NASA Aeronautics

November 2021
No. 8

Monthly STEM Newsletter

INSIDE

NASA's Armstrong Flight Research Center is celebrating its 75th anniversary. Within that time, the 1990s marked the end of an era with the final flight of the triple supersonic SR-71. Other milestones can be found in AFRC's Sept 2021 X-Press publication.

November 2021

It's hard to believe, but the end of the year and end of the semester is quickly approaching! This month we have multiple STEM opportunities for both K-12 and post-secondary, some that have deadlines in November. We're also preparing new products and ways to get you and your students inspired and headed into 2022 with renewed excitement. 2022 will be a year of flight for NASA Aeronautics, and we're busily preparing lots of ways for you to be involved. Get a sneak peak here.

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? Sign Up for the Monthly STEM Newsletter. Do you have a question or want to be removed from the list? Send an email to: April.a.lanotte@nasa.gov.

New K-12 STEM Resource and Items Coming Soon:

New: **X-57 Scratch Coding Activity**: In this activity, students use Scratch, Snap!, or another programming language to create a working model of NASA's X-57 multiple propeller design. Engage students in computational thinking, problem-solving, and real-world applications of mathematics. (grades 6-12)

Coming Soon:

- **Episode 6: The Quiet Crew** (coming Nov.4): This video series, if you haven't had the chance to see it, highlights different people behind the X-59 mission, perhaps doing jobs you might not have thought of before. The November episode highlights STEM!
- **Flight Log:** We are so excited to let you know about our upcoming Flight Log Program, which will allow you and your students to fly with us! Soon you'll be able to sign up for an upcoming flight, and your names will be carried onto our aircraft to join in the adventure. Boarding passes, a virtual flight log, STEM activities, and more are a part of the program. Stay tuned to next month's newsletter for more details!

- **Jr. Pilot Program (X-57):** Our second publication in the Jr. Pilot Program series for elementary students will focus on the X-57 and electric propulsion. The first in the series, focused on the X-59 and the science of sound, is also being translated into Spanish.

AAM Academy and AAM Safety Poster Contest:

Deadline extended! The **AAM Safety Poster Contest** is open to all 6-12th grade students! Entries are due by Nov. 15.

Engage with Aero!

Aeronautics is everywhere! Here are some of the places you can go (some in person, others virtual) to engage with us or our partners:

Nov. 5, 2021 6-7pm AMTNYS "NASA's Fly by Math: Using Aeronautics to Solve Hands-On Distance-Rate-Time Problems" (virtual)

Nov. 6, 2021 Colorado Science Conference. "Exploring Sound and the X-59 with NASA Aeronautics." 1:05-1:55pm MST (virtual)

Nov. 7, 2021 STANYS "NASA: The Maker Movement and X-Planes" 8-9am Ballroom C (in person)

November 13, 2021: National Science Teaching Conference (NSTA): National Harbor, MD "Transforming the STEM Classroom with NASA and Literacy," 9:30-10:30am (in person)

Student Opportunities:

Deadline approaching soon! The **STEM Gateway Spring Internship** deadline for Spring 2022 internships is Nov. 6th, 2021. NASA seeks many different students with a wide variety of skillsets (not just engineering students).

Professional Development:

Educator Professional Development Collaborative (EPDC): In the month of November, educators have the opportunity to learn more about the four forces of flight, the X-59, Next Gen STEM and Aeronaut-X resources, and the X-plane Glider Design Challenge

The Advanced Air Academy (AAM Academy) is a year-long series devoted to ongoing student and educator opportunities to learn more about AAM and how it will change the airspace above us.

K-12 classrooms, join in on these live events (or participate in them via recorded videos), and you can **apply to be an "AAM Academy Classroom of the Quarter"** and work directly with one of our AAM experts. Participation is free but you need to register!

Live Events (9-10am PT):
• Dec. 8, 2021 "Package Delivery Drone Simulation" (This event highlights a NASA Aeronautics activity that can be used to support computer science week and Hour of Code.) **Register now**
• Jan. 19, 2022 "The Science Behind Quadcopters"
• (in development—check back soon!) Feb. 25, 2022 In-person AAM Academy, West Virginia
• March 9, 2022 "Air Taxi Design Challenge"
• May 11, 2022 (9-11am PT) AAM Middle and High School Career Day
• May 18, 2022 (time coming soon) AAM Future Workforce Seminar for post-secondary students

Post-Secondary Opportunities:

Deadlines approaching! University Student Research Challenge (USRC): The USRC asks students to propose new aeronautics ideas and concepts relevant to NASA Aeronautics. USRC provides students grants for their projects. A Q&A session will be held Nov. 3rd from 1-2pm EST. **Proposals for the next cycle are due Nov. 11, 2021.**

The **NASA Aeronautics University Design Challenge** for the 2021-2022 academic year is now available. This year's NASA-sponsored challenge, focusing on the use of Urban Air Mobility/Regional Air Mobility vehicles in a firefighting scenario, challenges students representing multiple disciplines to test their skills while designing and building solutions to real-world problems.

Through NASA's **"Gateways to Blue Skies: Airports of Tomorrow Challenge,"** college and university teams develop and share design ideas for the evolving airports of 2050. NOIs were due Oct. 31st and submissions are due March 3, 2022. Do you have questions? **Join in on the Q&A Session Nov. 3, 2021.** Finalist teams receive a $6,000 cash award to participate in the 2022 Blue Skies Forum at NASA's Langley Research Center in Hampton, VA.

activity. The month kicks off with the Nov. 3rd "NASA's Four Forces of Flight" session at 1pm EST. Sessions are free, but registration is required.

Did you know??

- On Nov. 28-29, 1929 Commander Richard E. Byrd made the first flight over the South Pole in a Ford trimotor piloted by Bernt Balchen and two American pilots.

- On Nov. 12, 2004, NASA's X-43A research vehicle set a new world speed record by a jet-powered aircraft when it traveled at Mach 10—nearly 7,000 mph.

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!"

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.

NASA Educator Professional Development Collaborative: (K-12 educators) Where do you go for ongoing, free NASA educator professional development opportunities? To EPDC! Take a look at webinars, digital badging and CEU opportunities, STEM teaching tips, videos, and so much more.

Aeronaut-X: (K-12) Our Next Gen STEM: Aeronaut-X program provides new and exciting STEM activities that focus on cutting-edge aeronautics education and the future of flight.

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 STEM Stars: (students ages 13+) Webchats that connect students ages 13+ with NASA experts of all types. Each chat introduces a STEM career, addresses a STEM topic, and highlights a NASA mission. Webchats are streamed live at 2pm EST via YouTube, and students can ask questions via the chat feature in real time. Or, you can choose from a growing library of archived sessions.