

## **Case Study**

Working in Partnership for Results

# **Math Solutions Professional Development Transforms Instruction and Improves Student Achievement at Riverdale Elementary School**

The School: Riverdale Elementary School in Prince George's County, Maryland

### **School Demographics**

- 658 students
- 89.9% Free and Reduced Lunch
- Grades PreK–6
- 74.6% Hispanic, 17.5% African American
- 49.6% English Language Learners

### **Goals**

Working in collaboration with Riverdale Elementary School and the Prince George's County School District, Math Solutions designed a professional development plan to help teachers and teacher leaders to:

- Provide students with rich mathematical experiences in order to increase their ability to think and reason mathematically and apply their knowledge to new situations
- Improve their questioning strategies to go beyond content comprehension
- Implement instructional strategies that support the needs of a range of learners
- Increase content knowledge to provide a deeper understanding of math
- Develop a greater awareness of how children learn, enabling teachers to make instructional decisions that positively affect student performance
- Enhance their ability to reach all students in their diverse, largely ELL, classrooms

### **The What: Math Solutions Professional Development: April 2007–Present**

Math Solutions developed a customized professional development plan for Riverdale Elementary School designed to help teachers maximize every student's potential to meet academic standards, close the achievement gap, and raise scores on state math tests. The plan included:

#### **School-based Coaching**

In 2007–2008, Math Solutions delivered four days of school-based coaching, which provided hands-on learning experiences centered in teachers' everyday work:

- Lesson planning
- Demonstrating lessons, including pre- and post-conversations to illustrate instructional practices
- Reflecting on student responses and work products as avenues for assessment
- Exploring and trying out new instructional strategies
- Deepening teachers' content knowledge

## Summer Institutes (2008–2011)

Yearly Math Solutions Summer Institutes gave teachers an opportunity to deepen their content knowledge and instructional practice. Topics for the summer institutes included problem solving, measurement, numbers and operations, how children learn math, differentiation, and supporting English learners.

At the end of each institute, teachers determined an area of focus for implementing their learning back in the classroom.

### The Bottom Line: Results

Math Solutions professional development has had a tremendous impact on teaching and learning at Riverdale Elementary School—transforming instructional practices, improving student engagement and achievement, and making a very real difference for both teachers and students.

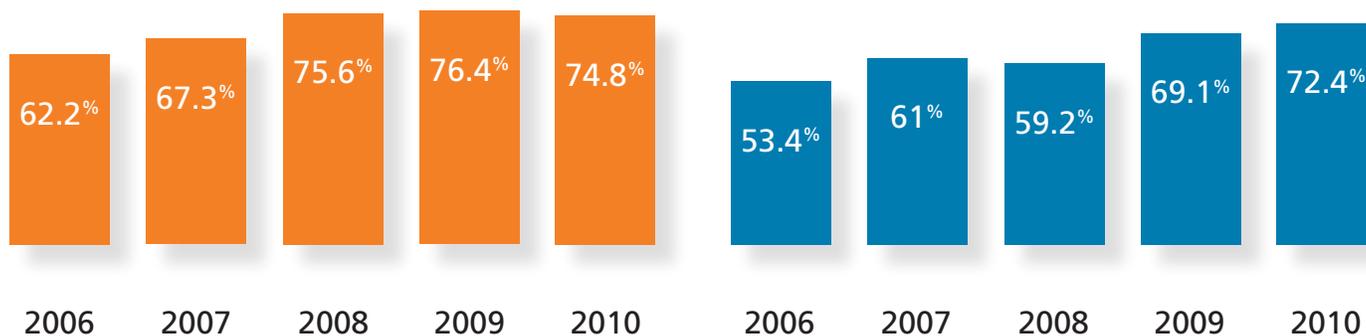
**Teachers:** As a result of professional development, teachers are approaching teaching with renewed energy, enthusiasm, and commitment. After years of battling low expectations with their students, they are amazed at what their students are able to do, and they are eager to make learning fun and generate those precious “aha” moments in their students.

*I'm watching even my extremely low students taking ownership of mastering the word problems we covered in PD. They are using the pictures to show their thinking—which is what I've already incorporated into my lessons. A good number of them are using number sentences or trying to incorporate them in their thinking. They have already said, 'This is fun. Can we do more?' My ESOL teacher has come in to assist and is amazed at the work they are doing.*

-Kim Chemsak, first grade teacher  
(class is almost 94% ELL, and all students receive free lunches)

**Students:** The following table shows the vast improvement students at Riverdale Elementary School have demonstrated on state math tests since professional development began. Note the enormous growth during the years of professional development: almost 20 percentage points for ELL students, and 16.45 for all students.

Riverdale Elementary School Testing Data: Performance on State Math Tests



Student Type: ■ All Students ■ Students with Limited Language Proficiency

## Impactful Actions

Follow-up and continual learning is key to maximizing the impact of a professional development plan. Here's what Riverdale did on their own that made a big difference.

- The school's schedule was reworked so as many teachers as possible could work with the consultant.
- Riverdale's Math Coach attended every PD course and coaching session so that she could experience the activities with her teachers. These sessions also built her own capacity for supporting teachers.
- Riverdale's Math Coach attended grade-level planning meetings with teachers.
- Riverdale conducted their own PD sessions, between the Math Solutions sessions, using Math Solutions resources.
- Each grade-level team was provided with Math Solutions resources.
- The county curriculum documents were correlated with Math Solutions resources to make the connections even easier for teachers.

*It has been exciting to watch the growth of the students and teachers since participating in Math Solutions Professional Development! We have a challenging population but maintain high expectations for all our students. Classroom, ESOL and Special Education teachers collaborate to integrate their daily mathematics instruction with Math Solutions strategies. Centers, manipulatives, flexible grouping, scaffolding, accountable talk, written responses, effective questioning, literature connections, problem-solving and real world connections are utilized to enhance the instruction and move students from the concrete to abstract level. Even our youngest students are able to explain their thinking and record their thoughts on paper. It is thrilling to hear the teachers' comments about the enthusiasm the students show during math class!*

-Teresa Cocoran, Math Coach

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