

GREATNESS
STEMS
FROM IOWANS

Drake
UNIVERSITY

SOUTH CENTRAL IOWA REGION GOVERNOR'S STEM ADVISORY COUNCIL

Summer STEM: Fast-Track Iowa Conference



Co-Chair of the Iowa STEM Advisory Council, Governor Kim Reynolds gave the opening keynote. Photo courtesy of Angel Mendez, Communications Manager.

Fast-Track Iowa Lends Focus to STEM Conference



Governor Kim Reynolds (above) co-chairs the Iowa STEM Initiative with Chris Nelson, president of Kemira Enterprises.

Governor Kim Reynolds kicked off the 2017 Fast-Track Iowa Conference on June 21.

Held at the Iowa Event Center, over 500 people gathered to talk about the point where educational efforts and workforce opportunities merge.

The concept of Work-Based Learning (WBL) was at the center of discussions. "We are training Iowans for the jobs of tomorrow," said Reynolds. Many of those jobs may not have even been invented, yet.

According to Reynolds, the goal is to ensure that by 2025, 70 percent of all Iowans have a degree past high school. To achieve this goal, leaders are looking at two areas:

- Expanding current work-based models (think projects like STEM BEST, Iowa BIG, Waukee's APEX, Hoover's STEM Academy).
- Creating a system of tuition assistance for expanding STEM fields that have trouble finding workers (think welding and technology).

Reynolds will look at ways to close Iowa's skills gap, which should increase income potential and make it a better place for both families and economics. To learn more about Future Ready Iowa, please visit this

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Scale-Up PD Updates

For the most update calendar of PDs, please visit our website. Here are the plans to date:

ST Math

August 14th, 1-4pm, Ankeny

Making STEM Connections

July 19, 8am-4pm, Des Moines

July 27, 8am-4pm, Des Moines

August 3, 8am-4pm, Knoxville

September 13, 8am-4pm, Des Moines

September 19

, 8am-4pm, Des Moines

Project Lead the Way Launch

July 10-12, Ames

August 9-11, Coralville

Engineering the Future

August 9, Avoca

August 11, Coralville

Ramps and Pathways

August 8th, 8:30am-4:30pm, Newton

August 11th, 8:30am-4:30pm, Des Moines

November 11th, 8:30am-4:30pm, Newton

November 18th, 8:30am-4:30pm, Des Moines

Power Teaching Math

August 2-4, Ames

Engineering is Elementary

August 11, 8:30-3:30, Des Moines

September 12, 8:30-3:30, Des Moines

STEM BEST Feature



Nick Glew, Kris Byam and Jennifer Hartman talk about how they developed STEM BEST programs. Photo courtesy of Angel Mendez, Communications Manager.

Ideas & Advice from STEM BEST Recipients

At the Future Ready Iowa Conference in June, three community members explained their STEM BEST programs and how students benefited. Here's a quick recap of what they said and how you might benefit from such advice.

Kris Byam: Boone High School Principal

Boone created a program called the EDGE by partnering with local business and industry. There are five different levels of to reach all students, and the program impacts grades 3-12.

Advice: "We noticed how effective it was when we took our pep rallies and plays to the elementary schools. Have older kids talk to younger kids about the opportunities available for them." Sort of a pep rally for STEM.

Jennifer Hartman: Cedar Falls Elementary School Principal

In Hartman's school, students in K-3 partner with SideCar, a popular coffee house in the area, and run their own in-school coffee shop. The coffee shop is open to the public, has free internet (great for families who might not have access at home), and draws in senior citizens who then stay and read with kids.

Advice: "All kids are gifted in some area. Look for ways everyone can be involved. Every class has a component that relates to the project, because we focus on the universal constructs: communication, collaboration, creativity and innovation."

Nick Glew: Marion Economic Development President

Marion County features a program called Community Promise (<http://www.medcoiowa.org/communitypromise/>) that links students to local businesses. From exposure to employment, it offers five ways for businesses and students to be involved. The end goal is to keep more young people in Marion County.



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Email: scstemhub@drake.edu
Facebook: [South Central Region](#)
Twitter: [@SC_Iowa_STEM](#)
Instagram: [sc_iowa_stem](#)

Event Calendar:
Visit the [SC STEM Hub's calendar!](#)

The South Central STEM Region is part of the Iowa STEM Council. Click [HERE](#) to learn more about the state-wide program.



2017-18 SC Hub STEM Festival Dates

July 20, 4-7 p.m.
* Clarke County Fair STEM Night

October 1, 1-4 p.m.
* Twin Cedars STEM Fest
* Click [HERE](#) to register to exhibit!

October 21, 10a.m.-1p.m.
* Centerville STEM Fest

Advice: "We believe in R & D. Rip-off and duplicate. Find a model that might work for you, but know you'll have to change it to fit your community."

STEM BEST proposals are due September 15. If you'd like to learn more, please visit: <https://iowastem.gov/stembest/proposal> or contact Dr. Sarah Derry at scstemhub@drake.edu.

October 23, 6-8 p.m.

* DMACC-Ankeny FFA Center

* Click [HERE](#) to register to exhibit!

January 26, 9a.m.-2 p.m.

* IMMAW in Iowa - Education Day

Stay up to date at

<https://scstemhub.drake.edu/festivals/>

DIY Classroom STEM Project



Dorothia Rohner, above, coordinated the class effort as a volunteer for the program. To the right, classroom teachers show how they incorporated lessons from the garden into their curriculum with lab-report type writings and photos.

Classroom STEM Garden on a Budget

Dorothia Rohner is no stranger to STEM. She's a regular exhibitor at SC Regional STEM Festivals and a volunteer for Drake Head Start's Ankeny location. A professional artist and author by trade, she shared how she brought her own love of nature to her students.



Heather Stemsrud, Ankeny head start teacher, will make salsa during the summer session with the kids.

salsa. Like those plants, Rohner hopes the project and the children continue to grow.

For about \$30, any class or family can have a kiddie pool salsa garden, complete with dirt, tomatoes, peppers, onions and cilantro. Students started the seeds in a classroom window and transplanted them to a planter outside. They watered, cared, and replanted as needed.

In addition, the class read gardening books, collected and analyzed data, and wrote and illustrated planting journals. For many of the students, it was the first thing they've ever seen grow, and it proved to be life-changing.

This summer's class will pick the produce and make salsa. Next fall, those same students who planted it will reap the rewards of their work by sampling the



Wm Penn Coding campers use the STEM Hub's Cubelets for hands-on exploration of inputs and outputs.

Coding Camp Unplugged: active learning ideas to teach coding off-screen.



Dr. Breanne Garrett (above right) is a professor of Mathematics at William Penn University in Oskaloosa, and one of the new members of the South Central STEM Advisory Board. She offers these ideas from their summer coding camp for K-5th graders to advance coding skills away from the screen.

1. Back-to-back partner drawing. In this activity, one student must instruct a partner how to reproduce an image the partner can not see by drawing on a whiteboard. Dr. Garrett explains, "It emphasizes how language is important. In [the coding program] Scratch, the blocks already have the language in place, but as you progress to languages like Java, you have to use the exact phrase, with proper punctuation, to command. For example, 'move' and 'go' might mean different actions."

STEM Opportunity of a Lifetime



Of the 100 teachers, Rhonda McCarthy was the only Iowa teacher selected to the competitive summer academy opportunity.

McCarthy Selected to Elite Space Academy

"If you are looking for a once in a lifetime adventure, apply for Honeywell Educators at Space Academy 2018! You will love it!" said Ronda McCarthy, an SC STEM Hub Scale-Up recipient, festival exhibitor, and regional STEM Advisory Board member.

This space enthusiast teaches at St. Theresa's School, serves on the Drake University Community Education and Professional Development team, and is a new member of the South Central STEM Advisory Board. She stopped by the office to answer a few questions about her experience at the camp and to encourage other Iowa educators to consider applying.

Q: Can you give a quick overview of the program? How did you spend the time?

A: The Space Camp program is like no other professional development I have ever attended.



McCarthy intends to incorporate Space Suit Fridays into her class curriculum.

- We spent at least 45 hours learning about so many awesome topics! We learned all about robotics, programming, raspberry Pi's, space missions, life on mars, astronaut training (including training in zero gravity), and multi axes trainer (MAT).
- We simulated helicopter crash in water and a parachute landing in water (zip line).
- We learned about STEM activities, such as creating a working flashlight using a soldering iron, circuit boards and LED bulbs; building a rover to go on Mars; and making a rocket that we actually launched with a chute that deployed!
- There are too many things to list here but we also listened to speakers including astronauts, actual NASA engineers that worked on the first space missions, and rocket scientists.

2. **"Kidbot"**. Kidbot is a lot like Simon Says with a coding twist. Each participant is a "Kidbot" and responds to verbal commands. At William Penn's camp, they used this activity to help participants practice two frequently confused commands in Scratch. "Point by degrees" refers to changing the orientation of a character relative to the screen (or, in Kidbot, a designated wall of the room), and "Clockwise by degree" which refers to the relative position of the character. Dr. Garrett recommends a tiled floor, like the one foot by one foot tiles in the atrium of William Penn's Musco Technology Center, as a human-sized grid for this game.

3. **Bits and Bots** from the Making STEM Connections program developed by the Science Center of Iowa. This kit includes coding robots like Cubelets (pictured above) and Bee-Bot, and as a coding board game.

It can be set up in centers for students. The materials are available for checkout from the SC STEM Hub, as a Scale-Up Award, or through the Science Center of Iowa.

Snapshots: Summer Camp at NASA



Q: What were the most important lessons you came away with?

A: The most important takeaways for my teaching were that we need to teach our students three things:

1. Failure is a lesson
2. Never give up, keep trying, and
3. Work as a team using good communication!

That was so exciting to me because that is what I have been teaching my students, so to have that affirmed by NASA Rocket Scientists and Engineers was inspiring!



McCarthy plans to keep in touch with educators she met at the academy via Skype.

Another important lesson I learned is that we are all alike in a lot of ways. Let me explain. I was at Space Camp with 100 other teachers from all around the world. We spent a week together and grew to be very close friends. On the last day, I never dreamed I would find myself having dinner with 12 other teachers sitting under the Saturn 5 rocket.

Q: Will you be able to incorporate some of what you learned into the classroom? In what ways?

A: I will use everything I learned in my classroom!

- I have recently received a grant from Century Link and ordered some robots, a 3D printer and Raspberry Pi's to create a new Maker Space in my classroom. I then just spent a week learning how to make the most incredible projects with these!
- While I was at Space Camp, I mailed 50 post cards to each my 5th and 6th grade students with a challenge question on it about space and the NASA Space Programs. My students will research the question and then once a week the student with that question can become the teacher and tell us all they learned about that topic!
- All of the Space Camp Teachers are wearing their Flight Suites on Fridays to school and teaching some sort of hands on, STEM projects that directly relate to what we learned at Space Camp! We can even Skype other Space Camp teachers that day to share our learning!

Q: How can other interested Iowa teachers find out more about this program?

A: I would recommend any teacher apply for Space Camp! I was sponsored by Honeywell. They paid for my flight, room, board and tuition to Space Academy! Applications open in September and more information can be found at <https://educators.honeywell.com/>.

If you'd to contact Ronda McCarthy about her experience with this program, please email her at rmccarthy@sainttheresaiowa.org.



Calling all teachers, students and STEM enthusiasts!

The photos above provide a glimpse into Ronda McCarthy's educational adventure.

Storytelling is such a powerful learning tool. Have you had an incredible STEM experience this summer? We'd love to feature you in our newsletter or on social media.

Please email lisa.morlock@drake.edu with your photos and stories.

Events

Add these dates to your calendar!

July 1, 8, 15, 22 – [Jewels Summer STEM Workshops](#)

July 17-21 – [STEM PD Palooza](#)

July 19 – [Making STEM Connections Training](#)

July 20 – [Clarke County Fair STEM Festival](#)

July 27 – [Making STEM Connections Training](#)

August 2-4 – [Power Teaching Math Training](#)

August 3 – [Making STEM Connections Training](#)

August 11 – [Engineering is Elementary Training](#)

August 12 – [SCI Perseid Meteor Shower](#)



Spend July with Jewels

Jewels Academy is taking registration for their summer workshops for girls in grades 4-12.

WHEN: Saturdays 7/1, 7/8, 7/15 & 7/22

TIME: 9:30 a.m. - 1:00 p.m

LOCATION: 1620 Mickle Center, Des Moines, Iowa
Community Room

September 12 – Engineering is Elementary Training
September 13 – Making STEM Connections Training
September 15 – STEM B.E.S.T. Proposals DUE
September 19 – Making STEM Connections Training
October 1 – [Marion Co./Twin Cedars STEM Festival](#)
October 21 – [Centerville STEM Festival](#)
October 23 – [DMACC-Ankeny STEM Festival](#)
January 26 – [I'll Make Me a World in Iowa Education Day](#)

Spread the word about STEM EVENTS in your community!

Visit the [South Central STEM Calendar](#)

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

Programming this summer will feature:

1. Video creating and editing
2. App development with renowned curriculum
3. Build a house with electricity and hydraulics. Yes, electricity and hydraulics.
4. Iowa State University's k-12 engineering program will be our guests instructors for one of the four Saturdays

Click [HERE](#) to register. Scholarships available.

