



# Proposal for Partnership with Central Unified School District Fresno, CA

*Professional Learning for Improvement in Mathematics*

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The purpose of this proposal is to create a plan for improving the effective teaching and student learning of mathematics at Central Unified School District. We believe that a partnership with you that focuses on your district goals, student data, effective implementation of current curriculum, and a thorough understanding of your instructional needs to meet the Common Core State Standards, will lead to building the capacity required for student achievement in mathematics.

### Why HMH Math Solutions?

HMH Math Solutions has been partnering with schools and districts to improve math instruction for more than 30 years. Founded by Marilyn Burns in 1984 and always focused exclusively on mathematics education, HMH Math Solutions has the depth of professional development expertise to transform math instruction at Central Unified School District. Over the years, we have supported thousands of schools and districts to build learning environments where teachers are more knowledgeable and confident about math instruction and students are more engaged and excited about learning math.

HMH Math Solutions draws upon years of classroom-grounded research and extensive knowledge of curricula and state standards, to provide the highest-quality in-person courses, coaching, and resources, all developed and delivered by experts in math education.

HMH Math Solutions has identified four Guiding Principles essential to improving instruction and student outcomes. These Guiding Principles are the foundation of all the professional learning we provide and ensure that educators:

- Know the math they need to teach— know it well and flexibly enough to understand various solution paths to increase students' reasoning of mathematics. HMH Math Solutions increases teachers' math content knowledge necessary to deliver effective classroom instruction.
- Understand the conditions necessary for learning, so they may understand deeply the unique conditions necessary for student learning in mathematics— what they need to provide and what students must make sense of for themselves.
- Recognize each student's strengths and weaknesses, content knowledge, reasoning strategies, and misconceptions.
- Have the expertise to make math accessible for all students, to ask questions that reveal and build understanding, and help students make sense of mathematics.

Based on these Guiding Principles, HMH Math Solutions has identified key areas of instructional focus to reach math achievement goals: learning environment, reasoning and sense making, focus and coherence, and formative assessment. Math Solutions will help you recognize what a classroom that encompasses these key areas actually looks like with observable examples for both teachers and students. The ***Instructional Practices Inventory (Appendix I)*** guides leaders and teachers to know what works best to create a model math classroom incorporating current resources and digital support. It outlines best teaching practices and student learning practices and is utilized in the assessment of the instructional needs of your teachers, monitoring progress, and end of the year or project summary.

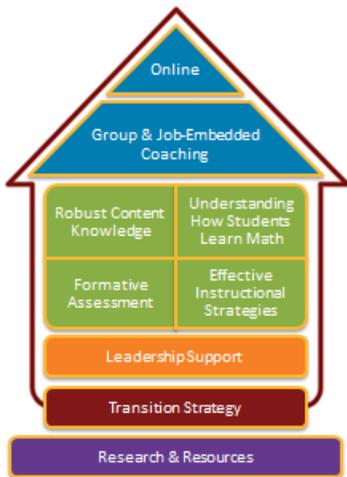
30 years of experience has also resulted in a wealth of knowledge of individual state (or common) standards. Math Solutions has worked throughout the country with many curricula as well. Deep understanding of standards and the current curricula in your school or district, aligned with your professional learning goals, is key to success.

More information about Math Solutions is in **Appendix II**.

Recent academic research tells us that successful professional development requires a solid plan and strategy that is grounded in research-based practices. The plan includes leadership support and is aligned with your district goals. At the foundation is math instruction that improves teachers' math content knowledge and pedagogy, which is sustained by classroom coaching and online support.

These components are included in this proposal for Central Unified School District as illustrated below:

# Math Solutions Professional Learning



-  ...is part of a larger, long-range strategy to improve math instruction and student outcomes
-  ...is built on a foundation of leadership support
-  ...addresses the instructional needs of every teacher
-  ...is sustained through differentiated, targeted, on-going professional learning
-  ...is based on extensive in-classroom research incorporating the most innovative strategies and “best practices” from our award winning authors

## Description of Proposed Professional Learning Services for Central Unified School District

The scope of work below describes a proposed plan for professional learning that supports your teachers, instructional coaches, and building level leaders. Before implementation, we will meet and collaborate with you to ensure your goals are fully integrated in your *Professional Learning Plan*.

This proposal is organized into the following component:

**Component 1:** Foundational Professional Learning Courses for Teachers

**Component 2:** Strengthening and Sustaining Long-Term Teaching Capacity—Job-Embedded Coaching for Teachers and Job Embedded Coaching to Align Middle School and High School Instruction

**Component 3:** Leadership Training, Walk-throughs, and Progress Monitoring

**All professional learning will be directly tied to your adopted resources and CCSS**

### Component 1: Foundational Professional Learning Course for Teachers

**Learning Course dates:** TBD Spring 2018

#### Grades 7-8

##### **Day Two:**

Day two of Ratios and Proportional Relationships Course

#### **Ratios & Proportional Relationships**

##### **Course Description**

This customized three-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 addresses the Common Core State Standards for ratios and proportional relationships in the middle grades, and supports teachers with strategies to help make the standards accessible to all students.

##### **Learning Outcomes**

- Develop a fundamental understanding of CCSS content: Ratios and Proportional Relationships and establish connections to Expressions and Equations
- Examine problem-solving activities and investigations that develop proportional reasoning
- Identify proportionality in all of the CCSS domains
- Observe and characterize instructional strategies that exemplify the Standards for Mathematical Practice and support students’ proportional reasoning
- Connect CCSS content and the Mathematical Practices to current classroom practices
- Explore a variety of ways to organize the classroom—whole-class, small-group, and individual learning—to maximize the learning of all students

## **Grades 9-12**

### **Day Two:**

Day two of Algebra and Functions Course **or** day one of Geometry

### **Algebra and Functions**

#### **Course Description**

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.

#### **Learning Outcomes**

- Develop a fundamental understanding of content standards focused on algebra and functions
- Analyze problem-solving activities and experiences that address and develop students' skills in the areas of Algebra and Functions
- Connect content standards and mathematical habits of mind to current classroom practices
- Explore a variety of ways to organize the classroom—whole-class, small-group, and individual learning—to maximize the learning of all students

### **Geometry**

#### **Course Description**

This two-day 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).

#### **Learning Outcomes**

- Apply a fundamental understanding of standards in current state Geometry standards 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.
- Challenge students with rigorous math problems that require the habits of mind called for in current state standards.

## **Component 2: Job-Embedded Coaching and Modeling for Teachers of Integrated Math for Grades 9-12 and Job-Embedded Coaching to Align Middle and High School Instruction**

- **Up to 15 participants per session (up to 2 sessions per day)**
- **Coaching dates are flexible based on district schedule.**
- **2 days in fall and 2 days in spring are recommended**

Math Solutions coaching and model lessons for individuals and teams drives innovation and provides the tools for your teachers to transform theory into practice. With individual coaching, Math Solutions works side-by-side with educators, enabling them to integrate new skills and technologies into the classroom immediately. Team coaching builds a community of learners through collaboration. It is the fastest way to synchronize your team across grade levels, share experience and expertise, strategize on the use of curriculum in a blended learning environment, and collaborate on plans and protocols.

Instructional coaching sessions also support teachers to implement the strategies introduced in professional learning experiences. Your HMH Math Solutions coach will review highly-effective instructional practices and collaborate with colleagues to implement mathematics tasks that align to the Common Core State Standards

Participating teachers have the opportunity to discuss the effect of instructional strategies and the utilization of both digital and print resources on student learning as observed in the classroom. They will also analyze the connection between tasks, active student engagement, reasoning and problem solving.

The most effective coaching occurs over time. Key to its effectiveness is the involvement of the principal, including a schedule that provides adequate time for teacher learning. Inherent in these experiences is a ‘gradual release of responsibility’ from the coach to the classroom teacher.

Ideally, teacher leaders will be identified during the coaching cycles and additional time will be spent building internal coaching capacity to sustain long-term instructional best practices.

**Integrated Mathematics Model lessons** are one aspect of job-embedded coaching. The model lesson cycle typically includes the following:

- Lesson Pre-Brief—Math Solutions consultant and teachers co-plan the Integrated Mathematics lesson. The Math Solutions consultant might teach or co-teach the lesson with the teacher.
- The Lesson—Math Solutions consultant teaches the lesson to a class of students, while teachers observe with a specific focus identified during the lesson planning sessions.
- Lesson Debrief—Math Solutions consultant facilitates as teachers collaborate to debrief the lesson with a focus on student learning and student misconceptions, identifying specific aspects and strategies used that supported student learning. Finally, the team reflects on next instructional steps for students.

Model lessons and job-embedded coaching may include:

- Support for implementing effective teaching practices aligned to the Common Core State Standards
- Strategies for differentiating instruction to meet the needs of all students, especially struggling students and those needing intervention
- Opportunities to focus on developing and deepening content knowledge
- Deeper instruction in using currently adopted resources effectively
- Integration of adopted curriculum instructional tools, if available, to support teacher instruction throughout their lesson
- Collaborative instructional planning and observation of participant lessons to refine instruction
- Cultivation of leadership skills to drive innovation and instructional change

### Component 3: Leadership Training, Walk-throughs, and Progress Monitoring

Build leadership capacity with highly customized, collaborative school-based instructional walk-through support that guides and develops the instructional leadership teams’ expertise and ability to support instructional shifts.

Site and district leaders along with coaches, building teacher leaders and Math Solutions’ instructors work together to analyze and discuss the implementation of instructional practices, calibrate expectations and design next steps or support for teachers as they implement instructional strategies focused on students explaining, justifying and writing about solutions.

Site and District Instructional Leaders will:

- Identify priorities and align strategies with specified goals;
- Learn what to look for during classroom observations to effectively evaluate instruction; and
- Explore ways to nurture instructional excellence through the introduction of research-based best practices.

The classroom walk-through component gives each site’s instructional leaders the opportunity to analyze classroom practice with the mathematics consultant. Individual site walk-throughs give leaders the opportunity to observe how teachers are implementing rigorous tasks and instructional strategies experiences learned in their professional learning days and support from district coaches.

The mathematics consultant’s role in these walk-throughs is to provide questions and perspectives from his/her deep pedagogical content knowledge aligned with the Common Core content and mathematical practices standards. The instructional leadership team has the opportunity to design the ‘next-steps of support’ for teachers supported by the consultant’s expertise.

## Summary

Math Solutions looks forward to partnering with you to achieve your mathematics achievement goals. Along with student data and progress monitoring, we believe that effectiveness of professional development is measured by how it is brought back into classroom instruction. We are proud to share the evaluation results from past participant surveys:

- 98% gained new instructional strategies to try in their classrooms.
- 98% said Math Solutions instructors were knowledgeable and skilled in facilitating adult learning.
- 97% gained knowledge and strategies that will help them be better math teachers.

By setting goals together; focusing on the most important areas of improvement; investing in teacher's math content knowledge and use of instructional strategies; and building capacity on a sustainable basis, we are confident that we will reach the goals for students' sustained learning of mathematics from pre-school to college.

## Appendix I

### HMH Math Solutions Instructional Practices Inventory

Professional development opportunities provided for teachers can only target the learning needs of students if information is collected from classrooms. This tool will be used to compile information gathered from multiple schools and classrooms in an effort to design professional development that targets identified needs. Information from individual classrooms will not be used in any way.

LEARNING ENVIRONMENT	
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.
REASONING AND SENSE-MAKING	
Teacher	Students
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.
	Look closely to discern a pattern or structure.
FOCUS AND COHERENCE	
Teacher	Students
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.	
FORMATIVE ASSESSMENT	
Teacher	Students
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.	

## Appendix II

### About Math Solutions

Founded in 1984 by renowned math educator Marilyn Burns, Math Solutions, a division of Houghton Mifflin Harcourt (HMH)\* since June 2015, is the nation's leader in improving mathematics instruction with effective professional learning. With more than 30 years of experience working with thousands of school districts nationwide, our team of educational experts creates solutions for accelerated sustainable improvement in teacher effectiveness, student learning, and test results. The company is headquartered in Sausalito, California, and can be found at [www.mathsolutions.com](http://www.mathsolutions.com).

### Our Mission

Math Solutions is dedicated to improving students' learning of mathematics by providing educators with the highest quality professional development services, products, and resources.

### Method of Approach

Math Solutions Directors of Professional Learning and Instructors collaborate with district and school leadership during each professional development engagement to ensure the improvement of school level practices and student learning. Drawing from academic research and more than 30 years of experience, Marilyn Burns has identified four goals for educators that are essential to improving the teaching of mathematics:

- Teachers' understanding of the math they teach
- Understanding of how students best learn math
- Development of effective strategies for teaching mathematics
- Formative assessment to guide instruction

### Teachers' Understanding of the Math They Teach

As we implement the professional learning of adult educators, we identify what math content is of vital importance for teachers to understand by grade level and state standards. This content is different from the mathematics that a mathematician – instead, it's knowing mathematics deeply and flexibly enough to convey concepts, reasoning and the real-world application of the mathematics to students.

### How Students Learn

In addition to being clear about what math content knowledge a teacher needs to understand, we also support teachers by helping them to understand how children learn mathematics—knowing what is important to *tell* children and what is best *not to tell* children. It implies asking thoughtful questions for the part of mathematics that we don't tell children. It also involves knowing what conditions are needed for learners to make sense of mathematics. Developing this understanding requires a career-long effort on the part of a teacher.

### Effective Instructional Strategies

Given a deep and flexible understanding of the math content and a developing understanding of how children learn mathematics, we introduce teachers to effective instructional strategies, including choosing and scaffolding accessible tasks, asking questions that build and reveal understanding, and providing tools that help students make sense of mathematics and solve problems.

### Formative Assessment

Assessment, or determining what students know, is a central element in the process of teaching and learning. Assessment generally falls into two categories—summative (assessment *of* learning) and formative (assessment *for* learning). Tests given at the end of teaching units and standardized tests are examples of summative assessments. Formative assessment is intended to provide teachers and students with information about what students *understand*, as well as unveiling student misconceptions. This type of assessment is used to guide instructional decisions on a daily basis, in order to improve student learning; it includes open questions and tasks, listening to students, observing students, and examining student work.

## HMH Math Solutions Support and Implementation Team

“It takes a village” for HMH Math Solutions to create the most engaging and effective professional development experience for your teachers and administrators. The Math Solutions team will design professional development around your unique needs and deliver it in a format that works for you and includes:

An **Executive Director of Math Partnerships** who will listen to your current needs in math instruction, share ideas about how HMH Math Solutions has supported schools and districts with similar needs, and work with the HMH Math Solutions content team (below) to customize a plan to reach your goals.

Your **Director of Professional Learning** is an expert at designing and delivering professional development. He/she will manage all aspects of your project from start to finish, ensuring that it meets your goals. He/she will be engaged in every aspect of your project and will work with you throughout the process to ensure it is meeting your needs, and will refine the plan if needed. Your Director of Professional Learning will have an in-depth conversation with you to assess the needs of current math instruction and make recommendations for professional learning to help you reach your goals. Your DPL also works with the **Director of Recruiting and Consultant Development** to match the needs of your project with the skills of more than 150 consultants.

Your **Professional Learning Consultant** is selected from more than 150 instructors and is matched to your project based on your needs and their expertise. The team consists of top mathematics educators in the country who have earned more than 60 national and local recognition awards, including the Presidential Award for Excellence in Mathematics and Science Teaching. Ninety-eight percent of HMH Math Solutions participants reported that the HMH Math Solutions instructors were knowledgeable and skilled in facilitating adult learning. Resumes of Instructors are available upon request.

**Content Design Team Managers** work with your Director of Professional Learning to design the actual PD experiences for your teachers/coaches/administrators. HMH Math Solutions’ Content Design team draws from the expertise of more than 150 consultants, academic thought leaders and authors, to ensure that your project is designed by the top minds in math education.

**Course Managers** provide all logistical and contractual support so your courses and coaching experiences run as smoothly as possible. HMH Math Solutions delivers thousands of PD engagements each year and has learned what is necessary to provide an effective learning environment for your teachers and administrators. Your Course Manager will walk you through those details and provide you with an easy checklist that outlines the specific technology and room requirements for your engagement. He/she will work with our warehouse to ensure that all your course materials are delivered on time and to the appropriate location. If necessary, he/she will work with your purchasing and contracting departments to keep the invoicing process seamless. The Course Manager will communicate course location details with your instructor and coordinate all travel logistics. He/she also will ensure that the logistics are taken care of so your participants can focus on learning.

\* NOTICE REGARDING CHANGE OF OWNERSHIP: The programs and services included within this proposal were formerly under Scholastic Education and Technology Services, a business unit of Scholastic Corporation, acquired by Houghton Mifflin Harcourt™ on May 29, 2015. The acquisition included the transfer of the entire Scholastic Education Technology and Services division, its management and staff, and the proven-effective intervention solutions and services portfolio. Scholastic National Service Organization in Jefferson City, MO is continuing to provide services related to order entry, shipping, invoicing, customer service and payment processing. You will be notified in the future when Houghton Mifflin Harcourt takes responsibility for those processes.

## Investment Summary

Costs Include:	
<b>Assessment</b>	Collaborative needs assessment meeting with Educational Consultant Education Notes meeting to analyze school data and identify specific PD goals
<b>Development</b>	Educational Specialist/Instructor Team assigned to design and develop PD content Customized PD schedule Customized agenda created by Educational Specialist Team Comprehensive logistics meeting with Course Management Coordinator
<b>Reporting</b>	Evaluation Report; provides analysis and overview of participant evaluations Collaborative follow-up meeting with Educational Consultant to discuss next steps
<b>Travel and Expenses</b>	Airfare, Ground transportation, Lodging, Meals All other travel expenses
<b>Materials</b>	Course-related books for all participants Sample manipulatives Other instructional materials used during the session Shipping costs for all materials as well as additional orders placed with PD
<b>Delivery</b>	On-site & online professional development sessions delivered over time
<b>Publications</b>	30% discount on Math Solutions publications for one year

Date	Description	
TBD Spring	<b>Foundational Learning Courses:</b> <ul style="list-style-type: none"> <li>○ 1 day for Grades 7-8</li> <li>○ 1 day for Grades 9-12</li> </ul>	<b>\$7,100</b>
Fall 2017-Spring 2018	<b>Job-embedded coaching, modeling, and planning for teachers</b> <ul style="list-style-type: none"> <li>• 2 coaching sessions per grade level per semester (4 total full day sessions for each of the 4 groups)</li> <li>• Grade specific coaching, small group coaching</li> <li>• Coaching dates, structure and content are flexible based on district schedule/needs</li> </ul>	<b>\$56,800</b>
Fall 2017	<b>Job Embedded Coaching to align Middle School and High School Instruction:</b> <ul style="list-style-type: none"> <li>○ One day of coaching</li> </ul>	<b>\$3,550</b>
Fall 2017-Spring 2018	<b>Leadership Training, Walk-Throughs, and Progress Monitoring</b> <ul style="list-style-type: none"> <li>• 1 half-day Leadership Training and 1 half-day walk-through/capacity building sessions</li> <li>• 6 days of data collection/progress monitoring (Two days at beginning, two days at middle, and two days at end of year)</li> </ul>	<b>\$24,850</b>
<b>Total:</b>		<b>\$92,300</b>

Proposal terms and conditions valid for 30 days. Price based on quantity discount.