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.

Scale-Up Update

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 Branstad, 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

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

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

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

Then, in 2008, when Imani was in 5th 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 would 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 experient at the Des Moines Airport. This push him to pursue other advanced classes. "I'm more interested in STEM classes," 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 show them why we learned 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.

STEM in the Classroom

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 this 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.

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
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

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.

Along they 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 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.

**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."

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 on 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.

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**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.

“[W]e’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.”

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 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

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.”

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.
includes bill if he or she finds a community volunteer. 

says Cooper. "She puts 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.

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, and edit original films for the district film.
Grinnell College

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!