

South Central STEM Hub Newsletter

**GREATNESS
STEMS
FROM IOWANS**

Drake
UNIVERSITY

SOUTH CENTRAL IOWA REGION GOVERNOR'S STEM ADVISORY COUNCIL

CAPS becomes BEST and expands

Interested in CAPS? The title has changed, but the program is the same.

[CLICK TO REGISTER NOW!](#)

FUNDING AND SHARED-RESOURCE OPPORTUNITIES

The legislature has approved funding for BEST programs. All Iowa businesses and educators are invited to attend a statewide meeting on **June 17, 2015 from 9:00-4:00 at the FFA Enrichment Center in Ankeny**. It will be preceded by a networking reception on June 16.

This event will highlight current businesses/school partnerships, bring additional districts and partners to the conversation, and allow for the sharing of resources and practices. Partnership teams of educators, higher education, economic development, administrators, chambers, and business/industry are encouraged to attend!

To attend the STEM BEST event, prior registration is required and can be completed here. **Space is limited!** Lodging will be provided for attendees to attend the reception on June 16 and meeting on June 17.

Questions? To learn more about the STEM BEST model in Iowa, visit the link above or contact Dr. Sarah Derry at scstemhub@drake.edu

NAME CHANGE

The Iowa Governor's STEM Advisory Council announces a change of name. The five school-business consortia that are awarded FY2015 funding to develop business and industry-driven curriculum and instruction under the program formerly known as Iowa

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**GREATNESS
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GOVERNOR'S STEM ADVISORY COUNCIL

**2014-15 Scale-up
Evaluations
due May 15**

Click [HERE](#) to begin!

In order for the State STEM Initiative to continue moving forward, the program must be data driven. Here's where YOU can HELP!

If you received a 2014-15 Scale-up please complete this 3-part evaluation by May 15, 2015.

Contact Dr. Erin Heiden at

STEM CAPS are now titled Iowa STEM BEST (Business Engaging Students and Teachers).

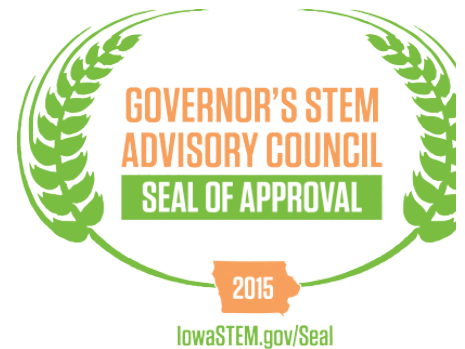
The spirit, intention, and goals of this program are unchanged. A recent fee increase imposed by CAPS could become a potential burden to Iowa school-business partners. For that reason, the name change will serve to separate the Iowa model from the CAPS model originated at Blue Valley School District in Kansas.



Kim Wayne, SC STEM Hub Board Member, sees Shive-Hattery's Waukee/CAPS program students at work. Future architects work with practicing professionals on projects around the metro area.

erin.heiden@uni.edu OR Dr. Sarah Derry at scstemhub@drake.edu if you have any questions.

STEM State Seal of Approval



STEM Happens



Students from Oviatt Elementary School in Norwalk construct an EiE windmill experiment. Their teacher, Josie Innis, received a 2014-15 Scale-up.

Congratulations!

2015-16 Scale-up Recipients and Training

On April 15, the SC STEM Hub announced area Scale-up recipients. Here are a few highlights:

- This year, 787 teachers and 17,414 students will be impacted by the \$500,000 allotment in the South Central region.

Click [HERE](#) to apply or learn more

Q: What is the STEM Council's Seal of Approval?

A: To enculturate, sustain, and spread STEM thinking, the STEM Council has created the Seal of Approval to recognize and support select, non-Council programs and events that help achieve STEM Council goals.

Q: Who can apply?

A: For now, applications are being accepted for individual programs or periodic events that significantly advance STEM principles and thinking in Iowa communities. Applicants should be unaffiliated with existing STEM Council programs. The Seal is not intended for individuals, organizations or institutions.

Q: What does this recognition provide?

A: The STEM Council's Seal of Approval indicates that your program or event officially advances one of the most progressive state STEM initiatives in the country.

Volunteer today!

Q: What can ONE person do?

A: Connect STEM to the arts!

- Requests were greater than in years past, as is the number of teachers and students served.
- Priority went to first-time applicants and schools considered high-need.
- To find a Scale-up in your area, please [scroll down on our website](#).
- For the most up-to-date Scale-up training schedule, please follow us on [Facebook](#) or check out our [calendar](#).

The next application for Scale-up funding is tentatively scheduled for February/March of 2016.

Scale-Up Training Schedule (to date)

Here's a list of trainings scheduled so far. Please check our website or like us on Facebook to find the most up-to-date information. Should you need assistance, please email Dr. Sarah Derry at scstemhub@drake.edu.

PLTW Launch

(Iowa State University College of Engineering, Ames, Iowa)

Monday, July 6 - Wednesday, July 8

Thursday, July 9 - Saturday, July 11

Monday, July 13 - Wednesday, July 15

Thursday, July 16 - Saturday, July 18

(The University of Iowa College of Engineering, Iowa City, Iowa)

Monday, July 20 - Wednesday, July 22

Thursday, July 23 - Saturday, July 25

Monday, July 27 - Wednesday, July 29

PLTW Gateway: DM/AR

(Iowa State University College of Engineering, Ames, Iowa)

Sunday, July 5- Friday, July 17

(DM/AR units - training is one week each with each unit being offered the weeks of July 5-10 and July 12-17)

PLTW Engineering: POE

(The University of Iowa College of Engineering, Iowa City, Iowa)

Sunday, July 5- Friday, July 17

Sunday, July 19- Friday, July 31

PLTW Engineering: CSE or PLTW Computer Science: CSE

Computer Science and Software Engineering (CSE) Core Training will be for one educator held at:

(Iowa State University College of Engineering, Ames, Iowa)

Sunday, July 5- Friday, July 17

(The University of Iowa College of Engineering, Iowa City, Iowa)

Sunday, July 19- Friday, July 31

KidWind

August 6-7 KidWind (time TBD) at Drake

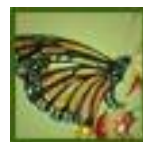
Festival Fun

Drake festival very STEM-cessful!



"I hope children learn to enjoy the quiet of nature and explore their own creativity," says Rohner.

Meet Iowa artist **Dorothea Rohner** Painted Wings Studio. With a background in scientific illustration, Rohner loves spending time outside and capturing those natural moments.



This past spring, she shared her passion for art and science at the Drake STEM Festival. "I enjoy sharing my love of nature and sketching with children," said Rohner. Click [HERE](#) to learn more about her.

If you'd like information on volunteering, please email your local school district or the Hub.



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

Stakeholders Needed!

Where can you construct a robot, do yoga and create a botanical drawing? The Drake STEM Festival! This year's event infused art and movement into the already creative area of STEM. Over 350 people poured into the Olmstead Center to learn more about community STEM opportunities.

Thanks to our wonderful exhibitors and to all those who participated in the festival. We'll have more great festival opportunities next fall! Here's a look back in pictures.



Thank you to Dr. Jack Gittinger, the newest member of the SC STEM Hub's Advisory Board, for the photos.

STEM in the Classroom

Iowa Learning Online

Iowa Learning Online is considering changing its model for upper level science laboratories. They are seeking external stakeholders to help better programming in Anatomy, Physiology, Chemistry and Physics. The first meeting will be virtual.

If interested, please contact Jonnie Becker at jonnie.becker@iowa.gov

The Hub's Lending 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 fuel cell cars, like the Bondurant-Farrar's Donovan Hill checked out for his students.

Technology

30 Samsung Galaxy 7.0 Tablets

Kits, Equipment and Guides

K-6

- * EiE Design Windmills
- * Kidwind Windmills
- * Kidwind Wind Turbine
- * Kidwind Wind Tunnel
- * AWIM Inspired by Nature



Students grab supplies and meet for a planning session before testing their jet toys. Ms. Jones reused tissue boxes, giving them a stout cardboard covering, so that each group can keep track of materials.

Jones' science class jets forward

Lamoni Elementary School teacher, Emilie Jones, introduced A World in Motion's Jet Toy challenge to her fifth graders and let them find their own journey to successful learning.

"They love it," says Jones. "It's so exciting to see them pumped up for science."

Each day, the class meets as a group to discuss the objectives and methods of the lesson. Then they divide into teams and work. During the last 10 minutes, the whole group meets again to share challenges and offer advice.

"I gave them a basic set of instructions and they had to figure things out on their own," said Jones.



Volunteer extraordinaire and retired teacher, Shirley Kessel, meets with a group facing momentum challenges. She applied for and oversees the district's Scale-ups.

- * AWIM Jettoy
- * AWIM Skimmer
- * AWIM Straw Rocket
- * AWIM Gravity Cruiser
- * AWIM Motorized Toy Car
- * Camp in a Can Scales & Tails
- * EiE Parachutes
- * Carolina Patterns All Around
- * Carolina Microworlds
- * Carolina Plant Growth & Developm

6-8

- * AWIM Gears
- * AWIM Fuel Cell
- * AWIM Glider

9-12

- * Light Sensor
- * Motion Detector
- * Labquest 2
- * Voltage Probe
- * TI Light Probe
- * Temperature Probe
- * pH Sensors
- * Adafruit ARDX-v1.3 for Arduino

Educator Books and Materials

K-6

- * Sally Ride Science Program (space)
- * EiE Designing Knee Braces
- * EiE Designing Bridges
- * EiE Designing Water Filters
- * EiE Designing Walls
- * EiE Designing Plant Packages
- * EiE Designing Maglev Systems
- * EiE Improving a Play Dough Proce
- * EiE Replicating an Artifact
- * EiE Designing Alarm Circuits
- * EiE Designing Lighting Systems
- * EiE Cleaning an Oil Spill
- * EiE Designing Submersibles
- * EiE Designing Parachutes
- * EiE Evaluating a Landscape
- * EiE Designing Model Membranes
- * EiE Designing Hand Pollinators
- * EiE Making Work Easier
- * EiE Seeing Animal Sounds
- * EiE Safe Removal of Invasive Species
- * EiE Engineering Bubble Wands
- * EiE Designing Solar Ovens
- * AWIM The Design Experience, Challenge 2
- * Family Science
- * Push, Pull, Go
- * Carolina Student Notebook Blank
- * Plant Growth and Development
- * Motion and Design
- * Soil
- * Sound

She added that it took a while for the class to be comfortable finding their own solutions and working within the bonds of a small group. But students quickly found the benefit, as one said, "I like working with a group so that we can help each other with problems."



Set, go! This team gets ready for launch. Students then measure the distance traveled and make changes.

Situated in a rural area, this district strives to be progressive. They have a partnership with Graceland University, work with community entities, incorporate AmeriCorp volunteers and look for grants.

"The kids seem to enjoy hands on activities, working as a team and getting to do experiments," said Jones. "Let's keep them pumped up about learning and science so they continue this interest on through college."



Jones turns an old gym becomes a spacious classroom during this jet toy lesson. Before each work session, the class meets to discuss the day's goals.

- * Ecosystems
- Educator Books and Materials (continued)
- * Changes: liquid, solid, gas
- * Malarky and the Big Trap
- * The Three Little Pigs Sledding Adventure

7-12

- * Exploring the Nature of Light
- * Studying the Development and Reproduction of Organisms
- * Exploring Plate Tectonics
- * Exploring the Properties of Matter
- * CASE Training Notebook
- * Issues in Physical Science Text ar Materials
- * Science and Global Issues Text ar Materials

NSTA Teacher Resources:

- * The Case for STEM Education
- * Everyday Engineering
- * Exemplary Science for Building Interest in STEM Careers
- * Integrating Engineering + Science i Your Classroom
- * Introduced Species
- * Teaching Science in the 21st Cent
- * Teaching Science in the Two-Year College
- * Technology -Based Inquiry for Mid School
- * Technology in the Secondary Scier Classroom
- * STEM Student Research Handboo

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



Inspiring STEM

Community dynamo serves on Hub's Board

Mary Madison

Counseling professional, community leader, STEM advocate--these are just a few of the roles SC STEM Hub's Board Member Mary Madison takes on during any given day.

Madison works as a Life Skills Coach. "My job is to encourage students and help them develop strategies that will give them the life they wish to



have."

During a typical day, Madison may work with a student and parent to set school and home goals. She might attend a teacher meeting and help the family navigate the school system. Madison shares parenting strategies and helps with career related concerns. She may work on a community forum that addresses mental health advocacy or legislation that promotes equal opportunities.

"We look at barriers to success and work on implementing strategies to remove the barriers,"

adds Madison. "For many of the students in my class, this is a second chance for them to graduate."

Madison's interest in STEM education began at an early age. "I liken it to the old gifted and talented programs, where only the highest achiever could take the creative, fun and enriching classes. Where students worked in groups and created and discovered cause and effect. Explored new ideas and encouraged innovation."

Today, Madison advocates making STEM available to a wide range of students and families. "If students choose a STEM related career, it can change the trajectory for that student's personal and family success. The end goal is to get a career that is financially rewarding, personally fulfilling and a career that is needed by the community. STEM for the 21st century can do all those things. If done well."

Mary became interested in counseling at an early age. While in high school, she experienced the influence a bad *and* a good counselor could have on a student. "I always wanted to go to college, and I told everyone who would listen that I was going to college. I went to

the counselor's office to see what I needed to do to get into college. She told me I couldn't go. She said I should go to secretarial school."

Madison left that office feeling "dejected and depressed."

But, as she walked down the hall, another counselor bolted out after her. "What did she tell you?" he asked. When Mary related the conversation, he looked at her records and said, "You can go to college. You can even get a scholarship." He happened to be leaving the school, but encouraged Madison to do the work herself.

"In a matter of minutes my dream was possible again," said Madison. Eventually, she was the first in her family to graduate college.

After college graduation, Madison visited relatives in South Carolina. In each home she visited, a large picture of her in a cap and gown was prominently displayed, but no one mentioned it.

"Later that day, I asked my sister why was my picture in everyone's house over every fireplace," said Madison. "She looked at me in disbelief and said 'they are all proud of you!' I am happy to report that years later, as we visit relatives again, my picture has been replaced and every family has their own college graduate."

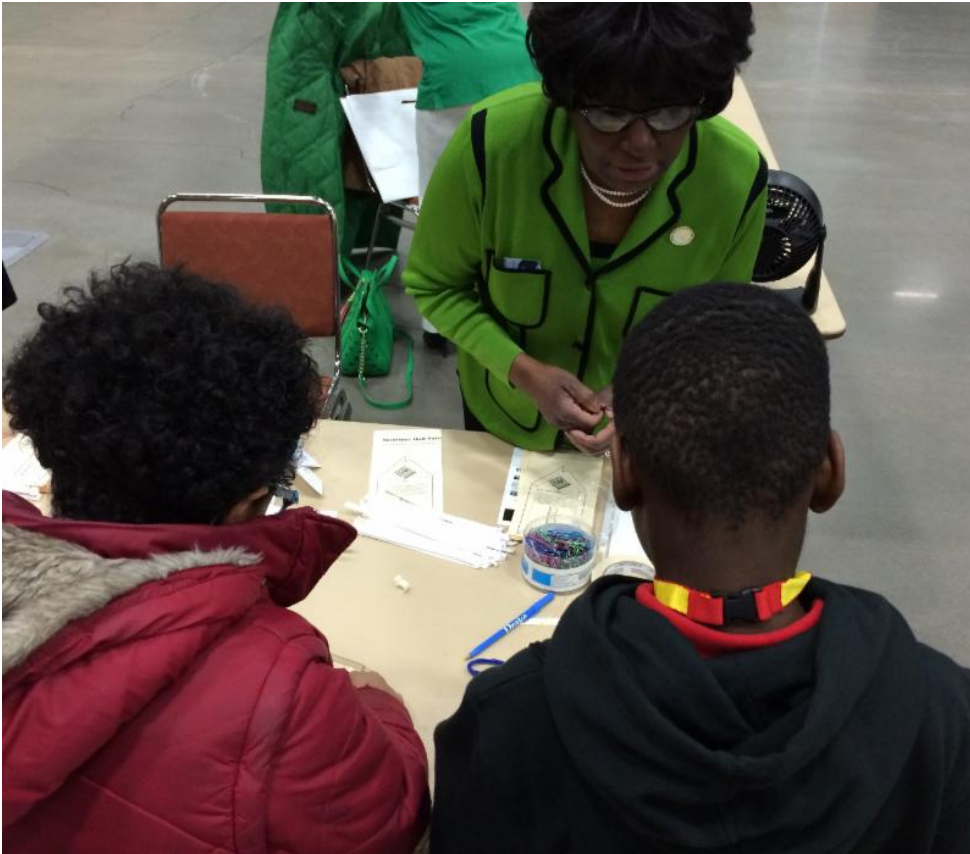
**Don't let anyone
define you.**

**Be happy to take
responsibility for
getting your own
needs met.**

**Don't be afraid.
The greatest success
is to bring others
along with you.**

—Mary Madison, SC STEM Hub Board Member

Madison has this advice for students who might be facing hurdles in their own lives, STEM-related or otherwise. "Don't let anyone define you," she says. "Be happy to take responsibility for getting your own needs met. Don't be afraid, and the greatest success is to bring others along with you."



Mary Madison, an active member of Links, coordinated several hands-on activities at the Hub's IMMAW STEM festival.

One more special graduate

Dr. M. Nia Madison, Mary's daughter, has participated in the Hub's STEM festivals (see photo below). To the right, she's featured on a Black History Month poster for L'Oreal cosmetics. Nia, who holds a doctoral degree, was honored for her work in AIDS research.



CELEBRATING BLACK HISTORY

THEN



George Washington Carver
1864 or '65 - January 5, 1943

An American botanist and inventor, Carver was best known for devising a method of crop rotation, rotating cotton with peanuts from year to year, which helped replenish depleted nutrients. Through this process, Carver discovered more than 300 uses for the resulting surplus of peanuts.

INNOVATORS IN STEM

NOW



Dr. M. Nia Madison
July 7, 1977 - Present

Dr. Madison is a retrovirologist using cutting-edge technology to help eradicate HIV/AIDS. She is currently a Postdoctoral Research Fellow at the Carver College of Medicine at The University of Iowa. In 2010, she was awarded a L'Oréal USA for Women in Science Fellowship to help further her research.

L'ORÉAL
DIVERSITY DRIVEN

STEM

Events

Add these dates to your calendar!

June 15 -- CASE Training, TBA
 June 15-19 -- Teaching for the Workforce, Pella
 June 17-19 -- TI Workshop, Johnston
 June 20 -- Star Party: Astronomy, Science Center of Iowa
 June 24-25--Taking STEM Outside, DM Botanical Garden
 July 5-8 -- PLTW Launch, ISU
 July 5-July 12 -- PLTW Gateway: DM/AR, ISU
 July 9-11 -- PLTW Launch, ISU
 July 5-July 12 -- PLTW Gateway: DM/AR, ISU
 July 5-17 -- PLTW Engineering: POE, UI
 July 5-17 -- PLTW Engineering: CSE or PLTW CSci
 July 16-18 -- PLTW Launch, ISU
 July 19-31 -- PLTW Engineering: POE, UI
 July 19-31 -- PLTW Engineering: CSE or PLTW CSci
 July 20-22 -- PLTW Launch, UI
 July 23-25 -- PLTW Launch, UI
 July 27-29 -- PLTW Launch, UI
 July 24 -- Pint-Size Science from 8AM-4PM, SCI-Iowa
 July 25 -- Pint-Size Science from 8AM-4PM, SCI-Iowa
 August 6-7 -- KidWind, Drake

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!](#)

[Forward this email](#)



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