

# South Central STEM Hub Newsletter



science | technology | engineering | mathematics

## South Central STEM Region at Drake University

### STEM Happens

#### CASE institute preps teachers for more than agricultural science

Teacher training is underway at the Curriculum for Agricultural Science Education (CASE) institutes. During the two-week professional development workshops, teachers work through a curriculum of hands-on activities designed to teach rigorous STEM concepts with a strong agricultural relevance. "Before teaching, I worked at Ag Leader Tech in Ames and as a plant breeder. The skills I teach in CASE really lined up with those careers," said Jason Powers, of Pella High School.



More than Ag science, taxonomy and leadership skills

"CASE presents the concepts in a logical sequence that builds. The program helps increase rigor and relevance to students in Ag Science class, but also helps students make more real life connections with concepts they are learning in their life science and chemistry class," one participant shared. In addition to working through labs on topics like taxonomy, respiration, and genetics, institute participants discuss modifications to meet the needs of all learners, and opportunities within each lesson for students to practice and develop leadership skills. Powers adds, "The students gain troubleshooting and problem solving skills; I have heard that from other teachers in the school. We know who the Ag students are because of their troubleshooting and problem-solving skills"

Allen Spencer teaches Ag Science in Red Oak. Mr. Spencer taught the CASE Agriculture, Food, and Natural Resources course last year, and returned for the Ag Science- Plant institute this summer. He said of CASE: "It was really what I wanted. A consistent set of activities that lead to something. I know I have become a better teacher by going through this program."

#### Computer science for middle school students at Drake Summer App Camp.

Dr. Timothy Umess, Associate Professor of Computer Science, started the Drake Summer App Camp in 2012 to provide early exposure to computer science for middle school students. The pilot last year had 12 participants, and this year they expanded the camp to two sessions and about 50

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**Spread the word about your SUMMER EVENTS!**

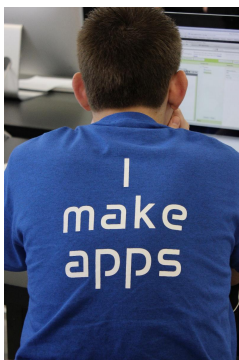


**Add them to the South Central STEM Calendar!**

**[Submit your STEM event here!](#)**



FTC Champions, Team Beta, give a press conference at the capitol.



participants. All equipment is provided, so students need not have a smartphone to participate. Dr. Urness and the SC STEM Hub are currently working to find sponsors to provide scholarships for next year's participants to make the app camp more accessible to all students.

During the week long day-camp, students participated in a variety of activities including writing very specific instructions, or algorithms, for making a peanut butter and jelly sandwich. They applied that need for specific algorithms to become better programmers.

Drake App campers created apps for homework, recreation, and health. For example, one participant created an app that alerts the user at intervals with a reminder to drink more water, then links to an article from Mayo Clinic on the benefits of hydration. At the end of the week-long camp, students showcase their accomplishments to family and friends.

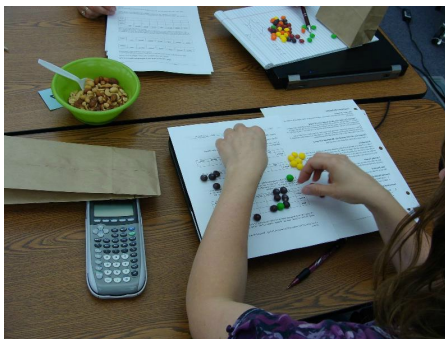
"I have a homework app that I haven't finished yet. You can store formulas and assignments on it. I'm going to keep working on it." said a participant on the last day of camp. Check out some of the apps yourself at at the Google Play Store, [here](#), where [Android users can download camper-created Apps for free!](#)



Dr. Urness (left) started the Drake Summer App Camp to provide an opportunity for early exposure to computer science.

## Rigor and relevance for statistics and probability educators

A group of high school teachers from rural Iowa are now prepared to teach mathematics with more activities that engage students in real-world situations. Educators met at Great Prairie Area Education Agency in Ottumwa for a two week course in statistics and probability instruction to explore activities that illustrate concepts aligned to the Iowa Core Mathematics Standards.



Hands-on activities included using frequency tables to calculate the probability of selecting a certain flavor of candy from a bag, and determining if gaming dice were fair.

Teachers also read and discussed primary research on bias in probability, exchanging ideas for how to address the potential pitfalls with high school students.

**FIRST team grants and free workshops available!**

Interested in coaching a FIRST Tech Challenge (FTC) or FIRST Lego League team? [Apply for a FIRST Grant](#) from Rockwell Collins

Are you an FTC coach? Do you want to become one? Attend a **FREE Rookie FTC Coach Workshop** or **Returning FTC Coach Workshop** this summer!



**Be a role model. Share your STEM skills and story in your community.**

Want to share your STEM skills and story in your community? Go to the [SC STEM Hub website](#) and click "Find a Scale-Up near you!" for the list of schools awarded '13-'14 Scale-Up programs. Contact a school in your community to see how you can help. You will also find a calendar of STEM events, and other ways to get involved!





"It made things 'click' in a way I had never seen before. I am bringing home activities for the students and gaining a lot from the collaborations with other teachers." one statistics teacher said.

The ultimate goal of these efforts is to create competence and confidence in mathematics, encouraging students to pursue STEM-related fields.

Dr. Wendy Weber of Central College (left), Lynn Selking of Great Prairie AEA (middle), and Dr. Maryann Huey of Drake University (right) facilitated the workshop.

## Events

### Don't miss these upcoming STEM events!

July 3 [Robots 'n Girls](#), Ottumwa

July 19 [AFCEA Scholarship Application Deadline](#)

July 21-26 [IMPACT Summer Institute](#), Cedar Falls

July 29-Aug 2 [IMPACT Summer Institute cont.](#), Cedar Falls

Aug 1 [Robots 'n Girls](#), Ottumwa

Sept 20 [STEM Teacher Educators' Conference](#), Des Moines

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