

Workforce of the future begins with Aviation STEM

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Workforce of the Future Starts with Aviation STEM

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Lyndsay Digneo

Federal Aviation Administration

William J. Hughes Technical Center

Atlantic City, New Jersey

October 26, 2022

National Training Aircraft Symposium

AvSTEM



Aviation • Science • Technology • Engineering • Mathematics

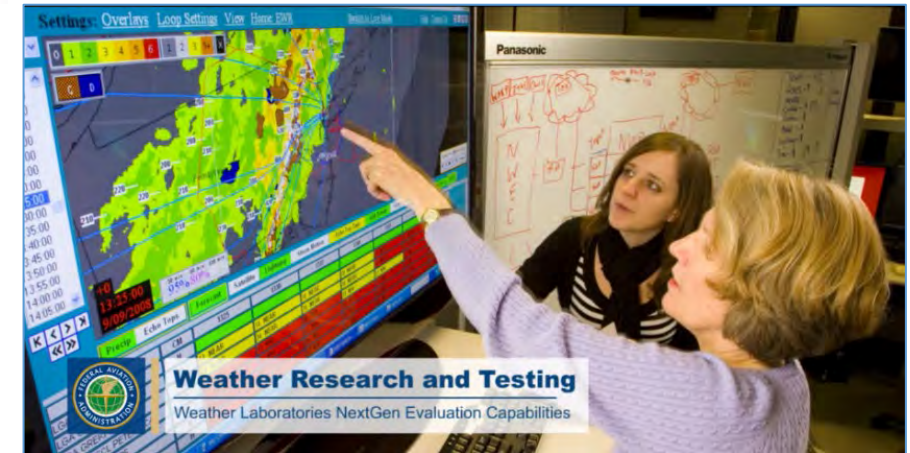


**Federal Aviation
Administration**



Lyndsay Digneo

Aviation STEM Program Manager
Engineer



AvSTEM



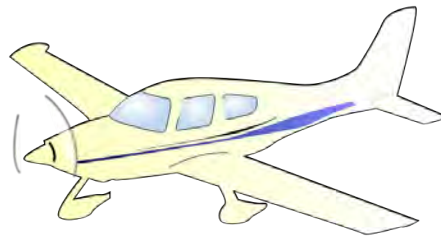
Aviation • Science • Technology • Engineering • Mathematics



Federal Aviation
Administration

Cliff Johnson

Rotorcraft Safety Research Lead/Engineer



- Education: B.S. Mechanical Engineering (Rowan University)
- Work Experience: Engineer with the FAA for past 13+ years
- Qualifications: UAS Pilot (ScanEagle, Solo, Parrot, Phantom, etc.), Private Pilot-Instrument Rating (ASEL)
- Hobbies: Racing (NASCAR/INDYCAR/F1), Philly Sports Fan, Guitarist, Outdoorsman



Federal Aviation
Administration

My Role at the FAA

- Official Title: General Engineer
- Unofficial Titles: Part “Program Manager, Project Lead, Flight Test Engineer, Contracting Officer Representative, Purchase Cardholder, Inventory Delegate, UAS/GA Pilot, Simulator Instructor/Operator, Psychologist, etc.” (often serving in multiple capacities at the same time!)



Acknowledgements

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- Shelley Yak, Director
- Dr. Eric Neiderman, Deputy Director

Aviation STEM Program

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- Joseph F. Burns, FAA retiree (2021)
- Peter Sparacino, FAA retiree (2017) and current contract support technical consultant

Aviation STEM Outreach Representatives

Federal Aviation Administration

*To provide the safest, most efficient
aerospace system in the world*



**Federal Aviation
Administration**



Federal Aviation Administration
William J. Hughes Technical Center
Atlantic City, NJ



RANDOM

Aviation Outreach

Career Days

Job Shadowing

Classroom Visits

Advisory Boards

Science Fairs

Aviation Camps

Mentoring

Student Tours

RANDOM

AvSTEM

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Aviation • Science • Technology • Engineering • Mathematics

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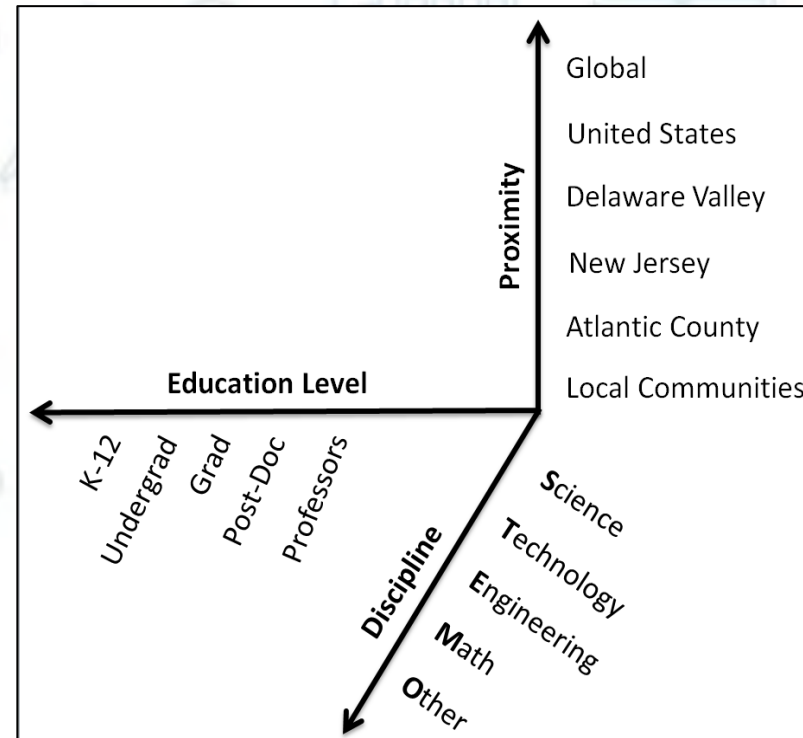
Mentoring

Student Tours

Vision for a Unified Program

Program Vision

- Provide aviation-focused STEM outreach to elementary through college graduate students and educators
- Expand reach to local, regional, national, and global levels



Moving Towards a Unified Program

A Central Entity for All Outreach

- Streamlined communication
 - Established AvSTEM mailbox
 - Provided central point of contact
- Data-driven event reporting
 - Collected information following all outreach events

What is AvSTEM?

Comprehensive program for all
educational outreach initiatives at
Technical Center

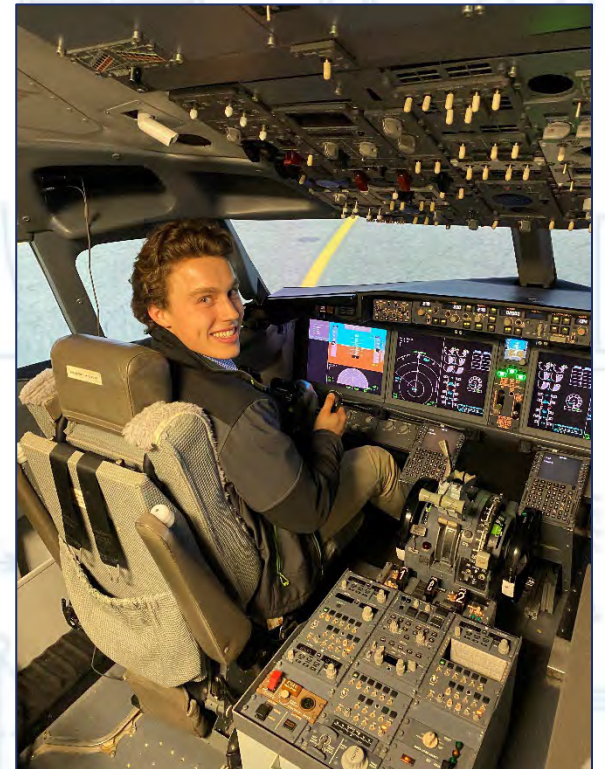
- Established in September 2016
- Part of FAA's STEM AVSED (Aviation and Space Education) Program



What is AvSTEM?

Reach students from Kindergarten through college undergraduate and graduate

- Approximately 30,000 students in the past 6 years



What is AvSTEM?

Collaboration with educators to bring aviation content into the classroom

- Attended regional and national conferences to engage with educators from across the country
- Hosted in-person and virtual workshops



AvSTEM Outreach Representatives

Over 100 Technical Center employees

Broad range of technical backgrounds

Share passion for aviation to future generations



AvSTEM Outreach

By Request (*they ask us*)

- Tech Talks (specific or generic)
- Classroom Lessons
- Career Panel
- Career Days
- Science Fair Judges
- Job Shadow Day
- Professional Development

By Invitation (*we invite them*)

- Student Tour Days
- Aviation STEM Day
- Educator Workshops

Outreach Methods

Integrating aviation into existing curriculum

- Classroom Lessons
- Tech Talks
- Educator Workshops

Providing aviation experiences for students

- Aviation Monthly Mentoring Program (AMMP)
- Aviation STEM Day
- Job Shadow

Classroom Lessons

- Lessons on fundamental aviation topics related to math and science concepts.
- Content of each lesson could be scaled up or down to the students' grade level
- Engaging, hand-on activities that reinforce lesson and encourage critical thinking



Tech Talks



- Relate course topics to aviation applications
- Highlight aviation career pathways



Educator Workshops

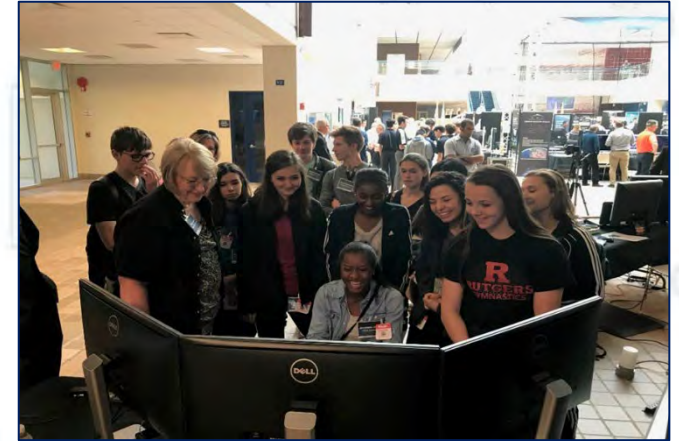
- Integrate aviation content into curriculum
- Strengthen relationship with education community



Aviation STEM Day



- Annual event held each spring at the Technical Center
- Students visit exhibits and booths, engage with technical professionals, and learn about exciting aviation career pathways.



Aviation Monthly Mentoring Program

- Robust, educational experience for high school juniors and seniors
- Provide high school students with an in-depth look at the research, development, engineering, and test and evaluation conducted at the Technical Center
- Monthly modules include a classroom lesson, hands-on demonstration, and career talk



Job Shadow

- Provides an opportunity to visit the Technical Center for a day to observe the daily work of an aviation professional
- Witness the aviation research and testing activities performed in fields such as engineering, computer science, human factors, and meteorology



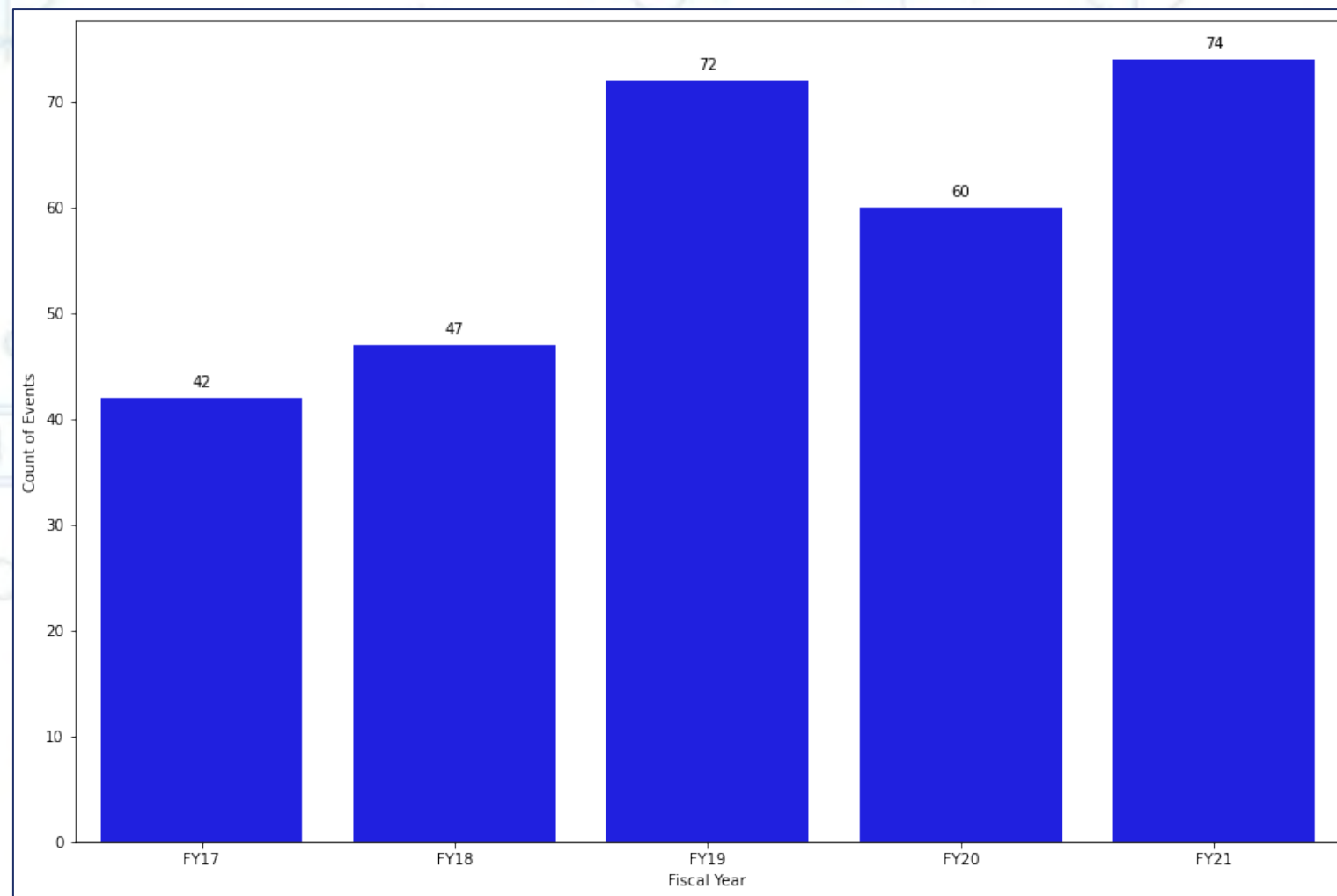
Measuring Impact

Data-driven event reporting

- Collect information about outreach events
- Includes number of participants, audience type, activity type, and school demographics.
- Allows the program management team to measure the program's reach and analyze trends from year to year.

Trend Analysis

Trend shows
expanding
program despite
challenges of
pandemic

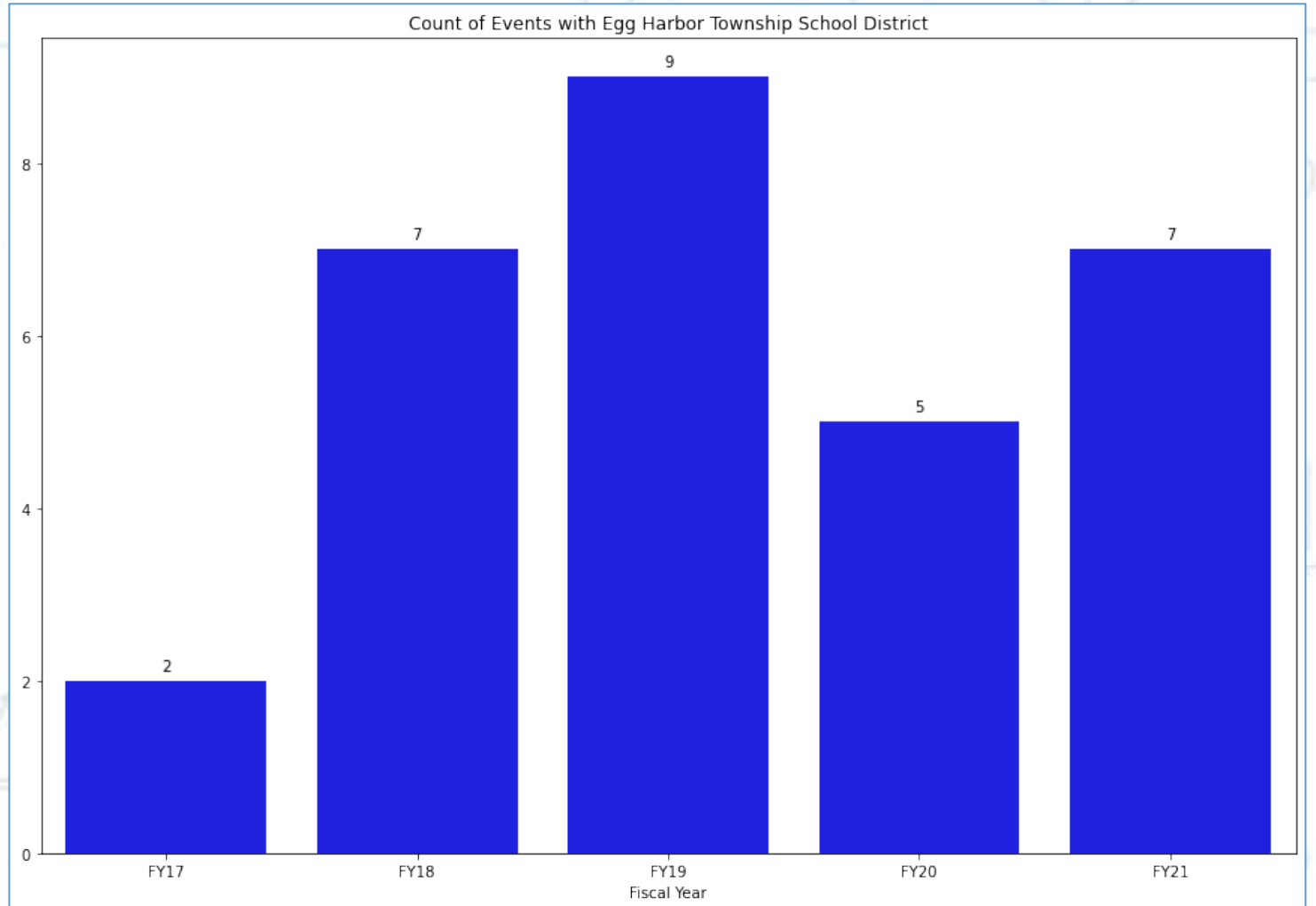


Relationships with School Districts

Number of events steadily increased from FY17 through FY19

Decrease in FY20 is a direct result of COVID-19

Number rebounded in FY21 as a result of AvSTEM maintaining relationship with educators and coordinating virtual events



Moving Forward

Looking Ahead

- 10-year strategic plan to guide the program into the future.
- Maintain current outreach efforts
- Exploring new opportunities to expand quality AvSTEM outreach to local, regional, national, and global entities.

Thank you!

Contact: 9-ACT-AvSTEM@faa.gov

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