February 2023 / Vol. 26

STEAM NEWSLETTER

THE OFFICIAL NEWSLETTER FOR THE ILLINOIS DEPARTMENT OF INNOVATION & TECHNOLOGY (DoIT) STEAM EDUCATION GROUP

According to the Library of Congress, "in 1986, Congress passed Public Law 99-244, which designated February 1986 as 'National Black (Afro-American) History Month.' This law noted that February 1, 1986, would 'mark the beginning of the sixtieth annual public and private salute to Black History.'"

In this newsletter we share resources to teach and learn about Black History focused on STEAM activities and lessons. Resources such as Science Buddies "35 Scientists to learn more about" showcase contributions from African American scientists and engineers. EDSITEment offers a teacher's guide of African American history and culture. The National Education Association "Black History Month Lessons & Resources" website helps honor achievements of African American scientists, engineers and artists across the country. The Museum of Science and Industry in Chicago will host the Black Creativity Career Showcase on February 25,

2023 as "an opportunity to learn from experts during dynamic demonstrations, hands-on activities and one-on-one conversations."

We encourage you to explore resources that celebrate and honor all contributions to STEAM education!

"Founded by NSPE in 1951, EWeek (February 19–25, 2023) is dedicated to ensuring a diverse and well-educated future engineering workforce by increasing understanding of and interest in engineering and technology careers." The theme of 2023 is *Creating the Future.* To inspire the next generation and spark interest in engineering and technology, this more than a week-long event offers programs and resources.

Date	Program
February 19–25	Engineers Week
February 23	Girl Day
March 4	World Engineering Day

Let off some STEAM with these fun activities!

◊ **K - 4**
US EPA | Recycle City

◊ **5 - 8**
NASA | Tornado in a Bottle

◊ **9 - 12**
NASA | STEMonstrations: Centripetal Force

Educator's Corner

STEAM resources for in-person, hybrid, remote learning, and

professional development

- National Education Association | Black History Month Lessons & Resources

- NASA | STEMonstrations

- NASA JPL | Engineering in the Classroom

- KQED | Making Video to Inspire Learning

- ITEEA | Super Book of 180+ STEM Classroom Activities

- RAILTEC | Guidebook for Railway-themed K-12 STEM Outreach Activities

- MIT Lincoln Laboratory | Beaver Works Summer Institute - Online Courses

- STEM Teacher Leadership | Network Video Showcase

- Science Buddies | 4 Football Science Projects for Super Bowl-Sized Learning

- ASEE | Framework for Engineering Learning

- NPR | Podcast: Teaching Matters

- Code.org | Self-Paced Online Professional Learning for Educators

NEWS & EVENTS

NASA's TESS Discovers Planetary System's Second Earth-Size World

"Using data from NASA's Transiting Exoplanet Survey Satellite, scientists have identified an Earth-size world, called TOI 700 e, orbiting within the habitable zone of its star – the range of distances where liquid water could occur on a planet's surface. The world is 95% Earth's size and likely rocky."

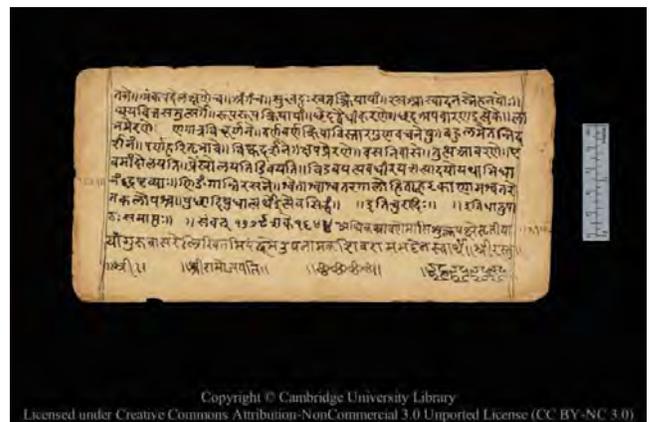## NASA Trio Take Flight in Support of Disability Inclusion in Space

Image Credit: AstroAccess

"Three NASA employees participated in a zero-gravity flight with the Zero Gravity Corporation sponsored by AstroAccess, a project dedicated to promoting disability inclusion in space exploration ... During the flight, the trio – along with 13 other ambassadors from a variety of Science, Technology, Engineering, and Math (STEM) occupations and aerospace organizations – conducted demonstrations to test designs that seek to advance disability inclusion in space, such as tactile graphics to help both blind and sighted crew members, and a system for hearing in loud spaces that could also support hard of hearing crew members."

Phys.org: Ancient grammatical puzzle solved after 2,500 years

"A grammatical problem that has defeated Sanskrit scholars since the 5th century BC has finally been solved by an Indian Ph.D. student at the University of Cambridge. Rishi Rajpopat made the breakthrough by decoding a rule taught by 'the father of linguistics,' Pāṇini."

NEWS & EVENTS Cont.

Sat. February 4 | 11 am - 4 pm | Dickson Mounds
Illinois State Museum: Fulton-Mason Eagle Day

"Join us for the annual Fulton-Mason Eagle Day event. Activities include live raptor programs, hands-on activities and crafts for kids, and bird watching in various locations in Lewistown and Havana, Illinois. The event is FREE and for all ages."

Tue. February 7 | 9 am - 12:30 pm | Online
Computer Literacy and Computer Science in the Classroom Series

"Join us as we break down standards into easy-to-understand chunks, including the computational skills and competencies addressed in the K-2, 3-5, and 6-8 standard sets. We'll also highlight several best practices your district can use today to incorporate CS concepts into any classroom or content area."

Deadline to Apply: Wed. February 8
Illinois 4-H Digital Ag Workshop Series

"In collaboration with the University of Illinois Center for Digital Agriculture, the Department of Animal Sciences, and the Department of Crop Sciences, Illinois 4-H will be hosting virtual learning sessions focused on Digital Ag for **High School students**."

INTRODUCING
U OF I DIGITAL AG WORKSHOP SERIES

Afterschool Zoom Sessions
Open to High-School Students
January - July 2023

Supported by:
Center for Digital Agriculture
Dept. of Crop Sciences
Dept. of Animal Sciences
Illinois 4-H

Monthly Sessions on:
- Machine Learning
- Block-based coding
- Python
- Digital Image Processing
- Precision Ag
- App Development

PRIORITY DEADLINE: January 29
FINAL DEADLINE: February 8

https://go.illinois.edu/4HDigAgWorkshops

Illinois Extension

NEWS & EVENTS Cont.

Thu. February 9 | 9 am - 12 pm | Starved Rock State Park
Building Environmental Literacy in Illinois Using EL4IL

"This session will help environmental educators of all kinds learn more about environmental literacy and to get familiar with the EL4IL document as a tool for increasing equity in environmental education. Educators will leave the session with a deeper understanding of the work to be done and will be armed with more tools to accomplish that work."

Fri. February 10 - Sat. February 11 | Online
Soar Together at Air and Space: From Science Fiction to Everyday Life

"How did science fiction inspire air and space inventions we see in use today and in our everyday lives? Join us as we explore this question, from the way we communicate and connect with one another, or explore our planet and others!"

Sat. February 11 |12 pm - 5 pm | ECEB atrium, Urbana
Robot Day Spring 2023

"Robot Day is an immersive, hands on, STEAM based event for students of all ages (K-12) to come, interact with, learn from, and enjoy! This is a multiple RSO event with over a dozen engineering based displays, including a 1 lbs. battle robot tournament, student built race car showcases, engineering based games, and more!"

THE UNIVERSITY OF ILLINOIS IROBOTICS ORGANIZATION'S BIANNUAL

ROBOT DAY SPRING 20 23

DISCOVER YOUR **INNER ENGINEER!**
WATCH **ROBOTS BATTLE!**
ENGAGE IN ENGINEERING **ACTIVITES & DEMOS!**
FOR STUDENTS **K-12, INDIVIDUALS & GROUPS**

12PM - 5PM ON SATURDAY, FEBURARY 11TH
ELECTRICAL AND COMPUTER ENGINEERING BUILDING LOBBY

REGISTER HERE!

IT'S FREE!

MORE INFO ON FORM!

QUESTIONS? CONTACT IROBOTICS.ILLINOIS@GMAIL.COM

Mon. February 13 - Wed. February 15 | Renaissance Schaumburg Convention Center Hotel / Online

IDEAcon 2023

"This powerful learning experience is a great place to learn from local and national thought leaders in **edtech, STEM, Art, DEI and accessibility**. There are hundreds of sessions that allow you to customize your IDEAcon experience based on your own comfort level and curiosity. Educators from over 300 school districts across the state (and beyond) attend by day. There are also dynamic social events at night. IDEAcon is a conference you won't forget, for all the right reasons."

Wed. February 15 | 3:30 pm - 4:30 pm | Online

Everyone's an Influencer: Bring Social Media Influencer Style into your Class

"Do your students want to be influencers or YouTubers? While the influencer lifestyle may look easy and glamorous, the reality is that it's a lot of work that requires real skills to achieve the end product. How do we capture that passion for creating and translate it into our curriculum? More importantly, how can we provide students the skills they need to become an influencer or, more likely, a business's social media manager?

It all starts with the right fundamentals and a few key tech tools. Join us as we explore a set of online tools that can help students of all ages practically sharpen their influencing skill, with a focus on future career applicability."

NEWS & EVENTS Cont.

Thu. February 16 | 5 pm - 6:30 pm | DeKalb Public Library

Teen STEM Café: The Science of Steelpan

"Listen to an amazing steelpan performance and learn how these instruments are made and tuned.
At our monthly Teen STEM Cafés, we have short talks about STEM fields, related STEM activities and FREE Pizza from Hy-Vee!"

Sat. February 18 | Online

Perseverance Mars Rover 'Landiversary'

"Join the celebration by catching up on the rover's latest discoveries and activities, which include collecting rock core samples that will be sent to Earth by a future mission and witnessing a solar eclipse!
The Mission to Mars Student Challenge is a great way to get students of all ages exploring STEM and the Red Planet right along with the Perseverance rover. The challenge includes seven weeks of education content that can be customized for your classroom as well as education plans, expert talks, and resources from NASA."

Sun. February 19 - Sat. February 25

Engineers Week

"Dedicated to raising public awareness of engineers' positive contributions to quality of life, EWeek promotes recognition among parents, teachers, and students of the importance of a technical education and a high level of math, science, and technology literacy, and motivates youth, to pursue engineering careers in order to provide a diverse and vigorous engineering workforce."

NEWS & EVENTS Cont.

Tue. February 21 | 6 pm - 7:30 pm | Online

Saving the Darkness: How To Put A Dimmer on Light Pollution and Bring Back the Night Sky

Smithsonian

"Kelsey Johnson, University of Virginia astronomer and creator of the "Dark Skies, Bright Kids" program, has devoted her career to understanding the stars and preserving their beauty for future generations. In this Earth Optimism lecture hosted by the Smithsonian Environmental Research Center, she'll reveal some of the surprising costs our 24-hour illumination takes on nature—and some surprisingly easy ways to fix it."

Tue. February 21 | 10 am - 11 am | Online

NMAAHC Kids Learning Together: Celebrating Doc McStuffins!

"This Black History Month, NMAAHC Kids is celebrating Black children's movie and TV characters! Join us for a program inspired by Disney's Doc McStuffins and get to know a Black doctor. Doctor Maia McCuiston will teach children about her job as a pediatrician and what makes our bodies so special. Then, be empowered by a body-positivity activity led by a museum educator!"

BLACK HISTORY MONTH 2023
NMAAHC Kids Black Characters Celebration
Celebrating
Doc McStuffins

Wed. February 22 | 3:30 pm - 4:30 pm | Online

Meet the Virtual Robot Simulator

LTC

"Join us to learn more about FIRST Illinois Robotics and everything they can do to support your curriculum's virtual STEM learning. Along the way, attendees will also learn to teach coding the FIRST way as well as explore strategies for using FIRST resources to meet Illinois' computer science learning standards."

NEWS & EVENTS Cont.

Sat. February 25 | 9 am - 12 pm | Carr Lane VPA Middle School, St. Louis, MO

Connect Learning STL STEM Playground

"Educators facilitate sessions by using their experiences to drive conversation with their peers. Educators are encouraged to find Unconference sessions that best meet your needs to maximize learning. Robot playground, 3D printing demonstrations, and eSports arena will also be available for participants to experience during the event."

Sat. February 25 | Museum of Science +Industry Chicago

Black Creativity Career Showcase

"In celebration of Black Creativity, kids and families can talk with African American artists, scientists and engineers about innovative work happening right here in our city. This is an opportunity to learn from experts during dynamic demonstrations, hands-on activities and one-on-one conversations. Discover how to turn your passions into a career!"

Tue. May 9 | State Capitol, Springfield

Students for Innovation: Advocacy Day

"Students are selected through an application process to present in-person their innovative progress during a one-day event at the Illinois State Capitol in Springfield. We encourage all schools throughout Illinois to apply (Space is limited). Applications are due **April 1, 2023**"
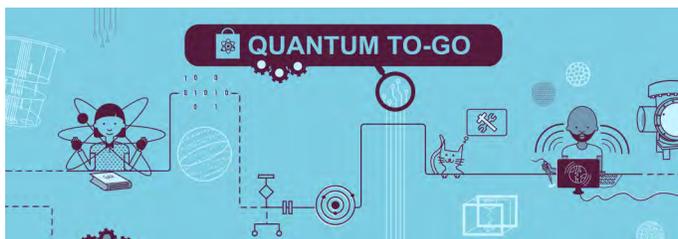
STEAM Resource Spotlight

Eight Ways Students Can Dive Into NASA STEM in 2023

"NASA had a stellar year in 2022, with the spectacular Artemis I mission paving the way for future crewed flights to the Moon, dazzling images beamed back to Earth from the new James Webb Space Telescope, and more. As the calendar turns to 2023, NASA is launching into a new era of human space-flight. Looking for ways to bring the excitement of space exploration into your classroom or to learners at home? Here are some fun and engaging resources to get you started!"

APS + Q-12 launch program to connect quantum professionals to classrooms in 2023

"The Quantum To-Go program goal is to match scientists, engineers, and professionals in the field of Quantum Science, Engineering, and Technology with classrooms across the country to introduce the importance of quantum science and technologies and increase student interest in pursuing Quantum fields to enter the quantum workforce."

Learn More About these 35 Scientists for Black History Month

"February is Black History Month. Learn more about some of the many African American scientists and engineers who have made important contributions to science history.

In honor of Black History Month, we highlight 35 African American scientists and engineers who made important contributions to science, technology, engineering, and math (STEM). There are many, many scientists who could be included on this list!"

STEAM Resource Spotlight

DiscoverE: STEM Careers

"Engineers, technologists, and technicians are changing the world all of the time. They dream up creative, practical solutions and work with other smart, inspiring people to invent, design, and create things that matter."
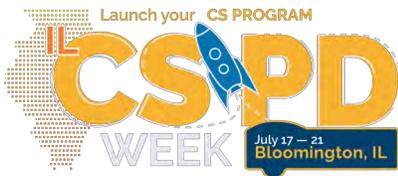
IF/THEN® Collection

"The IF/THEN® Collection is the largest free resource of its kind dedicated to increasing access to authentic and relatable images of real women in STEM.

Here in this digital library, you will find thousands of photos, videos and other assets that authentically represent women in the fields of science, technology, engineering, and math (STEM). The content features careers as diverse as shark tagging, fashion design, and training Olympic athletes, and nudges public perceptions in a more realistic direction that illuminates the importance of STEM everywhere."

Computer Science PD Week

"CS PD Week is a new initiative of the Learning Technology Center in partnership with Bloomington-Normal STEM, CS4IL, and Discovery Partners Institute. During CS PD Week, new and experienced CS educators will engage with current CS curriculum, build community, and learn strategies for expanding access to high-quality, rigorous, and inclusive computer science learning. Registration Opens January 2023...

- **Location:** Bloomington Junior High School, Bloomington, IL
- **Dates**: July 17-21, 2023
- **PD Hours:** 30
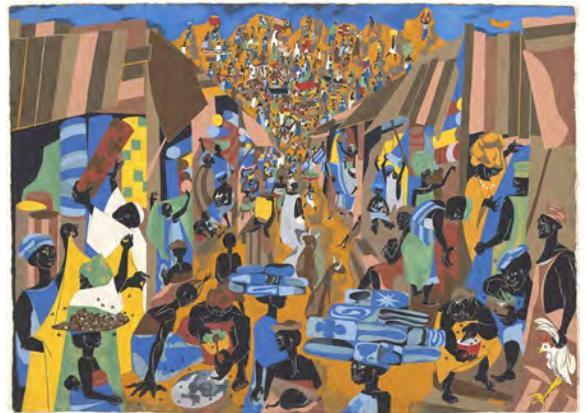- **Audience**: K-12 educators of any grade experience level who are interested or will be teaching CS in 2023-2024."

The 'A' in STEAM

"Arts foster scientific success" -Dr. Temple Grandin

This series is dedicated to showing how art and creativity play a crucial role in our society on its own and even within the STEM fields. There's a great deal of artistry that goes into our favorite products and media we consume that make our lives easier, or at least a bit more enjoyable, and teach us valuable lessons about history.

African American Artists in the Collection

"Explore a selection of works by African American artists included in the collection of the National Gallery of Art. Choose from the images below to view paintings, photographs, works on paper, and sculpture ranging from a still-life painting by Robert Seldon Duncanson to modern and contemporary pieces by Jacob Lawrence, Romare Bearden, Alma Thomas, Sam Gilliam, Kara Walker, and more."

When art Inspires Engineering

"Could the interface between art and science be more than just a source of inspiration and instead be used to unlock new scientific approaches?

Art and science may seem light years apart, but according to a team of civil engineers they're simply different ways of making sense of the world.

A new paper led by University of Sydney Professor of Civil Engineering, Itai Einav posits that the interface between art and science is not only a source of inspiration – it can be used to unlock new scientific approaches and transform research, potentially leading to new insights."

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