

Summer 2015

STEM Institute

A Manhattan-Ogden USD 383/Kansas State University College of Education Collaborative Project

The STEM Story

Welcome to our report on the 2015 Summer STEM Institute. A special thanks to KSU's Dean Mercer and C&I Department Chair Todd Goodson and Manhattan-Ogden USD 383's Carol Adams, Chris Herald, Larry Liotta, Deb Nauerth, and Duke Harmon. We also want to thank our generous donors who helped make the STEM institute a possibility for 40 USD 383 students and 40 KSU COE students. Without their support, the Institute would never have happened.

~Lori Goodson



For the fifth year, Manhattan-Ogden USD 383 School District and Kansas State University's Curriculum and Instruction Department in the College of Education teamed up to provide the STEM Institute, funded through a \$1.7 million U.S. Department of Defense Education Activity Grant to USD 383. Held June 1-27, STEM involves middle schoolers attending a variety of STEM-related classes in the College of Education's Bluemont Hall and other campus buildings. Additionally, KSU COE Core Teaching Skills students get teaching experience by assisting with the classes.

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By the Numbers

Here are some of the key numbers from the Institute:

- 54 KSU secondary education students (from 12 content areas) participated. Music, 16; Social Studies, 10; English, 6; Agriculture, 6; Chemistry, 5; Math, 3; Business, 2; Art, 2; Biology, 1; Modern Languages, 1; FACS, 1; and Physics, 1 (*compared to 28 students last summer*).
- 2 weeks of intensive “front-loading” of Core Teaching Skills content to allow for...
- 4 weeks of uninterrupted classroom time with the middle-school students.
- 348 USD 383 students participated (*compared to 305 students last year*).
- 26 USD 383 teachers and administrators helped lead the program.
- 8 hours of quality planning time between the KSU students and the USD 383 teachers.

Classes Offered, Rooms Provided

STEM Summer Institute 2015 Classroom Assignments	
Classroom	Class
1. BH 107	Outdoor Biology
2. BH 108	GPS
3. BH 111	Monster Storm
4. BH 112	Need for Speed
5. BH 123	Science of Sports
6. BH 217	3D Printing
7. BH 225	Wind Energy
8. BH 242	Solar Construction
9. BH 256	Electronic textiles
10. BH 257	Roller Coasters
11. Justin 115	Chemistry of Candy
12. Trotter Hall 301	Vet Med
13. Shellenberger 311	Hollywood Science
14. Shellenberger 301	CSI
15. Shellenberger 204	Flour, Food, and Fido
16. Seaton 254H	City of Minecraft
17. Nichols 122	Mission to Mars
18. Nichols 128	Video Game Design



KSU Students Benefit from Core Class, Intensive Field Experience

KSU students completed two weeks of Core Teaching Skills instruction, followed by four weeks of field experience helping teach a variety of courses to students in grades five through nine.

Additionally, they met with Core instructors Lori Goodson, Amanda Lickeig, and Kaylee Myers throughout the month of June. On Tuesday and Thursday mornings throughout their field experience they met to stay updated regarding projects, such as the portfolio, and to provide opportunities to share their classroom experiences. Fridays, when the Manhattan-Ogden USD 383 students were not attending classes, the KSU students met with their Core instructors. They also worked in two micro-teaches per team of three or four students.

Their Core classwork included Socratic

Circles, in which students shared successes, their own learning moments, and concerns.

It was apparent through these Socratic Circles that the students enjoyed the opportunity to learn in a true classroom. They made comments about how impressed they were that their cooperating teachers could respond to a variety of classroom situations quickly and calmly. They spoke of how they were able to make connections with students quickly and how a simple visit with a student can mean so much.

And, as evidence of their dedication to teaching, in a power outage where, due to the circumstances, the KSU students were dismissed, nearly all of them came back voluntarily once power returned to the building to help teach their classes.



Our COE/383 Family Recipe

Here's how to create a successful institute:

- 54 KSU COE Students**
- 348 Manhattan-Ogden USD 383 Students**
- 26 USD 383 Teachers/Administrators**
- 1 KSU Faculty Member**
- 2 Graduate Students**
- 10 COE Classrooms**
- 1 (unexpected) Power Outage**

Combine all ingredients. Mix well. Add a few dashes of fun, curiosity, and excitement.

Donors Support Our STEM Project

Thanks to generous donors, KSU COE offered 80 scholarships: 40 \$200 scholarships for KSU students taking the Core Teaching Skills course and 40 \$50 scholarships (half the cost of the STEM Institute) for Manhattan-OgdenUSD 383 students in grades 5-9 (5th grade, 4 scholarships; 6th grade, 16; 7th grade, 12; 8th grade, 6; and 9th grade, 2). Here are some examples of narratives they wrote for their application.



I want more information so I have some stuff to tell my classmates and have a lot of fun. I also want to learn more about Tech. I also enjoy seeing all the students on campus. I think they are a great role model for us and I can see my collage her at K-state.

I am applying for this scholarship. I did the STEM program last year and I really enjoyed it. My favorite week at STEM was the week I did robotics. I love engineering and technology therefore my favorite subject is science. I also believe that women need to be more involved in the STEM careers, so when I'm older I hope to be an engineer or a computer scientist. Thank you for your time and considering me for the scholarship.

Imagine a little kid holding a screw driver and a hammer taking apart old desktop computers at his father's office over the summer. Unable to fix these behemoths, the boy is undeterred goes home to watch the discovery and science channels. The kid you are thinking of was me when I was about six years old. This is similar to many of my summers in some ways. While exploring on my own was fun and sparked my curiosity I look forward to learning with others in the summer STEM program. So naturally I have developed interest in many of the attributes of STEM topics. For my career path I would like to become an engineer, preferably a nuclear engineer.

I was just starting to think, yeah only 7 weeks of school left! Then I saw the STEM program topics and instead I was excited to have another 4 weeks of class in the summer through this opportunity. STEM Courses, such as 3D printing and Drone Technology are really interesting and could be helpful in further developing my curiosity. Opportunities such as this expand my knowledge, but are also valuable in finding my interest in these fields.

My favorite class is L.A I'm looking into being a vet so I need to take science classes. I also want to look into other options as well. I don't know what engineering but my dad challenges me to learn something new every day, and this will help that.
(My mom wants me to do something educational over summer!)

Hello, My name is [redacted] and I would like to attend STEM because I am really interested in the things they teach there. I am in gifted and my favorite thing is to build the NXT robots. One time I built a car with a catapult mounted on top from complete scratch. Then I programmed it to go through an obstacle course. I also think that with the technology of the 21st century the skills you learn there will apply and be useful to me because my dream career is to become an engineer.

I would like to attend this STEM program because it's an opportunity of a life time. I think that because I've never been to a camp with so many activities. While I would be sitting on the couch watching tv, I could be at this camp having the best time ever. It's also good that I'm going because there is going to be so many different people from all kinds of schools. I could also become more social from coming from this camp because I'm going to make a lot of new friends. I picked the CSR activity because it would be so much fun to investigate crimes. The thing that really got me into investigating crimes was watching the show NCIS with my dad. I picked the vet medicine as number two because for starters I want to be a veterinarian when I grow up. I also love animals. My favorite thing about this activity is that we get to visit a vet, see what they do, and do real live experiments. This is why I want to attend this camp.

USD 383 Data

Who is attending?								
Yr	5th	6th	7th	8th	9th	Totals	M	F
2015	120	110	60	46	13	349	194	155
2014	110	95	62	35	13	315	186	129
2013		90	69	26	6	191	124	67
2012		93	56	31	11	191	114	77
2011		76	49	33	11	169	87	82

Military students: 52 students, 15.1%

June 11, 2015

Gender	Grade					Total
	5	6	7	8	9	
F	54	49	26	24	2	155
M	66	61	34	23	10	194
Total	120	110	60	47	12	349

June 11, 2014

Grade Level	Male	Female	Total
5			
6	60	48	108
7	56	35	91
8	36	26	62
9	27	8	35
Total	183	125	308
	59%	41%	

Some data Manhattan-Ogden USD 383 provided regarding their students attending Summer STEM

School 14-15	Number of Students	Percent
OUT OF DISTRICT	30	8.7
AMANDA ARNOLD ELEMENTARY	42	12.2
BLUEMONT ELEMENTARY	17	4.9
DWIGHT D. EISENHOWER MIDDLE SCHOOL	47	13.6
FRANK BERGMAN ELEMENTARY	30	8.7
LEE ELEMENTARY SCHOOL	21	6.1
MANHATTAN HIGH SCHOOL	12	3.5
MARLATT ELEMENTARY SCHOOL	37	10.7
NORTHVIEW ELEMENTARY SCHOOL	28	8.1
OGDEN ELEMENTARY SCHOOL	1	.3
SUSAN B. ANTHONY MIDDLE SCHOOL	45	13.0
THEODORE ROOSEVELT ELEMENTARY SCHOOL	15	4.3
WOODROW WILSON ELEMENTARY	20	5.8
Total	345	100.0

KSU Student Comments

"I really enjoyed working with kids in a very unique setting. Most people just have another field experience, but we got to see a whole new look at education."

"I was lucky to work with Ms. Stadlander who was a special ed. Teacher. I learned so much by just observing her in the classroom."

"I got to meet a lot of great people. Professors, 383 teachers, classmates, and students. Everyone is so cool!"

"Being a part of the entire teaching experience, not just coming every other day like we would in a normal classroom."

"I love children, and this has really solidified to me that I am in the right major. ☺"

"How much I was able to take away from my co-teacher. She was very helpful and had a lot of good insight about teaching. I really enjoyed getting to work with the kids."

"One positive experience I liked was the building of relationships with the STEM kids. Observing how creative kids can be."

"I have become more comfortable with teaching and no longer get nervous when teaching!"

Our Award-winning Amanda Lickeig



During an incredibly informal ceremony in front of her summer Core students, GTA Amanda Lickeig (ABD) received the KSU COE Outstanding Graduate Teaching Assistant Award from Dr. Goodson. Amanda, who was unable to attend the official award ceremony, completed her second summer of STEM. She was a key piece in the success of the KSU portion of the institute. She has accepted a position at Emporia State University, which she will begin in August upon successful completion of her dissertation. We will miss her, but we are grateful that she has helped train her "replacement," Kaylee Myers, who is a great addition to the KSU STEM team.