

NASA Aeronautics

May 2025 No. 48

Monthly STEM Newsletter

INSIDE

Teacher Appreciation Week, National Military Appreciation Month, & General Aviation Month

> SPECIAL Aeronautics Crew Highlight

NASA Aeronautics 101, NASA Glenn High School Engineering Institute, and MORE!



This newsletter marks the 4th year of the NASA Aeronautics STEM Monthly Newsletter! 4 years of opportunities, highlights, and celebrations of all-thingsaeronautics!

May 2025

Happy Anniversary, Aeronauts! This month the NASA Aeronautics Monthly STEM Newsletter celebrates its fourth year of publication and this issue is all about YOU! This anniversary edition is filled with celebrations of educators, the military, and general aviation. Help us celebrate Teacher Appreciation Week with the Aero Crew Highlight honoring educators of all kinds and their dedication to students and education. Read about military appreciation and some of the NASA pilots who have served our country, then give appreciation to General Aviation whether it's for education, research, or because it's just "plane" fun (pun intended). Check out STEM opportunities, your chance to get a NASA artifact, and upcoming deadlines. Head to Flight Log to sign up now because the X-59 is cruising through milestones towards her first flight and you don't want to miss having your students' (and your) names onboard!

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. Not subscribed yourself? <u>Sign up for our monthly</u> <u>STEM newsletter</u> today! Have questions or want to be removed from the list? Send an email to <u>april.a.lanotte@nasa.gov</u> or <u>holly.o.gutierrez@nasa.gov</u>.

Teacher Appreciation Week

May 5 - 9, 2025



Happy Teacher Appreciation Week to each and every one of you–we appreciate you and couldn't do what we do without you! You're all teachers whether you are in classroom, volunteering for an organization, working in informal education, or sharing your knowledge and passion with the next generation in any number of ways. A teacher spends their days ensuring students of all ages, big and small, have the knowledge to succeed and make informed decisions when navigating the world around them. As we thank you for all you do, don't forget to reach out to those who taught you and give them a heart-felt thank you if you can!

NASA has resources to support educators in a variety of learning environments both formal and informal. Find inspiration to teach a new generation at the **NASA Aeronautics STEM** homepage filled with STEM activities and opportunities, educator and career resources, and more! Find other NASA STEM resources at **NASA's Space to Learn**. Looking for learning resources in Spanish? Find some of them at **NASA en Español**, **Aeronáutica en Español**, y **Recursos STEM** (STEM Resources).

Aeronautics Crew Highlights Aeronautics & Aviation Educators

And now on to the real stars of this newsletter's show–YOU!!! Teacher Appreciation Day is May 6, 2025. To honor this day, the NASA STEM Team would like to highlight four special teachers in this special 4th anniversary edition of the NASA Aeronautics Monthly STEM Newsletter. We honor your work and the dedication you give every day as an educator.

Ginger D., Kalamazoo, MI 4th - 12th Grade STEM Aviation & Aerospace



"I am the CEO and Founder of Plainwell Aviation and STEM Academy (PASA). We teach 4th-12th grade students the importance of math and science through ground school, flight training, after-school year-long programs, aviation summer camps, field trips, and community projects that are aviation-related. I am inspired by the look on a student's face after their first airplane flight. It is as inspirational as you can get.

I was inspired to be an educator as I was looking back on my education. Thinking about people who told me what I could not do. For example, girls don't take science classes, your family is not a college family, so you don't need college prep classes, you are not smart enough for that etc., etc. I wanted to start a comprehensive program that would allow youth willing to work hard the ability to succeed no matter their economic or social status.

Students in our Youth Flight Program attend classes to allow them to pass the FAA written exam needed for a private pilot's certificate (PPC). Concurrently, students schedule flight time with a flight instructor and earn flight time toward their PPC. We have had 27 youths earn their PPC before graduating high school. Two have gone to the US Air Force Academy, 10 have graduated from University Flight Programs and moved on to become airline transport pilots. Former students have come back to PASA after earning their Flight Instructor rating to teach our present students."

Greg K., Philadelphia

K - 12th Grade Informal STEM Education



Greg Kennedy is an informal science educator who has taught aviation, space, and rocketry classes since the 1970s. He has supported museums, science camps, and other educational programs throughout his career, helping students learn about the exciting world of aviation and aerospace science. Working at places like the Smithsonian Institution's National Air and Space Museum and American Airlines C.R. Smith Museum, Greg developed programs for elementary and middle school students to learn about the sciences of flight. Greg became an instructor and technical writer creating instructional materials, outreach programs, teacher professional development programs, and along the way using NASA materials as examples and demonstrations. Today Greg focuses on teaching young pilots of all ages how to fly with knowledge about aircraft design, the science of flight, and the inspiration to continue to a career in aerospace. According to Kennedy: "NASA has a phenomenal range of educational resource materials and activities that can be easily incorporated in STEM lesson plans."

Jennifer D., Montgomery, TX 9th - 12th Grade Engineering & Robotics, Technology Integration



"A team of mentors and I built 3 Vans RV-12 airplanes with over 150 high school students. Many of the students have then been able to do experience flights in these airplanes with me as their pilot. I had the privilege of doing my training in and receiving my Private Pilot License in the second airplane we built. During my training I shared all that I was learning with the students I was teaching because it was relevant to the concepts in our class. One of the courses I teach is Aerospace Engineering and we cover units over the physics of flight, history of space travel, orbital mechanics, materials & structures used in aerospace design, and the human factor of flight and space (i.e. Flight Physiology). Beyond my high school classroom, I have had the opportunity to guest speak and teach in various K-8 classes. With one particular group of space enthused K-5th graders, I was able to talk about rockets and space travel as well as share

meteorite and moon rock samples from Johnson Space Center. Last year I was able to teach about the 4 forces of flight to various groups of elementary students and plan hands on activities for the students. Aviation, aerospace, and aeronautics are a major part of all my teachings and trainings to students and adults, even if they aren't the main focus of the class.

Today I received an invitation to a former student's graduation invitation from Embry-Riddle. This isn't the first graduation invitation I've received, but it helped me put into words my answer to this question. Empowering my students to unlock their potential and then watching them as they achieve success is what inspires me as an educator. Sometimes the success comes from tackling a particular challenge in class, sometimes it's years down the road as they tell me about their first "grown-up" job, or sometimes as I watch them walk across the stage at their college graduation. There is nothing like the pride of opening that graduation invitation or being at the airport and hearing "Mrs. Duffer, I thought that was you!" as you look up and see a former student standing there in their First Officer uniform waiting for their next flight. So, what inspires me as an educator... "My kids." My students' successes fuel my passion as an educator."

Jennifer E., New York, NY

9th - 12th Grade STEM, Physics, Engineering & Space Science



"As the Manager of Youth Leadership at the Intrepid Museum, I run a six-week summer work experience for young women all about aerospace. Aeronautics is woven throughout the program as we talk about the science behind aviation, to how aviation naturally feeds into the space science and exploration realm. Through this hands-on program and the school-year internship that follows, we touch on everything from physics to engineering design as we explore where the field of aeronautics has been and where it is still going.

I am inspired as an educator by the concept of overcoming the impossible. Whether it's learning about women who were doing science in a time that they were constantly told they should not be, or feats of emerging technology developed by the Wright brothers or early NASA team in the space race, or even my students today overcoming life's obstacles and being the impressive humans they are... the evidence that the impossible can be achieved is there and is immensely inspiring to me as an educator!"

National Military Appreciation Month

May

The U.S. Military serves and protects this country on land, at sea, and in the air. NASA has helped with much of the research, aircraft design, and technical capabilities used by the military. Many NASA research pilots and astronauts also have a military background.

When first doing research to send humans to space, NASA required astronaut candidates to possess military aviation experience. The entire crew of the very first space mission, the Mercury Seven, all had a military background in various branches. David Nils Larson, the lead research pilot for the X-59 quiet supersonic research aircraft is a former pilot for the United States Airforce giving several years to military service before joining NASA in 2007. The military protects our country, promotes research and development, and are also great supporters of youth education.

The NASA Earth Science Education Collaborative (NESEC), part of the Science Activation Program, is partnering with Civil Air Patrol (CAP), a U.S. Air Force Auxiliary, for the 2025 Aviation Weather Mission. This initiative engages cadets ages 11-20 and senior members in collecting aviation-relevant data including airport conditions, GLOBE Cloud observations, aircraft details, and satellite collocations provided by the NASA GLOBE Clouds team at NASA Langley Research Center.

The first of four scheduled mission days took place on Saturday, April 12, 2025. During this initial mission, participants submitted approximately 2,700 observations, encompassing both cloud and aircraft data. Weather conditions limited contrail observations in the Northeast and Mid-Atlantic, but squadrons in 30 CAP wings participated, with Puerto Rico reporting the highest observation density. These are some of their stories.

"Layered in cold-weather gear, we stood on the ramp at Central Wisconsin Airport, scanning the sky with the GLOBE app ready. I waited to photograph our first aircraft. When one passed overhead, everything clicked–our training made sense. My teammates tracked the aircraft while I took photos. We used compasses and sextants to find exact positions and recorded data with care. Sometimes it was fast-paced, other times, silent and still. As a cadet Aerospace Education Officer, I truly value missions like this. It's an amazing feeling to contribute to real science and support NASA as a Civil Air Patrol cadet."





CAP Cadet and Chaplain observe contrails move through the sky in contrast to the surface level winds. Other CAP team members capture data in the background.

CAP Cadet calls out a passing aircraft while other CAP Cadets search for it on a flight tracking app.



Cadet Captain Lily Schaefer, CAP Wisconsin Wing, Stevens Point Composite Squadron

"With partly cloudy skies and clear visibility, the day began at the historic "Old Airport" in St. George, Utah, next to Dixie Technical College. After the morning safety briefing, cadets and senior members organized into teams to begin field activities. They spent time photographing aircraft and the sky while collecting atmospheric data. This was an excellent exercise that provided valuable experience in observation, documentation, and teamwork; participants enjoyed the hands-on learning and gained a deeper understanding of aviation and weather patterns. Maj Greg Johnson said "...the best thing is the interaction between the seniors and the cadets, all the way through." Making this mission a perfect success!"



Cadet taking photo with assistance from Maj.



Group photo of the fantastic team in St. George.



Cadet taking photo of aircraft pointed out by a senior



 the fantastic
 Cadets looking for an

 ge.
 airplane pointed out by a

 Utah, St. George Composite Squadron

Learn how Science Activation connects NASA experts, data, and experiences with communities to inspire deeper understanding of Earth and beyond at <u>https://science.nasa.gov/learn</u>.

National General Aviation Appreciation Month

May

May is also General Aviation Appreciation Month! General aviation is for all the pilots flying to support humanitarian efforts, research, pilots of gliders or drones, sports and recreation, business, and other non-commercial, nonmilitary flyers. Before World War II, general aviation provided a place where all people could become pilots pioneering the craft of flight through exploration, research, and education. Learn more about **general aviation at the Smithsonian** and get familiar with other ways you can fly.

Amelia Earhart is a well-known aviation pilot who crafted her aeronautical expertise for world exploration, she set records, and broke barriers for others to follow in her footsteps. Red Jensen, a former NASA lead UAS pilot, started as a drone test pilot growing his expertise and using his skills at NASA's Armstrong Flight Research Center to design and test the capabilities of uncrewed arial systems (UAS) for commercial flight and emergency management. Read more about <u>Amelia Earhart, Red Jensen, and other</u> **pilots in the NASA Aeronautics Leveled Readers** to inspire the next generation of aviators.

STEM Opportunities

High School Students Apply Today! NASA Glenn High School Engineering Institute



The **NASA Glenn High School Engineering Institute** is a week-long summer program for rising 11th and 12th grade students to get handson engineering and technology experience working on current missions at NASA's Glenn Research Center (GRC) in Ohio. Check out the information at their **homepage** and learn how to get your application submitted before the deadline on *May 9th, 2025*.

Fall Deadline This Month!! NASA Internships Explore NASA Centers and Facilities around

the country to learn which locations fit your future career and find more information about in-person internship opportunities on the **Internship webpage** in a variety of career fields. Apply by **May 16**th, **2025**, to spend the



fall with NASA experts. Students 16 years and older are eligible to apply, so don't wait and apply today!

Join the NASA Internship webinar on **Thursday**, **May 8th, 2025, 4-5 pm ET** to explore internship opportunities, learn about eligibility and application requirements, and discover how to apply. Learn firsthand experiences from current interns and tips to make your application stand out. Whether you're a high school or college student, this session will guide you through everything you need to know to kickstart your NASA journey. Q&A included! Register on **NASA STEM Gateway** to join the call.

Want a Piece of History? NASA Artifact Program

The NASA Artifact Program gives educational institutions the opportunity to have a piece of NASA history in their classrooms or building. Artifacts from past missions are available to teach students about NASA and some of the missions that have impacted our world. Apply by *May 16th, 2025* to see if you qualify to receive a NASA artifact for your classroom. Head to the <u>NASA Artifact webpage</u> to learn more.

Get the Skinny on NASA Aeronautics! NASA Aeronautics 101

Join NASA engineer, Dave Berger and team to learn about NASA aeronautics missions and how you can use them in the classroom to teach about conceptual engineering, career pathways, inspire students, and more! Meetings will be the fourth Wednesday of each month via Teams with the next session being held on *May 28th at 6pm ET*. Register today in NASA STEM Gateway to let us know you're coming or just use the information below to join us (to receive a copy of the presentation, please register).

Join the meeting May 28th!

Meeting ID: 252 856 825 018 Passcode: Hc3md7wh

NEW Cycle Now Open! University Student Research Challenge (USRC)

The NASA Aeronautics Research Institute's (NARI) University



Student Research Challenge for post-secondary students challenges them to think like an entrepreneur. Do you have an idea for new and improved aviation systems? The USRC challenge is the place for you to share your ideas with NASA Aeronautics! Join the USRC Q&A Session and Proposal Workshop on **May 12th, 2025, at 2 pm ET** to find out more and learn how to submit a complete proposal. Head to the **NARI website** for more information and get ready to submit your proposal by **June 26th, 2025**.

New Post-Secondary NASA Office of STEM Engagement <u>Funding and Engagement</u> <u>Opportunity</u> (NOFO): Interdisciplinary Impacts and benefits of future air transportation technology and infrastructure on communities–ACEIR 2.0.

NASA's MUREP project is inviting MSIs to participate in this funding opportunity to contribute to broadening the future STEM workforce and to NASA's Advance Air Mobility work. Three pre-proposal webinars will be held at 3pm ET: May 8th, May 22nd, and June 10th. Details are posted on the NSPIRES page linked to above. **Full proposals are due June 16th**, **2025 by 11:59pm ET.**

Advanced Air Vehicles Program (AAVP) Fellowship Opportunities Solicitation

The solicitation for research training grant proposals from accredited US institutions is now open! This NOFO supports independentlyconceived research projects by highlighly qualified graduate students in disciplines that directly contribute to NASA's mission and STEMrelated areas of study. **Proposals are due June 11th, 2025 by 5pm ET. Two pre-proposal teleconferences will be held and details can be found on <u>NSPIRES.</u>**

Don't Miss Another Flight! NASA Aeronautics

Flight Log Did you see the new episode of 59 seconds on NASA's X-59 on NASA's YouTube channel? The X-59 is flying



through her milestones towards her first flight. Sign up for **NASA Aeronautics Flight Log** today so you don't miss any of the upcoming X-59 research flights and others coming up. Find STEM activities, videos, and more to learn all about NASA Aeronautics, the crew, and the missions. Attend a NASA Aeronautics events and complete STEM activities to collect endorsement stamps and earn virtual mission patches. Stay in know with new opportunities and activities when you join the **contact list**. Join today and fly with us!

More Opportunities! Are you interested in other STEM connections with NASA? Create a

new account to join **NASA's STEM Gateway** to find opportunities that interest you. Check out **NASA Engages**, a program that connects NASA experts with the community to share NASA missions and content to inspire students to pursue a career in STEM!

Did you know?

May 24th is Aviation Maintenance Technician Day. On this day, we recognize those who work behind the scenes to maintain aircraft on the ground, so they can fly in the air. Thanks to their dedication and expertise, aircraft are becoming safer and more efficient. Learn about the parts of an airplane and the forces of flight to understand how an aircraft works to fly in the air. Young learners can enjoy an interactive way to learn about airplanes with Orville D. Squirrel in the **Getting on an Airplane** activity and video. Use household items with the Four Forces of Flight activity to learn how an aircraft can stay in the air. Honor those that keep us flying in the air by learning more about aircrafts and the science behind flight.

May 26th is National Paper Airplane Day, so let's go flying! Paper airplanes are just "plane" fun for some and inspire others to learn more about the aerodynamics of flight. NASA engineers consider a variety of factors when designing new research aircrafts. Learn to think like an engineer when designing and testing a paper airplane in this NASA Aeronautics STEM activity, <u>Wingin' It</u>. The <u>Make Your Own X-59</u> paper airplane activity inspires the next generation of engineers and technicians to think about the future of supersonic flight. Don't stop there! Find tons more paper airplane activities and challenges about flight at the <u>Aeronautics</u> <u>STEM webpage</u>.

Links to our Aeronautics STEM Resources:

<u>Aeronautics STEM Page</u>: (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.

<u>Aeronautics@Home</u>: (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!" "Make It!" "Explore It!" "Watch It!" "Solve It!" "Color It!" "Read It!" "Craft It!" and "En Español".

<u>Aeronautics Innovations Challenges</u>: Keeping up with our many design challenges and opportunities for both postsecondary and K-12 can be tough. In response, we created a "one-stop shop" to pull them all together in one location.

<u>Flight Log Experience:</u> (K-12, post-secondary, general public) Sign up to send your name with NASA Aeronautics on Xplanes, 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.

<u>Museum and Informal Education Alliance</u>: (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.

<u>NASA Aeronautics for Educators Facebook Page</u>: (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.

<u>NASA Connects</u>: (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.

<u>NASA Express Sign-Up</u>: (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.

<u>Space to Learn</u>: (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.

National Aeronautics and Space Administration

Headquarters 300 E. Street, SW Washington, DC 20546