



Oct 30 2024 **News, Resources, & Notes**

Upcoming Events:

1. [ITEEA's Inaugural Fall Virtual STEM Conference](#), November 4-8, 2024
2. [ITEEA 2025 Conference](#), April 2-5, 2025, St. Louis, MO
3. [National Robotics Challenge](#) April 3-5, 2025, Marion

OTEEA webinars [online archive](#)

OTEEA News, Resources, and Notes [online archive](#)

STEM is Elementary [Newsletter Subscription And Archived Issues](#)

[STEM competitions and more resources](#) spreadsheet

[Link to OTEEA membership form](#)



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The Ohio Educators Summit

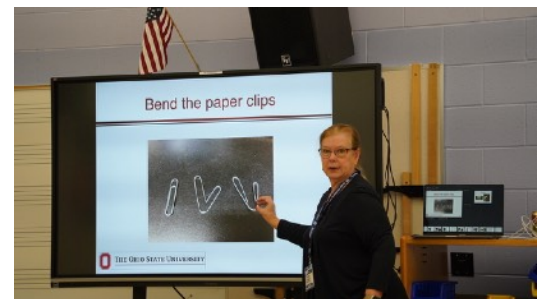
The Ohio Technology and Engineering Educators Association (OTEEA) hosted the 2024 [Ohio Educator Summit](#) on October 18th, in cooperation with River Valley Local Schools at River Valley High School. Dr. Paul Imhoff, the Government Relations Director for the Buckeye Association of School Administrators (BASA) was the keynote speaker. He lead us through a number of important aspects of leadership starting with reminding us that we are all leaders.



Some of Dr. Imhoff's other key points included genuinely caring for

others, being kind, the roles of optimism and vision, the power of story and the need for self soul care. Three books mentioned were [Give and Take](#) by Adam Grant, [Crucial Conversations](#) by Kerry Patterson, Joseph Grenny, Ron McMillan, and Al Switzler, and [Start with Why](#) by Simon Sinek.

The were a lot of great sessions some of them have their presentation slides on the [Ohio Educator Summit](#) site.



Betty Lise Anderson, from OSU Electrical Engineering presented on Cheap Electrical STEM Projects for Your Classroom. She and her students do school visits. Information on projects and her

contact information is on her website [available here](#). She worked with the group to build an electric motor, the project info is available on her site as is a great speaker project.



Tim Schlernitzauer from Walsh University discussed his engineering challenges in From Canal Fulton to Mars with interesting examples form working on Mars rovers.

One session was the 3D Printing, CNC, and Other Tools Meet Up and the resources from that discussion are [available here](#). You can also add resources to the document to share.



OTEEA President Tad Douce presented on Design is for Everyone! An Introduction to [Affinity Designer](#) and on Enhance Teaching and Learning with [Microsoft Copilot: Your Everyday AI Companion](#).



Aubree Horning from Marlinton Local Schools presented Watch Out! These Kids Can Work! Giving great examples of students exceeding expectations in designing solutions for their school and community.

Aviation STEM: Why It Matters

The aviation industry is projected to need 600,000 new pilots and 700,000 technicians in the next 20 years. The drone industry is expanding across all CTE clusters, with an estimated need for 80,000 new commercial drone pilots in the next five years.

In response, the AOPA Foundation developed its [High School Aviation STEM Curriculum](#) to help prepare students for these in-demand, high-paying careers. This curriculum is used in approved CTE pathways nationwide and offered **completely free** to U.S. schools, districts, nonprofits, and homeschool co-ops. Already used in 500 programs across 47 states and Washington, DC, it currently serves over 23,000 students.

Grants for STEM Education Coming to Ohio Schools

COLUMBUS, Ohio (Oct. 15, 2024) – Battelle announced today the funding of 248 grants totaling \$1,160,000 to enhance STEM learning in classrooms across Ohio.

Continued on page 4



The Ohio STEM Learning Network Classroom Grants support sustainable, STEM-based educational projects in 197 public schools and 144 school districts in 67 counties. In total, students in one of five districts will benefit from the awards.

“Battelle is dedicated to broadening the scope of the Ohio STEM Learning Network, Ohio’s key resource for promoting STEM education statewide,” stated Wes Hall, Vice President of Philanthropy & Education at Battelle. “These grants are crucial in empowering educators throughout Ohio to inspire and prepare the problem-solvers of tomorrow.”

The [program](#) fosters the growth of the Ohio STEM Learning Network as a public-private partnership between Battelle and the State of Ohio. Ensuring all students develop the skills to be successful in science, technology, engineering, and math (STEM) fields is Battelle’s top philanthropic priority.

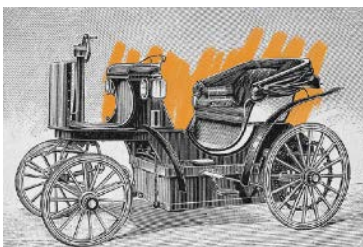
“Access to high-quality STEM education opens doors to new opportunities for families and supports job creation in local communities,” said Kelly Gaier Evans, Director of the Ohio STEM Learning Network. “This grant program connects local STEM champions to an extensive network of STEM schools, resources, and other educators.”

Awarded classrooms will receive grants of up to \$5,000.

Educators interested in future awards or additional support for STEM education from the Ohio STEM Learning Network can [sign up here](#). A complete list of awarded schools is available at this [link](#).

Before Gas Stations, Drivers Used To Buy Gas in a Can From the Pharmacy.

History Facts [Science & Industry](#)



When the automobile was first taking off, gas pumps as we know them today didn’t exist. In fact, the very first motor vehicles were powered not by gasoline, but rather by steam, electricity, or in some cases, kerosene. In the early days of oil drilling in the mid-1800s, when the first gas-powered cars were still decades away, oil companies were after kerosene for lamp fuel. Gasoline was just a byproduct of creating kerosene, and was often burned or discarded. The predecessor to the gas pump wasn’t designed for cars; the first one was installed in a grocery store in 1885 to measure and dispense kerosene for lamps.

In the 1890s, car inventors realized gasoline made great motor fuel, and what was once disposable suddenly became valuable. In the early days of gas-powered vehicles, there weren’t any gas stations to dispense the fuel, so customers bought gasoline the same way they bought kerosene: in a can at the pharmacy, blacksmith shop, or grocery store. Although its inventor, Sylvanus Frelove Bowser, didn’t anticipate it at the time, the pump originally designed for kerosene ended up being extraordinarily useful for filling cars with gasoline. In 1905, Bowser added a long hose to one of his pumps so motorists could fill up curbside. While there’s some disagreement on what the very first gas station was, the first drive-up service station is usually cited as the Gulf Refining Company pump that opened in downtown Pittsburgh in 1913.

[Read more](#)

US Develops Portable Device That Extracts Water From Air Using 50% Less Energy

[Interesting Engineering](#)

The device uses special materials that change temperature when stretched or compressed, allowing it to cool the air and condense water vapor with minimal energy use.

[Read more](#)



Technology and Engineering Education News and Resources

Activities, Contests, Student Opportunities, and New Technologies

There Is Still Time To Be Part of ITEEA's Inaugural Virtual STEM Conference on November 4-8

Don't miss [ITEEA's 2024 Fall Virtual Conference](#) where you can gain affordable professional development in a convenient on-demand schedule! Plus, all content will be available until January 8, 2025, to watch and re-watch sessions of interest. Join STEM education leaders and peers at this accessible learning and networking experience for as little as \$65! View the [At-a-Glance Schedule](#).

Register a REACH Team Before the November 15 Deadline

ITEEA's [REACH Challenge](#) is an impactful Adaptive Technology design-thinking project for middle, high school, and college STEM programs. Registration provides teachers with everything they need to show their students how to use their STEM skills to make a real-world difference in the lives of those in their community by combining empathy and engineering for social good.

Making my Music



Sponsored by Texas Instruments

Wednesday, December 4, 2024

7:00 PM - 8:00 PM (EST)

Join Xperience Lab

Event Details

The Texas Instruments Nspire CX II and 84 Plus CE Python Edition now have Python programming built in! Moreover, several modules extend the environment in new and exciting ways. These include Turtle, PlotLib, Image processing, robotics, and micro:bit. Tune in to this session and learn how to program the micro:bit to compose music and much more! Attendees can win one of two fantastic raffle prizes: A TI Nspire CX II calculator with micro:bit, or a STEM Squad Takeover where TI staff will visit your school to engage your students in hands-on coding and STEM activities!

Please submit a photo(s) highlighting your STEM program or an STEM activity with a brief caption to be printed in this space.



Fred Fotsch has 28 years of teaching experience in chemistry, physics, marine biology, STEM education, and computer programming. He also worked as an Educational Technology Specialist at International Business Machines (IBM) for five years, a chemistry instructor at Drury University for nineteen years, and a Texas Instruments T3 National Instructor for eight years. He lives in Dallas, Texas, and has worked as the STEM Innovation Manager at Texas Instruments since 2015.

Join the Ultimate TECHCORPShack!

The TECH CORPS hackathon is back, and this year, we're bringing the excitement to 500 high school students across Ohio. Students will work in teams to build a mobile app to solve a community challenge.

Please pass along this opportunity to your network. Let's inspire the next generation of tech innovators together!

Event Dates:

- Akron, Cleveland, Dayton, Elyria Hackathon: **Saturday, November 9th**
- Columbus Hackathon: **Saturday, November 16th**

[View Hackathon Details](#)

[Student Registration](#)

Virtual Field Trip on Egg Tech



DATE: Monday, Nov. 4, 2024
TIME: 10-10:45 a.m. Eastern

Healthy eggs come from happy hens!

Middle and high school teachers of biology, animal science, engineering, STEM and agriculture science: **virtually visit Prairie Star Farms with your students at 10 a.m. Eastern on Monday, Nov. 4** for an insider look at the science of egg production.

Prairie Star Farms, one of the top 10 egg producers in the United States, will take your class behind the scenes to see:

- inside biosecure hen barns
- how animal behavior informs hen housing design
- technology that monitors hen health on modern farms

Submit your questions for the experts to address during this LIVE 45-minute virtual field trip.

Students will:

- Know...how protein rich, cage free eggs are produced in Ohio
- Understand... how enriched colony housing regulations help hens to produce high quality eggs
- Be able to...determine how animal science plays an important role in animal care standards

Click below to register for this virtual field to attend LIVE and receive the recording after the event you can play on-demand for multiple classes.

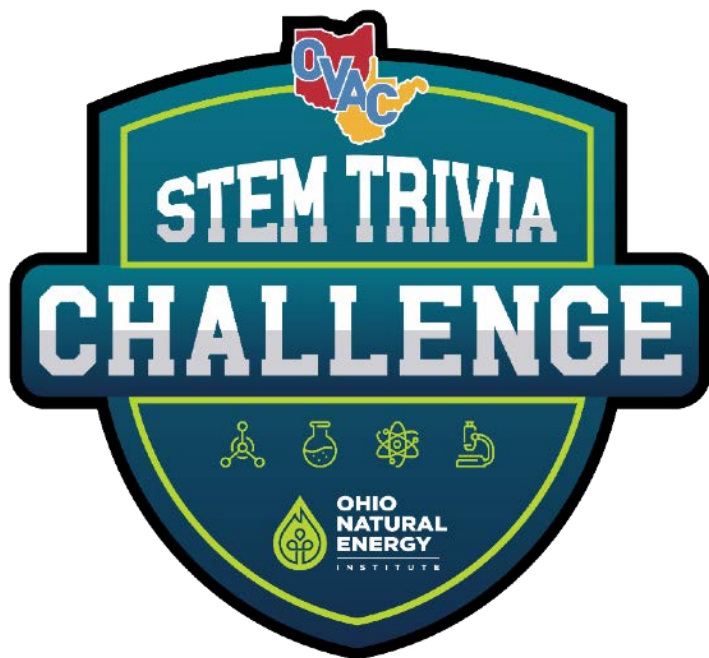
[Click here to register for this trip!](#)

Graphene-Infused 3D-Printed Concrete May Slash Carbon Emissions by 31%

[Interesting Engineering](#)

This new material is a composite made from limestone, calcined clay cement (LC2), and graphene.

[Read more](#)



Rewarding STEM Knowledge

NEW Partner with Ohio Natural Energy Institute and OVAC to strengthen your students' STEM engagement. This web-based trivia challenge includes high school students (grades 9-12) from schools in the Ohio Valley Athletic Conference (OVAC).

Students:

- play to learn
- track scores online
- make unlimited attempts
- challenge other OVAC schools
- compete for a \$1,500 scholarship

PLUS: The highest scoring student will receive a \$1,500 college scholarship and the school with highest student participation will receive a \$1,500 STEM grant.

Competition period: Through April 17, 2025
Awards: OVAC Banquet of Champions, May 20, 2025

If your school is in the OVAC, get your students started with the [STEM Trivia Challenge](#) today!

[Engage in the STEM Trivia Challenge!](#)

Investing in Classroom Teachers

More than a workshop, Ohio Natural Energy Institute 2-day teacher events give educators the opportunity to invest in themselves with:

- hands-on curriculum materials
- teaching supplies for your classroom
- scientific field trips to industry locations
- face-to-face conversations with industry pros

K-12 STEM Workshop ***FREE***
June 10 & 11, 2025
FFA Camp Muskingum
Carroll County

Geology Workshop ***FREE***
June 24 & 25, 2025
Kimble Corporate Headquarters
Tuscarawas County

Save the date for your teacher workshops! Stay tuned for registration announcements. [Email](#) if you know you'd like a seat saved for you!

The Multi-Modal Mobility Morphobot, a Bio-Inspired ‘Transformer’

[The Kid Should See This](#)

Drawing inspiration from these bird’s adaptabilities, engineers at CalTech created M4, a Multi-Modal Mobility Morphobot that can fly, roll, crawl, crouch, steady itself, climb, and tumble—using the same components in different ways rather than requiring separate specialized robots. It can even move a ball with its propellers in lieu of hands.

This bio-inspired ‘transformer’ shows us how biomimicry—studying and designing with nature’s time-tested solutions in mind—can help engineers create technologies that are more adaptable than ever before.



And like its avian inspirations, M4’s onboard computer and sensors help it scout its surroundings to determine which movement style works best for each situation.

[Read more and watch](#)

Bioproducts, Made by Students!

True or false?

Bioproducts are...

- produced from living plants. TRUE!
- compostable under certain conditions. TRUE!
- the basis of a rising industry employing 3.4 million Americans each year. TRUE!

And now they’re in your lab. (TRUE!)

In your new [Bioproducts unit](#), students mirror the work of materials science engineers while investigating physics, chemistry, and engineering standards.

This bundle of teacher-developed and classroom-proven resources wowed teachers at our spring Bioproducts workshop.

Educators loved:

- making and testing soy-based bioplastics
- the unit’s clear, versatile lab procedures
- accessible materials and simple prep
- built-in scientific career research
- facilitating deep science

Grab your *free* [Bioproducts unit](#) to implement with your rising innovators!

[Let's make bioproducts!](#)

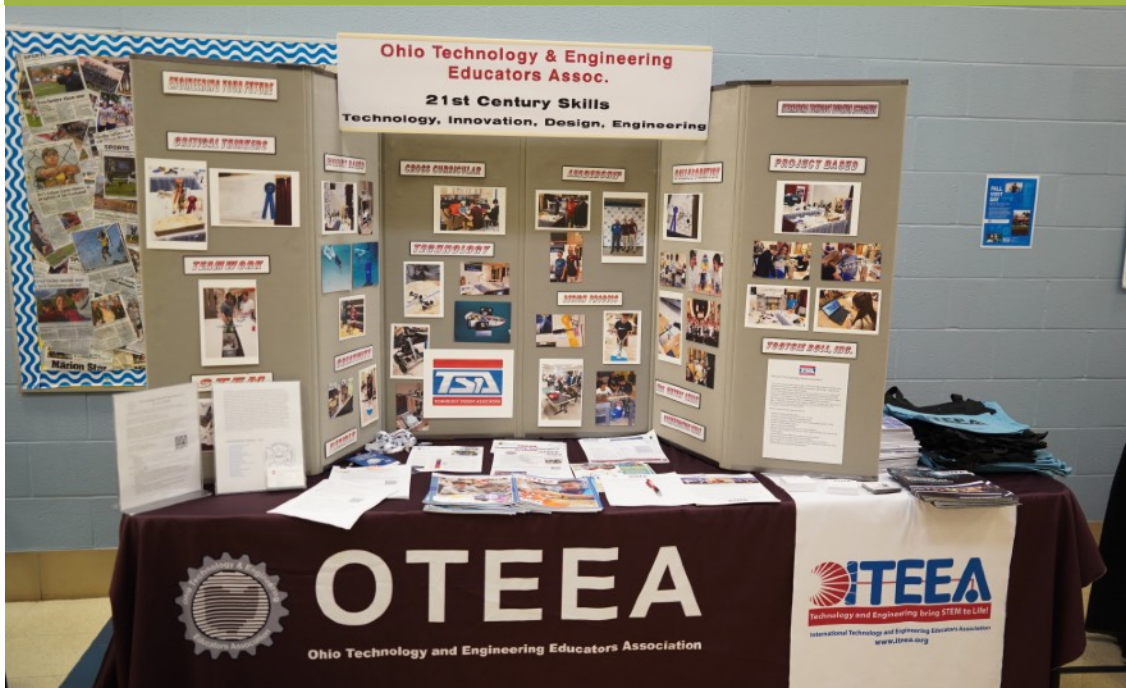
Archaeologists Unearth ‘Astonishing’ Wooden Spade, Preserved in an English Trench for 3,500 Years

[Smithsonian Magazine Smart News](#)

While most wooden artifacts disintegrate after thousands of years, the newly unearthed oak tool has remained in remarkable condition.



[Read more](#)



1. The Outreach group is looking for more members!
2. Working on planning future outreach activities

3. Have a story to tell about your program or students? Let us know!
4. The webinar has been discontinued. Archived webinars

can be [viewed at online](#).

5. What OTEEA programming would you like to see?

Contact [Paul Post](#)

“Technology like art is a soaring exercise of the human imagination.”
Daniel Bell

This Week's Technology Tip

Making Dados on a Miter Saw

Woodworkers Guild of America

Need to make a dado or two? Not everyone knows this, but you can make dados on your miter saw. Yep, on your miter saw. No need to put a dado head on your table saw, or set up a router bit in a hand-held router or on a router table. If your miter saw has the right flip down stop, you can use it to make dados.

If your miter saw has a flip down stop, you can use it to limit how far the blade will penetrate into your

material. The combination of the flip stop and, on most saws, a bolt, lets you dial in depth of cut pretty accurately. Of course when the flip stop is out of the way, you can cut full depth.



[Read more and watch](#)

ITEEA 2024

INAUGURAL FALL VIRTUAL STEM CONFERENCE



**NOVEMBER 4-8
2024**

Registration is Now Open for ITEEA's Inaugural Fall Virtual Conference Unlock Opportunities, Empower Educators, and Shape the Future

- Providing varied opportunities to learn from and interact with peers, industry leaders, and STEM partners from across the globe;
- Blending live sessions with prerecorded, on-demand content, to cater to the varied schedules and preferences of attendees; and
- Offering a platform for active engagement and community building before, during, and after the event.

From cutting-edge pedagogical techniques to the latest advancements in technology and engineering, ITEEA's inaugural Fall Virtual STEM Conference promises to be a space where inspiration meets innovation!

REGISTRATION TYPE	ITEEA MEMBER (US & International)	ITEEA NONMEMBER (US & International)	STUDENT
EARLY-BIRD RATE (until 9/6/24)	\$50	\$80	\$20
PREREGISTRATION	\$65	\$95	



Learn more and register for the Conference by scanning the QR code or visiting www.iteea.org/virtual24.



Gateway to the Future: Innovate, Connect, and Thrive

Register for ITEEA's 87th Annual Conference in St. Louis, MO on April 2-5, 2025

**Early-bird Pricing Until December 1, 2024.
Preregistration Discounts Until March 5, 2025.**



Nestled against the iconic backdrop of the Gateway Arch, St. Louis sets the stage for ITEEA's 2025 Annual Conference. This year, we converge to explore the transformative power of technology and engineering education. Together, we'll delve into how educators can amplify the benefits of innovation and forge connections that enable you and your students to thrive.



Why attend ITEEA's 2025 Conference?

- Connect with hundreds of education leaders, peers, and advocates.
- Get up-to-date knowledge from 100+ professional learning sessions, earning hours towards your teaching certification.
- Grow your network and identify opportunities for collaboration.
- Exchange ideas and leave inspired!



To register or view the latest conference information, go to www.iteea.org/2025 or scan the QR code.