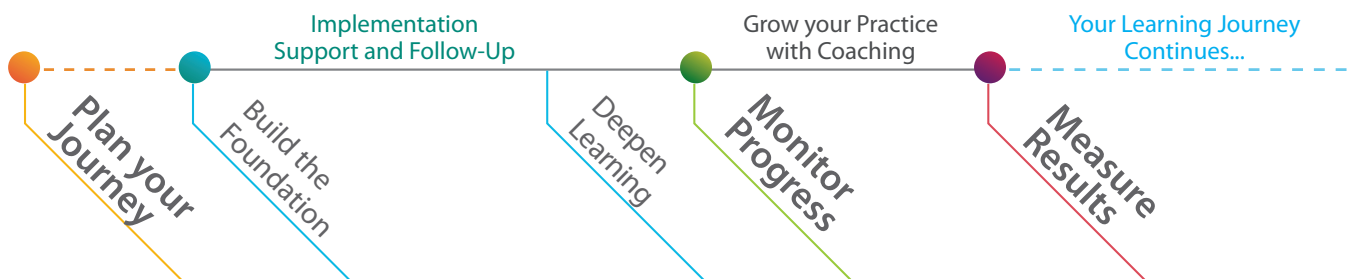
HMH math core and intervention programs focus on building student competency. We provide extensive professional learning services to help schools and districts implement with fidelity while building teachers' content knowledge and providing instructional strategies to enhance the effectiveness of the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

YOUR LEARNING JOURNEY WITH MATH SOLUTIONS





Getting Started Courses

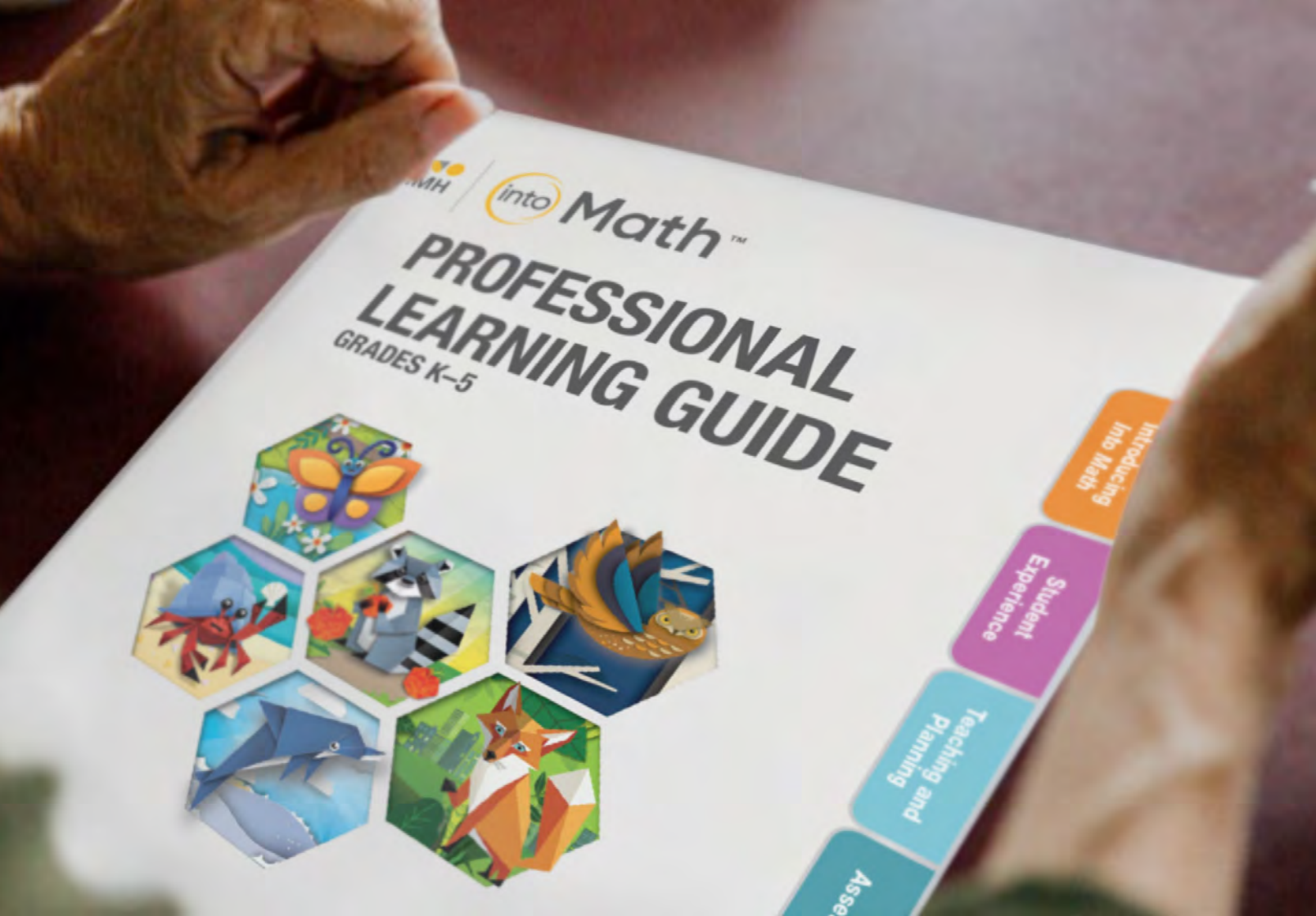
Build a Strong Foundation

In the foundational Getting Started courses, educators learn how to use their HMH programs in the context of lesson planning and classroom instruction. These interactive sessions allow participants to experience lessons Singapore Math® is a trademark owned by Singapore Math Inc. and Marshall Cavendish Education Pte. Ltd. digital resources into their instruction.

Each Getting Started course comes with a comprehensive Professional Learning Guide which provides even more support for:

- Instructional Routines
- The Student Experience
- Teaching and Planning
- Assessment





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. The guides complement the Teacher Editions (print or digital).

PRINT



DIGITAL



Getting Started Modules

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

IN-PERSON

DIGITAL



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.

IN-PERSON

DIGITAL



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.

IN-PERSON

DIGITAL



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.

IN-PERSON

DIGITAL





Follow-Up Sessions

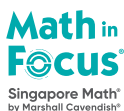
Deepen Your Knowledge and Skills

Follow-Up sessions build upon the foundational knowledge of Getting Started to help teachers take full advantage of their HMH program's components, assessment, differentiation, and digital tools in meeting the needs of their students. Topics are classroom-focused, hands-on, and offer opportunities to apply understanding. All HMH professional learning is available in person, online, or blended (in person + online).

Follow-Up sessions are modular and flexible, with topics and lengths designed to meet the needs of different groups of teachers within the same district and even within the same school. Sessions can range from 60 to 120 minutes for a single topic to a full day with multiple topics. Or multiple groups of teachers can explore just a few topics in a single day.

Some of the most-requested Follow-Up topics are:

- Create an Effective Learning Environment
- Make Math Accessible for All Learners through Differentiation
- Leverage Data and Reporting to Accelerate Growth
- Maximize Learnign with Digital Resources
- Plan Effective Math Learning Experiences
- Explore the Eight Effective Mathematics Teaching Practices
- Supporting English Learners in Mathematics



Follow-Up

Personalized Follow-Up sessions 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 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.

SUPPORTING ENGLISH LEARNERS IN MATHEMATICS

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

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

Coaching

Individual and team coaching is available in person, online, or blended to provide teachers with the support they need to positively impact students every day.

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

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

Coaching

Individual and team coaching is available in person, online, or blended to provide teachers with the support they need to positively impact students every day.

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.



Coaching

Individual and team coaching is available in person, online, or blended to provide teachers with the support they need to positively impact students every day.

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® Powered by Knewton™

Coaching

Individual and team coaching is available in person, online, or blended to provide teachers with the support they need to positively impact students every day.

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**

Coaching

Individual and team coaching is available in person, online, or blended to provide teachers with the support they need to positively impact students every day.

*“**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



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

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

Coaching

Individual and team coaching is available in person, online, or blended to provide teachers with the support they need to positively impact students every day.

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

Coaching

Individual and team coaching is available in person, online, or blended to provide teachers with the support they need to positively impact students every day.

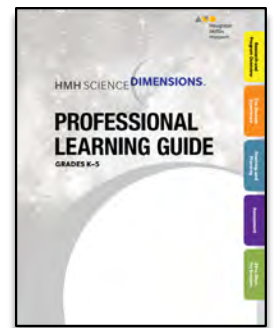


Getting Started with *HMH Science Dimensions*[®]

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

OUTCOMES

- 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

Coaching

Individual and team coaching is available in person, online, or blended to provide teachers with the support they need to positively impact students every day.

Getting Started with ScienceFusion®

Target Audience: Leaders and Teachers

Grades: K–5, 6–8

Format: In Person (Full Day, Half Day) or Live Webinar



Videos feature our consulting authors who guide you through the key approaches to ensuring NGSS success.

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

OUTCOMES

- 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

Coaching

Individual and team coaching is available in person, online, or blended to provide teachers with the support they need to positively impact students every day.



**SUPPLEMENTAL
and
INTERVENTION**

**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 and 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* instruction.

Coaching

Individual and team coaching is available in person, online, or blended to provide teachers with the support they need to positively impact students every day.

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*[®]

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*.

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 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:**

- Consider how *MATH 180* prepares students to meet rigorous college and career readiness standards.
- Understand the *MATH 180* Instructional Model from the teacher's and student's perspectives.
- Explain and use the role of classroom discourse 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 six 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.

OUTCOMES

- Identify common misconceptions and errors in students' mathematical thinking.
- Interact with and use the following models and tools found in *MATH 180* as vehicles for making meaning of numbers, properties, and operations: fraction pieces and shapes, area model, open number lines, bar model, and decimal grids.
- Use instructional strategies employed in *MATH 180* that exemplify process standards and support students' understanding.
- Connect the foundational math content and representations of *MATH 180* to middle school core content.

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.

OUTCOMES

- Understand how both the learning environment and classroom culture impact the differentiated mathematics classroom.
- Interpret progress, performance, and assessment data of *MATH 180* students to inform instruction.
- Use assessments, data, and instructional strategies to support the needs of all *MATH 180* learners.

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

- Articulate the importance of classroom discourse in the mathematics classroom.
- Use the instructional strategies highlighted in *MATH 180* to develop students' ability to communicate mathematically.
- Support reluctant learners as they take ownership of their learning in the mathematics classroom.

Getting Started with Waggle®

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.

Coaching

Individual and team coaching is available in-person, online, or blended to provide teachers with the support they need to positively impact students every day.

Getting Started with *Math Reads*[®]

Target Audience: Leaders and Teachers

Grades: K–5, 6–8

Format: 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.

Coaching

Individual and team coaching is available in-person, online, or blended to provide teachers with the support they need to positively impact students every day.

Getting Started *Math Inventory*[®]

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

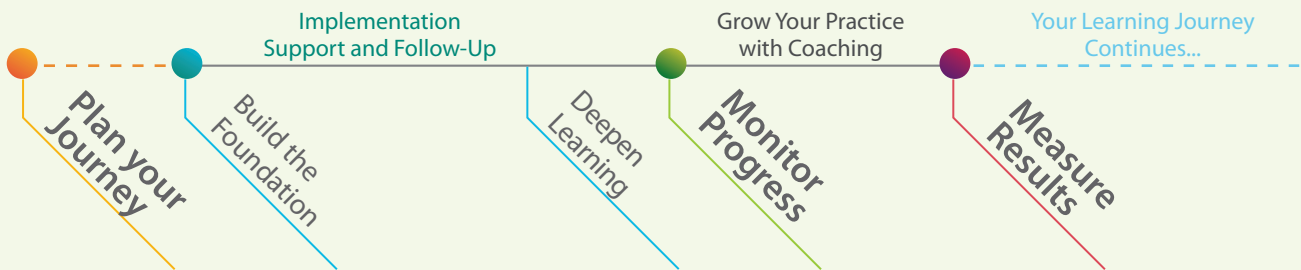
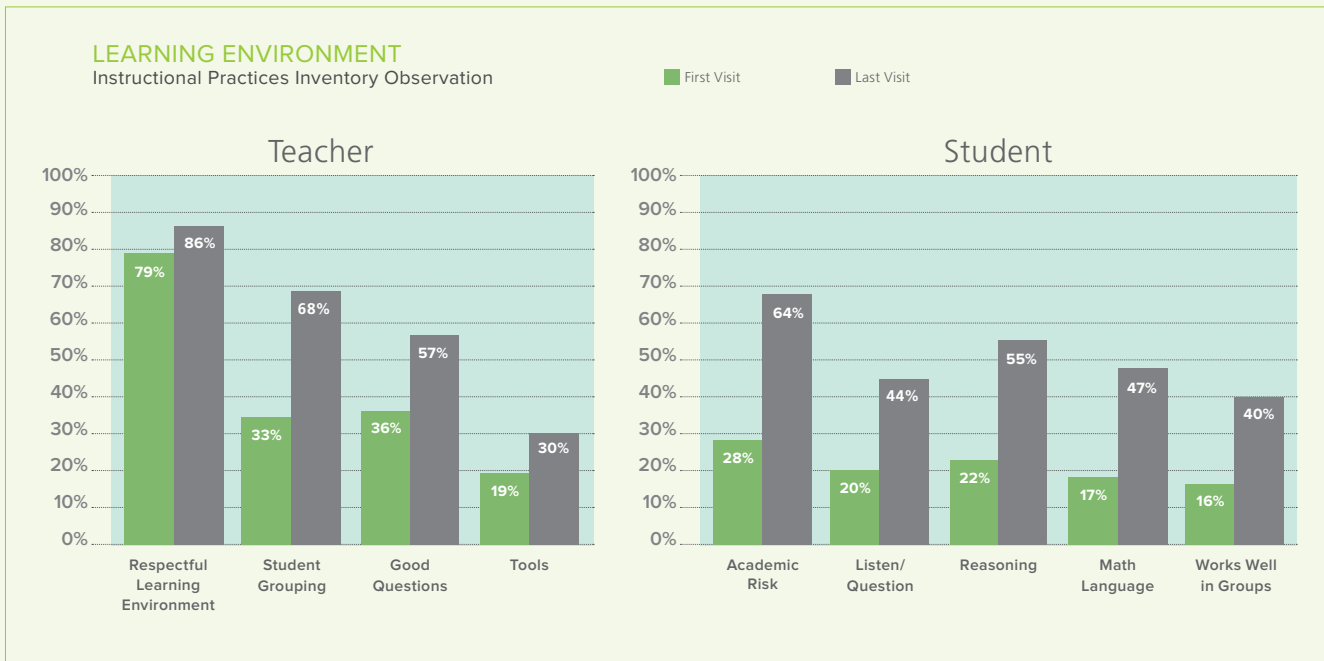
- Build understanding and confidence to ensure a strong implementation.
- Support differentiation, assessment, and effective whole- and small-group instruction using HMH program resources and instructional tools.
- Enhance instructional delivery and student learning using HMH technology.

Coaching

Individual and team coaching is available in person, online, or blended to provide teachers with the support they need to positively impact students every day.

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.





Content Standards by Grade Level

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.



For more professional learning resources visit store.mathsolutions.com.

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.

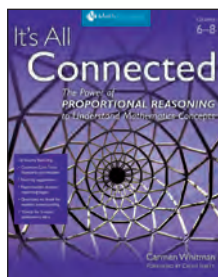
Ratios & Proportional Relationships

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.



For more professional learning resources visit store.mathsolutions.com.

OUTCOMES

- Articulate the progression of current state standards related to ratios and proportional relationships.
- Implement effective instructional strategies such as the use of real-world application, tools, and multiple representations to develop students' mathematical understanding.
- Conduct classroom discussions in ways that support students' understanding of ratios and proportional relationships.
- Challenge students with rigorous tasks that build proportional reasoning and engage students in the habits of mathematical thinkers.

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

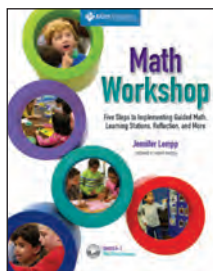
Format: Two Day | Additional Options May Be Available

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.

For more professional learning resources visit store.mathsolutions.com.

OUTCOMES

- Understand the purpose and use of the three structures of Math Workshop.
- Verbalize and act on the roles of the teacher and students in the Math Workshop classroom.
- Implement a plan for getting started with Math Workshop.
- Create a Math Workshop classroom that relies on formative assessment and differentiation.



English Learners in Math

Target Audience: Curriculum Directors/Specialists,
Math Coaches, Teacher Leaders,
Teachers, Principals

Grades: K–8

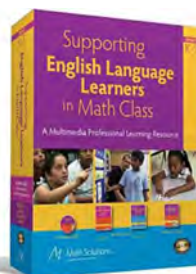
Format: Full Day | Additional Options May Be Available

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.

For more professional learning resources visit store.mathsolutions.com.

OUTCOMES

- Recognize the unique language development and communication needs of English learners.
- Support students with varying degrees of English proficiency.
- Implement lessons and instructional strategies that simultaneously build proficiency with English and promote thinking, reasoning, and making sense of mathematics.

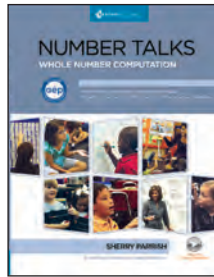


Instructional Strategies

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.



For more professional learning resources visit store.mathsolutions.com.

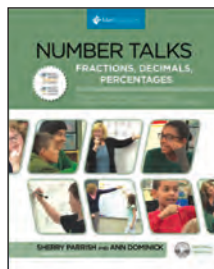
OUTCOMES

- 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.



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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 sense making and understanding.
- Highlight contexts and models during number talks to develop and anchor flexible and efficient strategies for reasoning and computing with rational numbers.

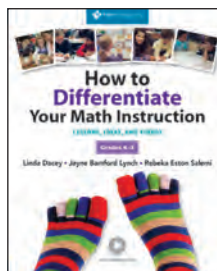
Differentiating Mathematics Instruction

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.



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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.

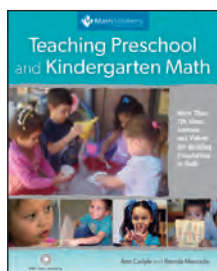
Teaching Preschool and Kindergarten Math

Target Audience: Math Coaches, Teacher Leaders, Teachers

Grades: Pre-K–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.



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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.

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.

Supporting Students Who Struggle with Mathematics

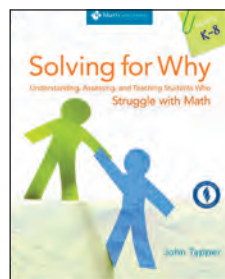
Target Audience: Math Coaches, Teacher Leaders, Teachers

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.

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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.

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.

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

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.

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.

For more professional learning resources visit store.mathsolutions.com.

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.

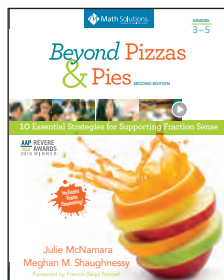
Strategies for Supporting Fraction Sense

Target Audience: Math Coaches, Teacher Leaders, Teachers

Grades: 3–5

Format: Two Day | Additional Options May Be Apply.

Course 1 of 2. This two-day course focuses on the priority domain of Number and Operations-Fractions for students in Grades 3–5. The emphasis of the course is on building understanding of fractions as numbers and connections between whole number knowledge and fraction knowledge. The strategies and foundation developed in the course are prerequisites for further work with fraction computation that is developed in Course 2, Making Sense of Fraction Computation.



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OUTCOMES

- Articulate the progression of current state standards related to fractions and fraction operations.
- Describe similar ways in which fractions and whole numbers operate.
- Apply properties of operations in fraction computation.
- Characterize teaching strategies for building fraction sense and distinguish the importance of each.
- Implement instructional strategies that engage students in the habits of mathematical thinkers as called for in current state standards and build deep understanding of fraction content standards.
- Explain and use the role of talk to support learning of mathematics.

Making Sense of Fraction Computation

Target Audience: Math Coaches, Teacher Leaders, Teachers

Grades: 3–5

Format: Three Day | Additional Options May be Available

Course 2 of 2. This three-day course focuses on the priority domain of Numbers and Operations- Fractions for students in Grades 3–5. The emphasis of the course is on building understanding of fraction computation. In this course, participants learn to build on students' understanding of whole number operations to make sense of fraction computation. Strategies that support the development of fraction operation sense are highlighted.



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OUTCOMES

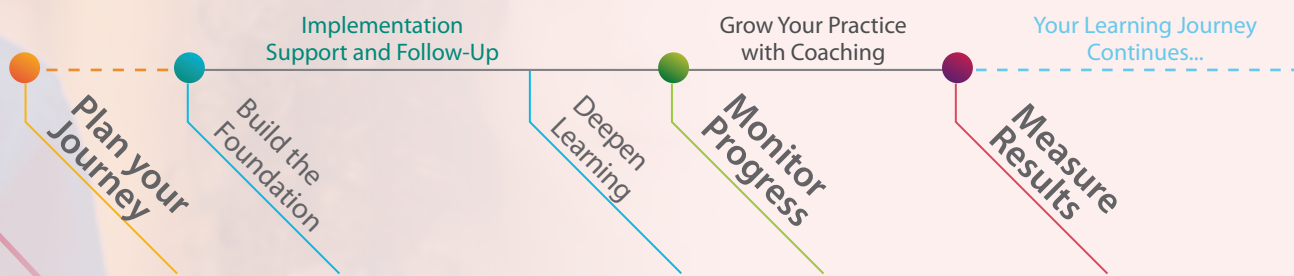
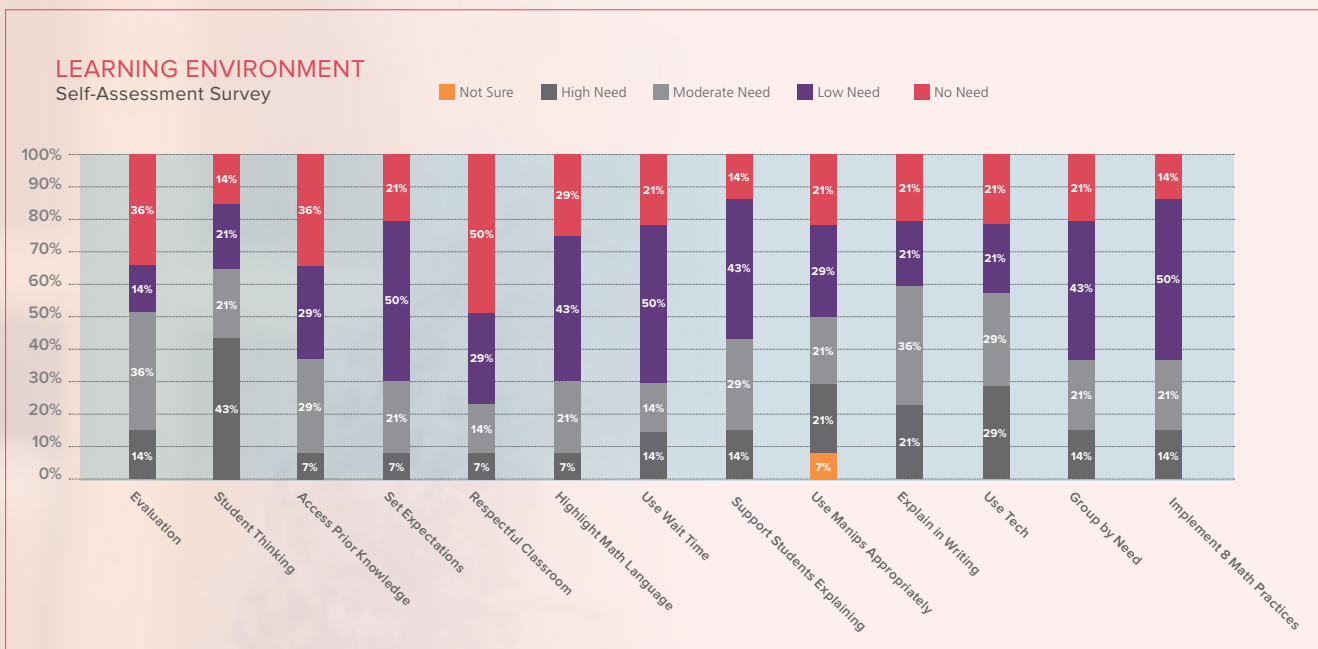
- Articulate the progression of current state standards related to fractions and fraction operations.
- Apply properties of operations in fraction computation.
- Characterize teaching strategies for building fraction sense and distinguish the importance of each.
- Implement instructional strategies that engage students in the habits of mathematical thinkers and build deep understanding of fraction content called for in current state standards.
- Use rich tasks, multiple models, representations, and classroom discourse to support learning of mathematics

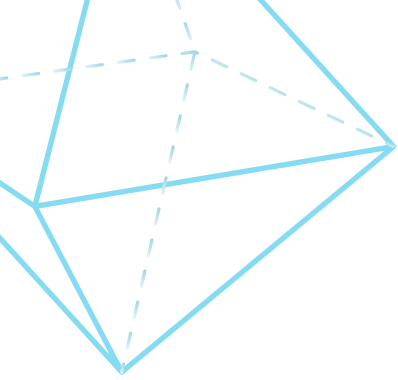




Measure Results

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.





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.



Hear how Clayton County, GA, partnered with Math Solutions in a district-wide coaching initiative.

Hear their story at mathsolutions.com.

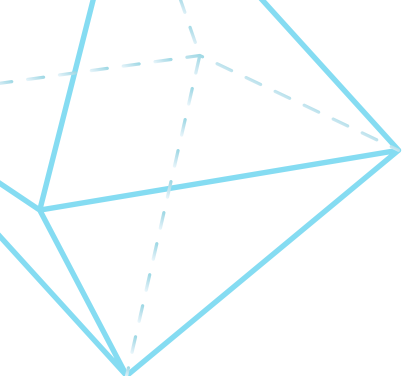
Our **Research-Based** Coaching Model



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.





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2019 SIIA CODiE FINALIST

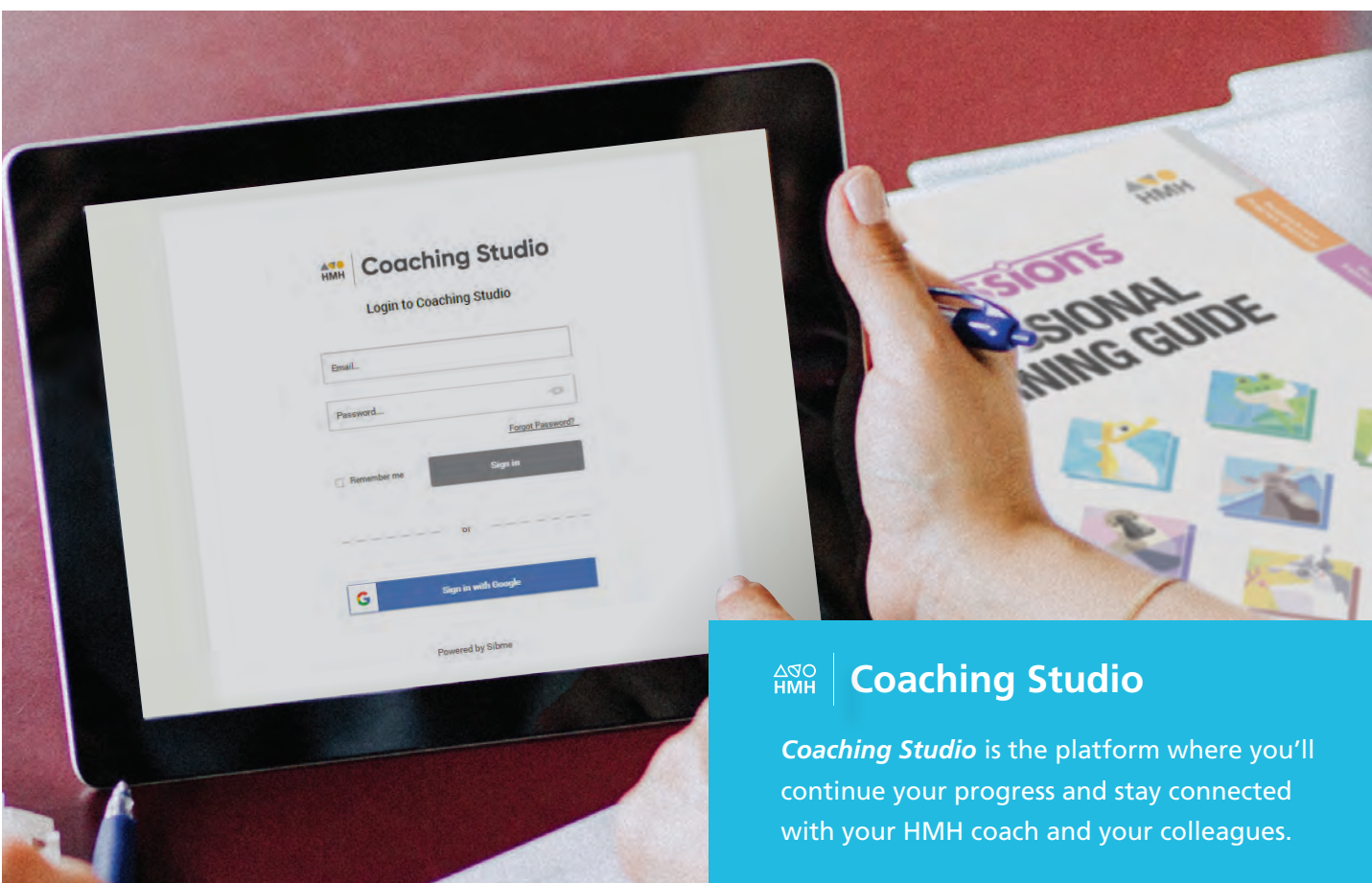
Blended Coaching with the HMH Coaching Studio

In person, online, anytime!

HMH coaching is customized to educators' busy schedules as well as to their learning needs. Our coaches work with teachers in person, virtually via webinars, or in a blended combination of in person and online. The HMH Coaching Studio makes it easy for teachers and coaches to stay connected, share resources, upload and reflect on classroom videos, and make continuing progress on learning goals.

Through the HMH Coaching Studio, teachers have access to:

- **Goal Tracker:**
Allows teachers to create and track growth goals personalized to them.
- **Model Lesson Library:**
Hundreds of HMH classroom and expert videos of best practices.
- **Collaboration Hub:**
Discussion forums, resource-sharing, and video-based reflection to drive collaboration with coach and peers.
- **Video-Powered Coaching:**
Allows teachers to upload video of their instruction for their own reflection or to share with their coach and peers.



Coaching Studio

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

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



Inspire a Culture of Math Achievement Professional Resources

Math Solutions is dedicated to improving students' learning of mathematics by providing the highest-quality professional learning services and resources. The publications below support K–12 teachers.

Grades K–5 Bundle

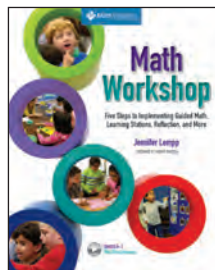
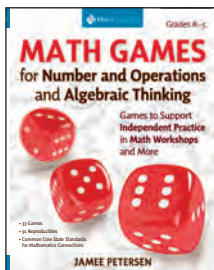
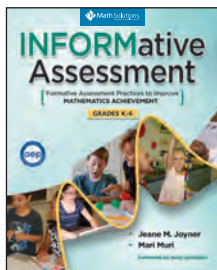
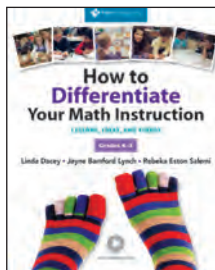
How to Differentiate Your Math Instruction

INFORMative Assessment for Grades K–6

Math Games for Number and Operations and Algebraic Thinking

Math Workshop

Talk Moves Teachers Guide



Math Talk Bundle

Good Questions K–6

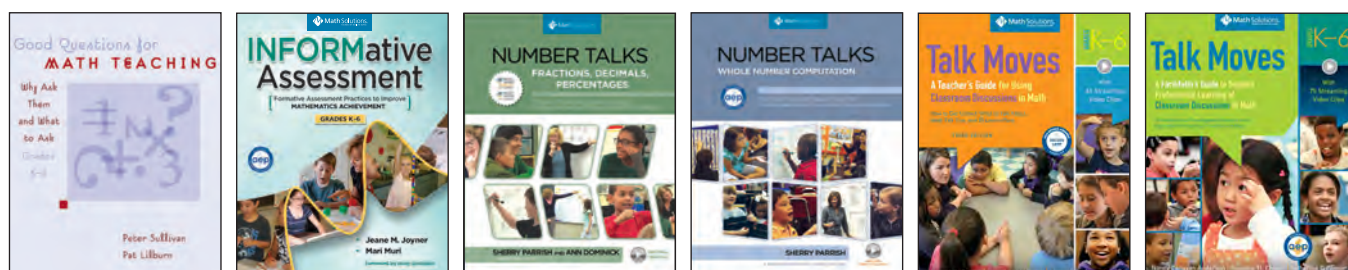
INFORMative Assessment K–6

Number Talks: Fractions, Decimals and Percentages

Number Talks: Whole Number Computation

Talk Moves: Teacher's Guide Grades K–6

Talk Moves: Facilitator's Guide



Middle / High School Resources

Good Questions for Teaching Math: Why Ask Them and What to Ask

INFORMative Assessment: Formative Assessment Practices to Improve Mathematics Achievement

It's All Connected: The Power of Representation to Build Algebraic Reasoning

It's All Connected: The Power of Proportional Reasoning to Understand Mathematics Concepts Math for All

Solving for Why: Understanding, Assessing, and Teaching Students Who Struggle with Math



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Reimagine Your **Math Classroom** with These Resources That Support **Math Workshop**

Math Workshop Bundle

Math Workshop

How to Differentiate Your Math Instruction

Math Workshop Essentials

Math Games: Numbers and Operations and Algebraic Thinking

Math Games for Geometry and Measurement

It Makes Sense: Hundred Chart

It Makes Sense: Ten Frames

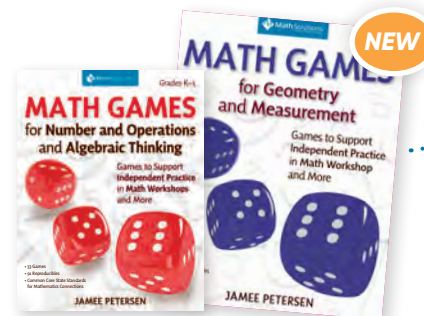
It Makes Sense: Using Number Lines

Math Games Series

GRADES K–5

Jamee Petersen

This two-book series features more than 40 games for use in *Math Workshop* learning stations.



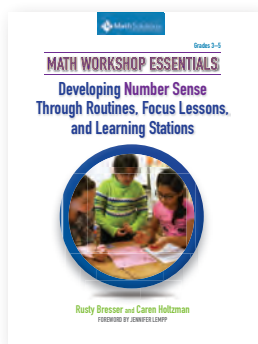
It Makes Sense! Series

GRADES K–2

Melissa Conklin, Stephanie Sheffield, and Ann Carlyle

This three-book series provides lessons, routines, and games for all three *Math Workshop* structures.



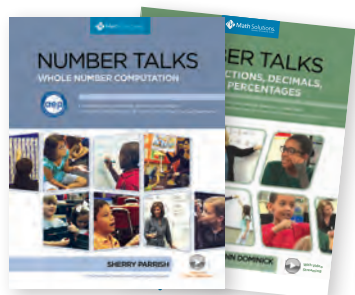


Math Workshop Essentials: Developing Number Sense Through Routines, Focus Lessons, and Learning Stations

GRADES 3–5

Rusty Bresser and Caren Holtzman

Explore tried-and-true ideas for all three of the structures presented in *Math Workshop*.

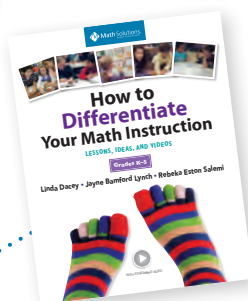


Number Talks Series

GRADES K–7

Sherry Parrish and Ann Dominick

Provide powerful number sense routines to kick off each of the three *Math Workshop* structures.

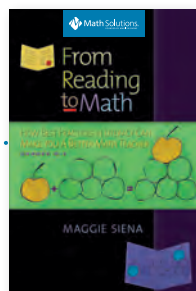
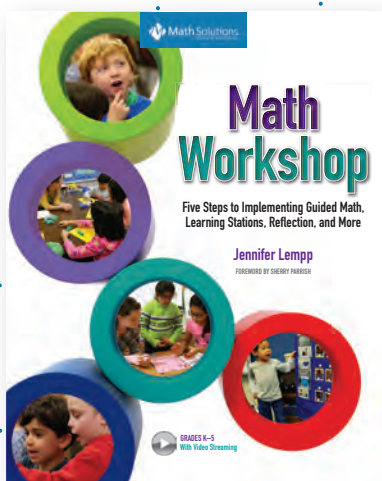


How to Differentiate Your Math Instruction: Lessons, Ideas, and Videos

GRADES K–5

Linda Dacey, Jayne Bamford Lynch, and Rebeka Eston Salemi

“In *Math Workshop*, differentiation is purposeful and plentiful.”—Jennifer Lempp

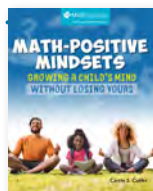


From Reading to Math: How Best Practices in Literacy Can Make You a Better Math Teacher

GRADES K–5

Maggie Siena

Do you already use reading workshop? Make the connection to *Math Workshop*!



Math-Positive Mindsets: Growing a Child's Mind Without Losing Yours

GRADES K–5

Carrie Cutler

Create a positive classroom culture for *Math Workshop*—and get parents on board!



Welcome to Math Class: A Collection of Marilyn's Favorite Lessons

GRADES K–6

Marilyn Burns

Discover powerful lessons for use in *Math Workshop* and beyond.



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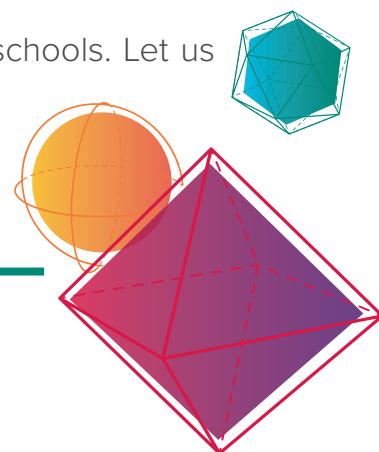
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