

South Central STEM Hub Newsletter

**GREATNESS
STEMS
FROM IOWANS**

Drake
UNIVERSITY

SOUTH CENTRAL IOWA REGION GOVERNOR'S STEM ADVISORY COUNCIL



Drake Undergraduate Research Symposium and Hands-On STEM Festival

STEM Festival

FUN, FREE, FAMILY-FRIENDLY

K-12 **STUDENTS** and their **FAMILIES** are invited for an evening of **ACTIVITIES** and **EXHIBITS** designed to **EXPLORE, CREATE, MAKE, and LEARN** more about exciting opportunities in **STEM** areas.

Science * Technology * Engineering * Math

WHEN: April 16, 2015
TIME: 6:00-8:00PM
WHERE: Olmstead Center (Drake University Campus 1245 29th Street Des Moines, IA 50311)
REGISTER NOW: scstemhub.drake.edu
QUESTIONS? Email Dr. Sarah Derry at scstemhub@drake.edu

GREATNESS STEMS FROM IOWANS | Drake UNIVERSITY | SOUTH CENTRAL IOWA REGION GOVERNOR'S STEM ADVISORY COUNCIL

The Drake University STEM Festival

WHEN: April 16, 2015

TIME: 6:00-8:00PM

WHERE: Olmstead Center on Drake's Campus

Check out this incredible festival, featuring robotics, naturalists, the science of yoga, a botanical artist, the science of music, physics, engineering activities, math games, and much more!

HEY, does your school have so much interest that you need an entire BUS? If so, the Hub can pay for the first 10 schools to request funding. Contact Sarah Derry at scstemhub@drake.edu.

Click here to ATTEND or to EXHIBIT.

STEM Happens

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Scale-Up Update from Dr. Sarah Derry

With Scale-Ups, festivals, school visits and planning meetings, March was such a busy month that spilled right into April!



We are so excited to see a growth applications from the SC STEM Hub region! Right now, selections are being made and additional funds are being sought. Applicants will be notified via email, awarded or not, on April 15th.

Thanks to all who applied!

In the meantime, should you need assistance, please email me at: scstemhub@drake.edu



Congratulations to Kacia Cain!

Cain, who teaches at Central Campus, won the Kemin Inspired Teaching Award for the South Central region. An official announcement was made during the Summit. Look for an upcoming article on this outstanding STEM teacher.

Family of like minds convenes at Iowa STEM Summit

When Executive Director Dr. Jeff Weld gave welcoming remarks at the annual Iowa STEM Summit on March 30, he said, "This feels like a family reunion." And that's the atmosphere created with the 500+ attendees at this year's event.

Governor Terry Brandstad, Lt. Governor Kim Reynolds and Mary Andringa joined the stage, thanking the audience for their efforts and inspiring future work. "But it's not work if you love what you do," added Reynolds, "and I have a passion for STEM."

Reynolds predicted that this year alone, Scale-Ups would impact at least 2,190 educators and over 100,000 preK-12 students. If all the applications could be funded, the reach would be considerably more, with the possibility of impacting over 5,147 teachers and almost 213,000 students.

One student who is deeply rooted in Iowa STEM served as the event's keynote. Kwizeri Imani, a Des Moines North High School senior, is active on the State Advisory Board. His inspiring story began in Tanzania and brought the

I AM STEM!



Lt. Governor Kim Reynolds, Kwizeri Imani and Mary Andringa at the STEM Summit.

The Inspiring Kwizeri Imani

Kwizera Imani looks impressive in ROTC uniform, but even more impressive is this North High School senior's story.

Born in worn-torn Tanzania, Imani lived for 10 years in a refugee camp. During that time, he lost his mother a sister. Still, he doesn't complain about the stressful situation.

"Not many kids got the opportunity go to school," he said. "It was challenging. Teachers would whack u You had to have 80 percent proficient to move to the next grade."

Then, in 2008, when Imani was in 4 grade, the United Nations chose his family to move to the United States. The cultural transition was difficult, especially learning a new language.

"I would stay over at friends' house and take my dictionary with me. I wo use applications from my ELL class."

By eighth grade, Imani mastered English. By his junior year, Imani completed all mandatory high school coursework.

It was during this time that he got involved with an educational experier at the Des Moines Airport. This push him to pursue other advanced classe "I'm more interested in STEM classe he says.

As a senior, he's taking five AP classes and in charge of Physical Training for his ROTC unit.

"I've been in [ROTC] for four years

audience to their feet, one of two standing ovations. (The governor got the other.)

"One of the things we need to do," said Imani, "is get kids on a field trip and show them all the benefits that STEM has. For example, let's go to Rockwell-Collins for a day and see why we learn the Pythagorean Theorem in class."

The day continued with breakout sessions, additional speakers, and a peek into STEM-funded classrooms around the state. Once such room resides at Des Moines Hoover High School. Maureen Griffin, STEM Academy Coordinator noted, "We're giving these kids an experience in high school similar to how they'll be working in college and in their future work spaces."

Even with the many successes, more work needs to be done. Program evaluation and growth are necessary. Hispanic and African-American students still face an achievement gap in all STEM areas. Assistant Director Carrie Rankin offered this challenge to everyone in the room: "This year, develop one opportunity to help improve these statistics."

Because that's what families do—they work to make the world a little better for everyone.



Communications Director Angel Mendez interviews Kwizeri Imani at the STEM Summit. This accomplished young man shares what inspires him, "My motivation is for my parents. My dad has sacrificed so much for me to have a good education and a good life. This is my way to say thank you."

We have diverse students. We discuss situations that are going on. It's brought a kid like me into being a man."

In addition, he serves on the State STEM Advisory Council and offers the direction: "Strengthen STEM at elementary and middle school. Pull them in at a young age while their brains and interests are still developing."

So what drives this inspiring young man? "My motivation is for my parents. My dad has sacrificed so much for me to have a good education and a good life. This is my way to say thank you."

Next year, he'll attend ISU to pursue an aerospace engineering degree. Someday, he hopes to travel back to Tanzania. That will be Iowa's loss, but the world's gain.

STEM in the Classroom

AmeriCorps NEEDS You



The Iowa Mentoring Partnership is recruiting an AmeriCorps VISTA to support our work with STEM. VISTA service is an excellent opportunity to gain experience and training while making a difference in the community.

- Members must be 18 years old and have a bachelor's degree
- One year term of service
- Small living allowance provided
- Eligible for an education stipend to repay student loans
- Hiring is mid April with a mid June start date.

Click [HERE](#) to learn more!

Apply Now!
SCI's Meals with



Susan Smith, STEM champion at Sacred Heart, loves teaching hands-on science. "Designing from start to finish on your own can be intimidating. They did struggle at the beginning, but they adjusted quickly and really liked it. This is perfect for their grade level."

Meet Sacred Heart STEM Champion Susan Smith

Students in Susan Smith's 4th grade science class are ready to help out the medical field—one knee brace at a time.

"This unit was very exciting for them," said Smith. "I integrated it into an existing unit on bones and muscles. I wanted a hands-on component, and this was a great culminating activity."

Using the EiE

Designing Knee Braces kit, groups constructed prototypes using cardboard, felt, foam and office supplies. Students were tasked with finding the best design for fit and movement. To begin the process, Ms. Smith gave them an overview and assigned groups. "It was nice to be part of a group," said Olivia. "You had other people to talk with about your ideas."

Next, students brainstormed ideas and sketched on paper. Once in agreement on their final design, groups built the prototypes. "The most difficult part was coming up with a good design with our limited materials and all on



Olivia, Sammy, Tate, Pilar and Emelia show prototypes make during the lesson. Smith works hard to find creative, hands-on culminating activities that engage her students.

Mentors



The Science Center of Iowa is currently looking for applicants for the April 24, 2015 Meals With Mentors.

WHEN: April 24, 2015

WHERE: SCI Iowa, Des Moines

TIME: 6-9PM

The event is open to young women grades 7-12. They will meet female undergraduates studying for a degree in a STEM field as well as working female scientists. The format will include dinner, a keynote speaker, and team challenges throughout the evening.

This year's keynote presenter is Dr. Jill Pruetz, a professor at Iowa State University specializing in biological anthropology and primatology. Dr. Pruetz has traveled the world studying the behavior of non-human primates, including chimpanzees, spider monkeys and tamarins.

Click here to [ATTEND](#) as a 7-12 grade student.

If you are an undergraduate and wish to be a mentor, please e-mail colleen.hjort@sciowa.org.

Volunteer today!

Q: What can ONE person do?

our own," said Pilar. "It was fun," added Emelia, "but very challenging."

Using a goniometer, students tested, improved and retested their designs. "The goniometer sees how much the leg can bend and if it's bending in the right way," said Brooke.



Brooke, Jack, Anna and Michael stand with their working prototypes. They also learned a lesson on cooperation. "Once everyone learned that they could give their ideas and the others would listen, everyone got along fine."

pediatrician," said Sammy. "And I'm pretty sure that I could make a splint if someone got hurt on the playground."

Learning, fun, practical application—now that's a good STEM lesson.

Along the way, they shared results. Some groups even had to start over, which can be taxing with limited supplies. "We had to make a lot of improvements on ours," said Anna.

Even with the challenges of working in a group with limited supplies, students enjoyed the unit. "You can get more creative with hands-on stuff," said Jack. "You learn more and it's more fun."

It seems many of them will take these skills as they move forward. "I totally want to be a



A: Dedicate about 40 hours a week bring in millions of grant dollars and inspire young people!

Meet Lamoni Community School District's secret weapon: Shirley Kessel. Since retiring from education she hasn't slowed down one bit!

Kessel works with teachers, students and community members to ensure Lamoni's kids get the very best education possible. If you can't find her in the schools, she's busy working or at their family farm.

If you'd like more information on volunteering, please email your local school district or Dr. Sarah Derry at scstemhub@drake.edu.

Read more about Lamoni schools in our next newsletter.

If you'd like to recognize a great STEM volunteer in our newsletter, please email lisa.morlock@drake.edu.

1st grade engineers embrace EiE in Josie Innis's room



"I think engineering is so exciting," says Josie Innis, first grade teacher at Oviatt Elementary in Newton. "Think about the type of student we'll have if we can continue teaching like this."

Celebrate Week of the Young Child



Promote your organization and gain volunteer hours hosting a hands-on STEM activity for Week of the Young Child.

From dinosaurs and deer antlers to projects and posters—everywhere a student looks in Josie Innis' classroom, there's something to learn. This includes an EiE Wind Energy STEM kit her first graders are completing. The kit presents a real-world problem, and students work in small groups to solve it.

"We're trying to make a windmill to help Dana's fish farm breath well, again," said an excited first grader named Kelsey. "The fish don't have enough oxygen, so Leif figured he could mix air with water to get more. The energy comes from the wind."



Olivia and Lexi review their notebook. "I want to be a teacher," says Lexi, "like Ms. Innis. She helps us so we know how to do things. She's nice and treats everyone good."

On this day, students are testing prototypes to see which design can move the most weight. The weights represent water resistance. Once blades are constructed, students attach them to the windmill base. Using a fan, the blades then move and pull up weights inside a cup. "We need the blades to be big enough to catch the wind," said Kinston.

This is the second year Innis has used EiE in her classroom. "It's a great program," she says. Since Innis is a looping teacher for kindergarten and first grade, it's the second year for many of them, also.

"The professional development is so important," notes Innis. "Teachers work through an entire unit. Without that, it would be difficult to prep and set up. After training, I sat down down for about an 1-1/2 hours and mapped out a plan, then I met with the class mentor."



Dr. Jack Gittinger, an education professor at Simpson, is class mentor. EiE takes 25 percent off the teacher's

Dr. Jack Gittinger volunteers several hours a week to help with projects. This year, she also has a student teacher, Bri Herman.

During the course of class, students spend a lot of time reworking their blades, discussing what would make them better and cheering on the other groups.

Their excitement is evident. "This is my favorite project," says Ava. "We get to work with things that most people never get to work with," adds Brayden.

For the record, Jacey and Ava's test carried the most weight, with their blades lifting 15 washers. "I want to be a doctor, engineer or teacher," said Jacey. Ava concurs, "I might want to be a STEM teacher. The lessons are fun and the kits are cool."

At the end of the class, students log results in a designated notebook. This adds an element of literacy to the

Child at Drake University on April 11

Bring your own activity or volunteer to host one of ours.

AUDIENCE: preK-5

WHEN: April 11, 2015

TIME: 8:30-10:30 AM

WHERE: Upper Olmsted

Drake University

1245 29th Street

Des Moines, IA 50311

SIGN-UP: Click [HERE!](#)

CONTACT: Dr. Sarah Derry at
scstemhub@drake.edu
with questions

STEM Materials Library



If you're looking for STEM curriculum materials, check out the [SC Hub's library and resources](#). This list includes a class set of Samsung Tablets, like the one Grace from App Camp holds above.

To reserve items, please email
scstemhub@drake.edu.

bill if he or she finds a community volunteer.

project. "My engineering notebook is special to my mom,"

says Cooper. "She puts them all in a special place, and my ones from last year are in my closet."

Who knows how many of these first graders will go on to become engineers, but one thing's for sure—Innis is creating a memory and nurturing a lifelong interest in learning.

Inspiring STEM

Creating a Collaborative STEM Community Dr. Stephen Sieck



"I've always had a passion for science and math," said Dr. Stephen Sieck. "These were my favorite courses in school." Sieck's passion for learning and teaching is evident through his position as Associate Professor of Chemistry at Grinnell College. He also serves on the SC STEM Hub's Advisory Board.

But Sieck's pursuits go beyond his profession. He wants to ensure his children and all students have the chance to develop their curiosity in the way the world works. "I hope that we have the right programs

and opportunities in place that allow any student who wants to be pursue these fields the ability to successfully navigate those pathways."

Sieck's interest in STEM began with the encouragement of his parents. While his parents had little experience in the STEM fields, they always encouraged his interests. Teachers also played a valuable role in his development.

"My junior high science teacher, Mr. Dickes, was instrumental in opening the door to chemistry," said Sieck. "I still remember many of the projects we did in his classes. I also remember his high standards in the classroom and his ability to push me to do my absolute best."

Sieck continued his STEM work through high school teacher Mr. Tjaden, and through his experiences at Loras College. Now he works diligently to create a welcoming, quality STEM community at Grinnell and throughout the region. His advice to others seeking STEM careers, "Follow your passion. Let your teachers inspire you in those fields, and don't be afraid to ask for help."

If only all college freshman were fortunate enough to have Dr. Sieck for Chemistry 101.

Dr. Stephen Sieck's

Tips for STEM Success

1. Follow your passion.
2. Look for inspiration.
3. Ask for help.

Pint Size STEM Pros in Centerville



Dawn Johnson, teacher at Kids World in Centerville, uses Pint Size Science to enhance student STEM learning. After introducing simple machines with the Pint Size Science Gizmos and Gadgets unit, students used "a teeter tot- uh, a LEVER!" to create this painting.

Hyperstream at Waukee High School



Waukee Hyperstream students help elementary students write, perform, & edit original films for the district film

Collaborative STEM spaces unite

Grinnell College

festival.



Dr. Stephen Sieck shows the classroom-workshop facilities at Grinnell. Students can be divided between the areas and still visually united.

Remember freshman-level science class in college? It was probably a huge lecture hall filled with 500 people and an instructor who didn't know any student's name. That's NOT the case at Grinnell College. The STEM departments have reconfigured space, reformatted classes and given a nod to brain research and learning.

"Every science area has a research component," said Dr. Stephen Sieck, Grinnell Professor and SC STEM Hub Board Member, "and professors are encouraged to spend their summers engaged in their own research rather than teaching summer school. Students who stay in the summer work one-on-one with PhD-level researchers."

In addition, students can now choose between a small lecture class or a workshop-based learning experience. Chairs and tables sit outside professors' offices for those seeking help or interaction. There's a lounge for each department where study groups or individuals can work. Classroom furniture can be moved, depending on learning needs. They even won a Presidential Award for their forward-thinking learning methods.

Nationwide, many students who begin university level STEM majors dropout or switch fields. That doesn't happen at Grinnell. "Lots of professors are engaged in the theories of how people learn," said Sieck. "There's also an important mentoring element involved." Upperclassmen mentor younger students; professors mentor upperclassmen and new professors. This helps build a successful, welcoming community.

"I know the names of all my students," said Sieck. "I try to make class as interactive as possible."

Festival Fun



Pi Day featured a Try-the-Pi Contest to see who could recite the most numbers of Pi. Champions include: Adult category, Steve Baskett with 57 digits; Student category, McKenna Baskett with 43 digits, Emily Campbell, Dylan Baldwin and David Nash.

Regional festivals encouraged Spring Break STEM

How did you spend your spring break? If you say touching pig lungs, launching planes and eating pie, you *might* have been at a STEM festival! In just two whirlwind weeks, the SC STEM Hub sponsored festivals with various partners around the region.

On March 14, Indian Hills Community College in Ottumwa celebrated Pi Day. Just under 300 people attended and around 80 presenters hosted almost 30 booths. On March 22, South Tama Elementary hosted a festival. This huge festival drew over 350 attendees and over 60 exhibitors hosting 29 booths and 1 specialty show. Central College in Pella hosted a third festival on March 30, drawing in approximately 100 participants to their 12 exhibits. Here's a look back in photos.

IHCC's Pi Day





Tama's Community Festival



Central College's Festival





Events

Add these dates to your calendar!

April 6 -- Dr. Karen Oberhauser at the Blank Park Zoo
 April 11--Week of the Young Child Event, Drake University
 April 11--Minority Empowerment Conference
 April 16 -- Drake STEM Festival
 April 16 -- Prometheus Awards, Des Moines
 April 24--Meals with Mentors, Science Center of Iowa
 April 27--World Food Prize Youth Institute
 June 15 -- CASE Training, TBA
 June 24-25--Taking STEM Outside, DM Botanical Garden

Spread the word about STEM EVENTS in your community!

Visit the [South Central STEM Calendar](#) to get details on these events and see LOTS more!

[To submit your STEM event, click here!](#)

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