

Norfolk Public School District

Norfolk Public Schools in southeastern Virginia serves 35,000 students with 36 elementary schools, 9 middle schools, and 1,500 teachers.

In 1999, the district developed a five-year initiative to improve the quality of mathematics instruction at the kindergarten through grade 12 levels. “At that time, our average elementary-level math scores were dismal,” explains Math Coordinator Denise Walston. “Grade five results were particularly poor, ranging from 14 percent to 56 percent with significant gaps between all subgroups.”

Denise attributes this to “a math phobia among teachers, especially in grades four and five.” Additionally, teachers were asking for professional development support to “teach for understanding and move away from paper-and-pencil and worksheet-driven instruction, toward making math more meaningful for students.”

Norfolk’s Math Initiative was a multilayered effort designed to make systemic and long-lasting change in the content and pedagogy of mathematics instruction. One aspect of the initiative included a partnership with Math Solutions to provide ongoing professional development support through courses and all-day sessions, Math Solutions publications, on-site coaching, and classroom demonstrations for teachers throughout each year.

And although 2004 was year five of the official initiative, the focus on mathematics teaching continued throughout the next year and into 2006—with year-round sessions and summer courses for Norfolk’s teachers.

A District’s Vision and Philosophy for Systemic Change

“The partnership with Math Solutions came about simultaneously with a district-wide effort to build

a community of learners,” Denise explains. “What makes this initiative successful is that we have the district’s full support. From the superintendent all the way down the line, everyone is on board. We all agreed that change involves an extraordinary amount of work, dedication, and time. You can’t just write a check and expect to see a magical transformation. You have to be intricately involved from every angle.”

In addition to providing teachers with Math Solutions inservice, the district also redefined the quantity and quality of teachers’ math planning time. “Teachers are expected to focus their mathematics planning on long-term, short-term, and daily goals that reflect the Virginia Standards of Learning. Planning is done collaboratively with grade-level colleagues and is revisited throughout the implementation process.”

Math Solutions Education Specialist Paula Snowdy has worked with the district since the partnership began. “Time and again, we see that the most successful partnerships are those founded on, and fully supported by, a district-wide vision—where all the players share the same philosophy and passion for implementing change. Norfolk is a perfect example of this.”

Launching a Professional Development Partnership

“We chose to work with Math Solutions because they are known for helping teachers make math engaging and exciting for students. They connect math to real-life experiences through the use of manipulatives, classroom discussions, and writing assignments,” Denise explains.

“Math Solutions provides teachers with new ways to differentiate their methods and lessons—so they don’t have to feel so dependent on their textbooks.” Denise continues, “Plus, we like the variety of

tasks that the courses offer, including the use of manipulatives, which show teachers how to help students make connections. Math Solutions gives teachers a vision of how to structure a unique and differentiated math program.”

In the launch year, Norfolk asked Math Solutions to conduct one summer five-day course (*About Teaching Mathematics, Part 1*), followed by two all-day sessions during the school year to reinforce two specific concepts: number sense and place value.

“We need more than just one or two five-day summer courses—we need continuous professional development throughout the year. Our initiative calls for intensive professional development, not flyby sessions. We don’t offer anything without follow-up to back it,” Denise says.

Paula agrees. “About Teaching Mathematics is a foundational course, and the follow-up sessions and professional development resources are essential to reconnect teachers to what they learned during the summer. Teachers who come to follow-up sessions during the school year are always commenting, ‘I’m really glad to have these ideas refreshed in my mind! It is so helpful to revisit what I learned—when I’m actually teaching my students.’

“What makes Math Solutions unique, is that we simulate the classroom experience. Teachers solve the same problems they will be giving to students. They appreciate, firsthand, the many ways math can be learned. They learn how to listen to student input, how to facilitate dialogue, and how to encourage classroom collaboration.” During the launch year, both the summer five-day course and the one-day follow-up sessions were well received by teachers. Says Denise, “The feedback from teachers was resoundingly positive . . . they were clamoring for *About Teaching Mathematics, Part 2!*”

One teacher sums up the experience thus: “I will throw away all my previous assumptions and teach math with a more open mind . . . and allow children to take ownership of their ideas. The old way of rote memorization and worksheets left me with many of my own math weaknesses.”

Many districts find that a combination of Math Solutions professional development courses, sessions, and resources provides the most powerful and sustaining results. Consequently, the Norfolk district now enhances its follow-up efforts by providing teachers with a variety of Math Solutions publications, including *Writing in Math Class*, *Good Questions for Math Teaching*, and title selections from the Math, Literature, and Nonfiction series.

Building Momentum and Enthusiasm

After a successful launch year, the partnership between Math Solutions and Norfolk Public Schools grew to include another five-day course (*About Teaching Mathematics, Part 2*) and several all-day follow-up sessions on topics such as writing in math class; using manipulatives; and teaching place value, multiplication, and fractions.

Says Denise: “Again, the sessions went really well. Afterwards, there was a groundswell of response. Teachers came up to us saying, ‘We really want to continue this.’ They weren’t getting tired of coming every summer.”

Building a Team of Leaders

By 2003, as the partnership entered its fourth year, Walston was able to identify a group of teachers who stood out as candidates for future leadership roles. It was at this time that she asked Math Solutions to design a series of standards-based teacher leadership sessions. “Math Solutions has given us the tools we need to revolutionize the way we teach math. We

wanted a way to reinforce this transformation and sustain all that we've learned. We chose this series because we wanted to develop a team of core leaders who could provide specialized and ongoing support to teachers working in low-performing schools."

"Like all of our work, leadership series are customized to meet the expectations of our district partners," Paula explains. "The content is designed in collaboration with district and/or school personnel. The series occurs during the school year over a period of several months. This way, teachers can return to their classrooms and immediately implement what they've learned. When they come to the next session, they discuss the experience, and share insights, with their colleagues."

"Right now, for example, one third-grade teacher is using a menu in her classroom. This instructional strategy allows students to make decisions about the activities they work on." Says Paula, "Menus are invaluable because students feel empowered by choice; they can work at their own pace, without feeling pressured; and teachers are able to facilitate the learning and differentiate instruction. When the next session takes place, the leadership team will observe this third-grade class as the students work on the menu. Then we will all meet back together, process the observation, ask questions, and give feedback."

Denise remembers a particular teacher leader series where students were brought to the session and the facilitator demonstrated an actual classroom lesson. "The teachers had the opportunity to observe how students responded, which helped them prepare for what types of questions to expect in class. Through this experience, teachers had the chance to eliminate the perception that 'these kids can't do it'—because they could. And they did."

Improved Test Scores

"Our test scores have improved dramatically . . . in grade five, they've soared from 30% to 80%."

"When we designed this initiative, our goal was simple: We wanted to help teachers help their students discover new and exciting ways to understand math. Our goals were attached to multiple measures, not only test scores. The fact that our math test scores have significantly increased is an outgrowth—a natural by-product—of the work we are doing with Math Solutions."

Denise summarizes, "The partnership with Math Solutions has given our teachers a more thoughtful way of teaching mathematics, and a focus on teaching good mathematics. Teachers are more confident now. They're willing to try new approaches and differentiate their instruction."