

BUILDING A CULTURE OF SUCCESS IN NORTH KANSAS CITY

CHALLENGE Counter plateauing math performance in the wake of Common Core implementation
INITIATIVE Improve teacher effectiveness to enhance student performance
RESULTS Improved proficiency at the elementary and secondary levels

CHALLENGE

In 2012 the North Kansas City School District was at a critical point. Common Core was on the horizon. Math teachers were uncertain about their preparedness to meet the new standards. Student test scores in mathematics had plateaued. With these circumstances converging, Chad Sutton, the district's Deputy Director of Elementary Education, was ready to take action. However, he was not looking for an off-the-shelf math program; he'd already tried that approach. "As a district, we believe that the effectiveness of our organization will never exceed the effectiveness of our teachers," he said. Sutton decided to target a solution that centered on enhancing the skills and competency of the classroom teacher. Says Sutton, "As we looked ahead to the implementation of the Common Core, we identified two main challenges." One of those challenges was developing the content knowledge of teachers to align with new standards. There was a strong need to have teachers who understand mathematics at a deeper level. The second challenge was identifying instructional methods that would support students' ability to think abstractly about math and develop conceptual understanding—in other words, allowing kids to talk about and make sense of math as opposed to only memorizing computations.

INITIATIVE

Year 1: Starting with Title I Elementary Schools

The district chose **Math Solutions**® professional development for its ten Title I elementary schools, starting in the spring of 2012. Mike Gould, Director of Professional Learning with **Math Solutions**, explained the initial process: "The administrators of the North Kansas City School District had a vision for improving how teachers teach. We did a Needs

Assessment of the elementary schools with walkthroughs to identify strengths and challenges." The **Math Solutions** team used data from the walkthroughs and teacher surveys to shape its approach.

Having a customized plan for embedding professional learning was a key component of the district's vision. North Kansas City hosted three coaching cycles with in-person visits by their project manager. These visits involved model lessons and classroom walkthroughs. After the end of the school year, **Math Solutions** reported its results. With all indicators showing progress, the district made a request for the following year to extend **Math Solutions** to all secondary schools and all remaining elementary schools, a total of thirty-one schools.

NORTH KANSAS CITY SCHOOLS KANSAS CITY, MISSOURI

DISTRICT PROFILE

Metro Status:
Large City
Total Schools: 31
Grades: K–12
Total Enrollment:
19,300
ELL Students:
1,289
Students with IEPs:
1,687

GOALS

- 1** Prepare math teachers for the Common Core State Standards by building their content and pedagogical knowledge.
- 2** Develop students' confidence by deepening their understanding of math concepts and their ability to reason abstractly.
- 3** Improve test scores, especially in algebra, and overall math proficiency.
- 4** Build educator capacity to support mathematics knowledge.

Year 2: Expanding to Secondary Schools and Planning for the Future

Prior to the 2013–2014 school year, the **Math Solutions** team conducted a Needs Assessment of the district’s secondary schools. David Ulrich, the district’s Deputy Director of Secondary Education, said, “Our secondary students have struggled to understand algebraic concepts and to effectively retain learning from year to year. So a key focus for us was going to be improving those scores.”

As part of the planning for year two, the **Math Solutions** team participated in the district’s annual Summer Academy that brings teachers, principals, and coaches together to share knowledge. Team members continued working with key stakeholders to formulate a plan to expand the on-site coaching sessions.

One of the key objectives for the second year was working toward the gradual release of **Math Solutions**. The approach was to have the lessons delivered less by **Math Solutions** instructors and more by the district’s own teachers and coaches. The goal was to build institutional knowledge that could be shared internally over time, making the district self-sufficient, especially as new teachers came onboard.

At the end of the school year, Sutton hosted a roundtable discussion with more than fifty teachers, coaches, and members of the **Math Solutions** team.

Sutton used this end-of-year feedback to inform plans for the 2014–2015 school year. Working with the **Math Solutions** team, he added two new goals to the professional development curriculum: (1) incorporating number talks into every elementary class, and (2) developing a generative learning environment with action research. Sutton said the **Math Solutions** team has excelled at individualizing this model for North Kansas City: “I talk with them on a regular basis, and they are very supportive of our vision . . . they’re very good listeners.”

Year 3 and Beyond: Action Research, Number Talks, and Sustainable Success

For the 2014–2015 school year, the North Kansas City School District implemented action research in half of the original

Math Solutions elementary schools. The collaborative approach supported ten to fifteen teachers from each grade level, K through five, to actively assess students in mathematics.

Action research involves bringing the teachers together as a team to define problems and then working within their individual classrooms to solve them. The teachers come back together to analyze the data and try new problem-solving approaches. The action-research approach builds teachers’ content knowledge. It allows them to identify students’ skill levels and meet them where they are instead of leading students to specific answers. It also empowers teachers to realize there is no instructional challenge they cannot collectively solve.

Another new **Math Solutions** element for year three was the integration of number talks into the elementary schools. Project Manager Chris Esch says these talks help students make sense of numbers and the operations to use with numbers: “So they’re not memorizing facts, they’re creating relationships between numbers to actually understand the concepts. For example, if you know 3 times 8, how does that help you with 7 times 8? And can you use numbers and their properties to show how you understand why 2 times 8 is the

“It’s not a prepackaged program. It’s ‘What do you see as your need, and how can we best support it.’ They’re very good listeners.”

Chad Sutton, Deputy Director of Elementary Education, North Kansas City Schools

same as 4 times 4—and how that can be useful when you get to larger numbers?” By talking about numbers and exploring their relationships, students can make better sense of math because it becomes less fearful and more logical.

District administrators and the **Math Solutions** team have continued to focus on building a model for sustainable success. A major emphasis is working with future teacher and learning coaches at the high school and middle school

levels. Gould says, “We’re helping the district’s coaches with their facilitation skills, with purposeful planning and digging deeper into the mathematics.” This process starts at the beginning of each cycle with classroom walkthroughs with principals and coaches. **Math Solutions** team members take notes to identify specific areas for improvement. Then the **Math Solutions** project manager meets with designated teachers to model lessons in a controlled classroom environment, much like an experiment. Team members look at the classroom goal, such as giving students more time to think before having to answer a question. Then they work with a teacher to plan a lesson, implement the lesson, and debrief to discuss what worked in terms of student learning and student behavior and what needs further improvement. “The greatest value to our secondary teachers,” Ulrich says, “is the very specific, very targeted consultative visits. They feel like it’s very relevant, very targeted, and it’s ongoing.”

During the walkthroughs with principals and coaches, **Math Solutions** team members also took the time to speak with students. Through their observations and student conversations, they gained valuable information about the learning process and their experiences in the classroom.

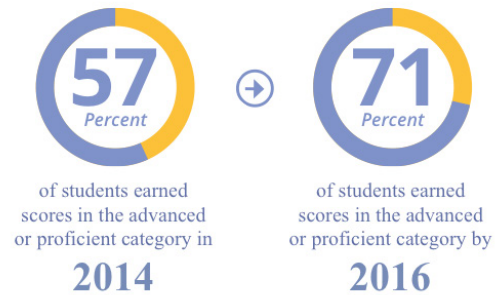
Gould adds, “It’s like a lab. The debrief provides immediate feedback for teachers so they have an action plan of things to work on before the next cycle of visits by the **Math Solutions** team. It’s all about constant improvement.” The ultimate goal is creating self-sufficiency that will allow teachers and coaches to build and sustain district-wide success—which indicates that the **Math Solutions** team’s job is complete.

RESULTS

Esch reports that the changes are noticeable: “The kids feel powerful. They know it’s changing them, and it’s also empowering the teachers.” Sutton adds, “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.” The numbers back up these claims: In Missouri state exams, the district has achieved its highest level of third-grade math proficiency in over ten years with about 71 percent earning scores in the advanced or proficient

categories in 2016, an increase of 14% in two years. Chad says, “What’s really exciting is that Missouri’s cut scores are some of the highest in the country. And our other grades have all outperformed the state.”

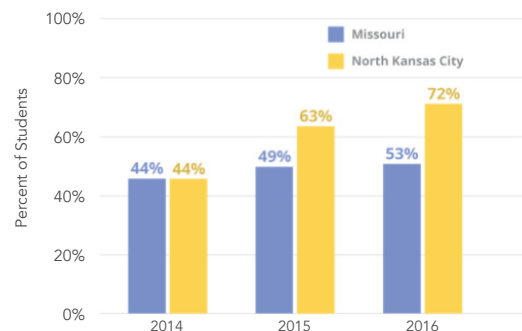
Empowered by Success: Grade 3



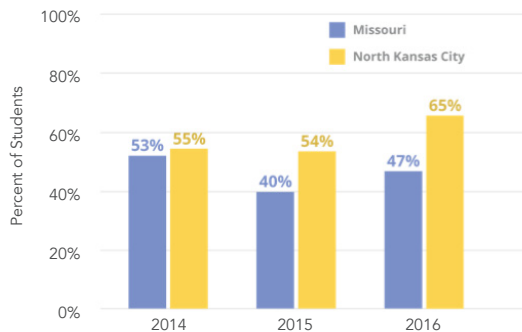
The district reported similar successes in other grade levels. In Grade Four, achievement scores jumped from 44% in 2014 to 72% in 2016 in advanced or proficient categories and from 55% to 65% in the same categories in Grade Five, outperforming the state by 19% and 18% respectively.

Success was not measured solely by achievement scores, but also by a noticeable change in the energy in classrooms. Walk into any room and you would see engaged students actively participating in their lessons, talking with each other and justifying their thinking.

Empowered by Success: Grade 4



Empowered by Success: Grade 5



At the secondary level, Ulrich reports a 7 percent increase in proficient and advanced scores for Algebra I, Geometry, and Algebra II. He says that principals and teachers tell him that **Math Solutions** professional learning is giving students new confidence and raising the rigor. He adds, "As we get closer to the Common Core, **Math Solutions** is a way to remove some of the ambiguity for our teachers in terms of how they're going to meet the new standards."

The district's commitment to improving mathematics education has not gone unnoticed. In early 2017 Nashua Elementary School, from North Kansas City 74 School District, was one of sixteen schools recognized by the State of Missouri as a Professional Learning Communities Exemplary School for promoting cultures focused on collaborative learning while effectively using data to increase student achievement. This accomplishment is a testimony to the district's ongoing engagement with professional learning and focus on placing teacher development at the forefront of the equation.

For more information, contact **Math Solutions** today.

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WHY NORTH KANSAS CITY PARTNERED WITH MATH SOLUTIONS

Each school in the district contains many stakeholders and moving parts. However, the **Math Solutions** team finds a way to help them work together. Gould and Esch have identified several key factors in the program's success:

1. Partnership

"We've built relationships with people," Gould says, "and we adjust our staff to match the needs in different schools." Esch adds that even when she is between on-site visits, teachers and coaches often email her for advice and consultation.

2. Listening

The **Math Solutions** approach is not about dictating an answer. Team members focus on listening to the vision of the school administrators and translating that vision into actions that address specific goals. Then they assess the results, adjust, and review the goals again. "We listen to what the client wants," Esch says, "what their belief system is, and we try to create a solution in unison. And we brainstorm with them on ideas for the future."

3. On-Site Presence

Gould says, "I think having an on-site presence is a huge factor. When the teachers and administrators are working with their own students in their own classrooms, it's much more meaningful than sitting in a lecture hall listening to someone tell you how things should be done."

4. Involved School Administrators

The North Kansas City School District's administrators are truly committed to improving mathematics education. At least one district administrator is present for every **Math Solutions** interaction to show teachers, parents, and the entire community that they really believe in the initiative. "They walk the walk," Esch says. "They participate. They encourage. They listen to the teachers and tell them what they're doing and why. It's because they really believe in the value of their people, and they're not focused on just test scores—they're in it for the long run. I'd love to bottle what's happening there and give it to every district."