

STEM Institute

A Collaborative Partnership
of USD 383
and
Kansas State University's
College of Education

Summer 2017



A Few Fast Facts

- STEM teachers and students traveled to Fort Riley one morning for a field trip.
- Former Kansas Teacher of the Year Shannon Ralph spoke to the KSU students as part of EdFest, sponsored by the College.
- Students from Seward County and Manhattan's Verde Clovers 4-H clubs and the Kickpoo and Potawatomi Prairie Band reservations visited STEM classes.

STEM Still Growing

USD 383 Manhattan-Ogden and the Kansas State University College of Education partnered for the seventh year to offer the four-week Summer STEM Institute, providing new classes, some old favorites, and a whole lot of hands-on learning opportunities.

Funded by a \$1.7 million U.S. Department of Defense Education Activity Grant to USD 383, the project was held June 5-29 for 325 USD 383 fifth-through eighth-grade students. Fifty-six KSU pre-service secondary and elementary teachers helped lead STEM (Science, Technology, Engineering and Math) classes, as well as music, writing, and gaming.

Assisting were KSU's College of Veterinary Medicine's Department of Anatomy and Physiology; College of Engineering's Department of Architectural Engineering and Construction Science, Department of Computer Science, and Department of Biological and Agricultural Engineering; College of Architecture, Planning, and Design's Department of Architecture; College of Agriculture's Department of Grain Science and Industry; Manhattan Area Technical College; StarBase; and Fort Riley.

The Team That Makes It Happen

A special thanks to COE Dean Debbie Mercer, Curriculum and Instruction Department Chair Todd Goodson, instructor Kaylee Myers, and graduate assistant Emma Detrixhe, as well as USD 383's Lacey Sell, Chris Herald, Larry Liotta, Brett Nelson, Deb Nauerth, Duke Harmon, Deb Mohler and Diane Daniel.

~Lori Goodson





STEM Alum Returns in Teacher Role

Abby Thompson, recent music education graduate and former summer Core student, came back to Bluemont Hall as a teacher

In summer 2014, Abby Thompson was a music education major taking Core Teaching Skills during the summer. She found herself in the Summer STEM Institute assisting a classroom teacher leading a group of middle schoolers in a class called Monster Storms. Four years later, she returned to STEM, as a KSU graduate and the licensed teacher helping other future students.

In Thompson's summer Core experience, she was teaching about weather and barometers—not something she'd ever expected to

teach as a music education major.

"I vividly remember the very first thing I taught, the students made barometers to test the weather every day, so pretty much just walking them through the steps of putting it together," Thompson said. "I have helped with others camps for years, but this was one of the first times I was teaching REAL students, REAL material, in a 21st century classroom (not to mention I was being critiqued!). I was honestly terrified."

But it served as a great learning

opportunity for her.

"As a young education major, I was so surprised with how creative the students could be," she said. "They had no inhibitions whatsoever. And when something didn't work the way they wanted, they tried something different instead of just giving up right away. This experience helped define who I was not only as a teacher, but as a student too!"

This summer, the STEM Institute is

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Dr. B Creates Grad Class Connection

We've added a new element to STEM this summer—having a College of Education professor co-teach a class with a USD 383 teacher.

Dr. Brad Burenheide, secondary social studies associate professor, and USD 383's Meshell Thornley taught Thinking Through Games for all four weeks of the Institute.

But we didn't stop there.

Burenheide also taught a graduate class in which the graduate students worked with the STEM students.

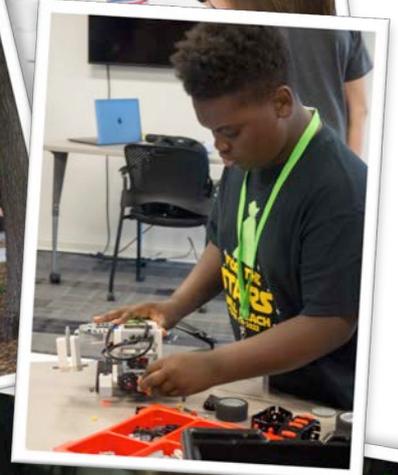
That meant the classroom included several levels of educators and students—the university professor, the USD 383 teacher, graduate students, undergraduate students from the Core



Teaching Skills class, and the USD 383 middle-school students.

Classes Offered On Campus and Beyond

- 3D Printing
- Bio Engineering
- City of Minecraft
- CSI
- Exploring Drones
- Fill Your Toolbox (at MATC)
- Grain Science
- Hollywood Science
- Intro to Passive Architecture
- Music Using STEM Is Cool
- Maker Spaces (at Marlatt Elementary)
- Mighty Micro Controllers
- Monster Storms
- Robotic Design
- Robotics at STARBASE
- Roller Coasters
- Science of Sports
- Simulating The Martian
- Solar Construction
- Thinking Through Games
- Treasure Hunters
- Vet Med
- Writing into the Vast Beyond



Showcasing Our Students' Learning

USD 383 and KSU's College of Education Curriculum and Instruction Department hosted the first ever STEM Showcase in the Union Ballroom. Community members, parents, and school and university officials were invited.





STEM Alum Returns

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Every morning students streamed onto campus, heading for their classes in Bluemont Hall or one of the many other sites.



Another first this summer is having KSU students ride a student bus from one of the USD 383 sites to campus. While totally voluntary, about six students offered to join in.



Instructor Kaylee Myers (left) and graduate assistant Emma Detrixhe assisted with the Core Teaching Skills lab and STEM activities.

evolving into STEAM—adding an “A” to incorporate the arts—mostly because of suggestions by middle school students’ parents and previous KSU Core students. That allows music education students and others to lead classes more aligned to their content. Thompson is the first to get to teach a music class specifically for the summer institute.

“I think it’s outstanding we are finally incorporating the arts into STEM,” she said. “While science, technology, engineering, and math skills are all crucial to develop skills needed for the future world, we can’t forget about the emotional and affective outlets that the arts give students.

“When you ask students why they like a song or why they drew a certain picture or why they wrote a story, they don’t respond with answers that relate to math and science. They respond with how the music makes them feel or a moment in time that they are reminded of. These topics are a huge part of the development of a child’s ability to understand and define their emotions and need to be included in every school’s curriculum.”

She had the opportunity to design a new class where she could combine her love of music and her desire to be a teacher. And she says she is thoroughly enjoying the experience.

“What I really love about STEM is that it’s EXACTLY what school should be—experimenting, designing, building, creating, analyzing, problem solving, going on field trips, incorporating technology, collaborating with others and working individually,” she said. “And my role becomes more of a facilitator rather

than a teacher.”

It also helps that she’s in familiar territory—a campus she has called home for several years.

“Coming back to Bluemont is like coming home to me!” she said. “It’s a strange feeling going from ‘college student’ to ‘teacher’ in only a few weeks. But the music and education faculty did such a great job preparing me to become a teacher and giving me authentic opportunities to practice what I have learned, it felt natural!

“The support in Bluemont and in the entire STEM team from USD 383 is just outstanding,” she continued. “It can be intimidating sitting at the same table as teachers who have 20 years of practice under their belts, but everyone makes you feel so welcome.”

Thompson is also enjoying working with several pre-service teachers as they gain experience for their future careers.

“The pre-service teachers I work with are awesome,” Thompson said.

“When you get five music people together to teach music, it’s like the dream team.”

In August, Thompson will begin her teaching career at St. Xavier Catholic School in Junction City, where she will teach K-12 band, choir, and elementary music.

From being a KSU education student teaching about weather in STEM to leading a music class, she feels more comfortable than ever with her career choice.

“I’ve left every teaching experience so far and thought, ‘Yes, I am doing exactly what I was put on this earth to do,’” she said. “STEM Camp has just solidified that even further.”

Hands-on Learning



A Perfect Combination

STEM * SUMMER * STUDENTS



Company Helps Build Our Program

BHS Provides Supplies, Expertise for New Maker Space Class

BHS Construction Inc., 727 S. Juliette Ave., has teamed up with USD 383 and KSU's COE to help expand our STEM class offerings.

The local construction company provided supplies to help make our new Maker Space class at Marlatt Elementary a success, but that's not all. They even provided expertise by having Wayne Rohr, superintendent, work onsite with the students.

It's exciting to have members of our business community joining our STEM projects and making such a commitment to the middle-school students and KSU's pre-service teachers.

