

# CASE STUDY

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## STEM-CERTIFIED TITLE I SCHOOL IMPROVES ACADEMIC ACHIEVEMENT AND GROWTH

Northside Elementary  
Montrose County School District RE-1J

Northside Elementary sharpens focus on student needs, increases collaboration and camaraderie, and enhances connections with families

COLORADO

## *School*

K-5

353 STUDENTS

## *Students*

1% ASIAN

1% BLACK

57% HISPANIC

40% WHITE

1% TWO OR MORE RACES

71% FREE/REDUCED LUNCH

24% ENGLISH LEARNERS

17% STUDENTS WITH DISABILITIES

In 2017, Northside Elementary received a school performance rating of “Turnaround,” the lowest rating assigned by the Colorado Department of Education. Student performance was below district and state expectations, and a culture of poor performance led to lowered expectations and morale, and high staff turnover.

At Northside, nearly three-quarters of students are economically disadvantaged and one-quarter are English language learners (ELLs). The Title I school is part of Montrose County School District (MCSD), the largest rural school district in Colorado and the first STEM school district in the state.

After Northside was identified as a Turnaround school, a new principal was hired for the 2018-19 school year, and district and school leaders decided that the high-poverty school would implement a STEM focus.

“Northside Elementary is a high-needs school. Many students are impacted by trauma and poverty. There are also many migrant families and English language learners,” said Dr. Jessica Beller, director of instructional services for MCSD. “When we first started doing research into STEM and problem-based learning, many of us said, ‘Our students can’t do this.’ But everything STEM education offers is trauma-informed and supportive of ELLs. It’s about good teaching.”

## PURSUING NATIONAL STEM CERTIFICATION

“When Northside looked into what STEM training was available, they decided to pursue STEM certification through the National Institute for STEM Education,” said Beller. “They liked that NISE offered options for online, self-paced professional learning and that it offered coaching alongside that.”

Northside Elementary partnered with the National Institute for STEM Education (NISE) in 2018. That fall, the school began working toward the National Certificate for STEM Excellence (NCSE)–Campus Certificate, and several teachers began working toward the National Certificate for STEM Teaching (NCST). The certification programs provide an evidence-based framework for defining and understanding STEM, and focus on high-impact STEM instructional strategies that work synergistically across content areas in preK-12 classrooms.

“NISE provides a common language for teachers. It makes it easy to understand that STEM is accessible to all,” said Beller.

## IMPROVING TEACHING AND CONNECTING WITH FAMILIES

With the support of a virtual STEM coach from NISE, Northside teachers developed digital portfolios demonstrating their understanding of the 15 STEM Teacher Actions across three domains that are essential for effective STEM teaching: Creating an Environment for Learning, Building Scientific Understanding, and Engaging Students in Science and Engineering Practices. At the same time, the school completed its requirements for the NCSE–Campus Certificate, developing a digital portfolio demonstrating the application of the 15 STEM Teacher Actions.

“At first, many teachers thought that STEM only had to do with science, technology, engineering, and mathematics, so they weren’t quite sure how it would apply to them,” said Brenda K. Metheny, a math interventionist and STEM coordinator at Northside Elementary. “But once we started working with NISE, our teachers jumped on board, with the belief that this would help them become better teachers. STEM isn’t something that’s above and beyond; it’s something that teachers can incorporate into what they’re already doing. It’s about good teaching practices.”

“Another reason we decided to pursue STEM certification was that we wanted to figure out how to get kids and their parents more excited about school and about making it a priority,” Metheny added. “We thought STEM would motivate students to want to be here—and it’s working.”

## EARNING CAMPUS AND TEACHER CERTIFICATIONS

In the spring of 2019, Northside Elementary became the first elementary school in Colorado to earn the NCSE–Campus Certificate. To date, more than 15 teachers at Northside have earned the NCST, with additional teachers completing the certification process during the 2019-20 school year.

“In addition to classroom teachers, we’ve had music, reading intervention, and special education teachers get certified. So, it’s been across the board,” said Metheny. “I’ve been teaching a long time and I’ve been doing STEM activities my whole career. I looked at STEM certification as a way to better myself as a teacher and take my students to the next level. It helped me zero in on things I was doing so I could bump up my ability in those areas. It’s about how we become better teachers to meet the needs of our students.”

“It can be easy to get distracted by all of the needs in the classroom, especially in a high-needs school. The NISE STEM certification program provides the structure and strategies that help teachers stay focused on improving teaching and learning in their classrooms,” said Beller.

## INCREASING STUDENT ACHIEVEMENT AND GROWTH

Since 2017, Northside Elementary has improved student academic achievement and growth, as well as its school performance rating.

“I absolutely think the STEM certification process helped contribute to our growth because it has helped our teachers focus on how to be better teachers. It helped us look at where our kids are and what they need to improve, so we can identify our priorities and focus on those,” said Metheny. “As a result, we’re continually getting better.”

Northside Elementary  
Overall Performance Rating

Year	School Performance Rating
2017	32.1% Turnaround
2018	37.7% Priority Improvement
2019	43.2% Improvement

## Performance Indicator Rating

Year	Academic Growth Rating
2017	27.3% Does Not Meet Expectations
2018	38.5% Approaching Expectations
2019	43.3% Approaching Expectations

Year	Academic Achievement Rating
2017	39.3% Approaching Expectations
2018	36.4% Does Not Meet Expectations
2019	42.9% Approaching Expectations

## IMPROVING THE SCHOOL CULTURE, COLLABORATION, AND CAMARADERIE

“In addition to our students improving on the state assessment, our school climate and culture feel better—not just for teachers, but for students and families. Office referrals have gone down for student behavior. Our staff seem happier and morale seems better. STEM certification has contributed to all of that. It’s fun to be at school and kids want to come to school because of all the cool things we’re doing,” said Metheny.

“Northside is seeing the benefits of STEM learning, not only in STEM but in skills such as critical thinking and collaboration,” said Beller. “There is more camaraderie as a result of the NISE STEM certification process. It offers teachers opportunities to collaborate and complete modules alongside each other, and I see the difference in how teachers are interacting with each other. They’re more engaged.”

Metheny agrees. “STEM is helping us build relationships—student to student, teacher to student, teacher to teacher, and parent to school. Teachers and students aren’t just staying in their own classrooms; they’re collaborating across grade levels. It’s helping us build a community at our school,” said Metheny.

“Northside Elementary teachers see the value STEM provides for their classrooms, and they are great champions of it,” said Beller. “The school has the highest free and reduced lunch percentage in our district, and the highest number of children coming in with Adverse Childhood Experiences (ACEs). Northside being a STEM-certified school dispels the myth that STEM is only for certain schools or for students who are ready for STEM, because if they can, anyone can.”