



NASA Aeronautics

Monthly STEM Newsletter

INSIDE

Celebrate Native American Heritage & National Aviation History Month

Memory Metal Engineer LIVE Q&A

USRC, NCAS, NASA SPARX & More!



*Middle and High school students designing their own mission patches with NASA at the 2024 AISES (American Indian Science & Engineering Society) National Conference in San Antonio, Texas.
Credit: NASA STEM*

November 2024

Winter is coming, Aeronauts. Beat the cold and heat up your applications for NASA opportunities with deadlines this month. This month we celebrate National Native American Heritage month with honor and commemoration to the people that have been on these lands since the beginning. We also celebrate National Aviation History month with new aeronautics activities, opportunities, and a new round of internship openings ready for Summer 2025 applicants. Our Aero Crew Highlight, Joseph Connolly, is the Deputy Project Manager for Technology, supporting the Electrified Powertrain Flight Demonstration project. What does that mean? Head to the Aero Crew article to find out! Educators, find opportunities to get NASA experts in your classroom and don't forget to sign up for Flight Log to stay up to date on upcoming flights. The X-59 is passing milestones and making progress towards its first flight, so be sure to sign up today!

Do you need to see more of something or have a new idea for upcoming newsletters? Let us know! Do you know someone else who needs this monthly update? Share the good news and [sign up for our monthly STEM newsletter](#). Have questions or want to be removed from the list? Send an email to april.a.lanotte@nasa.gov or holly.o.gutierrez@nasa.gov.

Native American Heritage Month

November

Since 1916, there have been many initiatives asking for recognition of the contributions and achievements of Native Americans who were the first on this land and are honored for their achievements, contributions, and sacrifices. In 1990, President George H.W. Bush signed a joint resolution declaring the month of November as National Native American Heritage Month.

Celebrate [Native American Heritage month](#) with some of the NASA family. Learn about how Native American cultures, achievements, and contributions helped shape and continues to shape aerospace. Celebrate the month with the second issue of the First Woman graphic novel which features a new character from the Choctaw Nation, Meshaya Billy. She is a skilled pilot ready for her mission on the moon with veteran astronaut, Commander Callie Rodriguez. Check it out [HERE](#) in both English and Spanish!



National Aviation History Month

November

November is also National Aviation History Month in America, celebrating the contributions and advancements that have been made over the years for flight. From gliding to flying with the Wright Brothers' first powered aircraft, NACA's founding to NASA today, celebrate how far we have come in aviation.

The Wright Brothers were innovators who, like many others, always dreamed of flying and made that dream come true in 1903. In 1915, NACA, the National Advisory Committee for Aeronautics was formed to conduct research for the advancement of flight. Orville Wright, who sold the aviation business he and his brother created in order to focus more on research, was an early member of the National Advisory Committee on Aeronautics (NACA) and was a member for 28 years. That's right! NASA began as an aeronautics research agency long before incorporating space exploration in 1958. Today flight has evolved to include semi-autonomous aircraft flying with a pilot in control on the ground, and soon we'll be flying at



Aeronautics Crew Highlight

Joseph Connolly, Deputy Project Manager for Technology for the EPFD Project



One of our Native American members of the NASA family, Joe Connolly is Haudenosaunee from the Six Nations of the Grand River. Out of the Six Nations comprising the Haudenosaunee, he is Onondaga and of the Wolf Clan. Currently, Joe serves as the Deputy Project Manager of Technology for the Electrified Powertrain Flight Demonstration (EPFD) Project and a technical lead on the Hybrid Thermally Efficient Core (HyTEC) Project.

“ I dreamed of working at NASA ever since I watched a shuttle launch on TV as a young kid. While I did not know anything about engineering, I enjoyed math and physics in high school. A recruiter from Ohio State’s College of Engineering suggested I study aerospace engineering to prepare for NASA, and I became a Buckeye.

While at Ohio State I realized how important having a supporting community is for success. With some friends we launched an American Indian Science and Engineering Society chapter at the university, which later led to meeting John Herrington, the first Native astronaut, and learning about pioneers like A.T. Anderson (also from Six Nations), one of the first Native nuclear engineers and the society’s founding director. At an AISES career fair during my senior year, I accomplished my goal and was hired on the spot to work at the NASA Glenn Research Center in Cleveland. I earned my B.S. in Aerospace Engineering and B.A. in Sociology while at the Ohio State. Then with NASA support I was able to get my M.S. in Control Systems from Case Western Reserve University, and my Ph.D. in Aerospace Engineering back at the Ohio State University.

NASA has lived up to the hype of my dreams. It's a really cool place to work! You get to work on fun problems and the opportunity to overcome challenges. Now, I am part of a team working to make

supersonic speeds over land without making much of a sound!

Check out our highlight of [NASA Aeronautics History](#) and our [NASA Aeronautics](#) webpages to learn about NASA's contributions to flight, past and present projects, and the mission towards sustainable aviation. Try some [Aeronautics STEM activities](#) to spark the curiosity of flight.

Student Opportunities

Deadline Nov. 1st! NASA TechRise Student Challenge



The NASA TechRise Student Challenge is for students in grades 6-12. Student teams are challenged with submitting their ideas for high altitude experiments with exposure to Earth's atmosphere and views of our planet. Entries are due by **November 1st, 2024**, and selected teams will start building their projects in January 2025. Head to the [TechRise webpage](#) to learn more about this student challenge.

Deadline Approaching Soon–Nov. 7th! University Student Research Challenge (USRC)



Do you have an innovative idea or concept to improve the future of aviation? The NASA Aeronautics Research Institute's (NARI) University Student Research

Challenge is for post-secondary students to challenge themselves to become entrepreneurs. Develop a proposal and send it to NASA! Earn a grant for your project and learn about crowdfunding campaigns to raise awareness for your research. Join the challenge by submitting your proposal by **November 7th, 2024**. Head to the [NSPIRES website](#) for more information. Reach out to the team at HQ-USRC@mail.nasa.gov if you have any questions.

hybrid electric airplanes a reality as part of a comprehensive effort to reach net zero emissions in aviation by 2050. The EPFD project is collaborating with industry to conduct flight demonstrations of aircraft with megawatt-class electric powertrains in the 2020s. Under the HyTEC project, I am working with a team including industry to integrate hybrid electric technologies into a turbofan engine to perform integrated ground testing. Our goal is to try to get all this technology advanced to a technology readiness level that will enable industry to incorporate into their commercial products in the mid-2030s.

One of the things that I find rewarding in my career is being able to provide some mentorship and help to younger engineers. Working with a great team with a broad background and expertise motivates me to make sure they have a supporting community and every opportunity to succeed. To accomplish this, I try to leverage my leadership roles in technical societies like the American Institute of Aeronautics and Astronautics and AISES, along with the Advisory Group for Native Americans at Glenn and the agency level informal Natives@NASA group. I want to make sure that more people find the joy that I've been able to find within the aerospace field and at NASA. ”

Joseph Connolly, you are a true NASA gem! You have an inspiring story and love that you are helping young engineers succeed. Thank you for all you do. Happy Flying!

Professional Development

Nov. 13-15, 2024–Glenwood Springs, CO: [2024 PWR Conference](#)

NASA Aeronautics will participate in the annual Alternative Cooperative Education CTE conference, focusing on ways to better include all students and learners in career and technical education opportunities, including future careers with NASA.

Nov. 17 - 19, 2024–Atlanta, GA: [AOPA Foundation High School Aviation STEM Symposium](#)

Join the Aircraft Owners & Pilots Association for the 10th Annual High School STEM Symposium to gain insights, ideas, share best practices for building aviation STEM programs, and hear from our NASA presenters. Find the NASA Aeronautics

Due this Month! NASA Community College Aerospace Scholars (NCAS)



The NASA Community College Aerospace Scholars (NCAS) project helps community college students build their skills to support STEM fields. NCAS has three missions: Mission 1 is Discover your role with NASA, Mission 2 is Explore NASA's

plan through a 5-week online course, and Mission 3 is Innovate a design to support the mission. Submit your application by **November 25th, 2024**, to join the team! Find more information [HERE](#).

There's Still Time! NASA Tournament Lab (NTL)

The NASA Tournament Lab (NTL) engages the community to help NASA with its mission of advancing the future for the betterment of all kinds. University students have the chance to help the Digital Information Platform (DIP) project support air traffic management with new, innovative ideas on making better predictions of runway throughputs. Learn more about DIP [HERE](#). Win a cash for your project! Entries are due by **December 8th, 2024**, head to [the challenge page](#) to learn more.



Spend Your Summer with NASA! NASA Internships



Missed Spring 2025 internship projects? Don't fret! There's still time to explore [NASA Internship](#) opportunities and get your application in for Summer 2025. Submit by **February 28th, 2025**, to be considered for a summer internship. Students 16 years and older are eligible to apply.

In celebration of Native American Heritage Month, NASA internships is hosting an event honoring the achievements of Native American professionals at NASA. On **Thursday, November 21st, 2024, at 4:00 pm EST** join us in highlighting the contributions, providing

team partnered with other aviation professionals talking about collaboration, careers, and the future of aeronautics.

NASA CONNECTS: Are you interested in other professional development opportunities? Create a new account or log into NASA's STEM Gateway to find a session that interests you.

Virtual Opportunities

Get Ready for Takeoff: NASA Aero Fair Arriving Soon!

Join us for the NASA Aero Fair, a STEM engagement program designed to inspire underrepresented and underserved students in the fields of aeronautics! Over the course of a week, students will participate in three engaging one-hour sessions led by NASA Aeronautics experts. Dive into real-world projects, explore key scientific principles, and connect with the local NASA center—all while aligning with Next Generation Science Standards.



Registration Details:

- Opens January 2025 for presentations in Spring 2025.
- Available for middle school educators across California.

Ready to inspire your students? Click [HERE](#) to learn more. For inquiries, email us at: arc-aero-fair@mail.nasa.gov.

Let's soar to new heights in STEM together!

Classroom Connect with NASA Experts! NASA SPARX



[Next Gen STEM SPARX](#) (Sparking Participation and Real-world eXperiences in STEM) emphasizes engineering to connect students to STEM in a way only NASA can! SPARX is a virtual opportunity for K-12 teachers to connect their students with NASA missions through standards-aligned content and live virtual classroom connections with NASA scientists and engineers. Registration is now open, and participation is limited to the first 240 teachers, so email us at SPARX@mail.nasa.gov to express interest today!

insights, support, and empowering Native American students and professionals to pursue and succeed in STEM careers at NASA. Register [HERE](#) to join the celebration!

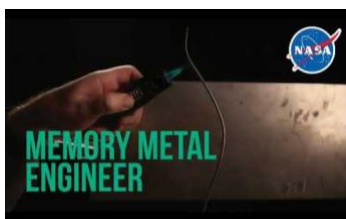
NASA in Your Classroom

Deadline TODAY! Celebrate with NASA Armstrong Flight Research Center (AFRC)

Celebrate National Aviation History Month with NASA's Armstrong Flight Research Center (AFRC)! Learn about the contributions to advancement of aeronautics from the professionals at AFRC. Interact with a panel of NASA experts about their experiences with tips for the next generation and engage in a hands-on STEM activity. Register on [NASA STEM Gateway](#) by **November 1st, 2024**, to join the fun.

Register Now! Surprisingly STEM LIVE Event

Surprisingly STEM is a video series designed to show students there is more to NASA than just rocket scientists by highlighting unexpected careers found at NASA. Register for this opportunity to attend a Surprisingly STEM LIVE Event to learn about shape memory alloy and have a Q&A session with the memory metal expert, Dr. Othmane Benafan. The deadline is **December 5, 2024**, so head to [NASA STEM Gateway](#) to register today. Watch [the video](#) and get ready with your questions!



NEW Aero STEM Activities! Pumpkin Carving Stencils

Just because it's not Halloween, doesn't mean you can't still carve or paint a pumpkin. Decorate your holiday table with a pumpkin that has a NASA X-59 spin. Use [these new Quesst stencils](#) and send us a picture of your creation. Check out [more stencils](#) for all your carving and painting needs!

MORE Coming Soon!

NEW aeronautics activities are on the way, including one this month that focuses on coding and our ACERO program that utilizes drones to help mitigate wildland fires! Stay tuned to the [NASA Aeronautics Educators Facebook page](#) for the official launch. Not a member yet? Join us today so you don't miss anything!

Sign-up Your Classroom Today! Flight Log

[Flight Log](#) is getting makeover with NEW activities and flights coming soon! Join individually or as a group to learn all about the NASA Aeronautics research planes, pilots, and crew. Engage with STEM activities for all ages to earn mission patches and



collect endorsement stamps when you attend NASA events either virtual or in-person. The X-59 is passing milestones getting ready to fly, so stay connected on our [contact list](#) for more information about upcoming flights and other opportunities.

Did you know?

November 3rd is "fall back" for Daylight Savings Day. First passed into law in 1918, daylight savings helped in conserving fuel during World War I. Used in agriculture, daylight savings maximizes the use of daylight hours. NASA knows the importance of time, so [try this Solar Clock activity](#) to learn how to use the sun to tell time.

November 8th is National STEM/STEAM Day. Science, Technology, Engineering, (Art) and Mathematics are important skills for the future workforce. Get students excited about careers in STEM and Non-STEM careers and spark curiosity with NASA Aeronautics STEM activities [HERE](#). Find more NASA STEM in the catalog of [learning resources](#).

November 11th is Veteran's Day. On this day, [America remembers](#) the sacrifices and bravery of the people who have served and serve today with the military. Learn about [some of our veteran family members](#) who give time to country and help NASA in the mission toward the betterment of all kinds. Thank you for your service!



Links to our Aeronautics STEM Resources:

[Aeronautics Research Resources](#): (all ages) This link takes you to a wide variety of educator resources, Aeronautics@Home, ebooks, National Academies Reports, webinars, lithographs and mini posters, the NASA Aeronautics Research Institute, and more.

[Aeronautics@Home](#): (K-12) This web page contains aeronautics-based activities, videos, games, and more that can be completed at home, in the classroom, or in any number of settings. Topic areas include: "Build It!" "Explore It!" "Watch It!" "Solve It!" "Color It!" and "Aero Educator Resources". Coming soon: "Read It!" and "Do It!"

[Aeronautics Innovations Challenges](#): Keeping up with our many design challenges and opportunities for both post-secondary and K-12 can be tough. In response, we created a "one-stop shop" to pull them all together in one location.

[Flight Log Experience](#): (K-12, post-secondary, general public) Sign up to send your name with NASA Aeronautics on X-planes, UAS flights, and more as you build your virtual NASA flight log. Earn virtual endorsement stamps and mission patches and access aeronautics STEM activities and resources. Educators can sign up their entire class.

[NASA Express Sign-Up](#): (K-12, post-secondary) Have you signed up for NASA's NASA EXPRESS weekly newsletter? This newsletter contains the latest information for educators (K-12 and post-secondary) about new resources, design challenges, internships, and workshops. It is THE go-to for the latest STEM news.

[Space to Learn](#): (K-12, post-secondary, educators, general public) Need more resources from a variety of contents? NASA has a page full of learning resources from all projects and programs at NASA.

[Museum and Informal Education Alliance](#): (Informal Educators and Museums) Not in a classroom? Looking for informal education materials? Join NASA's Museum and Informal Education Alliance, where you have access to NASA resources—including aeronautics—for your program, organization, museum, science center, or library. Find out about events happening near you and in the virtual world, and let the MIE Alliance help you build your programs! Access to guest speakers, the latest announcements about grant programs, and an active community network allow you to connect with other like-minded people in a supportive, engaging, and aerospace-focused neighborhood.

[NASA Aeronautics for Educators Facebook Page](#): (K-12, post-secondary) Join our NASA Aeronautics for Educators Facebook page, where the latest aeronautics updates, professional development opportunities, lessons and ideas are freely shared.

[NASA Connects](#): (K-12, post-secondary) NASA Connects is a network of educators who come together to collaborate, share NASA resources, and create personal collections of materials that can then be shared with others. Members can join groups tailored to their specific interests.

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