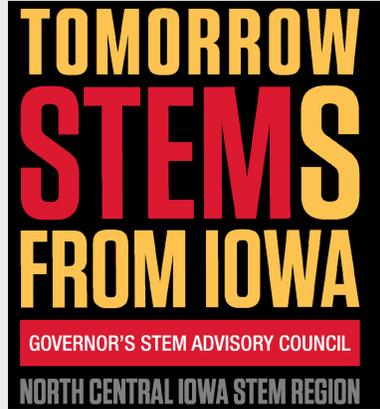




November, 2021

North Central STEM Region

Monthly News



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Work-Based Learning Mini-Grants Announced

Students Explore Ecosystems with Ioponics

Board Member on Connecting Business and School

Two North Central STEM School Districts Awarded Mini-Grant to Develop Work-Based Learning Plans

Congratulations to Clear Lake Middle School and Boone Community School District for receiving the K-12 Work-Based Learning Planning Mini-Grant. Recipients will receive \$5,500 to design relevant, engaging K-12 work-based learning plans or improve upon existing plans, that could serve as models for other schools across the state.

“By connecting students to Iowa businesses through authentic learning experiences, we’re able to better equip our youth to enter the workforce and enrich our local communities,” said Gov. Reynolds.

The work-based learning plans developed by the district will serve as models for other Iowa schools and will be posted in June 2022 on the [Iowa Clearinghouse for Work-Based Learning website](#). The plans will incorporate innovative ideas to connect K-12 students to future careers, reach all grade levels and diverse students, involve business and community partners and map out plans for professional development for educators.

Middle School Students Explore Ecosystems through STEM Scale-Up Program

Fort Dodge middle school students explore ecosystems this year as they take care of plants and animals in their classroom. The students are using a new educational aquaponics system developed by

Wartburg Associate Professor of Science Education, Michael D. Bechtel.

The system, specifically named **loponics**, combines aquaculture (raising fish) and hydroponics (growing plants without soil) in an integrated system designed for classroom use.

“The fish help the plants grow, and the plants help filter the water for the fish,” one student explained, pointing to the various vegetation suspended above a tray of water and to the Koi fish swimming in the tank below.



Middle School teacher Shana Black introduced the system to her classroom after being awarded the program through the STEM Scale-Up Program. Black said the students are having a great time with it and each grade level helps take care of the system. “The 8th grade class helped set up the system, the 6th graders test the nitrogen levels, and the 7th grade class makes observations as well,” Black said.

Using lesson plans provided by education students from Wartburg College, the students learned about the history of the system they created, which goes back to Mayan and Aztec cultures. As the year continues, they will learn more about the system and the benefits it could have outside of the classroom.

loponics was one of the 12 STEM Scale-Up Programs offered to educators this past summer. The Governor’s STEM Advisory Council is currently reviewing submitted program proposals for next year’s Scale-Up Menu. The STEM Scale-Up Application, open to all preK-12 educators, will open mid January.



NC STEM Advisory Board Member Encourages Businesses to Reach out to Schools

Lindsey Falk is the third generation president of L. R. Falk Construction (<https://www.lrfalk.com>), a family business started by his grandfather in 1922. The company owns and operates limestone quarries and supplies stone and sand to counties, cities, contractors, and individuals for road and building use. Falk says working with so many great people, within the company and for the customers, is what he finds



rewarding. He appreciates the variety that the job offers each day and is proud of the strong leadership team the company has built through strategic planning, personality training, and goal setting.

Fun Fact: Lindsey graduated from Iowa State University.

What advice would you give to students starting out in your field?

The advice I would give students that are interested in a field of work similar to mine would be to try a lot of different things. Every kind of business has a LOT of various jobs available, so get out of your comfort zone and explore different roles and responsibilities whenever you can. Don't be afraid to get dirty and learn physical skills. We use STEM practices every day in the real world, so the more you can expose yourself to at an early age, the better off you will be.

Why did you decide to become a member of the North Central STEM Advisory Board?

I thought it would be a great way to connect with young people, encourage them to try new things, and educate them about the amazing opportunities in places and companies that they maybe never thought of.

What action or “first step” can individuals or communities do to promote STEM?

I think the “first step” that individuals or communities can do to promote STEM is to talk to their local schools and let them know they are accessible and open to showing what they have to offer. Maybe that means sending someone to the classroom to share their story. Or letting the students take a field trip to their site. It might even mean a work study program or summer internship. Just start having the talks.

To me, the number one thing we need to work on, both from the business side and the education side, is to work together and find a way to tie the sides together. Doing so would lead to more opportunities for our students, who will be the business leaders of tomorrow.

STEM BEST® HD (High Demand) Application Now Open

The STEM BEST® HD (High Demand) Program is designed to prepare students for the workforce by providing awards of up to \$40,000 to schools to develop curriculum in job sectors such as computer science, health professions and advanced manufacturing.

Learn more today:

<https://iowastem.org/BESTHD>

Computer Science for Iowa!

The STEM Hub is encouraging educators to celebrate Computer Science Week this year, Dec. 6-12, 2021.

Share your events on social media!
Tag #CS4IA



Calendar of Events

November 30

NC STEM Region Advisory Board
Meeting 10:30 AM-12:30 PM

December 6-10

Computer Science Week

January 3

STEM BEST® HD Program
Applications Close

January 10

STEM Scale-Up Applications Open

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2021-2022 NC STEM Advisory Board

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