May 1 2024

News, Resources, & Notes

this issue

Upcoming Events:

1. Ohio Education Summit, OTEEA Conference, Fall, Marion
2. ITEEA 2025 Conference, April 2-5, 2025, St. Louis, MO

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

2024 OTEEA School Exhibits and 2 by 4 Challenge

This year's 2024 Spring OTEEA School Exhibit Program was held Friday, April 19th in conjunction with the National Robotic Challenge.

The exhibit results are on the next page and followed by more photographs.

2024 State Project Show Results

Best Technology Displays High School
1st – Westlake
2nd –Butler
3rd – Riverdale
4th – Patrick Henry

Best Technology Display Middle School
1st – Allen East

Zupanic Award (Top HS Award)
Mason Guckes – Riverdale – Combat Robot

Brocket Award (Top MS Award)
Alani, Izabelle, Hailey, Laweranci, Jena, Evian – Allen East – Snack Mix

Engineering Category - HS
Best of Show – Mason Guckes – Riverdale – Robot
Runner Up – Grant Gordon – Westlake – Prototype for Perfection

Engineering Category – Middle School
Best of Show – Alani, Izabelle, Hailey, Laweranci, Jena, Evian – Allen East – Snack Mix
Runner Up – Landon, Oakley, Dominic – Allen East – Colored Blocks

Engineering Invention (Sub Category) Middle School
1st Place – Lucas, Kayla, Kylan, John – Allen East – Packaging
2nd Place – Brianna, Kelsey, Elly – Allen East – Stamp Project

3D Printing Category
Best of Show – Harry Powers, Matt Lomax, Brandon McMillen – Westlake – 3D Printed House Model
Runner Up – Elena George – Butler – Robot Print

Woods Category
Best of Show – Tyler R – Butler – Walnut Cabinet
Runner Up – Zak S – Butler – Adirondack Chair

CAM Category
Best of Show – Elijah M – Butler – Guitar Body
Runner Up – Mason S – Butler – US Navy

Construction Category
Best of Show – Jayden H – Butler – Framing/ Wiring Wall
Runner Up – Nate Alge – Riverdale – 4 Way Switch

Architecture Category
Best of Show – Braden McMillen, Harry Powers – Westlake – Back to the Ranch
Runner Up – Elena G – Butler – Blue Bird House

STEM Category
Best of Show – Owen Weatherholtz – Riverdale – Trebuchet
Runner Up – Michael R – Trebuchet – Butler

Energy Power Category
Best of Show – Jeremy Snyder – Westlake – Skateboard
Runner Up – Ethan James – Patrick Henry – Variable Switch

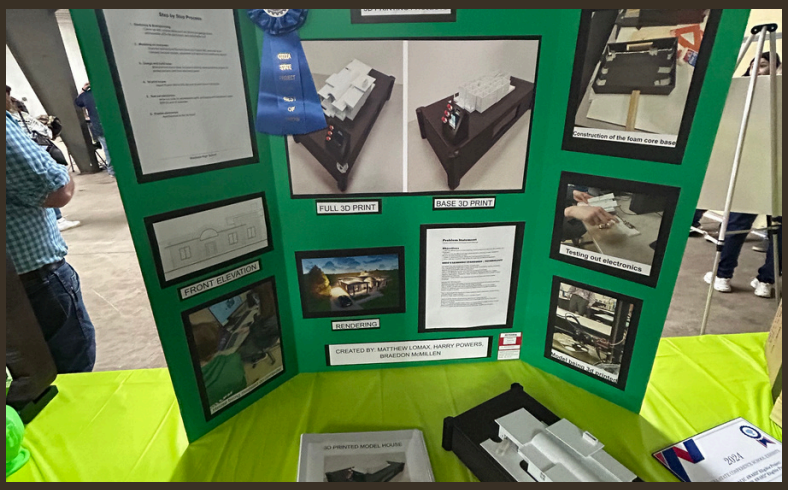
Metals Category
Best of Show – Nick Tackett – Riverdale – Metal Desk
Runner UP – Brandon Barton – Patrick Henry – Tool Box

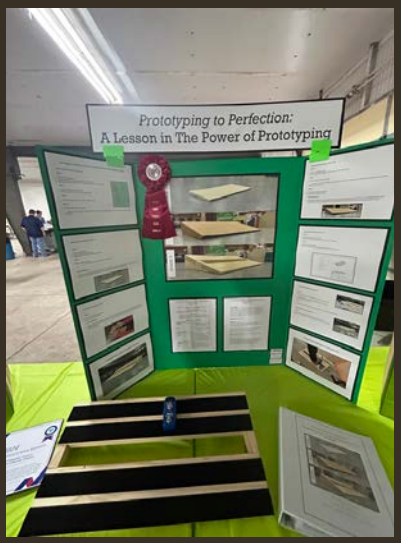
CAD Category
Best of Show – Katie Snyder – Butler – Binder of Drawings
Runner Up – Gellert Leszko – Westlake – Elevation Renovation

Graphic Arts Category
Best of Show – Olivia Williams – Butler – Dream Home
Runner Up – MacKenzie K – Butler – Dream Mansion

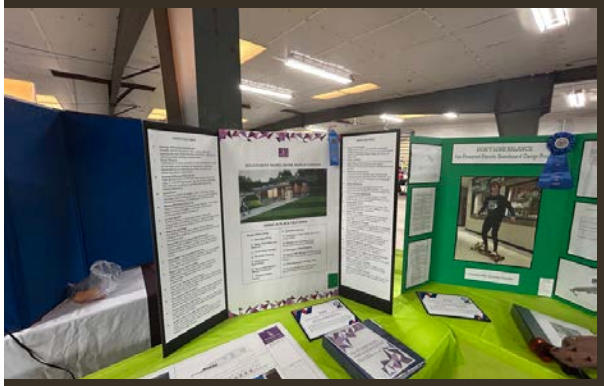
2x4 Challenge
People's Choice – Hawk Washburn –Riverdale – Ohio Plaque
Best of Show – Alex Russler – Riverdale – American Flag
Runner Up – Sean W – Butler – Birdhouse

A BIG Thanks to Levi Brown - OTEEA School Exhibits Manager and all the teachers who brought their student's projects!


FULL 3D PRINT
BASE 3D PRINT
FRONT ELEVATION
RENDERING
Testing out electronics


Prototyping to Perfection:
A Lesson in The Power of Prototyping


DON'T LOSE BALANCE




ROBOTICS


3D PRINTED MODEL HOUSE
TECHMATES CLUB


OTEEA
STATE


Riverdale
Technology
and
Engineering

How Is Glass Made?

[The Kid Should See This]

Glass windows. Drinking glasses. Reading glasses. Glass screens on our televisions, computers, and smartphones, and so much more. Glass is such a key material in our built world, allowing us to have natural light while still keeping warm in the winter or air conditioned in the summer heat. But how...

[Watch the video ➜]

7 Secrets of Airplane Cabins Most Passengers Don't Know

[DailyPassport]

From crowded airports to packed planes and strict security rules, flying can be a stressful experience. With the complex nature of air travel, there are dozens of regulations and protocols that must be followed on any given flight, and most parts of the process are designed for a very specific purpose. It might help you breathe a little easier on your next flight knowing, for example, exactly why window blinds should be open for takeoff or what those pings over the airplane PA system really mean. Here are seven secrets of airplane cabins most passengers don't know.

[Read more]

From our friends at The Ohio Academy of Science:

Here is an incredible service opportunity for faculty, staff, and students. The State Science Day: A Celebration of Science will take place in the Ohio Union on May 11. The event is all about student engagement (Grades 5-12) and is intended to be an immersive experience into the professional, social, and academic aspects of STEM research.

There are two service options for you and the professionals with whom you work. One is to visit with students during the Showcase of Posters, (a non-competitive symposium for Ohio's future STEM leaders), the other to eat at a lunch table with the students during the Lunch with a Scientist. Volunteers can sign up for either or both. There is no cost to attend either!

The volunteer registration link.

All volunteers require a registration. Please share this throughout your networks.

Schedule for May 11, 2024
8:00am - Student/Teacher/Parent Check-in with continental breakfast
9:00am - Welcome Keynote by Ohio Women STEM leaders in the Ballroom
9:30am-11:30am - Showcase of Posters
· Group 1: 9:30-10:25am
· Group 2: 10:30-11:30am
11:45am-1:15pm - Visit to tour/experience
1:30-2:30pm - Lunch with a scientist in the Ballroom
2:30-4:00pm – Award Ceremony

How Sensors Will Help Meet Future Safety Standards in Mobile Machinery

Sensors are an integral component in many mobile off-highway equipment systems. Emerging machine standards such as EN280 and functional safety standards like SIL2/PLd will increase the necessity of various sensors in future machine designs.

These devices can be used to measure angle, inclination, mechanical load, distance and more – all of which is necessary for ensuring the safe operation of a machine.

During this webinar, experts from Baumer will discuss the standards coming to the off-highway equipment market and how sensors can be used to ensure compliance with those standards. In addition, they will offer insight into the use of sensors for capturing data and automating processes, with boom and bucket trucks used as an example machine application.

Watch webinar recording

Playful Cricut Paper Pup, a Stop-Motion Demonstration

The Kid Should See This

Stop-motion is an animation technique that moves physical objects frame-by-frame to create an illusion of movement when the frames are played in sequence, and there are many ways to make them. In this behind-the-scenes video from stop-motion YouTuber Animatortor by Tortor Smith, a cutout paper pup comes alive to play...

Watch the video ➜

The Ice Cream Server, an Impressive House-Wide Rube Goldberg Machine

This house-wide Rube Goldberg Machine keeps going and going, from the kitchen to the bathroom to the bedroom to an office and out to the living room, to serve a scoop of ice cream with chocolate syrup and sprinkles.

The Ice Cream Server took Steve Price of Sprice Machines four months to design and build this complicated series of mechanisms. The chain reaction, which Price films in one continuous take, lasts seven and a half minutes.

Read more

Technology and Engineering Education Job Openings

River Valley Middle School

For further information please contact Mike Davis, Principal, at mdavis@rvk12.org

Please apply through Applitrack at https://www.rvk12.org/our-district/employment-opportunities

Upper Arlington, Middle School, Application link

Hilliard Heritage Middle School, Application link

Technology and Engineering Education News and Resources

Activities, Contests, Student Opportunities, and New Technologies

Check Out the Final Issue of the Inaugural Year of *Technology and Engineering Education*

Early childhood robotics, injection molding in the engineering classroom, and STEM in Taiwan are just a few of the topics being covered in the May issue of *TEE*. It also includes ITEEA Special Recognition recipients, Memphis Conference photos and more! ITEEA members receive a complimentary electronic subscription. Not yet a member? Join today!

Read more

Register Now To Learn About Developing an Open-Sourced CAD-Based System and Curriculum for Teachers

Learn about ITEEA's collaboration with the Make to Learn Laboratory at the University of Virginia to develop instructional units as part of the EbD curriculum based on CAD models in an open-source repository, providing students with authentic manufacturing experiences. **Tuesday, May 14, 2024 at 7:00PM ET.**

Read more

Ohio Mathematics and Science Coalition Meeting May 10

In person meeting on May 10. We will have a zoom alternative, but don't miss this opportunity to be with us in person at the Ohio Department of Natural Resources, 2045 Morse Road, Columbus, OH 43229-6693 from 10:00 a.m. to 2:30. Please use this link: RSVP for May 2024 OMSC Meeting to let us know as soon as you can if you will be with us in person so we have an accurate lunch count. Lunch will be $15.00.

The full agenda and zoom link will be sent one week prior to the meeting.

The meeting promises to be informative and important. The

focus is on science education in Ohio, but the presentation will be of interest to all of us. The Agency/Association Panel moderated by Greg Foley will provide disciplinary perspectives on the keynote.

OMSC Keynote Presentation

Title: Phenomena, Modeling, and Evidence-Based Explanations: A Collaborative Approach to Shifting Science Instruction in Ohio's Classrooms

Description: Inquiry-based teaching is not a new idea in science instruction. Although it's been around for many years and has been shown to be beneficial for students, broad and deep implementation of inquiry-based approaches in Ohio science classrooms has been somewhat elusive. That is beginning to change. In this presentation, representatives from the Science Education Council of Ohio (SECO), the Ohio Department of Education and Workforce, Kent State University, and Westerville City Schools will share how collaborative efforts to support new and veteran teachers are shifting science instruction. The common thread of these efforts is engaging learners in constructing evidence-based explanations of real-world phenomena through iterative modeling and student discourse. Join us as we share a common approach through different lenses, and how it is becoming a "game changer" for many Ohio teachers!

Presenters:

Leslie Silbernagel; SECO Executive Director, STEM Outreach Director - Northern Kentucky University

Holly Lavender; SECO President, Math, Science, and Engineering Teacher (retired) - Lancaster High School

Lisa Borgerding, Ph.D.; SECO Board Member, Professor, School of Teaching, Learning, and Curriculum Studies - Kent State University

Lydia Hunter, Science Program Specialist, Office of Learning and Instructional Strategies - Ohio Department of Education and Workforce

Lyndsey Manzo; Secondary Science Curriculum Specialist - Westerville City Schools

How It's Made—Inside the World of Kyanite Mining

With the explosion in renewable energy infrastructure and digitization of many economies, the demand for raw materials has increased considerably as well. But ramping up production to meet this demand faces environmental and political obstacles, as described in the August 2023 Bulletin feature stories on lithium and copper mining.

Even if these obstacles did not exist, demand would still outpace supply in the short term due to the realities of establishing and expanding new and existing mining operations. The complexities of mining were captured recently in an insightful three-part series by Kyanite Mining Corporation.

Kyanite Mining is a fourth-generation family-owned and operated business based in central Virginia. The company produces high-quality kyanite and mullite products for use all over the world.

In February and March 2024, Kyanite Mining published a three-part "How It's Made" series exploring the complex process of mining and producing the industrial-grade kyanite used by refractory engineers.

As we continue to transition our new staff at ISBD headquarters, we want to start communicating more regularly with those across the country and the world helping make races happen and competing on the road to Derby Downs. If you know of someone who needs to be on this list and who is not receiving the email, please have them

subscribe on the home page of the website, or email marketing@soapboxderby.org. Make sure they indicate Derby Nation News. Thank you and keep an eye out for more to come!

Why Are Wildlife Crossings Crucial for Animals and Humans Alike?

The Kid Should See This

To create secure pathways for animals to move safely across the landscape, engineered structures and designated zones are constructed over and under roadways. These are wildlife crossings, and they reduce vehicle-animal collisions. Wildlife crossings are also crucial because they allow animals find food, water, and mates in a larger habitat,...

Watch the video ➜

Registration Now Open!

We are excited to announce that registration is now open for the Future City Middle School 2024/2025 Competition!

24/25 Future City Middle School Registration

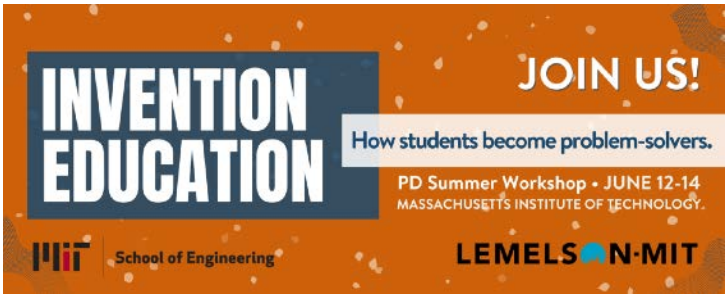
2024-2025 Theme: Above the Current

Design a floating city and provide two innovative examples of how your floating city works and keeps its citizens healthy and safe.

Future City High School

Did you know that Future City High School is in it's second year?

If you'd like more information sign up for program updates here: I'm interested in Future City High School!



Join us for a powerful and collaborative PD experience.

Are you looking for innovative ways to re-engage students in learning, combat absenteeism, develop social skills, and prepare students for jobs of the future?

Please consider our annual professional development workshop, from June 12-14, 2024 at MIT. Educators tell us that this annual event rejuvenates them and transforms their teaching. Click here to learn more.

Why consider our PD?
The Lemelson-MIT Program has a 20-year history of working with educators to achieve the types of goals listed above through **Invention education** - a promising approach to **problem-based learning** in which students identify a challenge in their community and develop prototypes of inventions that help others. Students acquire **STEM knowledge and skills alongside math, English Language Arts, and other core subjects** as they conduct research, create invention prototypes, and share their work with people in the community.

Students of all ages (grades K-14) love the

challenge and gain confidence in their abilities after working on a project that they see as relevant to those they care about. **Your students will surprise you.** Examples of the student success fostered by IvE include include seventeen teams of high school students with whom we have worked that earned U.S. patents for their creations.

Register by May 3, 2024 and receive 20% off!

Click to learn more and register!

The COSI Science Festival is a 4–day celebration of science, taking place May 1st - 4th, 2024. Explore the festival experiences below to find an event in your community, on site at COSI, or in your own backyard.

Saturday, May 4th is the Big Science Celebration. Experience the largest singular STEAM event in Ohio with over 100 exciting exhibitor stations with hands on science hosted by STEAM professionals, researchers, and experts from Central Ohio and beyond. Located on the Scioto Peninsula, just outside COSI, on the final day of the four day COSI Science Festival.

Read more

MassBay STEM Expo I Spring 2024

May 8, 1-2pm | In-person at Wellesley Hills Cafeteria
May 6-10 | Online Forums and video, chat with makers!

The STEM EXPO recognizes the creativity and contributions of our students and faculty over the course of the semester in the disciplines of Science, Technology, Engineering, and Mathematics and seeks to foster alliances with secondary schools, higher education, and private industry in the region.

Our exhibition highlights student-developed projects that demonstrate the multi-dimensional skills, problem-solving capabilities and talents of our diverse student body.

To read more or visit their asynchronous video exhibition

Take a look at our past STEM EXPO events!

STEM Student Projects Fall 2023 →

STEM Student Projects Spring 2022 →

NSTAI Making Climate Science Matter: Expanding the Use and Reach of the Fifth National Climate Assessment

May 2nd, 2024, 7:00 pm EST

Webinar Register: here

Subject: The National Climate Assessment is a major scientific report developed by several government agencies that describes climate change in the United States. This session will highlight the science found in the report, and then explore resources that support introducing the NCA5 to non-scientific audiences through the NCA5 Educator's Guide. Learn from an NCA5 author about the key findings and messages around climate change impacts and solutions, as well as the process of creating the report.

The Climate Energy and Literacy Awareness Network (CLEAN) Team will then introduce a guide that connects the information in the report to teaching guidance and resources. The presenters will describe how the new design and updates to

the guide make it a powerful tool for education and outreach professionals and how to support their efforts in classrooms, communities, and beyond.

U.S. Begins Construction on Temporary Pier To Deliver Humanitarian Aid to Gaza

U.S. Department of Defense

Construction of the pier is expected to be completed in early May. Once completed, it will initially facilitate the delivery of an estimated 90 truckloads of international aid into Gaza and scale to up to 150 truckloads once fully operational.

Read more

Pathways to Invention

PBS

Are inventors born or made?

Find out how innovative people become inventors. Our TV special, airing on PBS stations and streaming in the PBS app, explores the workshops and laboratories of some of the most ingenious minds in the fields of materials, software, hardware, biotech, and agriculture.

Explore this site to dive deeper into what it takes to achieve success in entrepreneurship and invention.

Watch here

Biden Marks Earth Day With New Solar Energy Funds and Steps To Stand Up American Climate Corps

CNN

President Joe Biden traveled to Triangle, Virginia, Monday to mark Earth Day, unveiling $7 billion in grant funding for solar power under the Inflation Reduction Act and announcing new steps to stand up his administration's American Climate Corps – a program popular with youth climate groups.

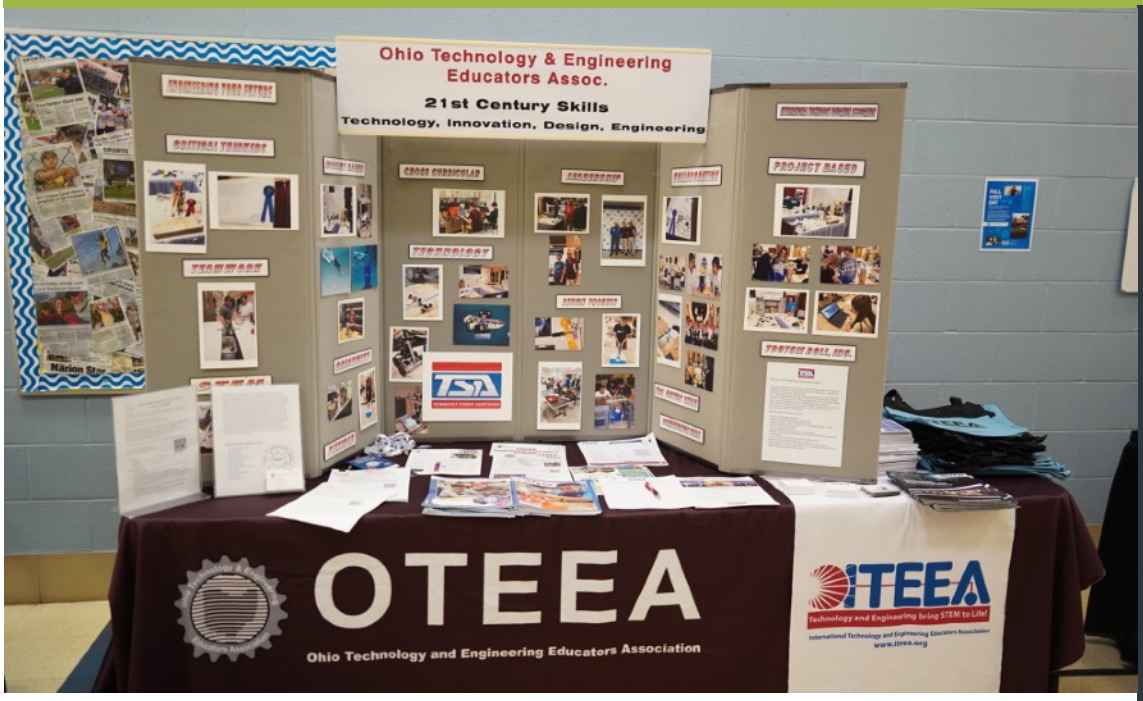
Read more

US Finally Breaks Ground on its First-Ever High-Speed Rail

Popular Science

Builders have officially broken ground on a new $12 billion train that could zoom travelers between Las Vegas and Los Angeles in just under two hours by the end of the decade. The new train, which is considered the first "high-speed" rail in the United States, could cut down commute time for travelers and reduce greenhouse gas emissions that would otherwise be emitted from cars and planes. Brightline, the firm responsible for the project, received $3 billion in support from the federal government as part of the 2021 bipartisan Infrastructure law.

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

There is never a single right solution. There are always multiple wrong ones, though. Akin's Laws of Spacecraft Design

This Week's Technology Tip

Hand Nailing with No Hammer Kisses

Woodworkers Guild of America

A forgotten skill?

Most of us might use pneumatic nailers, but every once in a while you've got to hand nail something. The danger with this is the possibility of hitting your project, instead of the nail. And hammer kisses aren't all that attractive. Here's a dirt simple, dirt cheap way to make certain that you won't mar your woodworking projects when you're hand driving a nail.

Read more and watch