Introducing the AOPA Foundation High School Aviation STEM Curriculum

YOU CAN FLY
AOPA FOUNDATION
HIGH SCHOOLS

v 2024-04-23

Who We Are

AOPA FOUNDATION

STEM.ORG ACCREDITED EDUCATIONAL EXPERIENCE

AOPA

your freedom to *fly*

AOPA Foundation
Philanthropic arm of AOPA

AOPA
Largest aviation community in the world

You Can Fly! Initiatives

Discovering Aviation

High Schools

Learning to Fly

Flight Training

Sustaining Engagement

Flying Clubs

Returning to Aviation

Rusty Pilots

Does this look familiar?

Pilot and Technician Outlook

2023–2042

2.3 M

NEW PERSONNEL

- 649 K NEW PILOTS
- 690 K NEW TECHNICIANS
- 938 K NEW CABIN CREW

North America

New Personnel: 429 K

Pilots: 127 K

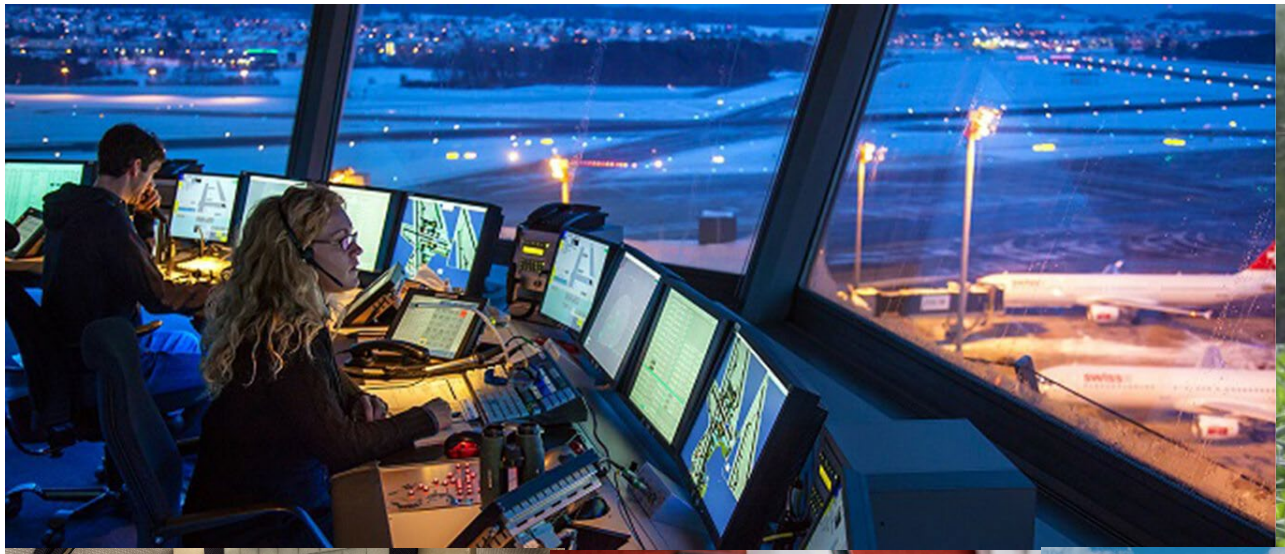
Technicians: 125 K

Cabin Crew: 177 K

3.5%	48,575	6.1%	2.6%
Fleet Growth	2042 Fleet	Traffic Growth	GDP Growth

Aerospace STEM Careers

If you can think of a career, it exists in the aerospace industry



AOPA Foundation High School Aviation STEM Curriculum

FREE Four-year STEM curriculum
in Pilot and Unmanned Aircraft Systems pathways

STEM.ORG REVIEWED™ EDUCATIONAL MEDIA

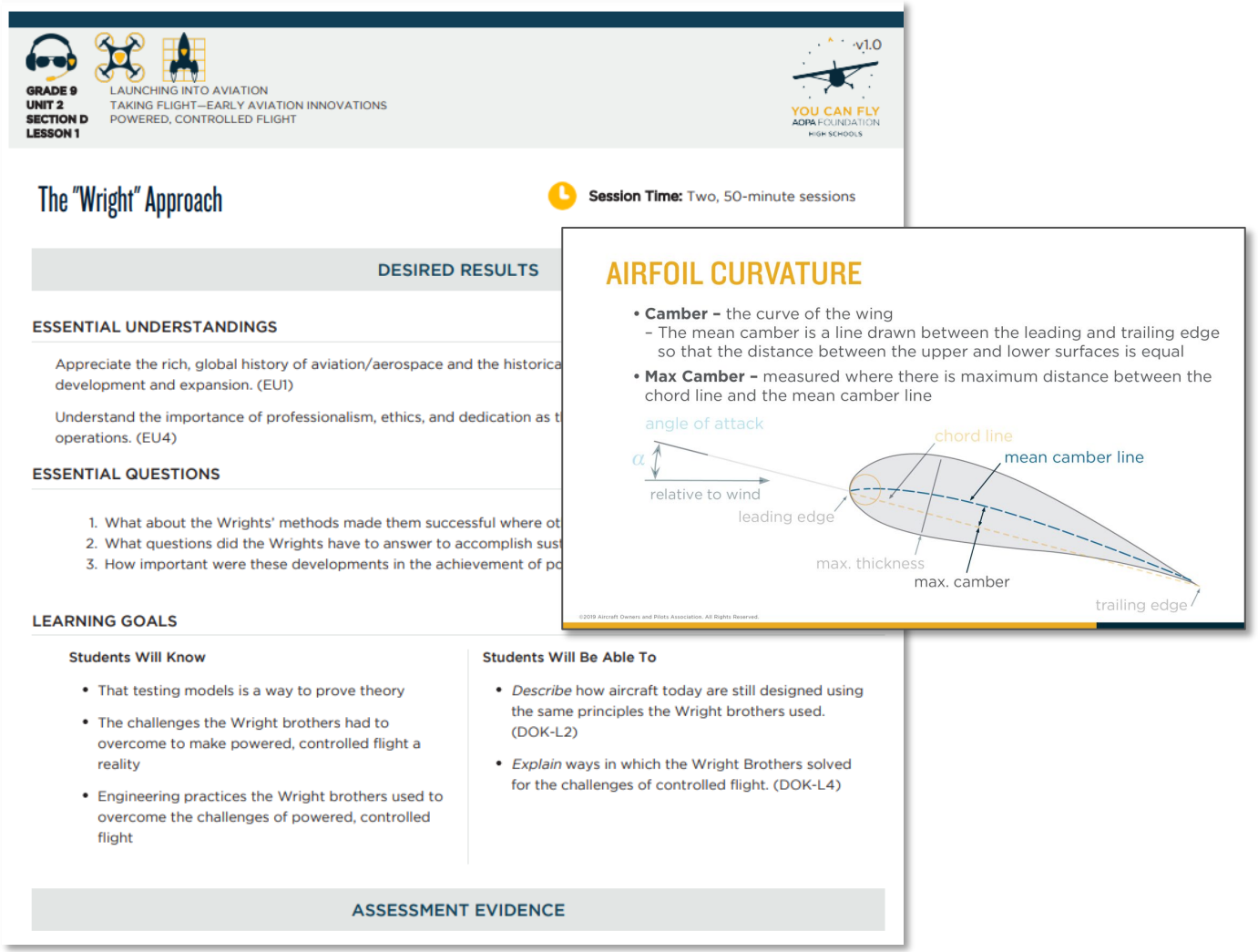
- High-demand aerospace careers
- Industry-recognized stackable credentials and industry certifications
- Built for teachers by teachers and pilots
- Rigorous, comprehensive, flexible, and FREE

What's Included?

Everything a teacher needs to provide engaging instruction from day one.

Lesson Plans

Presentations



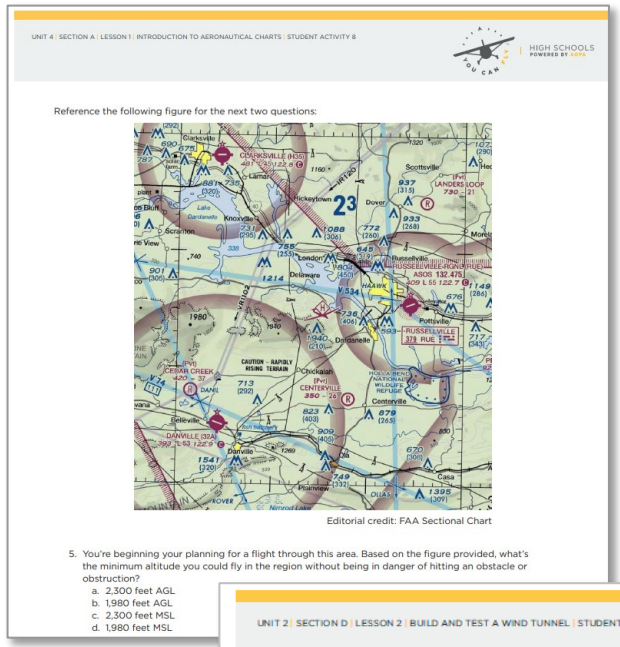
What's Included?

Everything a teacher needs to provide engaging instruction from day one.

Student Activities

Assessments

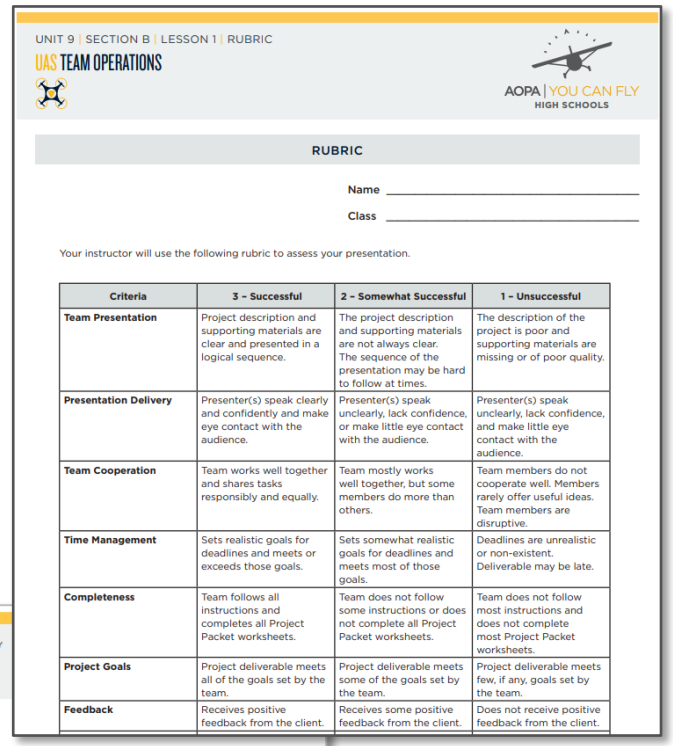
Teacher Notes & Rubrics


UNIT 4 | SECTION A | LESSON 1 | INTRODUCTION TO AERONAUTICAL CHARTS | STUDENT ACTIVITY 8

Reference the following figure for the next two questions:

Editorial credit: FAA Sectional Chart

5. You're beginning your planning for a flight through this area. Based on the figure provided, what's the minimum altitude you could fly in the region without being in danger of hitting an obstacle or obstruction?
   a. 2,300 feet AGL
   b. 1,980 feet AGL
   c. 2,300 feet MSL
   d. 1,980 feet MSL


UNIT 9 | SECTION B | LESSON 1 | RUBRIC

UAS TEAM OPERATIONS

AOPA | YOU CAN FLY HIGH SCHOOLS

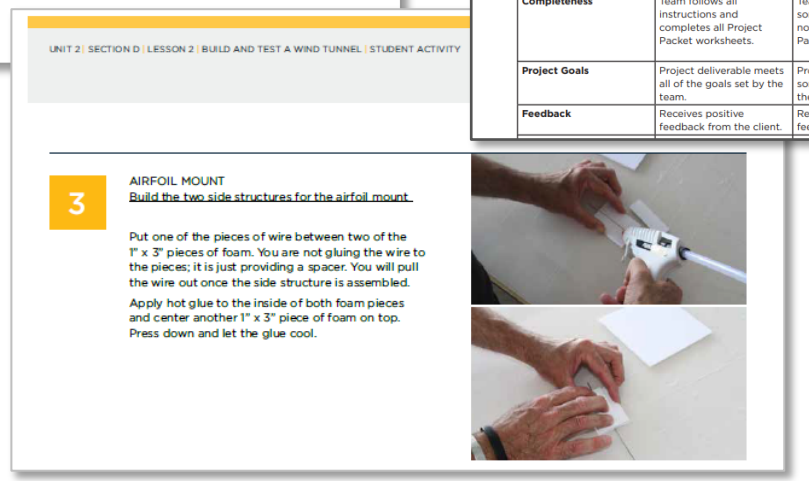
RUBRIC

Name _____

Class _____

Your instructor will use the following rubric to assess your presentation.

Criteria	3 – Successful	2 – Somewhat Successful	1 – Unsuccessful
Team Presentation	Project description and supporting materials are clear and presented in a logical sequence.	The project description and supporting materials are not always clear. The sequence of the presentation may be hard to follow at times.	The description of the project is poor and supporting materials are missing or of poor quality.
Presentation Delivery	Presenter(s) speak clearly and confidently and make eye contact with the audience.	Presenter(s) speak unclearly, lack confidence, or make little eye contact with the audience.	Presenter(s) speak unclearly, lack confidence, and make little eye contact with the audience.
Team Cooperation	Team works well together and shares tasks responsibly and equally.	Team mostly works well together, but some members do more than others.	Team members do not cooperate well. Members rarely offer useful ideas. Team members are disruptive.
Time Management	Sets realistic goals for deadlines and meets or exceeds those goals.	Sets somewhat realistic goals for deadlines and meets most of those goals.	Deadlines are unrealistic or non-existent. Deliverable may be late.
Completeness	Team follows all instructions and completes all Project Packet worksheets.	Team does not follow some instructions or does not complete all Project Packet worksheets.	Team does not follow most instructions and does not complete most Project Packet worksheets.
Project Goals	Project deliverable meets all of the goals set by the team.	Project deliverable meets some of the goals set by the team.	Project deliverable meets few, if any, goals set by the team.
Feedback	Receives positive feedback from the client.	Receives some positive feedback from the client.	Does not receive positive feedback from the client.


UNIT 2 | SECTION D | LESSON 2 | BUILD AND TEST A WIND TUNNEL | STUDENT ACTIVITY

3

AIRFOIL MOUNT

Build the two side structures for the airfoil mount.

Put one of the pieces of wire between two of the 1" x 3" pieces of foam. You are not gluing the wire to the pieces; it is just providing a spacer. You will pull the wire out once the side structure is assembled.

Apply hot glue to the inside of both foam pieces and center another 1" x 3" piece of foam on top. Press down and let the glue cool.

Key Features of the Lessons

Turnkey Design

5E Lesson Format

Easy Access

Benchmarks and Competencies

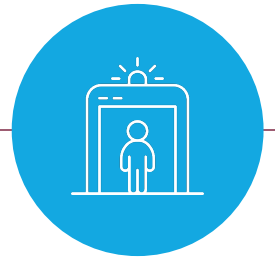
National Standards

CTE Content

Course Structure

Semesters

Units



Sections

Lessons

Course Menu

"Grade 9" Course
Topics
Introduction to Aviation
Aerospace History
Engineering Design

"Grade 10" Course
Topics
Forces of Flight
Aircraft Systems
Aircraft Performance

"Grade 11" Pilot Course
Topics
Weather, Airspace
Flight Planning

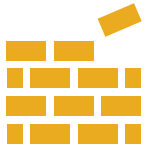
"Grade 12" Pilot Course
Topics
Instrument Flight
Advanced Aircraft
Future of Aerospace

"Grade 11" UAS Course
Topics
Weather, Airspace,
Drone Operations

"Grade 12" UAS Course
Topics
Advanced Missions
Advanced Drone Tech
Future of Aerospace

Aviation Career Preparation Course (semester)
Topics
General and Aviation Career Skills
Workforce Success Preparation

CTE Topics



“Grade 9” Course
Aviation STEM career exploration

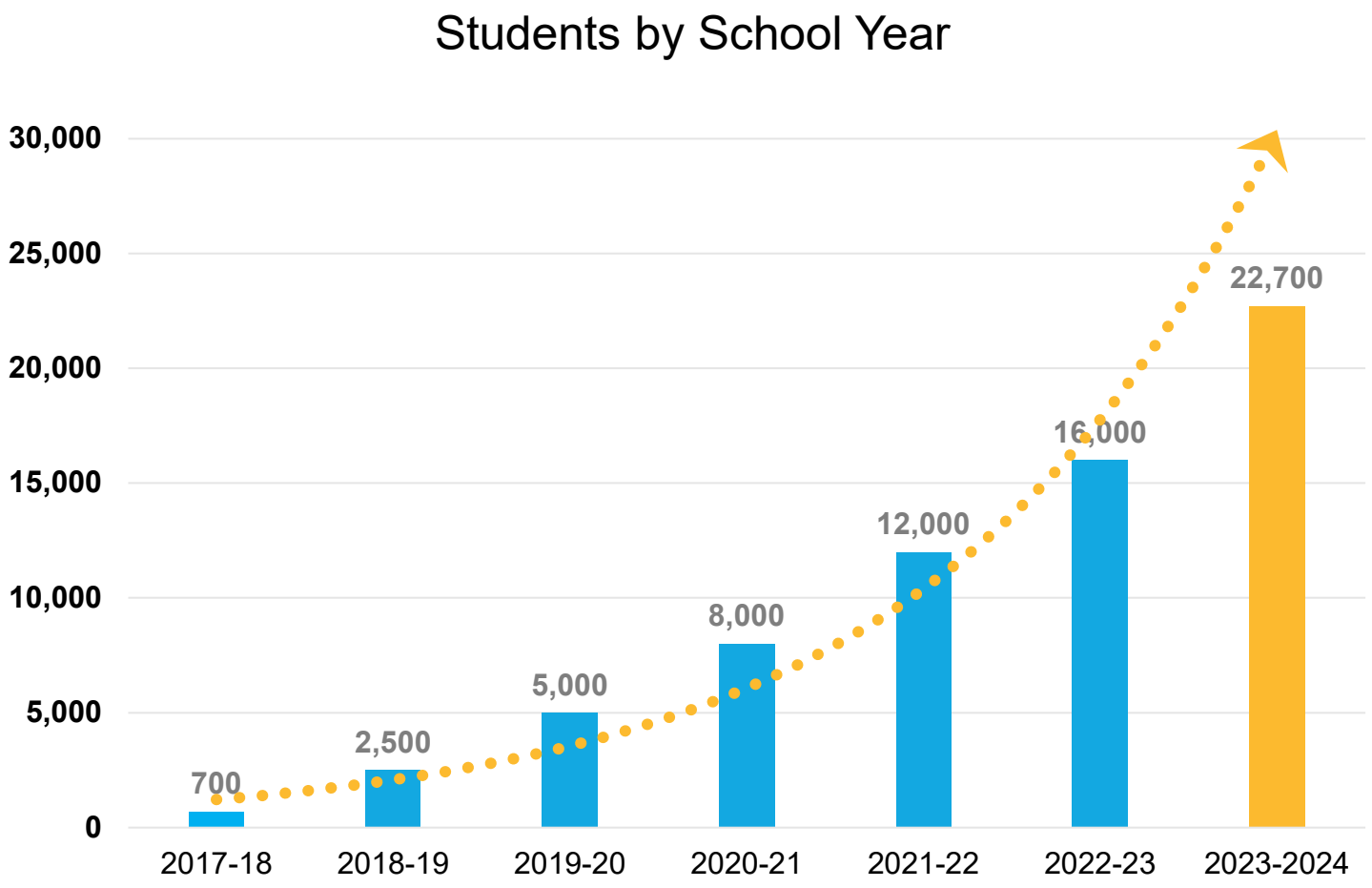
“Grade 10” Course
Research and apply for school-to-work opportunities

“Grade 11” Pilot and UAS Courses
Resume
Cover letter
Letters of recommendation
Entrance essays

“Grade 12” Pilot and UAS Courses
Aviation business plan
Response to DARPA RFI
CTE capstone project

Aviation Career Preparation Course (semester)
Plotting your Career Course
Safety and the Workplace
Professionalism and Soft Skills
Organizational Behavior and Practice

High School by the Numbers



471 programs

23,000 students this year

1,000 schools served

47 states and DC

82 colleges in 21 states

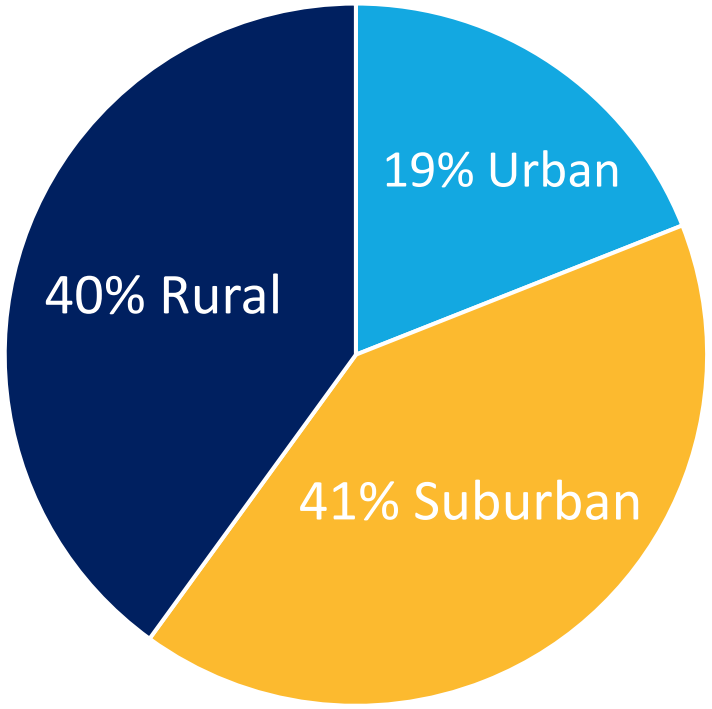
offer college credit

More than 71,000 students served since 2017

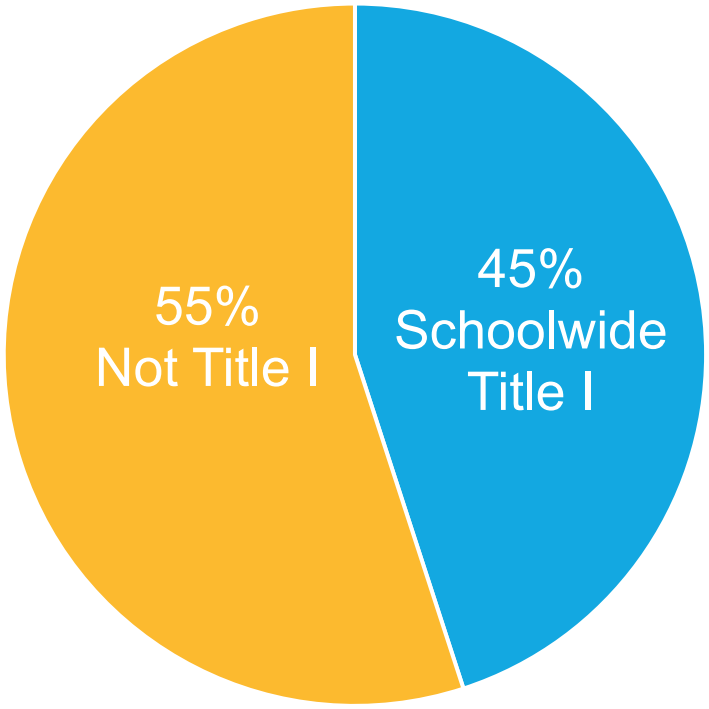
Curriculum Footprint: 2023-2024

School Demographics 2023-24

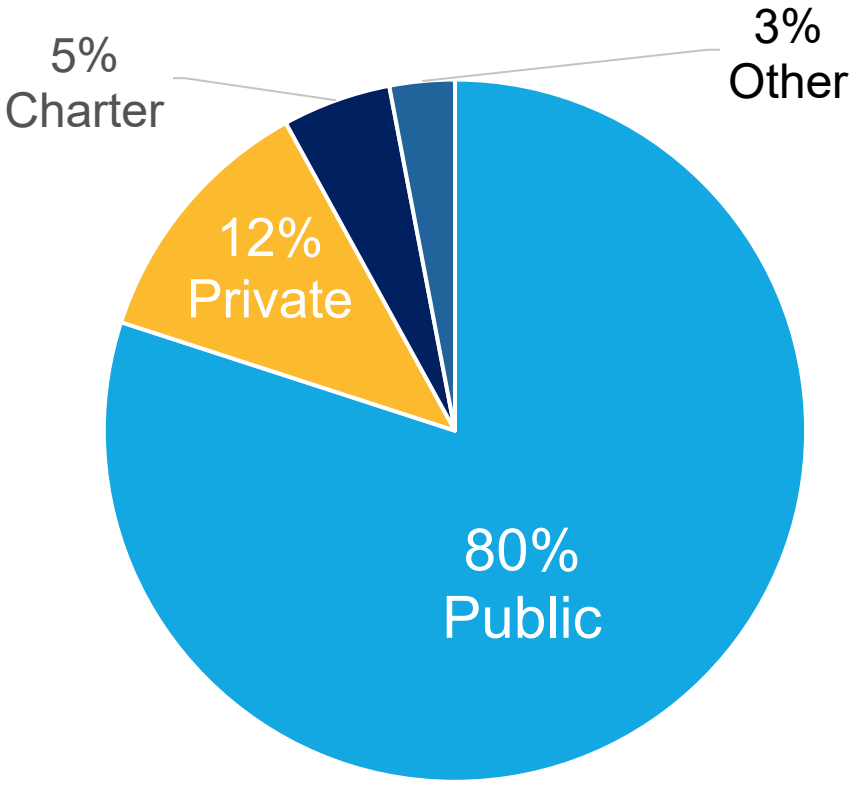
SCHOOL LOCATIONS



TITLE I STATUS – POVERTY LEVEL

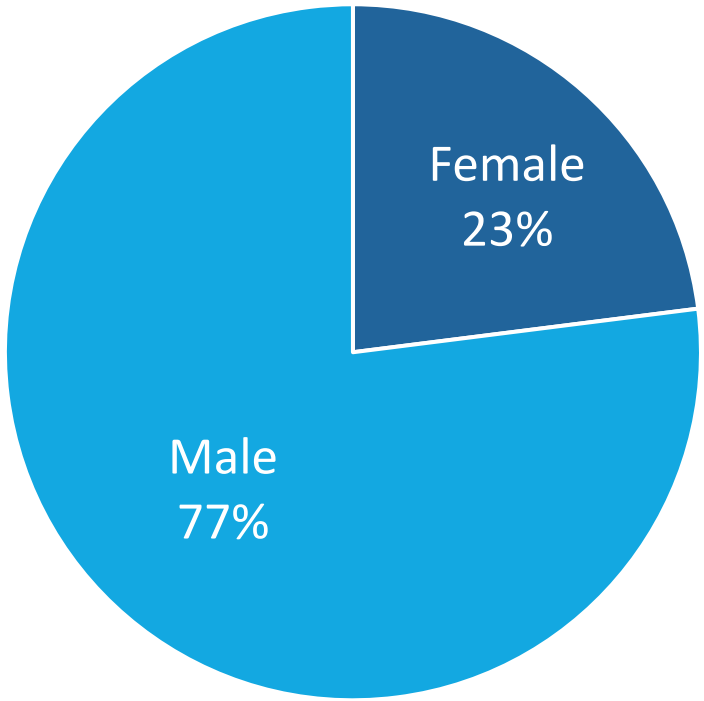


SCHOOL TYPES

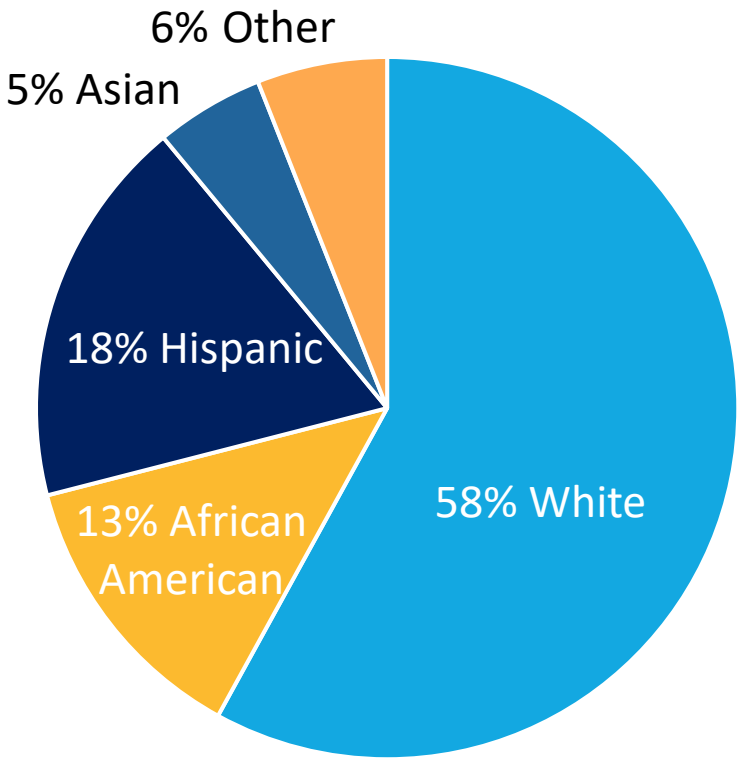


Student and School Demographics 2023-24

GENDER



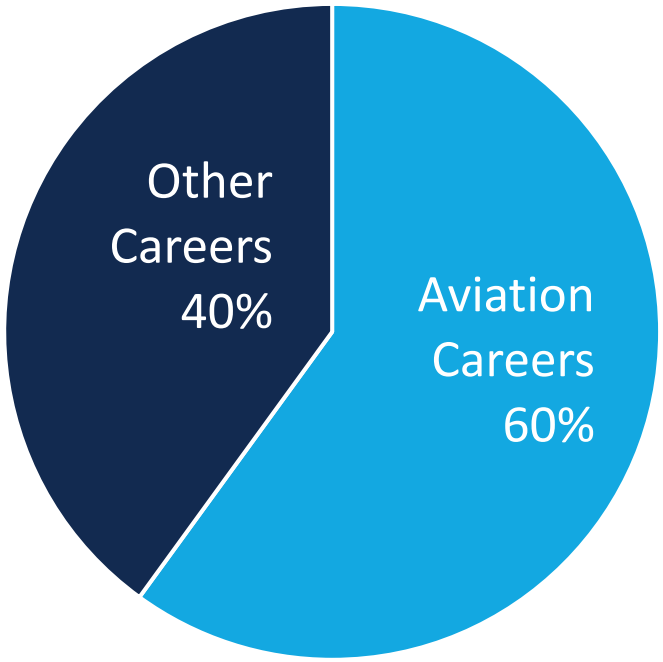
ETHNICITY



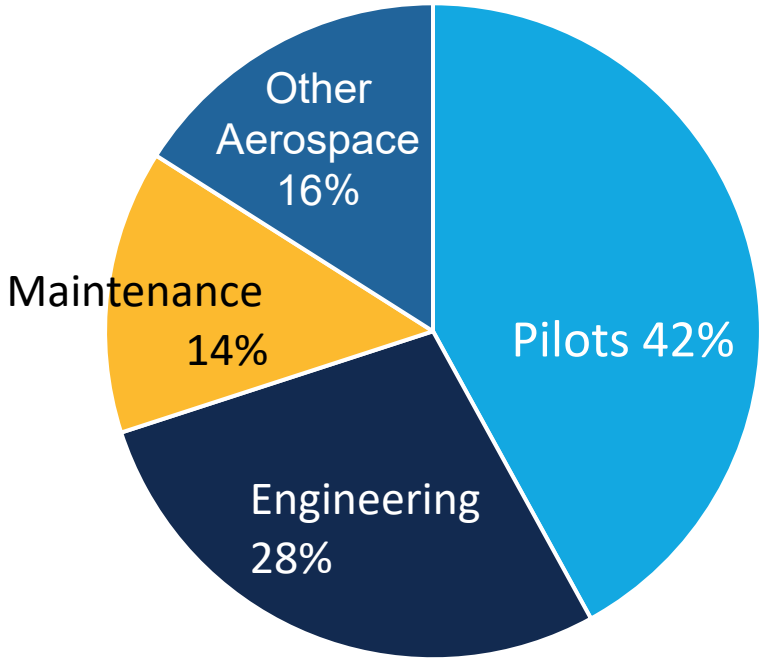
Postsecondary Expectations

More than 2,100 Graduates since 2021-2022

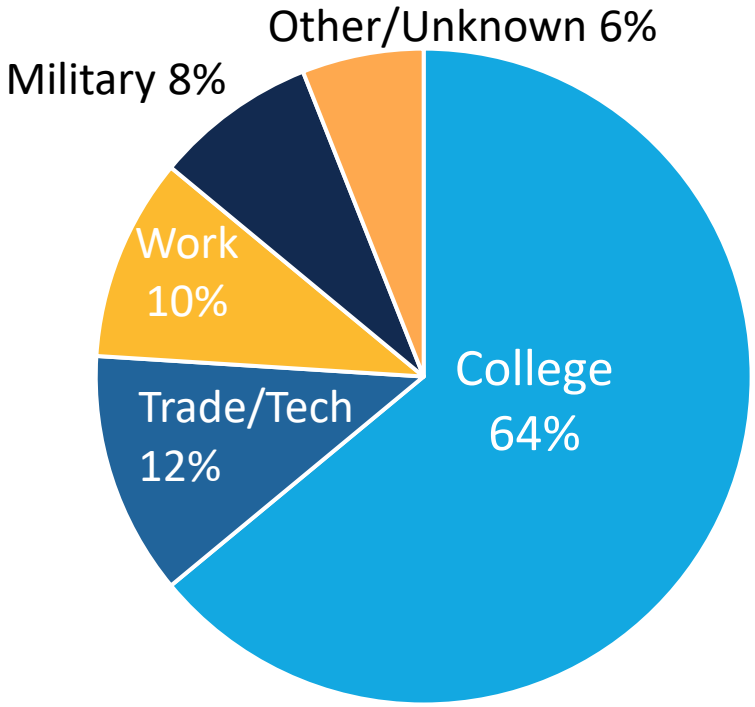
All Graduate Career Intentions



Aviation Graduate Career Intentions



Post Graduate Education Plans



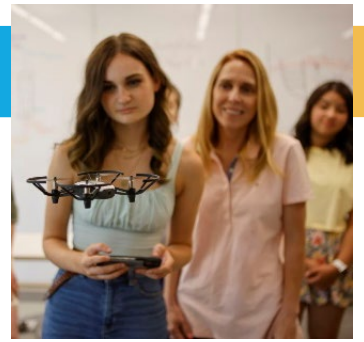
6,166 Student Aviation Milestones

Since September 2021

3,821
Started Flight Training

606
FAA Private Pilot Knowledge Test

178
Private Pilot Certificate



849
FAA Remote Pilot Knowledge Test

38
FAA Instrument Rating Knowledge Test

21
FAA Instrument Rating

Who can teach the Curriculum?

You do NOT need to be a pilot!

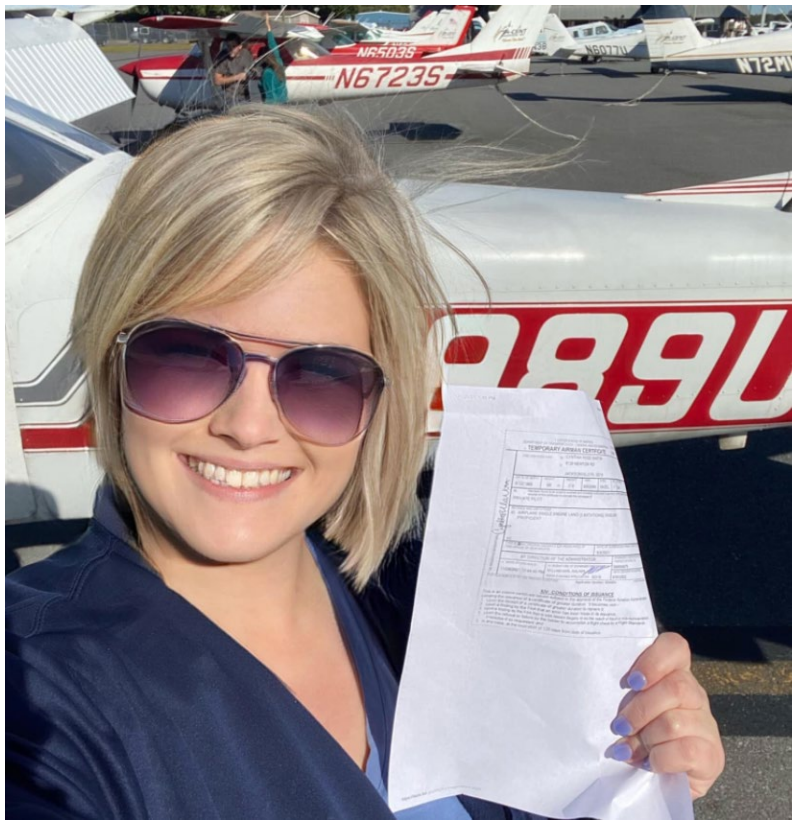
Any certified teacher is qualified

Interest
Willingness
Passion

In-person training
Virtual training
Ongoing support

Inspiring Teachers as well as Students

Just one teacher's story



Cindy Martin

Private Pilot Certificate

Flight Training Scholarships

AOPA Foundation's Commitment to You

Our donors help keep the program free

FREE

- Teacher training
- Program planning and support
- Continuing education units from ERAU
- Ongoing teacher and program support
- State course approval support
- Networking opportunities

School Commitments to the AOPA Foundation

School Support

High School Credit

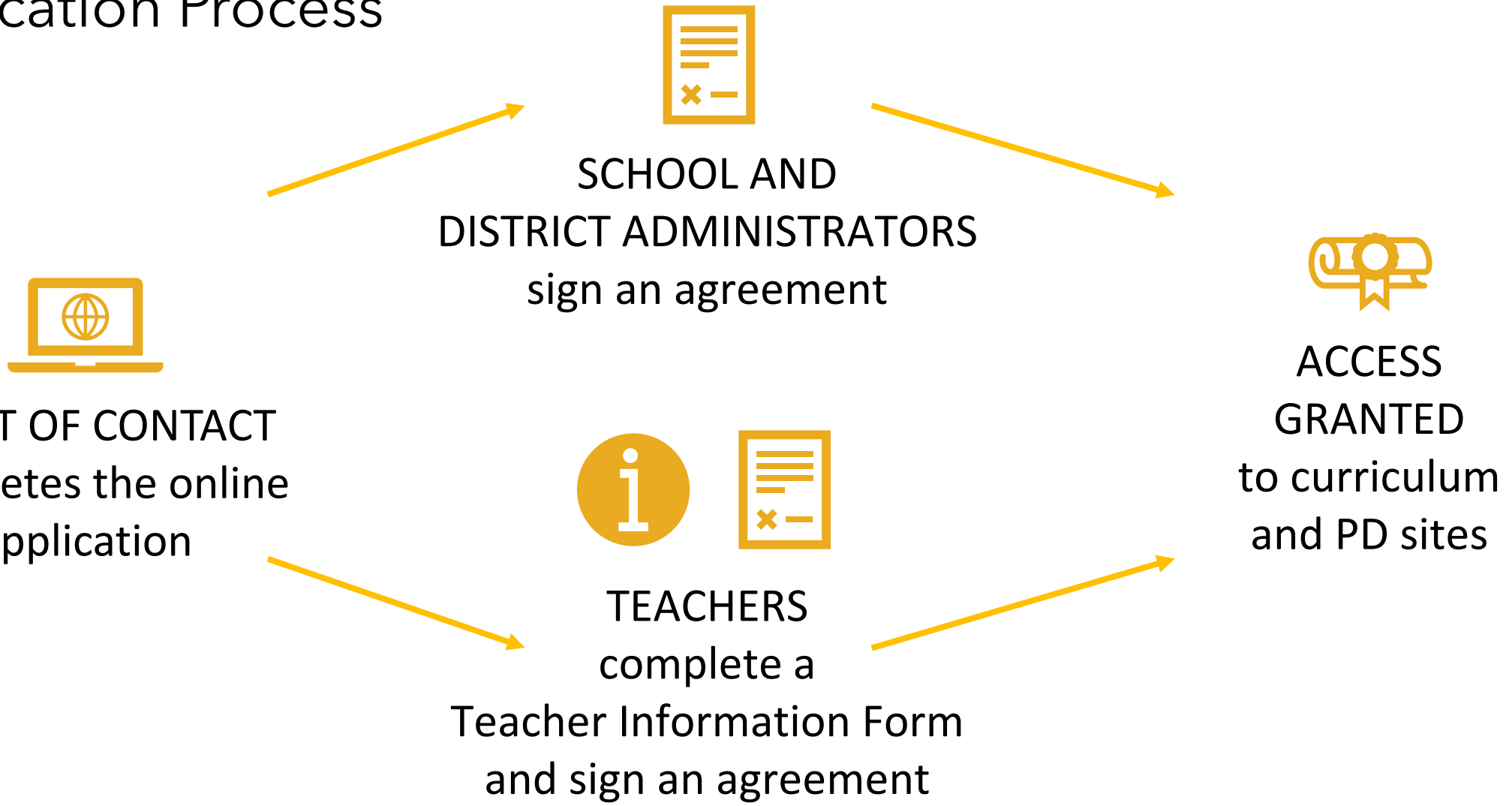
Teacher

Fidelity

Data Collection

Class Size

Application Process



Applications for 24-25

NEW PROGRAM?
APPLICATIONS ARE OPEN!

HTTPS://AOPA.org/apply

YOU CAN FLY
AOPA FOUNDATION

FREE PROFESSIONAL DEVELOPMENT WORKSHOP

Earn up to *18 CE Hours* from Embry-Riddle Aeronautical University.

FOR HIGH SCHOOL TEACHERS, COUNSELORS, & ADMINISTRATORS.

Limited spaces available • Breakfast and lunch included • Hands-on activities • Offsite tours

JOIN US! REGISTER NOW IT'S FREE

TWO LOCATIONS

West Coast
January 23-25, 2024
Hilton Seattle Airport
& Conference Center
Seattle, WA

East Coast
February 6-8, 2024
Aerospace Center for Excellence
Lakeland, FL

QUESTIONS? Email us at hs@aopa.org

NOTE: Transportation, hotel, and other travel-related costs are the attendee's responsibility.

LEARN HOW TO PREPARE YOUR STUDENTS FOR AEROSPACE STEM CAREER SUCCESS

WHY ATTEND

- Discover innovative teaching methods while you deep dive into our free Aviation STEM curriculum.
- Engage in structured hands-on activities that bring aviation STEM concepts to life.
- Connect with like-minded educators, exchange ideas, and build new relationships with long-lasting impacts.
- Explore potential collaborations with other schools and districts to enrich your curriculum and make learning more exciting for your students.

Spring-Summer 2024
Paid In-Person Training Sessions
($300 + travel)

April 17-19 Kentucky
May 8-10 Kentucky
Week of June 3 Oklahoma

FREE ONE-DAY EVENT!

INTRODUCING THE KENTUCKY AVIATION CAREER PREPARATION CURRICULUM

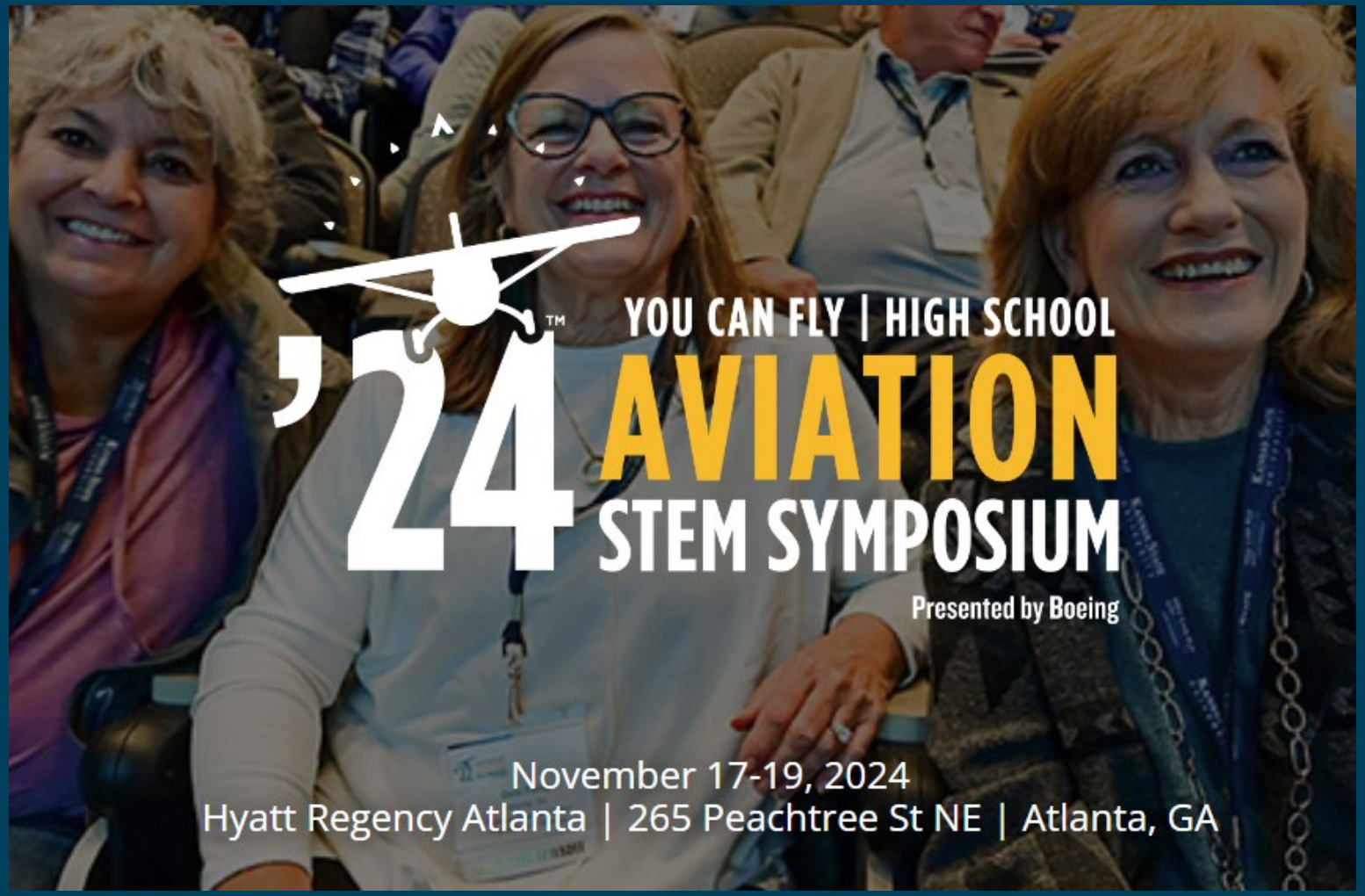
February 20, 2024
8:30 a.m. – 1:30 p.m. EST

At

The Aviation Museum of Kentucky
Lexington, Kentucky

RSVP:
AOPA.org/Kentucky

RSVP NOW



THE YEAR'S MOST IMPACTFUL HIGH SCHOOL STEM SYMPOSIUM

aopa.org/symposium

YOU CAN FLY
AOPA FOUNDATION

2025

FLIGHT TRAINING SCHOLARSHIPS

Opening date: **September 9, 2024**

Application Deadline: **February 7, 2025**, 11:59 p.m. EST

LEARN MORE

Scholarships are funded by generous donations to the AOPA Foundation.

Next Steps

Apply for the Curriculum

Curriculum: Learn More

Contact Us

STEM Symposium

High School Initiative

Ensuring the Future of General Aviation through STEM Education

AOPA FOUNDATION

Questions?

hs@aopa.org

Multiple Aviation Pathways

CAREER STRAND	GRADE 9	GRADE 10	GRADE 11	GRADE 12
PILOT	AOPA Grade 9 Course	AOPA Grade 10 Course	AOPA Grade 11 Pilot Pathway	AOPA Grade 12 Pilot Pathway
UAS PILOT			AOPA Grade 11 UAS Pathway	AOPA Grade 12 UAS Pathway
AIRCRAFT MAINTENANCE	AOPA Grade 9 Course	AOPA Grade 10 Course	Choose Aerospace Course Year 1	Choose Aerospace Course Year 2