



STEM News from the Indiana STEM Ecosystem

FEBRUARY 2020

Indiana STEM Ecosystem Mission: To develop, support, and “stand up” regional STEM ecosystems across the state.

Indiana STEM Ecosystem Vision: Through the “standing up” of regional STEM Ecosystems across Indiana, we will improve STEM literacy, ensure a strong workforce & global competitiveness for all Hoosiers, and support diversity, equity & inclusion in a thriving STEM workforce.

Visit our NEW Indiana STEM Ecosystem WEBSITE at:

www.INSTEMEco.com

Please be patient.....it is a work in progress!

It is crucial to leverage our membership’s expertise and knowledge to help STEM spread across Indiana! In order to do this, we need help **MAPPING OUR MEMBERSHIP!** Take the first step by completing this quick survey:

<https://forms.gle/x7k7srfMsMSngaRR9>

[CLICK HERE TO SEE WHERE OUR CURRENT MEMBERSHIP SITS IN OUR STATE!](#) (THIS IS UPDATED MONTHLY)

General Announcements

The Governor’s Workforce Cabinet Released the Indiana Strategic Workforce Plan in early February 2020 which allows Indiana to take a more holistic approach to our state’s talent development system as we work towards better integration across the

EVERY student **EVERY** school **EVERY** day



system. The Plan is centered on a strategic vision of creating a talent system that affords all Hoosiers equitable opportunities for lifelong learning and increased personal economic mobility and provides employers the talent to grow and diversify their workforce. Underneath this vision the Plan identifies two overarching goals: having at least 60% of Hoosiers attain a quality credential beyond a high school diploma by 2025 and increasing engagement between employers and state and local agencies to identify and address the skills gap with greater responsiveness and efficiency. In addition to the strategic vision and overarching goals, 5 specific goals have been identified that provide a framework for how we plan to reach our targets including:

- 1) Focus on meeting the individual needs of Hoosiers.
- 2) Integrate state systems to facilitate greater access to information, resources, and services for constituents, businesses, state personnel, career coaches or navigators, and case managers.
- 3) Align programs towards creating a healthy, engaged, and talented citizen.
- 4) Maximize state and federal resources through impact-driven programs for Hoosiers.
- 5) Foster impactful relationship between businesses, community partners, and government agencies.

See the full plan here:

[https://www.in.gov/gwc/files/Indiana%20Strategic%20Workforce%20Plan Draft 2.6.2020.pdf](https://www.in.gov/gwc/files/Indiana%20Strategic%20Workforce%20Plan%20Draft%202.6.2020.pdf)

Calling STEM Rural Partners!

Blackford	Parke
Crawford	Perry
Fountain	Pike
Franklin	Pulaski
Fulton	Randolph
Gibson	Ripley
Greene	Rush
Jay	Spencer
Jennings	Starke
Lagrange	Switzerland
Martin	Tipton
Orange	Warren

Indiana STEM Ecosystem is looking for participants in the rural counties listed here for FREE PD and support on steps to take to expand their STEM reach!

This project will:

- Connect members/ecosystem veterans with new potential members and ecosystems
- Help build out & stand up rural STEM ecosystem teams
- Identify challenges, barriers &

EVERY student **EVERY** school **EVERY** day



STEM News from the Indiana STEM Ecosystem

FEBRUARY 2020

solutions for STEM in rural Indiana

Teams walk away with realistic actionable plans!!

Go to www.INSTEMEco.com, under the 2019 convening link to access additional information.

Events of Interest



Women & Hi Tech's 7th annual Passport to Hi-Tech event at Conner Prairie is scheduled on March 14, 2020!

Passport to Hi-Tech is an event for girls and boys ages 7 to 12 to learn about careers in STEM (science, technology, engineering, and math). This widely popular event is expected to attract more than 1,500 participants at Conner Prairie this year for an amazing day full of fun and learning about STEM.



Passport to Hi-Tech is made possible by a joint effort between Conner Prairie and Women & Hi Tech.

STEM Next in partnership with the Charles Stewart Mott Foundation is thrilled to partner

EVERY student **EVERY** school **EVERY** day



STEM News from the Indiana STEM Ecosystem

FEBRUARY 2020

with **Techbridge Girls** to offer a webinar series of hour-long, interactive trainings, designed for network leads, supervisors, and trainers, that introduce participants to various aspects of equitable, high-quality informal STEM program design. Sign up for the next webinar below:

https://docs.google.com/document/d/1cGKuR_6MXFIIZdTpu3wT7jxH0Nb3GkWq2gt8AP63b6E/edit

Register [here](#).

EVENT: EXPLORING ENGINEERING AT PURDUE!

MONDAY, APRIL 20, 2020

Visit www.purdue.edu/wiep for further information!

Be part of our state's most recognized and comprehensive conference on afterschool and summer learning!

The **9th annual Indiana Summit of Out of School Learning** brings together youth programs, schools, and community partners to connect, learn new ideas, access valuable resources, and transform learning beyond the school day for Indiana youth.

During the event, the participants will:

- Participate in hands-on experiments and interactive exhibits.
- Meet experts and professionals working with Indiana-based hi-tech companies.
- Plan for the future as they talk with representatives from Indiana's colleges and universities.
- Watch special presentations throughout the day.
- Learn how they can continue developing skills with the help of area companies, organizations and workshops.

The Morpho Institute's Educator Academy in the Amazon Rainforest **Dates: July 1-11, 2020**

The Educator Academy in the Amazon Rainforest provides powerful professional development designed to transform student learning. Immersed in the Peruvian Amazon, teachers learn about this key global ecosystem while building their ability to engage students in scientific research, engineering design, cross-cultural connections, and stewardship projects. With specialized tracks for elementary, middle school, and HS/AP educators, participants will:

- Work side-by-side with scientists and researchers

EVERY student **EVERY** school **EVERY** day



STEM News from the Indiana STEM Ecosystem

FEBRUARY 2020

Indiana Convention Center, Downtown
Indianapolis

April 14-April 15, 2020

7:30AM-5:00 PM

For more information go to:

<https://www.indianaafterschool.org/quality/conferences-special-events/2020-indiana-summit-on-out-of-school-learning/>

- Explore conservation and sustainability
- Spend a day in an Amazon village
- Work in grade-level cohorts

www.morphoinstitute.org/educator-academy

Email: info@morphoinstitute.org

The STEM Connection™
Connecting STEM to the Natural World™



Join the STEM Connection for an **Educator Empowerment Workshop** to gain knowledge about STEM content, hear from experts, and connect with others. Educator Empowerment Workshops are meant to help formal and informal educators and parents strengthen their understanding of and comfort level with specific STEM content. Each night a topic will be highlighted, guest experts will share, lessons will be offered, and connections will be made to Indiana Standards for K-8th grade. PGP and CYC points will be offered and advanced registration is required. Upcoming topics include **Chemistry with Kids, Mathematics Process Standards, STEM and Literacy, and Computer Science**. Please visit <https://thestemconnection.org/stem-professional-development/open-workshops/> for more information and to register for an event.

EVERY student **EVERY** school **EVERY** day



**Closing the Gap:
Indiana's 1st All-Girls STEM School**

Join us for a benefit and discussion.

How will this school help close the gender & diversity gap in STEM education and the workforce?

Monday, March 9th, 2020 @ 6:00pm - 7:30pm
RJE Interiors
621 E Ohio St, Indianapolis

Featured speakers:
 Former Mayor Greg Ballard, City of Indianapolis
 Angela B. Freeman, Barnes & Thornburg LLP, Women & Hi Tech
 Scott Bess & Keeanna Warren, Purdue Polytechnic HS
 Linda Calvin, Ivy Tech Community College

EVERY GIRL CAN STEM



[Closing the Gap: Indiana's 1st All-Girls STEM School Event - Register HERE!](#)

STEM Competitions

- **Aviation Design Challenge** is sponsored by the General Aviation Manufacturers Association (GAMA) to promote Science, Technology, Engineering and Mathematics (STEM) education through aviation curriculum and a virtual fly-off in high schools across the United States.
- **BioBuilder Club**
 The BioBuilder Educational Foundation supports the BioBuilder Club, which is an opportunity for high school inventors to combine engineering and life science to design, build, and test their own ideas. The Kickoff virtual meeting will take place on October 15th. Teams will receive the BioBuilder textbook, a laboratory kit, and are paired with remote scientist mentors.
- **Destination Imagination**, open to all kindergarten through university level students worldwide. Students form teams of up to 7 members, select their preferred

EVERY student **EVERY** school **EVERY** day



Challenge and work together to develop a solution to the Challenge. Each team has at least one Team Manager (often a parent or teacher) who helps keep the team on track, but does not assist or interfere with the team's project. Destination Imagination offers seven engaging Challenges in STEAM education: Technical, Scientific, Fine Arts, Improvisational, Engineering, Service Learning and Early Learning.

- **Discovery 3M Young Scientist Challenge**, students identify a solution to an everyday problem that directly impacts them, their families, their communities, and/or the global population. The idea must be a new innovation or solution, and cannot simply be a behavioral change or a new use for an existing product. The student must create a one- to two- minute video that explains the problem and how it impacts them, their families, their communities and/or the global population; describes a new innovation or solution that could impact or solve the problem; explains the science, technology, engineering and/or mathematics behind their innovation; and illustrates how their innovation could both address the everyday problem they've identified and have a broader impact locally or globally.
<https://www.competitionsscience.org/competitions/discovery-education-3m-young-scientist-challenge/>
- **eCYBERMISSION** is a web-based STEM competition free to students in grades six through nine that promotes self-discovery and enables all students to recognize the real-life applications of STEM. Teams of three or four students are instructed to ask questions (for science) or define problems (for engineering), and then construct explanations (for science) or design solutions (for engineering) based on identified problems in their community. Students compete for State, Regional and National Awards.
- **ExploraVision** a science competition that encourages students to study a technology of interest and predict what it might look like 20 years from now. Students are encouraged to work in groups of 2-4 students and must be sponsored by a teacher.
- **First Robotics Competition** Dubbed a "Varsity Sports for the Mind," *FIRST* Robotics Competition combines the excitement of sport with the rigors of science and technology. Under strict rules, limited resources, and time limits, teams of 25 students or more are challenged to raise funds, design a team brand, hone teamwork skills, and build and program a robot to perform prescribed tasks again a



STEM News from the Indiana STEM Ecosystem

FEBRUARY 2020

field of competitors. It's as close to real-world engineering as a student can get. Professional mentors volunteer their time and talents to guide each team.

- **Indiana High School Esports Network**

If you are considering starting a gaming or esports club, we are here to help! We want to help you avoid mistakes we have made, and give you tips on what has gone well. If you sponsor a gaming or esports club at the high school or middle school level in Indiana, please contact us and join us in the IHSEN server so we can communicate and connect you with other sponsors.

- **Indiana Science Olympiad** (INSO) is a nonprofit organization devoted to improving the quality of science education, increasing student interest in science and providing recognition for outstanding achievement by students in grades 6-12. We encourage middle (division B) and high school (division C) students to succeed in science, technology, engineering, and mathematics. Our goals are accomplished through the dedication of our executive board, advisory committee, Indiana teachers, higher education institutions & their faculty and students who organize classroom activities, research, after school science clubs, and competitive tournaments. The main focus of the competition is to elevate science education and learning to the level of enthusiasm and support that is normally reserved only for varsity sports programs.

- **VEX Robotics** VEX Competitions bring STEM skills to life by tasking teams of students with designing and building a robot to play against other teams in a game-based engineering challenge. Classroom **STEM concepts** are put to the test as students learn lifelong skills in **teamwork, leadership, communications**, and more. Tournaments are held year-round at the regional, state, and national levels and culminate at the VEX Robotics World Championship each April!

EVERY student **EVERY** school **EVERY** day



STEM News from the Indiana STEM Ecosystem

FEBRUARY 2020

STEM Resources & Grant Opportunities

REVIEW A DETAILED LIST OF STEM GRANT & RESOURCES [HERE](#).

RESOURCES:

- **[10 Big Insights on Teaching, Learning, and STEM Education: 100Kin10's Trends Report for 2018:](#)**
Here at 100Kin10, we are constantly learning from our nearly 300 leading partner organizations while maintaining a pulse across the field, via teachers, researchers, and other leaders dedicated to supporting excellent STEM teaching and learning for all students. It's a unique and privileged position to be in, at the intersection of so much wisdom. Recognizing that, we start each year by synthesizing all that information into our Trends Report: ten bite-sized insights that emerge from the data.
- **[Buck Institute's Project Based Learning \(PBL\) Videos:](#)** To help schools and districts visualize high-quality PBL in the classroom, the Buck Institute for Education (BIE) has videos showcasing PBL projects from K–12 schools nationwide, including several STEM-themed projects. The projects employ BIE's research-based Gold Standard PBL model, which emphasizes student learning goals and the incorporation of Essential Project Design Elements (a challenging problem, sustained inquiry, reflection, critique and revision, student voice and choice, and a public product). Teachers can view videos of successful PBL projects that feature teacher interviews and actual classroom footage and highlight projects from a range of grade levels, settings, and subject areas, including STEM.
- **[Challenger Learning Center of Northwest Indiana \(CLCNWI\):](#)**
CLCNWI is a space science themed education center dedicated to continuing the mission of the Challenger 51L Space Shuttle Crew. The center offers both onsite and virtual STEM experiences for students of all ages, providing interactive mission simulations and programs as well as resources and training for teachers.
- **[EcO15:](#)** Creating a regional system of life-long learning by connecting the residents of ten counties within rural Southeast Indiana to better economic

EVERY student **EVERY** school **EVERY** day



opportunities through education by the year 2015 and beyond.

- **Ethos Science Center:** Envision schools where hands-on science and technology are taught on a regular and consistent basis by knowledgeable, well-prepared teachers using materials that facilitate science learning while reinforcing mathematics and language arts goals.
- **IMLS STEM-Rich Afterschool Making Project**
The Institute of Museum and Library Services (IMLS) and U.S. Department of Education (ED) launched an interagency collaboration with the New York Hall of Science to develop and implement science, technology, engineering and mathematics (STEM)-rich making [activities](#) for 21st Century Community Learning Centers programs (21st CCLC). These activities are designed to empower students as “makers”, using engaging design-based challenges that are student driven, and lead to materials literacy, divergent solutions, meaningful reflection and creative collaboration. There are six activities that can be implemented separately as a 60- to 90- minute session per day or grouped together to accommodate a longer day.
- **Indiana Afterschool Network:** The Indiana Afterschool Network strives to build a sustainable network of cross-sector partnerships at the state, regional, and local levels to advance public policy, increase funding and resources, and promote quality afterschool and summer learning programs throughout Indiana.
- **Indiana STEM Resource Network:** The I-STEM Resource Network is a partnership of Indiana's public and private higher education institutions, K-12 schools, businesses, and government. It is dedicated to measurably improving K-12 student achievement in science, technology, engineering, and mathematics.
- **Indiana Association for Career and Technical Education:** Indiana ACTE is committed to doing all it can to promote and strengthen career education for today's youth. Whether they are college bound, struggling to find meaning in school, or somewhere in between, CTE students will go on to become the leaders in the workforce and careers of tomorrow.

EVERY student **EVERY** school **EVERY** day



- **Interactive Periodic Table of STEM Occupations:** Get details on STEM careers with this interactive periodic table highlighting STEM occupations instead of elements! Created as an accessible and engaging way for middle and high school students (and others) to learn about STEM occupations, the table features information (e.g., job duties, work environment, education, pay, job outlook, state and area data, similar occupations, and links) and short videos highlighting 24 STEM occupations, including chemist, computer information analyst, mechanical engineer, microbiologist, soil and plant scientist, geological petroleum technician, astronomer, physicist, and statistician.
- **Mascot Hall of Fame S.T.E.A.M.**
Our mascot-themed exhibits have been conceptualized and designed with a strong focus on education for grades K – 8. Partnering with Trine University and Calumet College of St. Joseph's produced an intense curriculum, based on the S.T.E.A.M. principles, which embeds science, math, literacy, the arts, and engineering standards in our exhibits throughout the Hall. The highly structured curriculum engages students in the days prior to their field trip to the Mascot Hall of Fame, during their visit at the Hall, and upon returning to the classroom. They are designed to be open-ended so educators can easily augment instructions based on the specific needs of their students. Our one of a kind facility is ideal for school field trips, educator workshops, professional development retreats, school mascot training, award ceremonies and more.
- **Portal Resources for Indiana Science and Mathematics (PRISM):**
PRISM is a free website that provides collections of online resources for Indiana educators in the fields of science, technology, engineering, and mathematics (STEM).
- **Purdue Science K-12 Outreach:** this program was initiated in 1989 to increase interest and achievement in science and mathematics at the pre-college level. We provide K-12 science and mathematics professional development programs for teachers, form long-term partnerships with school districts, and engage students in standards-based activities. Purdue



STEM News from the Indiana STEM Ecosystem

FEBRUARY 2020

Science K-12 Outreach coordinators act as resources and facilitators, establishing cooperative relationships with elementary and secondary schools to bring about changes in the quality of education. Our programs link the expertise of Purdue Science faculty with students, teachers, parents, schools, and school systems through collaborative interactions.

- **Siemens STEM Day**
Introducing Siemens STEM Day: a refreshed and expanded version of the beloved Siemens Science Day, now intended to span the whole K-12 STEM experience! Siemens STEM Day offers a variety of tools and resources that will help you reinvent your STEM curriculum. You'll find new, original hands-on activities, a teacher support center, and our Possibility Grant Sweepstakes!
- **STARBASE** Indiana has FREE STEM Academies sponsored by the Department of Defense in the State of Indiana. During the regular school year we provide hands-on, minds-on STEM experiences for fifth grade students. Our four academies combined have served at a minimum 5,000 students this school year. These numbers include 5th grade students for our 1.0 program and students for our 2.0 program (middle schoolers, after school) and summer camps, again ALL FREE!
- **STEM Resource Finder**: Since 1994, the Concord Consortium has been developing open educational resources that expand and deepen STEM inquiry with technology. These scientifically accurate models and activities have been funded by the National Science Foundation and other private and federal granting agencies, and developed by curriculum experts—so you know you can trust them in your classroom! Our cutting-edge tools and resources have brought STEM practices to life for over a million learners worldwide.
- **TechPoint Foundation for Youth**: TechPoint Foundation for Youth is a nonprofit venture philanthropic organization with the mission to inspire the next generation of science, technology, engineering and mathematics (STEM) leaders among Indiana's underserved youth populations.
- **The Global Goals**: In 2015, world leaders agreed to 17 goals for a better

EVERY student **EVERY** school **EVERY** day



world by 2030. These goals have the power to end poverty, fight inequality and stop climate change. World's Largest Lesson brings the Global Goals to children all over the world and unites them in taking action. Since our launch in September 2015, we have reached over 130 countries and impacted over 8 million children each year. All our resources are free, open source and translated into over 10 languages. We believe in the power of creativity and that all children can find their own individual way of taking action for the Global Goals. We encourage you to use our materials to teach lessons, run projects and engage young people in supporting the Global Goals!

- **The National Science Teachers Association (NSTA)**, founded in 1944 and headquartered in Arlington, Virginia, is the largest organization in the world committed to promoting excellence and innovation in science teaching and learning for all. NSTA's current membership of 50,000 includes science teachers, science supervisors, administrators, scientists, business and industry representatives, and others involved in and committed to science education. [NSTA's free resources](#)—journal articles, book chapters, and more.
- **The National Security Agency (NSA)**: The NSA works with schools serving kindergarten through 12th grade in a number of ways to promote science, technology, engineering, and mathematics (STEM), as well as foreign language education. The Agency can provide professionals to serve as tutors, speakers (interactive talks on STEM-related topics), judges, assistance with robotics and language clubs, and more to inspire students to pursue advanced studies and promote career opportunities in STEM and foreign languages.
- **The STEM Connection**: The STEM Connection provides professional development to empower educators by sharing STEM content knowledge, developing STEM practices, and building confidence to provide more meaningful STEM experiences for youth. We know science, technology, engineering, and math have an ever-increasing role in our world, and STEM experiences provide an opportunity to engage students early in their

EVERY student **EVERY** school **EVERY** day



academic journeys in order to increase interest in and build positive attitudes toward STEM disciplines.

- **Women in STEM Report:** Share this report in middle school, high school, and undergraduate college classrooms to expand horizons and introduce students to the diversity and potential of science, technology, engineering, and math (STEM) careers supported by the USGS. The report—A Snapshot of Women of the USGS in STEM and Related Careers—presents profiles of more than 70 women, past and present, engaged in STEM roles at the agency, including biologist, biological science technician, cartographer, chemist, ecologist, geographer, geologist, hydrologist, hydrologist technician, and physical scientist. The report also offers information about internships and other opportunities for high school and college students interested in pursuing careers at the agency, as well as links to information about the criteria needed for various USGS-related STEM careers.

STEM in CTE

- [CTE Is Your STEM Strategy](#)
- [STEM Certified Schools](#)

STEM Teacher Organizations

- [HASTI](#) - Hoosier Association of Science Teachers Incorporated
- [ICTM](#) - Indiana Council of Teachers of Mathematics
- [HAMTE](#) - Hoosier Association of Mathematics Teacher Educators
- [ICE](#) - Indiana Computer Educators
- [ETEI](#) - Engineering/Technology Educators of Indiana

Girls in STEM Resources:

- [Engineer Girl](#)
- [Indiana Girls Collaborative Project](#)

EVERY student **EVERY** school **EVERY** day



STEM News from the Indiana STEM Ecosystem

FEBRUARY 2020

- [Girls in Aviation Day](#)
- [Girls Inc.](#)
- [Girl Scouts](#)
- [She Can STEM](#)

STEM Resources/Lessons and Documents

- [Indiana STEM Vital Signs and Vital Signs Indiana](#)
- [Change the Equation - STEM Help Wanted](#)
- [Successful STEM Education](#)
- [Promising Practices in Undergraduate STEM Education](#)
- [Inclusive STEM High Schools](#)
- [U.S. Department of Energy FREE resources](#)
- [FREE High School Math and Science Video Lessons from MIT](#)
- [Science Stories for the Classroom](#)
- [Global Space Education Foundation FREE Lesson Plans](#)
- [Instructables FREE Premium Memberships for Teachers](#)

Click here to: [Check out this VETTED list of Indiana Department of Education's - Evidence Based STEM Curriculum](#)

Grant Opp's:

- [American Honda Foundation STEM Grants](#)
- [Community Action Grant](#)
- [MicroGrant Program for Educators & Teachers](#)
- [PLTW Grant Program](#)
- [Robotics Start Up Grants \(MS and ES\)](#)
- [Sony Grants for Education](#)
- [Sphero Edu and CodeFWD by Facebook](#)
- [SparkFun Community Partner Program](#)
- [TAF Project-Based Learning Grants for Grades 6–12](#)
- [Vernier/NSTA Technology Awards](#)

EVERY student **EVERY** school **EVERY** day



STEM News from the Indiana STEM Ecosystem

FEBRUARY 2020

Ag Biosciences related **career exploration** tool presented by AgriNovus:

<https://www.myfieldatlas.com/>

Every Girl Can STEM believes all girls should have access to quality science, technology, engineering and math education. We are unapologetically inclusive in our approach to provide equitable, culturally competent schools, resources and tools for our young, female entrepreneurs, scientists, innovators and creators.

<http://www.everygirlcanstem.com/>

P3 Student Design Competition - EPA's P3 - People, Prosperity and the Planet – Program is a unique competition that is open to teams of college/university students working to design solutions for a sustainable future. P3 offers students hands-on experience that brings their classroom learning to life, while also allowing them to create tangible changes in their communities. This annual, two-phased research grants program challenges students to research, develop, and design innovative projects that address real world challenges involving all areas of environmental protection and public health. Phase I serves as a “proof of concept,” where teams are awarded a one-year grant of up to \$25,000 to develop their idea and showcase their research in the spring at EPA's National Student Design Expo (NSDE). These teams are then eligible to compete for a Phase II grant of up to \$100,000 to implement their design in a real world setting. P3 aims to foster progress towards environmental awareness by achieving the symbiotic goals of improved quality of life for all people, economic prosperity, and protection of the planet - people, prosperity and the planet.

EVERY student **EVERY** school **EVERY** day