



# NASA Aeronautics

December 2024  
No. 43

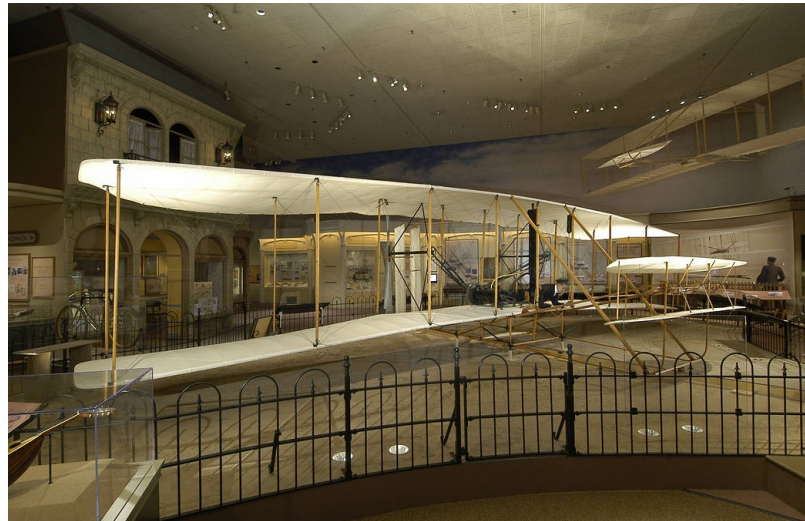
## Monthly STEM Newsletter

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*The Wright Flyer at the Smithsonian National Air and Space Museum in Washington, D.C. Credit: Smithsonian*

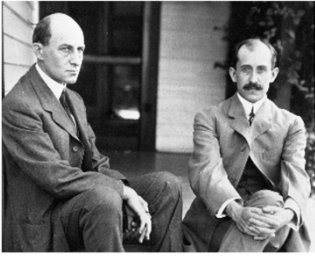
## December 2024

It's winter, Aeronauts, and NASA Aeronautics is finishing the year strong. This month we celebrate the National Month of Giving along with Wright Brothers Day. What are we giving to you? Our gratitude and some new opportunities and activities! The Aeronautics STEM team is our Aero Crew Highlight for December, celebrating this year's accomplishments and giving our positive vibes for what's to come in 2025. A huge shout-out to Zoe Graham, our Aeronautics Fall 2024 intern who has helped us get to the end of the year and has done great work!! For all of you, some homework: get those applications in to have NASA in your classroom—sign up through NASA ENGAGES, NASA SPARX, or Aero Fair depending on your situation, to give students a chance to engage with NASA experts. And on the end-of-year list—the X-59 will be in the air for its first flight in 2025, so sign your class up for Flight Log today so you don't miss it!

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](mailto:april.a.lanotte@nasa.gov) or [holly.o.gutierrez@nasa.gov](mailto:holly.o.gutierrez@nasa.gov).

## Wright Brothers Day

December 17th



On this day in 1903, two brothers took to the skies in the first powered aircraft. Orville and his brother Wilbur Wright flew for 12 seconds traveling 120 feet in the hills of Kitty Hawk, North Carolina.

Two bicycle shop owners from Dayton, Ohio changed the world forever. The Wright Brother's first powered plane flew four times before sustaining irreparable damage. Instead of giving up, the two brothers went on to design other, more advanced aircraft forging a path for future aerospace explorers. Their innovation for flight inspired aircraft on earth and in space.

Today one of the Wright Flyers can be seen at the Smithsonian National Air and Space Museum in Washington, D.C. Pieces of the flyer have flown to the moon with Neil Armstrong and Buzz Aldrin, plus other space missions like TS-95, STS-92, and Challenger's STS-51L mission. Ingenuity, the first helicopter to fly on another world, also took a piece of the Wright Flyer to Mars. Learn more about Wright Brothers and their contributions to the future of aviation [HERE](#).

## National Month of Giving

### December

Since becoming of the National Advisory Committee for Aeronautics, or NACA in 1915, what is now NASA has made many contributions towards the future of aviation. The dedicated people working for this agency gave their time and expertise to improving the fundamentals of flight. Combining aviation with space, NASA has expanded flight all the way to space. The experts behind these advancements have used their skills to create innovations for the betterment of all. Learn all about NASA's contributions to flight [HERE](#). And how do these contributions help us directly here on Earth in ways

we never imagined? Take a look at our [NASA Spinoffs](#) to see where we show up, even in unexpected places. [NASA Home and City](#) is a spinoffs site that is more user-friendly for younger audiences.

Use your own skills and expertise to give back to your community or even to NASA! We know you already give your time and energy to working with our students and our future; maybe you also give your time to volunteer, donate food or toys for those in need, or maybe build a contraption that benefits the community. For the Month of Giving, what will be your contribution? Check your local library or community center to find out how you can get involved and give back locally or take a look at [ways you can get involved with NASA](#).

## Aeronautics Crew Highlight

### The NASA Aeronautics STEM Team



The Aeronautics STEM team is working hard to keep you informed about all things STEM with NASA Aeronautics. Learn more about our team and the good vibes we have for the future of aviation.

“ I am excited for 2025. We will see the X-59 first flight and the development of the X-66 Sustainable Flight Demonstrator. I look forward to learning more details about the high aspect-ratio truss-braced wing. There will be plenty of student opportunities to engage with ARMD including the Gateways to Blue Skies competition working on aviation

and agriculture. I grew up on a small farm and look forward to seeing how aviation will continue to shape agriculture in the future. There are lots of great internship opportunities, including the Sustainability Ambassadors who work on the electrified powertrain flight demonstration project. Finally, be on the lookout in 2025 for new ways that capstone and senior design classes are working with NASA! ”

**- Dave Berger, NASA Aeronautics STEM Engagement Embed**

“ Good things come to those who wait, so the saying goes, and we have been waiting for the first flight of the X-59, which I’m so excited to see in 2025! I also look forward to the continued evolution of air taxi and drone technology and advanced air mobility—our highway in the sky (go Jetsons)!! New applications of drone technology in combatting wildland fires, an entirely new aircraft shape with our X-66, hybrid aircraft testing, research on contrails—wow, there is just so much to watch in this next year and beyond, where to even start!! I suppose the real start, though, is with all of you amazing educators. You are building our future, so perhaps what I look forward to the most is making sure the amazing team I am lucky enough to work with provides all of you with the tools you need to get yourselves and students prepared to shape aviation for years to come. ”

**- April Lanotte, NASA Aeronautics STEM Integration Lead**

“ This coming year I am super excited to continue my work at NASA by joining the OCOMM Team as an intern in January! I will also be completing my aircraft instrument rating in the spring, and my commercial license in the fall! I am super grateful for all the lessons learned with ARMD and am excited to see what the new year brings. ”

**- Zoe Graham, NASA Aeronautics STEM Fall Intern**

“ I have much to be thankful for this year including celebrating my first year working with the NASA Aeronautics family. I am excited to see the X-59 take flight and the development of the truss-braced wing aircraft, the X-66. It will be a sight to see with its innovative wing design. I look forward to seeing the projects submitted for the 2025 Dream with Us design challenge and supporting you with opportunities, activities, and resources to bring STEM into your world. Thank you for letting me share this year with you. I look forward to seeing you next year! ”

**- Holly Gutierrez, NASA Aeronautics STEM Support Specialist**

Happy Holidays from the NASA Aeronautics STEM Team. See you next year and happy flying!

## Student Opportunities

### Deadline This Month!

#### 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.



### NEW Opportunity!

#### Virginia Space Grant Consortium



Virginia Community College students join the Virginia Space Grant Consortium this summer to work on hands-on research projects at NASA’s Wallops Facility or at NASA’s Langley Research Center. Applications are due by **January 13th**,

**2025.** Register and submit your application [HERE](#). Need more information? Head to the [Virginia Space Grant Consortium website](#) or reach out to Nicole Shaw at [Inshaw@odu.edu](mailto:Inshaw@odu.edu) with your questions.

### **Join the Conversation!**

#### **University Student Research Challenge (USRC)**



The NASA Aeronautics Research Institute's (NARI) University Student Research Challenge is for post-secondary students to challenge themselves to become entrepreneurs. Interested in entering the challenge but don't know where to start? USRC will hold a Q&A session to learn how to develop a proposal and send it to NASA! Join the workshop on **January 27th, 2025, at 2 pm EST/11 am PST.** Head to the [NSPIRES website](#) for more information.

### **There's Still Time!**

#### **NASA Internships**



Don't miss a summer working on NASA missions and projects! 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. Start earning money and experience alongside NASA professionals this summer!

### **Soar into STEM!**

#### **NASA Aero Fair Launching Soon!**

Calling all educators! The NASA Aero Fair is ready to take flight, offering a unique STEM experience designed



to inspire and empower students from underrepresented communities in the field of aeronautics. This exciting program invites middle school students to participate in a week of hands-on learning with NASA Aeronautics professionals. Through three engaging one-hour sessions, students will explore the science behind flight, dive into real-world aeronautics projects, and gain insights from local NASA experts—all while aligning with the Next Generation Science Standards.

#### **Registration Info:**

- Opens January 2025 for Spring 2025 sessions
- Available to 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](mailto:arc-aero-fair@mail.nasa.gov).

Let's inspire the future of aerospace 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](mailto:SPARX@mail.nasa.gov) to express interest today!

## Coming Soon

“Drones to the Rescue” and “Air Traffic Management,” to of our new aeronautics-themed coding activities for middle and high school levels will be launching during Computer Science Week so stay tuned! Watch for their release on our NASA Aeronautics for Educators Facebook page and any other NASA social media locations you can think of!

### Aeronautics for the Holidays

We are putting the final touches on a new set of an aeronautics-themed craft products, so get your needles and thread ready—we won’t give it all away but let’s just say your grandma might be proud!

## Professional Development

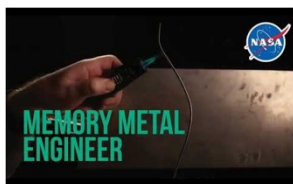
**NASA CONNECTS:** Are you interested in other professional development opportunities? Create a new account or log into NASA’s STEM Gateway to find a session that interests you.

## NASA in Your Classroom

### Register Now!

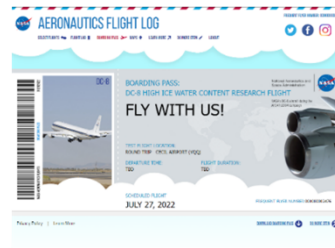
### Surprisingly STEM LIVE Event

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!



### Sign-up Your Classroom Today!

### NASA Aeronautics Flight Log



Did you miss the recent flight opportunity on NASA’s Gulfstream G-III? Sign up today so you don’t miss another flight! Head to [Flight Log](#) to join individually or as a group to learn all about the NASA Aeronautics research planes, pilots, and crew. Earn mission patches and collect endorsement stamps when you attend NASA events either virtual or in-person. Stay connected on our [contact list](#) for more information about upcoming flights and other opportunities.

## Did you know?

**December 4th** is National Dice Day. Dice have been around for thousands of years used in games and activities of all kinds. The most common dice have 6 sides and uses dots to represent each numbered side 1-6. At NASA Aeronautics, we use dice with one of our favorite activities, [Design Your Own X-Plane](#). Check out this activity and roll of the dice to see what kind of x-plane you have to design.

**December 18th** is Flake Appreciation Day. Show appreciation for this fluffy piece of ice by making your own [X-59 snowflake](#). Use a 3D printer or other craft machine to make X-59 snowflake ornaments or use the paper version to create a winter wonderland of X-59. Whatever you do, have fun!

**December 21st** is National Crossword Puzzle Day. Crossword puzzles are great for cognitive health, expanding your vocabulary, and they’re fun too! Try this [X-59 themed crossword puzzle](#) to increase your vocabulary and knowledge of NASA’s supersonic research plane.



## **[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.

National Aeronautics and Space Administration

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[www.nasa.gov/aeroresearch](http://www.nasa.gov/aeroresearch)