"I'm a bat expert!" exclaims Phillip, a kindergartener at STEM School and Academy, as he triumphantly holds up his bat drawing for his classmates to see. This isn't any ordinary classroom. The drawing Phillip holds up can be seen by not only the other children in the class, but those in Arickaree, a rural Colorado school about 150 miles away.

They're holding class via a Polycom® RealPresence Centro™, a circular video conferencing system with a 360-degree camera that engages everyone in the room in a natural discussion circle. Next, the two classrooms jointly create a smiling human face directly on the touch-screen using the digital whiteboard. A STEM student draws the eyes blue. "Like mine!" remarks Phillip. A little girl in Arickaree draws the nose, and so on.

Later that day, high school students from both schools discuss the Cuban Missile Crisis. STEM students debate the issue from the United States’ perspective, as the Arickaree students debate from the Soviet Union perspective. RealPresence Centro detects which student is speaking and automatically focuses on that speaker. Next, science class. Arickaree students share their knowledge of energy fuel. A STEM student shares his enthusiasm for hydro fuel, "My favorite renewable source," he says.
“Synchronous online learning brings these opportunities to underserved areas, and we start to realize the limitless potential the kids in rural areas have. Connecting all these students is like seeing miracle after miracle. I want every child, no matter where they are, to have the same opportunities the STEM students have.”

Gregg Cannady, STEM Concept and Collaboration Developer

Now, what you’re about to read may blow your mind a little. In the next class, computer science taught by former IBM operations manager Simi Basu, a seventh-grade STEM student named Ben is teaching the day’s lesson to his peers and a high school class from Arickaree on how to create a 3D model of a coffee mug using Blender (computer graphics, animation and 3D modeling software). Sharing his screen of the shapes in progress, both classrooms view and follow along with what Ben is doing on his screen in real time. “We’re not just preparing them for the jobs that exist today, we’re preparing them for the jobs of tomorrow,” explains Basu. The topics she teaches her middle school students include cybersecurity, defensive hacking, and game design. “I tell my students not to just play games on their phones; they should create their own games.”

STEM School and Academy breaks the mold of conventional schooling. There are three schools in one: elementary, middle, and high. Touring visitors can see classrooms with students collaborating in clusters—a departure from traditional classroom-style setups in which all students face the front of the room toward a lecturing instructor. “The students are technology consumers, and just as our students represent the future, our classrooms too must embody and embrace this collaborative mindset,” says Simi Basu, Computer Science teacher and innovator for the STEM School and Academy’s vision: Classroom of the Future.

Currently, there’s a waiting list of 2,000 students to attend this special school that offers a world-class education.

Gregg Cannady, STEM Collaboration and Concept Developer, is on a personal mission to bring every opportunity to children in rural areas who aren’t in geographic proximity to large, urban schools like STEM. So when the Nathan Yip Foundation, created by the family of a young man who died in a car accident, reached out to Cannady for help with their mission of spreading educational opportunities to underserved communities in Colorado, Cannady wholeheartedly embraced the mission. “Synchronous online learning brings these opportunities to underserved areas, and we start to realize the limitless potential the kids in rural areas have. Connecting all these students is like seeing miracle after miracle. I want every child, no matter where they are, to have the same opportunities the STEM students have.”

A special performance

On the morning of May 9, 2017, a group of music students performed a joint concert to kick off a Polycom companywide employee meeting.

Tate, dressed handsomely in a blue shirt and tie, played guitar solo in the Arickaree classroom, in sync with the STEM students, during a live broadcast to Polycom executives and 1,200 employees dialing in from remote work locations in the U.S., Canada, Latin America, Europe and Middle East.

The songs, which included a beautiful rendition of Amazing Grace sung by a female seventh-grader, sounded as if everyone were in the same room.

“Really fantastic. What a treat to witness the talent of these young students,” commented Polycom CEO Mary McDowell, from a conference room in New York City, after
the performance ended. Following the worldwide company meeting, comments poured in from employees—engineers to software developers to marketers to accountants—expressing how much the performance had touched their hearts.

One vision
These are the kinds of opportunities Cannady—and a group of individuals he calls the MARS team—strive to bring to students like Tate. Opportunities are not limited to just science, technology, engineering and math, as the school name suggests, but art and music too.

Technology, like the RealPresence Centro, is just one tool that enables Cannady and Basu to connect all students “human to human, student to student, teacher to teacher” from everywhere to the Classroom of the Future.