



Quiet of Summer Belies STEM Professional Development Panoply



Youth take part in Ramps and Pathways. "...teachers learn how integrative STEM is a natural fit for preschoolers, kindergarteners and first and second graders," said Beth Van Meeteren, co-director of the Regents' Center for Early Development Education at the University of Northern Iowa (UNI) from where the program emanates. (Photo source: <https://uni.edu/resources/features/ramping-stem-curriculum>)

In the heart of the [dog days of summer](#), thousands of Iowa teachers are gearing up to bring top-drawer STEM education to their students this fall. The [2017-18 Scale-Up](#) programmers have fanned out across the state to equip and train in-school and out-of-school teachers in the latest and greatest STEM learning platforms. Seventy-eight different workshops across Iowa's six STEM regions spanning July and August (and into the fall) will prepare nearly 2,000 new members of Iowa's STEM community to spark the imaginations of youth. For one exceptionally popular new scale-up program, [Ramps and Pathways](#), over 300 teachers will enjoy two immersion sessions for implementing the model. The R & P workshops consist of firmly anchoring teachers' practices to cognitive learning theory, where youngsters are active, independent,

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UPCOMING EVENTS

August 8, 2017

South Central Family STEM Festival

1:00 to 4:00 p.m.

Contact [Dr. Sarah Derry](#) for more information.

August 20, 2017

STEM Day at the Iowa State Fair
9:00 a.m. to 7:00 p.m.

[More information.](#)

September 15, 2017

STEM BEST Proposals Due

[More Information](#)

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curious and creative. The professional development is demonstrably active and hands-on, as educators explore the very physics and engineering principals that will be asked of their students.

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Another potent professional development sequence is the two-day **Power Teaching Math** (PTM) immersion in August. PTM teaches students essential STEM skills, such as to think critically and problem solve, communicate efficiently and collaborate effectively with their peers. Valerie Sitzman, mathematics teacher at Kingsley-Pierson Middle School in Pierson, reflected on her classroom group work previously as "very shallow" compared to post-PTM training. Now implementing PTM, she finds that "Walking around the classroom, I often had tears in my eyes listening to students talk about math." They share strategies for solving problems with their peers and are excited about showing the rest of the class their solution to a problem. And she's seen grades rise. "I had B and even C students getting A's in math" even while she considers "...the PTM curriculum to be more rigorous than my previous curriculum." In fact, Valerie ranks her PTM training right up there: "The PTM curriculum and the cooperative learning framework professional development training ...and the network/professional relationships I have built with other Scale-Up Award recipients after receiving the STEM Scale-Up Award have been the most beneficial in my 24-year teaching career."

Don't let the quiet summer fool you - a swarm of energized educators will emerge this fall to carry Iowa's STEM mission of increased interest and ability forward to tens of thousands of young learners, thanks to STEM Scale-Up Programming professional development.



Iowa's First-Ever STEM Professional Development Palooza



Waukee's Innovative Learning Center was the place, and STEM professional development was the purpose for the gathering of two-dozen innovative educators to forge a future for STEM education in Iowa.

They came from all four corners of the state, representing elementary, middle and high school as well as college and out-of-school learning. All shared a common curiosity: how to amplify STEM in their classrooms and communities. An intrepid flock of edu-innovators made up the inaugural class of what may become an annual **STEM Professional Development Palooza** offered by the Governor's STEM Advisory Council. The impetus for the workshop is the heightening focus on driving school + business partnerships through STEM Council programs, especially **STEM BEST®**. A key criteria of winning **STEM BEST proposals** (open now through September 15) is collaborative work-based learning that bridges classroom and workplaces. To support connections between educators and

employers, a series of high-caliber professional development (P.D.) models were identified over the course of 2016-17 and paraded through the cavernous collaboratory, the **Waukee Innovative Learning Center**, where participants sampled eleven outstanding P.D. options, including **Dimensions of Success**, **Mathematical Modeling**, **STEM Innovator**, **Teaching for the Workforce**, the **NGSS**, **Iowa AEA Learning Online** and **STEM Teacher Externships**, among others. Interspersed were riveting keynote speakers, team-building debriefs and delectable dinner presentations.

Upon completion of the one-week immersion, participants were charged with developing Implementation Plans that detail how STEM will more strongly manifest in their classrooms and communities as a result. Partnerships with the University of Northern Iowa's mathematics education, science education and technology education programs enable graduate credits for completers. Heartland Area Education Agency also partnered in awarding license renewal credits to successful participants. In addition, these cutting-edge educators qualify for the TeSTEMent of Competency credential in recognition of their unique status as

The project was evaluated by the University of Iowa's Center for Evaluation and Assessment, whose report will be delivered to STEM Council leaders for considering the continuation and expansion of this catalytic brand of professional development for K-12 and collegiate STEM educators. Direct any questions about this program to executive director Jeff Weld at Weld@IowaSTEM.gov.

Corporate Partners Crucial to Reaching More Young Iowans



Uniting business and education, Iowa STEM's Corporate Partners help build school+business partnerships through time, talent and treasures.

The key to building a stronger STEM workforce is to connect what students learn in the classroom to the STEM careers just beyond school walls. With an "edu-nomic development" charge, Iowa STEM along with dozens of committed Corporate Partners bring work-based learning experiences and other opportunities to the students of Iowa.

This year, Corporate Partners invested more than \$545,000 to help Iowa STEM expand its offerings all across Iowa, including:

- Increasing the number of [STEM BEST®](#) awards in 2016 from six to ten.
- Hosting a record number of [Iowa STEM Teacher Externships](#) this year (62).
- Providing six [Code Iowa](#) technology awards to schools participating in the Hour of Code, as well as supporting professional development workshops for teachers.
- Equipping dozens of schools with [STEM Scale-Up Program](#) awards that went beyond state appropriation support.
- Recognizing six [I.O.W.A. STEM Teacher Award](#) recipients for a third year, bringing the total number of awardees to 18.
- Working with Iowa STEM and Strategic America to develop nine Iowa [STEM Career billboards](#) across Iowa this summer.
- Funding an Equity workshop for educators and the expansion of evaluation tactics to include examination of post-secondary pathways.
- Supporting the execution of vital, successful events, including STEM Day at the Iowa State Fair in 2016, STEM Day at the Capitol in 2017 and "Fast-Track Iowa's Future" Conference in 2017.

And beyond their financial commitment to STEM education in Iowa, many of these Corporate Partners dedicate their time and expertise under the radar, serving on the STEM Council and its working groups,

mentoring students through the STEM Scale-Up Program or Iowa's STEM BEST partners, speaking at STEM conferences and events and more.

Because of our Corporate Partners' passion for inspiring Iowa's youth, Iowa STEM enjoys a successful public-private partnership that continues to expand the impact of STEM programs year after year. A full list of Corporate Partners can be found at www.iowaSTEM.gov/Corporate-Partners. Private sector leaders wishing to become involved with Iowa STEM may contact Carrie Rankin, Assistant Director for Development, at Rankin@iowaSTEM.gov.

STEM BEST: Fort Madison High School



In the words of Greg Smith, Fort Madison High School principal, their STEM BEST model is "making students more responsible for their own learning," allowing them to create their own projects and partner with local industry mentors to solve them. Students here enjoy a new study booth—a small part to a large shift in collaborative STEM education.

"Our community partners were reinforcing the idea that students needed to learn in a way consistent with the current world of work," said Greg Smith, principal at Fort Madison High School. "They agreed with us that to be successful as adults, students needed to practice problem-solving in group settings. They needed to become better critical thinkers, learn to be flexible and creative and rely more on innovation and research instead of textbooks and lectures. We knew we had to act."

For the last few years, Fort Madison High School has journeyed to overhaul the physical and methodical ways of its school to bridge the world of work with the classroom. With the help of numerous local partners, along with an Iowa [STEM BEST®](#) award in 2016, the high school is making way for a new wave of STEM education with students at the helm.

A student library board took on the school's redesign project by starting with shared spaces. After doing

scholarly research and visiting other schools, the team recommended what to update and eliminate, even suggesting where to tear down walls and add collaborative spacing. They created a reading lounge, group study booths, a makerspace, a new media center and a green room for filming and editing—all with guidance from local business partners.

From Axalta and Climax Molybdenum to Alliant Energy and Huffman Welding & Machine, more than a dozen community organizations have stepped up to mentor students along with co-building curriculum with educators.

"Many of our partners have worked directly with students in a class we created called, '12 Plus,'" Smith said. "They have also met with our curriculum teams to review course requirements and discussed with us how we might better format our instruction in some areas. Industry experts have also made themselves available to our students to assist in their research during this process. Next year, for the first time, every teacher will be required to create, teach and evaluate a project-based unit that will be evaluated by a rubric/presentation method."

For an inside look at Fort Madison High School's STEM BEST model, [watch this video](#).

And, the STEM Council offers up to 16 new STEM BEST grants for 2017-18 for communities interested in developing their own school+business partnerships. Deadline is **September 15**. Find out more information at www.iowaSTEM.gov/STEMBEST/RFP.

