May 7 2025

News, Resources, & Notes

this issue

Upcoming Events:

1. OMSC Meeting, May 9, 2025, Columbus
2. ITEEA Fall Forum, November 5 & 6, 2025, Online
3. ITEEA Annual Conference, March 25-28, 2026. Virginia Beach

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

YOUNG ENTREPRENEUR PITCH CHALLENGE

Out-of-School Time contest is open now.

Young Entrepreneur Pitch Challenge helps kids learn creativity, problem solving, critical thinking and presentation skills. Students in Out-of-School Time programs and summer camps can compete for a chance to win prizes and be featured in our winners showcase! They will compete against other students in their grade range: K-4, 5-8 or 9-12.

Register Your Program by June 15th!

Phase 1: Register Your Group & Prepare!

- Step up to the plate for this year's Pitch Challenge by registering your program. *The deadline to register your program is June 15.*
- Download the Pitch Challenge Toolkit and introduce the contest to your students.
- Begin working through the Toolkit Lessons on problem identification and ideation.

Phase 2: Work Through the Challenge

- Challenge students to develop an innovative business idea based on their identified problems.
- Continue working through Toolkit Lessons focused on pitch content and structure to form rough drafts.
- Have students practice pitching and providing feedback to each other.

Phase 3: Finalize, Submit, and Celebrate!

- Have students create pitch videos.
- Submit final pitch videos by July 31.
- Results will be announced on August 22.
- Reflect with your students and celebrate the completion of their projects!

Opportunities to win!

- Grand prize winners will earn a **$250 gift card per team**
- Finalists will earn a **$60 gift card per team.**
- Semi-finalists will receive a **Young Innovator Backpack Charm**

Take a look at the amazing ideas and Finalist pitch videos from last year's competition below!

- K-4 Finalists
- 5-8 Finalists
- 9-12 Finalists

Franklin Soil and Water Conservation District Education Resources

Learn about teacher workshops, student internships, scholarships and more.

Read more

Coca-Cola's Revolutionary Hydrogen Vending Machine Breaks Free From Electrical Outlets

Hydrogen Energy | March 24

Coca-Cola and Fuji Electric's groundbreaking hydrogen-powered vending machine requires no electrical outlets. Debuting at the 2025 Osaka Kansai Expo, it generates electricity through hydrogen-oxygen reactions, consuming half the power of traditional machines. The cordless wonder handles up to 1,000 bottles daily using replaceable hydrogen cartridges. Sleek LED lighting and vertical bottle display create visual appeal. It's basically a "concept car" for vending—impressive tech that faces hurdles in widespread adoption. The future of refreshment might just be unplugged.

Read full article here

LIVE Soybean Planting Virtual Field Trip for all Ages!

Tuesday, May 13 @ 1 p.m. Eastern

Ohio Soybean Council and GrowNextGen invite classrooms of all ages to virtually ride along with northeast Ohio soybean farmers Adele and Eric during a **LIVE spring soybean planting virtual field trip** on at 1 p.m. on May 13!

This 30-45 minute trip will connect classrooms directly with the farmers in their tractor as they (weather-permitting) plant soybeans to be harvested this fall.

From the comfort of your own classroom, you and your students will:

- Get a live video tour of soybean fields
- See the latest technology as you ride along on a tractor during planting
- Learn the inner-workings of a planter
- Learn about seed germination, seed growth and how science improves yields
- Discover the uses and benefits of Ohio soybeans
- Understand the challenges farmers face and he decisions they must make
- Ask questions directly to Ohio soybean farmers
- and much more!

The recording of this event will be provided to all registrants 24 hours upon completion. Be sure to register to receive the recording, even if you cannot attend live!

Click or Tap Here to Register Now!

High Rises Made Out of Wood?

What matters in whether ‘mass timber’ buildings are sustainable

Forest plantations are dedicated to growing commercial timber. Soil Science/flickr, CC BY

A material that’s been around since people built shelters – wood – is increasingly being proposed for low- and mid-rise buildings.

Companies behind these “mass timber” projects say that wood is a lower-carbon alternative to steel or concrete and brings other benefits, such as faster construction time and lower cost than concrete and steel. Advocates say the wood materials, made of compressed layers of wood with glue, offer good fire safety as well.

As an economist who studies forestry and natural resources, I took an interest in this building trend when I heard that a local bar on campus was going to be replaced by a 13-story building made out of wood.

I see any increase in the use of wood in buildings as positive for reducing the substantial carbon footprint of buildings. But it is critical to consider where wood is sourced and whether forests are managed sustainably.

Read more

Rube Goldberg Machine Contest 2025 World Championship

The winners with links to videos are listed on their Substack.

How Indian Hill High School Cultivated a STEM “Mindset”

The upcoming Ohio STEM Innovation Summit will include two presentations from educators in the Indian Hill district. ("Engaging Math Through PBL: Interactive Strategies for AP Math & Geometry" and "Empowering Student Futures: IH Experienceships as a Catalyst for Career Exploration" - view here)

Indian Hill High School (IHHS), a public high school that serves a suburb northeast of Cincinnati, received designation from the Ohio STEM Committee in 2024. The high school’s STEM designation came on the heels of Indian Hill Primary School and Indian Hill Elementary School receiving their STEM designations in 2023. To find out more about Indian Hill High School’s road to becoming a designated STEM School and its approach to STEM education, we asked the following team to collaboratively respond to the questions below:

- Andy Gruber (Current Principal of IHHS)
- Danielle Lintz (Assistant Principal of IHHS)
- Jeff Damadeo (Former Principal of IHHS and Current Director of K-12 Leadership and Career Development)
- Lauren Richardson (Former Instructional Coach & Current Experienceships Coordinator)

Read the post

Technology and Engineering Education News and Resources

Activities, Contests, Student Opportunities, and New Technologies

ITEEA News

Save the Dates for ITEEA's Fall Forum on November 5-6, 2025!

ITEEA's 2025 in-person Annual Conference is now in the books, but you don't have to wait until next year to enjoy learning and networking experiences! Our second annual fall virtual event, ITEEA 2025 Fall Forum: For the Classroom and Beyond will be an enriching and dynamic two-day virtual experience that empowers educators to enhance their teaching practices both inside and outside the classroom! Mark your calendar now for November 5-6, 2025.

ITEEA's STEM Center for Teaching and Learning to Expand EbD Training Access Nationwide

Exciting changes are coming to Engineering byDesign Teacher Workshops! ITEEA's STEM Center for Teaching and Learning is pleased to announce a significant expansion of Engineering byDesign (EbD) teacher workshops. Previously offered on a state-by-state basis, offerings are being scaled up to a nationwide model to better serve educators across the country. These workshops are designed to empower you with the knowledge and skills needed to inspire the next generation of engineers and innovators. Learn more today!

Contribute to Research Regarding T&E Teacher Motivation to Teach

A graduate student at Utah State University is conducting research for her Masters in TEE. She is researching the motivations behind becoming a technology and engineering teacher to understand how to better recruit and retain future teachers. Technology and engineering educators are invited to participate in this study by taking 5-10 minutes to complete the survey. Please note the Letter of Information at the beginning of the survey for full details. (IRB Protocol #15008). Thank you for assisting us in our efforts to support TEE teachers!

May 5-9 Is Teacher Appreciation Week.

ITEEA

Thank you, teachers!

As Teacher Appreciation Week unfolds, we pause to recognize the extraordinary individuals shaping tomorrow's innovators. Your classrooms aren't just spaces of

learning—they're laboratories of discovery where young minds are transformed.

To the technology, engineering, and STEM educators who light the path of innovation: your impact extends far beyond lesson plans and projects. You're cultivating the problem solvers and creative thinkers our world desperately needs.

Heroes don't always wear capes—sometimes they carry circuit boards, engineering notebooks, and the boundless enthusiasm that brings STEM to life!

Here's to you, the architects of curiosity and guardians of growth.

#ThankATeacher
#TechAndEngTeacherAppreciation

In celebration of your tireless efforts, we are extending a 10% discount of all ITEEA memberships, products, and trainings through Friday, May 9, 2024 at 11:59pm ET.

Be sure to enter code

TA2025 at checkout to save!

VISIT THE ITEEA WEBSITE

ITEEA APPRECIATES TEACHERS!

Edutopia also has a teacher appreciation page.

STEM Teaching Methods byDesign Microbadge

STEM CTL | STEM CTL Special Program

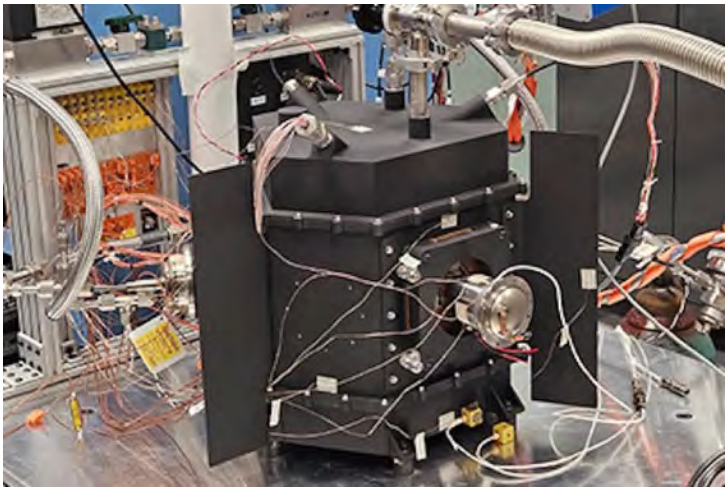
Unlock the potential of your STEM classroom with our STEM Teaching Methods byDesign microbadge course! This self-paced, 10-hour asynchronous course is designed to equip educators with innovative strategies and practical tools to enhance STEM education.

Read more

NASA Tests World's First Nuclear Space Power Generator That Runs on 5x Cheaper Fuel

Interesting Engineering

Americium-241 is five times cheaper per watt of power when compared with plutonium-238.



The Am-RSG benchtop demonstrator.

NASA GRC

A team of scientists and engineers from the University of Leicester and NASA Glenn Research Center is developing a new nuclear power system for space.

Last year, the university signed an International Space Act Agreement with NASA allowing them to test their electrically-heated simulators of americium heat sources.

By combining these with power converter technologies from NASA Glenn, they aim to develop an innovative power system that could provide electricity to future space missions.

Read more

Gas Powered Clothes Iron

Before electricity was common in homes (late 1800s–early 1900s), people needed ways to heat irons without plugs. The earliest irons were simple chunks of metal heated on a fire or stove — but they cooled quickly and were heavy. To solve this, inventors created **self-heating irons**, and that's where **gas-powered irons** come in.

Read more including their Ohio connection.

News From NASA

In-Flight STEM Downlinks

Connect students with astronauts aboard the space station for a live question-and-answer session about living and working in space.

Schedules and more

The STEM Pulse

The May edition is out with news, funding and event information.

Read issue

10 Once-Common Household Items You Don't See Anymore

Interesting Facts

Time keeps marching on, and yesterday's technology is old news today. As in decades past, we still want to communicate, keep our homes clean, and feed ourselves, but we have more convenient ways to do so, leaving now-obsolete — but sometimes nostalgic — items behind.

Read more

Convocation on the Status of Informal Science and Engineering Education

June 16-17, 2025
Washington D.C. and Online

The Convocation on the Status of Informal Science and Engineering Education is a two-day gathering that will bring together researchers, practitioners, policymakers, and funders to reflect on how the field of informal science and engineering education has evolved over the past 15 years. Building on the 2009 National Academies report Learning Science in Informal Environments, the event will explore its influence, examine trends in the field, surface key challenges and solutions, and highlight promising directions for the future.

Submit a Poster on Impacts of the Field of Informal Science and Engineering Education!

As part of the Convocation, we have opened a call for posters to share your insights on the impacts of research and practice in informal science and engineering education.

- In what ways have you seen research or practice transform approaches to informal science and engineering education?
- What influences on other fields of learning and engagement outside of STEM education have you seen?

We want to showcase these stories from the field! All individuals and organizations who are interested may participate, and we encourage highlighting impacts that may not be widely known or recognized within the field. You can indicate your interest in participating on the registration page to receive more information. Submissions are due by May 30th!

REGISTER NOW

2025 Ohio Teacher Leadership Summit Registration Open

Register now for the 2025 Teacher Leadership Summit hosted by the Ohio Department of Education and Workforce. The Teacher Leadership Summit is a great way to support teacher leaders and building leadership teams through professional learning, collaboration, and networking. The Summit is free and takes place on June 11, 2025, in Columbus. This year's theme is "Spark Innovation: Ignite Change."

More information and the registration form can be found on the Department's website.

Contact teacher.leadership@education.ohio.gov with questions.

Current issue has a message for ITEEA's new president, professional development opportunities, resources and more.

Read it here

Three Essential Tips for Implementing Project-Based Learning

Next Gen Learning

If you're thinking about bringing project-based learning (PBL) into your classroom, we have three essential tips to help you get started. We've seen these strategies work time and time again in our own teaching, and we hope they can help you, too.

Read more

Our Top 9 Electrical Safety Tips From Fire Safety Experts

Ting

Don't be shocked! May is National Electrical Safety Month, and our Ting Fire Safety Team has offered their best electrical safety tips based on years of experience in preventing home electrical fires.

We rely on electricity in our homes every day – from turning on the lights, brewing coffee, keeping our appliances running, charging devices; the list goes on. Most homes have a few miles of wiring behind walls and ceilings with hundreds of connection points to keep everything running.

Much of your home's electrical infrastructure is hidden from plain sight, so fire prevention starts with you!

Read more

The Kid Should See This

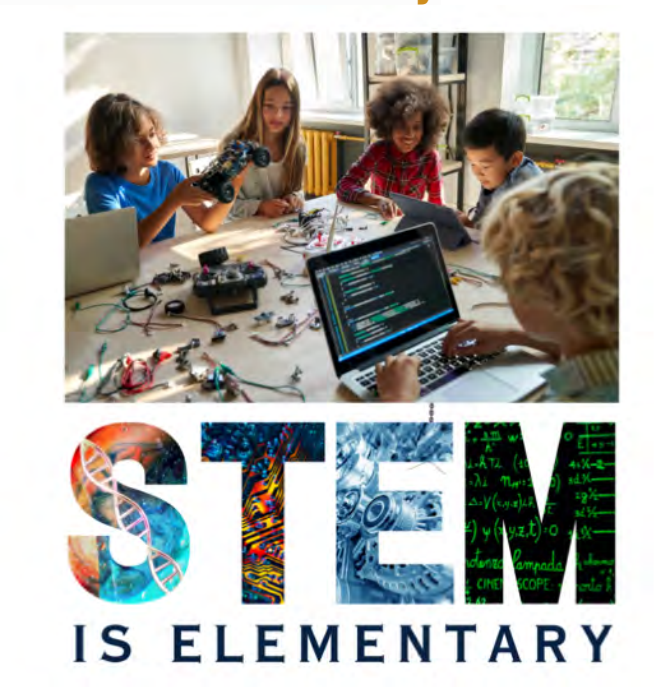
The Kid Should See This

Smart videos for curious minds of all ages

Here are some selected videos.

- Crafting an 8-oared boat using 1800s Norwegian maritime techniques
- Researchers Develop the First 3D Hologram You Can Touch and Move
- From the Earth Up: Building with stone, cob, adobe bricks, and wattle and daub
- Kumiko Woodworking and Mageki Woodbending
- The Quest for Absolute Zero: How cold can we go?
- Building a Jenga Tower on ONE Jenga Block, a Guinness World Record
- Try these 6 "better than magic" science tricks with Mark Rober
- How does filtration and UV light turn wastewater into clean drinking water?

STEM Is Elementary



The May issue of STEM is Elementary is available here.

May the Force = Mass X Acceleration

NASA Jet Propulsion Laboratory

What do "Star Wars," NASA's Dawn spacecraft and Newton's Laws of Motion have in common? An educational lesson that turns science fiction into science fact using spreadsheets – a powerful tool for developing the scientific models addressed in the Next Generation Science Standards. Keep reading to learn more and find out how to get students wielding the force .

Read more about ion engines

19 Highly Engaging End-of-Year Activities

Edutopia

Teachers can help students end the year on a high note with activities that remind them how much they've learned in class.

Read more

Unique Reuses of Wind Turbine Blades for Urban Landscapes

Ceramic Tech Today

Example of the pedestrian footbridges created out of retired wind turbine blades. Credit: BladeBridge

Fiberglass takes on many different forms in our everyday lives, through sports equipment, vehicles, housing insulation, and more. Its durable, water-resistant, and lightweight nature is why fiberglass proves to be a popular, versatile material for numerous applications, even though many may not realize it.

For all its benefits, fiberglass unfortunately is not biodegradable, and its composite nature of glass fibers and a binding resin make recycling difficult. These characteristics pose a challenge for disposing of large fiberglass products that have reached the end of their life, such as wind turbine blades.

As of late 2024, there are more than 70,000 active wind turbines in the U.S., and since 1992, 11,000 wind turbines have been decommissioned. With the number and size of wind turbines growing each year—and the maximum lifespan being only 30 years—the National Renewable Energy Laboratory estimates that more than 2 million tons of wind turbine blades in the U.S. will need to be retired by 2050. The question arises: Where do the blades go next?

Read more

Nanoscale 3D Printing May Herald a New Future for Ceramic Bone Grafts

Ceramic Tech Today

A close up of 3D printed synthetic bone mimicking trabeculae, a major part of natural bone. Credit: Roohani et al., Advanced Materials (CC BY-NC 4.0)

Bone loss in humans is a widespread problem. Whether through disease, trauma, or just wear and tear over decades, an estimated 2.2 million orthopedic procedures involving bone grafting take place annually.

Autografts, or tissue taken from the patient's own body, are generally preferred over synthetic grafts in many procedures due to their superior healing capabilities and lower risk of complications. However, in certain situations (described in more detail below), synthetic grafts are preferred.

To date, synthetic bone substitutes are mainly used for smaller and simpler grafting needs. The complex nanostructure of natural bone makes it both strong and elastic (to a point—ask the finger I once pinched in my garage door…). Achieving this combination of features with synthetic bone has so far been difficult, but a recent breakthrough by researchers at the University of Sydney in Australia sets a new milestone in the mission to create replacement bones.

Read more

YIPPEE Exchange

Entrepreneurship is the most common career path in the United States. Yet schools have few resources to teach young people how to navigate the entrepreneur journey. Educators looking to help their students build entrepreneurial skills are often hampered by small budgets, time constraints, and limited access to quality resources that engage and inspire students.

That's where YIPPEE comes in. An initiative of Burton D. Morgan Foundation—a champion of entrepreneurship for more than five decades—YIPPEE mirrors the enterprising mindset it seeks to empower in K-12 students.

Launched in 2022, this unique platform offers a balanced value proposition to all who participate:

- Providers of innovative educational materials and experiences can bring resources to market easily and affordably, giving you direct access to your target audience.
- Educators can secure unique and creative curricular resources to develop the skills your students will need in today's fast-paced, rapidly evolving business landscape.
- Sponsors can target priorities and support learning opportunities consistent with your values and interests.

It takes a village to raise an entrepreneur.

YIPPEE is dedicated to skill-building and educator choice. It is cost-effective and impactful. When providers, educators, and sponsors work together, the real beneficiaries are the students—who unlock the knowledge, capabilities, and opportunities to forge their own paths.

Read more

Humans Cause Traffic Jams, AI Can Fix Them

PBS Overview

Season 1 Episode 10 | 9m 46s

Traffic is one of the biggest problems plaguing cities today. Idling cars cause increased emissions, more traffic means more accidents, and it is, of course, annoying. Meet traffic scientist, Dr. Alex Bayen who is working to solve traffic with automation.

Watch video

Local High School Students Build Tiny Houses for Homeless Veterans

San Diego Magazine

The Warrior Village Project partners with San Diego County construction classes to transform lives

Photo Credit: Joshua Silla

In the time before classes begin at San Marcos High School (SMHS), Warrior Village Project founder Mark Pilcher drops off school supplies for wood shop teacher Chris Geldart's class. You won't see him schlepping laptops or books, though—instead, Pilcher's delivery includes materials like lumber and door frames.

"It was my idea to start building tiny houses in high school construction classes to provide houses for homeless veterans," Pilcher says. "My vision—my goal—is to build villages of tiny homes."

Pilcher created The Warrior Village Project in September 2019, reaching out to high schools across San Diego County to see if he could work with their wood shop classes to craft those little abodes. With help from the San Diego Building Industry Association, SMHS became the Warrior Village Project's first partner school. Today, the program has expanded to include Rancho Buena Vista High School and San Pasqual High School.

Read more

News From Interesting Engineering

Interesting Engineering

1.2-mile-long world's largest timber structure 'Grand Ring' unveiled at Osaka Expo

The Grand Ring, a huge 2 km (1.2 miles) circular wooden walkway, showcases innovative engineering and design.

Constructed for the ongoing Osaka 2025 Expo in Japan, it serves as a key feature of the event. Notably, Guinness World Records recognized it as the planet's "largest wooden architectural structure" on March 4, 2025.

The colossal wooden walkway loop was constructed by Sou Fujimoto Architects.

Read more

Interesting Facts Stories

Interesting Facts

10 Once-Common Household Items You Don't See Anymore

Time keeps marching on, and yesterday's technology is old news today. As in decades past, we still want to communicate, keep our homes clean, and feed ourselves, but we have more

convenient ways to do so, leaving now-obsolete — but sometimes nostalgic — items behind.

Read more

5 Inventions That Started Out as Something Else

Innovation doesn't always follow a straight line. Some of history's most famous inventions, including the microwave, were born from accidents. Others, though not strictly accidental, ended up serving a completely different purpose than originally intended — such as the blood pressure medication that ended up becoming a famous hair loss remedy.

Read more

The first item ever sold on eBay was a broken laser pointer.

eBay is one of the world's largest online retailers, auctioning off nearly anything you can think of. While vehicles, jewelry, and electronics are some of the most commonly sold items today, there's one unusual purchase cemented in the digital storefront's history: a broken laser pointer

Read more

Robots Make Burger at US Restaurant, Serve Meals in 27 Secs To Boost Fast Food Prep

A new restaurant concept in Los Gatos, California, is using robots to precisely and quickly assemble meals. The restaurant, unveiled by ABB Robotics and BurgerBots, uses ABB's IRB 360 FlexPicker and YuMi collaborative robot.

The robots work together in a self-contained burger-making cell to deliver made-to-order meals, assembling them with precision and speed. From real-time ingredient tracking to flawless topping placement, this robotic cell could change the way people think about fast food.
Read more

History Facts Stories

History Facts

Abraham Lincoln approved a balloon corps during the Civil War.

In 1861, shortly after the start of the Civil War, President Abraham Lincoln authorized the creation of an aerial surveillance organization known as the Union Army Balloon Corps. Before the war, balloonists were usually carnival performers, but that all changed thanks to aeronaut Thaddeus S.C. Lowe. On July 11, 1861, Lowe was invited to demonstrate his ballooning skills for the president, who hoped to use hot-air balloons for aerial reconnaissance missions in the war.

Read more

The Year 1969, in 5 Facts

Back in 1969, the global population was a comfortable 3.6 billion — a long way from today's 8.1 billion. In the United States, 202 million people (versus some 341 million today) were going about their business. Glue sticks had just been invented and Nutter Butter was first put on sale. "Michael" and "Lisa" were the most popular baby names, the movie Oliver! won Best Picture at the 41st Academy Awards, and the New York Mets provided one of baseball's greatest upsets when they won the World Series four games to one against the Baltimore Orioles.

That all sounds reasonably relaxing, but don't let 1969 fool you — it was a transformative and tumultuous year in America. These five facts offer a snapshot of the final 12 months of the decade,

from music to politics to a trip to the moon (but, alas, no aliens).

Read more

In 1908, there was a car race from New York to Paris.

In the early 20th century, when automobiles were in their infancy, the idea of driving long distances was still ambitious. But that was precisely the challenge of the 1908 New York to Paris race, a bold, 22,000-mile competition that spanned three continents during the dead of winter. On the morning of February 12, six teams representing four countries — France, Germany, Italy, and the United States — gathered in front of 250,000 spectators in Times Square in New York City. The cars and their teams, made up of drivers, mechanics, and journalists, departed at 11:15 a.m. The American Thomas Flyer car quickly pulled into the lead. Behind it came Italy's Zust, Germany's Protos, and three entries from France — a Motobloc, a De Dion, and a Sizaire-Naudin (the latter broke down and dropped out of the race after just 96 miles).

Read more

What Did Cars Do Before Windshield Wipers?

The earliest cars were a far cry from the high-tech machines we drive today. Even outside of modern amenities such as backup cameras and Bluetooth connectivity, very basic features that we now take for granted didn't exist — including a way to clear water off the windshield. In rain or snow, early drivers had to get hands-on just to see the road ahead

Read more

How Reese's Peanut Butter Cups Are Made in Factory

Made Vision

They've been packed in lunchboxes, delighted trick-or-treaters, and vanished during opening movie credits. Today, we're heading inside the Hershey factory to see where Reese's Cups come to life.

From roasting peanuts to whipping up the creamy filling, molding the chocolate shell, and sealing it all in that bright orange wrapper, you'll see exactly how each cup is made from start to finish.

Watch video

Made Vision has a number of manufacturing videos.

2025 Kibo Robot Programming Challenge – Call for U.S. Teams

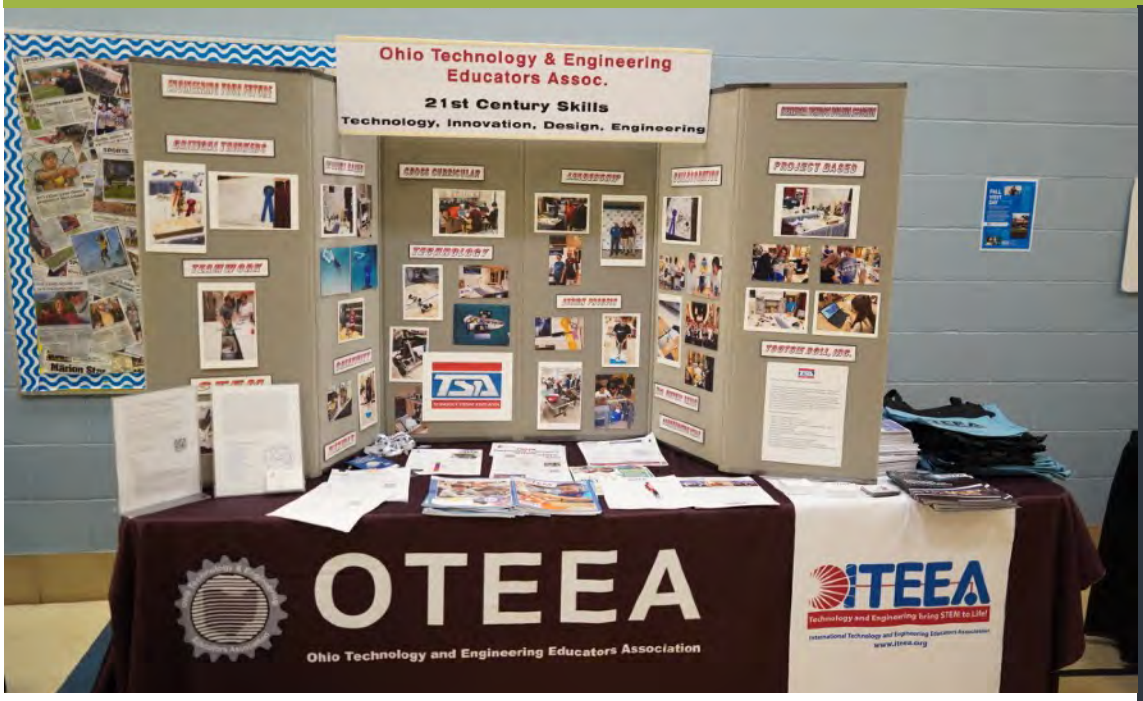
Registration Deadline: Monday, May 12

Contact: jsc-kiborpc@mail.nasa.gov

The Kibo Robot Programming Challenge (Kibo-RPC) – hosted by the Japanese Aerospace Exploration Agency (JAXA) – invites teams of students to create programs to move free-flying robots known as Astrobees on the International Space Station. The competition presents tasks/ obstacles for high school and college students to solve using the space station's Kibo module as a game space.

Preliminary rounds will be held in multiple countries using ground-based simulations. Registration for the U.S. Preliminary Round, conducted by NASA, is open now.

Click here to review eligibility requirements and register for this opportunity.



1. The Outreach group is looking for more members!

2. Have a story or pictures to share that tell about your program or students? Let us know!

3. The webinar has been discontinued. Archived webinars can be viewed at online.

4. What OTEEA programming would you like to see?

Contact Paul Post

"The road to success is always under construction."
- Lily Tomlin

This Week's Technology Tip

10 Items Causing Your Electricity Bill To Skyrocket

HouseOutlook

If your last electric bill was unexpectedly high but you haven't been running your appliances or keeping your lights on more than usual, you might want to take a look around your house. We've rounded up 10 items that commonly cause energy bills to add up, so you can address the problem, save money, and live more sustainably.

Read more