

South Central STEM Hub Newsletter

**GREATNESS
STEMS
FROM IOWANS**

Drake
UNIVERSITY

SOUTH CENTRAL IOWA REGION GOVERNOR'S STEM ADVISORY COUNCIL

The State of STEM

Future Ready Iowa Defined



The 2017 Future Ready Iowa Conference opened to a full crowd. This year's event is at capacity, also. But don't worry if you can't be there. Look for more information in upcoming newsletters or visit their [website](#), especially if your school is looking for STEM BEST or workforce connections.

STEM's Role

STEM is part of the Future Ready Iowa (FRI) initiative. The initiative's intent is to create a pipeline between K-12 schools, post-secondary options, and business and industry. The six hubs continue to serve K-12 educators and students throughout Iowa.

The Reason

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Hub Dates

April 2-3

Future Ready Iowa Conference

April 10

Scale-Up Notifications Go Out

July-October

Scale-Up PD Scheduled



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Facebook: South Central Region

Most careers involve advanced knowledge and technical skills. For that reason, FRI has a goal for 70 percent of Iowa's workforce to have education and training beyond high school.

The History

In 2016, Executive Order 88 was created and signed, with a strategic plan in place by 2017. Currently, the state is putting the plan into action and developing a structural framework of resources and people to move forward.

The Goal

The goal is to reduce the socioeconomic, ethnic, and racial achievement gaps in kindergarten through 12th grade and increase equity in post-secondary enrollment. The next step is to ensure those adults with the training and education have the opportunity to seek high-demand, good-paying jobs here in Iowa.

Look for an upcoming article about Future Ready's April 3 Conference. For those who registered, we look forward to seeing you there! Until then, please visit the [website](#) for more information.

Externship Update

Summer Adventure Awaits: Teacher Externships



Twitter: @SC_Iowa_STEM



Instagram: sc_iowa_stem

Event Calendar:

Visit the SC STEM Hub's calendar!

Thanks to the SC STEM Regional Advisory Board Members for volunteering their time! [Click](#) to learn more about the board.

- BOARD PRESIDENT:
Robert Volp - West Des Moines
- John Arbuckle - Urbandale
- Mary Bontrager - Cumming
- Breanne Garrett - Ottumwa
- Mauree Haage - Oskaloosa
- Dr. Kari Hensen - Ankeny
- Jonathon Holmen - Ankeny
- Ronda McCarthy - Des Moines
- Tyler Myerholtz - Des Moines
- Amber Pargmann - Ottumwa
- Dr. Steven Sieck - Grinnell
- Stacey Singleton - Johnston
- Becky Wigeland - Indianola
- Laura Williams - Mt. Pleasant

All-Call for Summer STEM

Valley High School science teacher Marc Pedersen externed with Polk County Conservation's Lori Foresman-Kripes to help ensure Iowans have safe drinking water. To read this article from last summer, visit our [website](#).

A summer adventure is waiting for you! Check out Iowa's [Teacher Externship Program](#). During the summer, educators work side-by-side with knowledgeable and skilled industry employees who help bring the classroom curriculum to life.

Starting in 2009, the program has placed 350 externs to date. It's funded through state grants, appropriations, and business cost-sharing. Pairings are made by program coordinators, based on applicant interests and host needs.

Teacher Information

- Six week experience with great flexibility in the daily and summer schedule
- Stipend of up to \$4800
- One graduate credit from the University of Northern Iowa
- Two hours of AEA license renewal credit (optional)
- Guidance from extern mentors is given during the entire experience
- Two orientation meetings are held before the Externship to shape the summer experience
- Teachers are expected to complete a full application, document the number of days worked, provide pictures and a description of the Externship, participate in on-line discussions and create a lesson template that will connect the lessons of the Externship to the classroom
- The Externship is close to home and the teachers interests and skills are matched to the needs of the extern host
- No experience is needed, just a willingness to learn and grow!
- Apply here: <https://iowastem.gov/externships/apply>

Extern Host Information

- Six week engaging experience for the teacher - flexibility in the daily and summer schedule may be needed
- Teachers can work on single or multiple projects and can include a job shadowing component to allow the extern to get a big picture view of the host organization
- Teacher skills and interests are matched to the extern host via the teacher application
- A well planned experience matching the skills of the teacher and needs of the extern host will result in the greatest return on the investment of the host
- Apply here:



The Hub's Science of Bubbles booth at STEM Day at Clarke County Fair.

Each year we put together a list of South Central and state-wide summer STEM activities.

If your organization offers STEM enrichment over the summer, please send us the information. It might be a workshop, festival, camp, library event, or online community. In particular, we're looking for free, low-cost, or scholarship opportunities for K-12 students.

Click to message us on [Twitter](#) or email lisa.morlock@drake.edu.

**Available for Checkout:
KidWind Windmill Kits**

- <https://iowastem.gov/educators/externships/Externships-Business-Host-Summer-Commitment>

Lasting Impact

Besides earning extra money and becoming part of a new professional network, teachers overwhelmingly enjoyed the opportunity. A whopping 90 percent agreed it did impact their teaching, 88 percent said the externship was relevant to the courses they taught, and 87 percent indicated the experience impacted their personal scientific or mathematical views.

Click [HERE](#) to learn more or reach out to Dr. Sarah Derry for more information at scstemhub@drake.edu.

STEM Awards

Congratulations to SE Polk and Grinnell for PLTW Award!

The first year awardees for PLTW Distinguished Schools and Districts have been announced. Nine Iowa schools can proudly claim charter membership, with four schools in the South Central region that got their PLTW start through Iowa STEM Scale-Up Awards:

- Grinnell's Davis Elementary School ('17-'18 Scale-Up PLTW Launch)
- Southeast Polk Four Mile Elementary School ('17-'18 Scale-Up PLTW Launch)
- Southeast Polk Jr High School ('14-'15 Scale-Up PLTW Gateway)
- Southeast Polk Sr High School ('15-'16 Scale-Up PLTW Computer Science)

PLTW's recognition program is designed to honor districts and schools committed to increasing student access, engagement, and achievement in their PLTW programs.

"We're excited and privileged to recognize districts and schools that are empowering students to thrive in an evolving world and achieving exemplary results from their PLTW programs," said Terry Ausman, PLTW Director of School Engagement.

Click [here](#) for more information on PLTW's recognition program: <https://www.pltw.org/our-programs/program-recognition>. To learn more about all Scale-Ups visit our [website](#).



Explore wind energy! This kit allows young scientists to test a variety of blade designs, generate electricity (0.5 -3 V range), and lift weights. The Basic Wind Experiment Kit has all the materials you need to get started understanding wind power. Here are the details:

- Suitable K-12
- Links to lesson plans and design challenges
- Addresses electrical engineering

Click [here](#) to see more K-12 resources available via our website.

STEM Meets Art with DIY Wall



A Look at Grinnell's Davis Elementary School



Third graders used simple machines to design a way to rescue a stranded tiger, particularly fitting for these Grinnell Tigers!



Ms. Moore discusses the cube project with 8th grader Addi.

This innovative teacher created an art installation the DIY way.

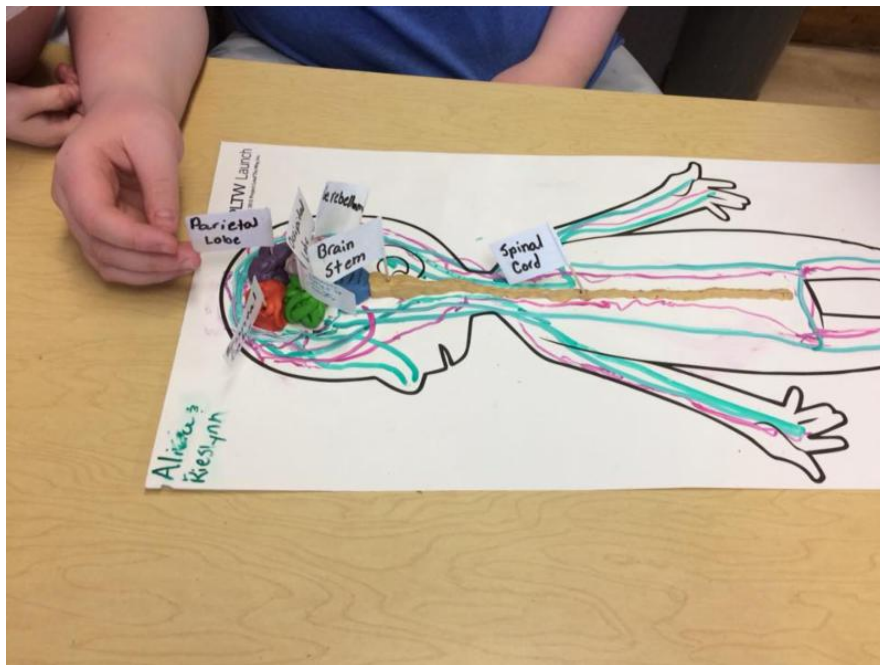
PLTW Design and Modeling Instructor Ashley Moore invited students to bring in paint samples. Then they color coded them based on the light spectrum (ROY G BIV) and taped them up. It makes a free, student-created wall of happiness.

No matter the class project, Moore says her favorite part of teaching is "seeing students come to conclusions for themselves and see how their creativity can make something come together."

Moore is an award-winning PLTW teacher from SE Polk Junior High.

Spring STEM @ Drake

With the Hub located at Drake University, we are surrounded by a rich STEM community. Check out the following campus opportunities.



Fourth graders applied what they learned about the nervous system to write a public service announcement about concussions.



Excellent educators are a key factor in outstanding Scale-Up award implementation. Grinnell teachers and administrators created the framework that garnered this PLTW Distinguished School award. From left to right: Davis Elementary Principal, Brian Conway, Superintendent Dr. Janet Stutz, Technology Integrationist, Bill Gruman, Instructional Coach, April Gosselink,

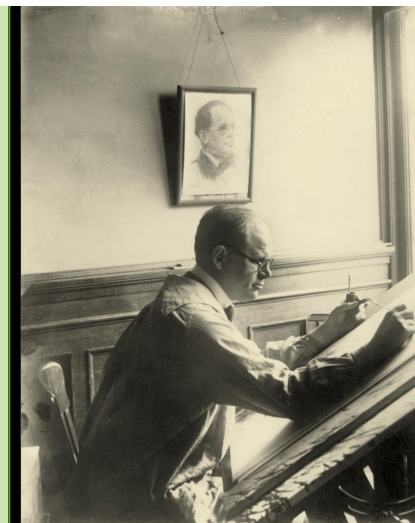


Photo from Drake Newsroom.

March 28 - May 31

Ecology meets art! An exhibit of the award-winning Iowa cartoonist and American conservationist Jay N. "Ding" Darling. Come to free public talks at 7 p.m. on April 5, 19, and May 3. Learn more [here](#).

April 5

Women in STEM networking free event. The night features guest speakers and a dessert reception. Optional tours available. The social is hosted by the Drake University Chemistry Club and Drake's Women in Math and Computer Science organization. RSVP [here](#).

April 11

Drake alumnus Jon Bowermaster will discuss his career as a *National Geographic* adventure journalist, filmmaker and environmental activist. The speech, titled "From Journalism to Advocacy: 30 Years Reporting on the Planet's Health," is free and open to the public. See details [here](#).

PLTW Director of School Engagement, Terry Ausman, and STEM Region Manager, Sarah Derry.

SE Polk Takes District-Wide Approach to STEM



Students worked in groups to create a cube puzzle. "We all came up with designs, then we chose the hardest one," said Paulina, 8th grade student.

April 12

DUCARS Conference will feature student oral presentations and poster presentations on current research projects by students and faculty. Following the presentations, awards will be given to the top presenters. All participants and attendees will be eligible to win door prizes! Big prizes! Click [here](#) for details.

April 13

From Iowa farm girl to esteemed NASA astronaut, Commander Peggy Whitson comes to Drake for a public lecture and private dinner. Click [here](#) to learn more about the Iowa award she'll receive.



Photo from Drake Newsroom.

Click [here](#) to find a link to the Hub's calendar.





Joshua Corwin, PLTW instructor, worked with students learning to write code. One key to a successful district-wide STEM program is to hire a coordinator. James Pifer fulfills one such leadership role at SEP.



"We had to deal with a few difficulties," said Joseph, 8th grader. "For example, the pieces wouldn't fit perfectly, so we sanded them down." Advisory Board Member Jon Holmen

holds the title for solving the most cube puzzles during the visit.

SE Polk has been building their STEM program for the past seven years. They received PLTW Gateway: Design & Modeling through a Scale-Up award in 2014, and have continued to grow the program. "One thing that makes us unique to other PLTW programs is that every single student in 8th grade gets an introduction to Design & Modeling and Computer Science," said Mike Dailey, principal. "If they're interested in those areas, students can continue with classes all through high school."

Besides introducing all students to engineering, the district has also used TLC and other funds in hiring coordinators like James Pifer.

Curriculum Director Jo Latham has this advice for districts looking to start a systemic approach and wondering how to fit it into their own curriculum: "Look at areas to invest that involve problem solving, communications, or engineering. You can embed in a lot of those into other STEM pathways."

Click here for more information on PLTW's recognition program: <https://www.pltw.org/our-programs/program-recognition>.

Inspiring STEM

Mauree Haage:

Growing-Up Surrounded by STEM



Mauree Haage, second from the left, pictured with Drake Chemistry Club Co-President Margaret Clapham, STEM Youth Advisory Board Member/Hoover High School student Bridget Toothman and SC Regional Manager Dr. Sarah Derry.

The SC Regional Hub is fortunate to have a representation from different STEM worlds. One of our most valuable member voices is teacher representative Mauree Haage. She was raised in a family of people who all worked in STEM careers: "All my life, I saw the importance of STEM in many different career paths."

Haage spends her days as a science teacher at Twin Cedars Jr/Sr High School in Bussey, Iowa. She also works as a Code.org facilitator for their Computer Science Discoveries curriculum. She's fortunate to have a state-wide view of student needs, with a special emphasis in rural education.

As a teacher, Haage knows she can only reach a certain number of students each year. For there to be true changes to educational systems, more teachers must be reached. "I am passionate about speaking with other teachers and professionals about STEM education," said Haage. "By reaching more and more people, I hope to help Iowa become and remain a leader in STEM education not only in the nation but world."

Haage's interest in STEM began at an early age when she participated in science fairs. "Through science research I really honed my STEM skills and was able to speak and network with adults in STEM careers."

She always knew her future would be in STEM. It did, however, take her a few changes in majors to decide upon teaching. "I knew that I wanted to help change the world one student at a time."

Thanks to Haage and all the teachers and administrators out there making a difference--one concept, one class, one kid at a time.

Visit our [website](#) to learn more about applying for our board.

Events

Add these dates to your calendar!

March 30 -- SE Regional Diversity in STEM Conference

April 3 -- Future Ready Iowa Conference

April 7 -- [Blank Park Zoo PD Workshop for Teachers](#)

April 9 -- SC STEM Hub Advisory Meeting

April 14 -- [ISU Computational Thinking Competition](#)

April 23 -- [Women in STEM Networking Event](#)

April 26 -- STEM at Principal Park Festival (at capacity)

May 14 -- SC STEM Hub Advisory Meeting

May 21 -- [Register for Biotech Summer Workshops](#)

June 10-16 -- CASE Professional Development

June 11 -- ISU Teacher Research Experience

July 2 -- [WFP Global Youth Institute Application Due](#)

July 22 -- [PLTW Core Training](#)

Spread the word about STEM EVENTS in your community!

Visit the [South Central STEM Calendar](#)

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



SC Iowa STEM | 2702 Forest Ave | Des Moines | IA | 50311