AOPA RESOURCES FOR YOU AND YOUR STUDENTS

Why Aviation/Aerospace?

North American Workforce Needs

2017-2036

Pilots
117,000

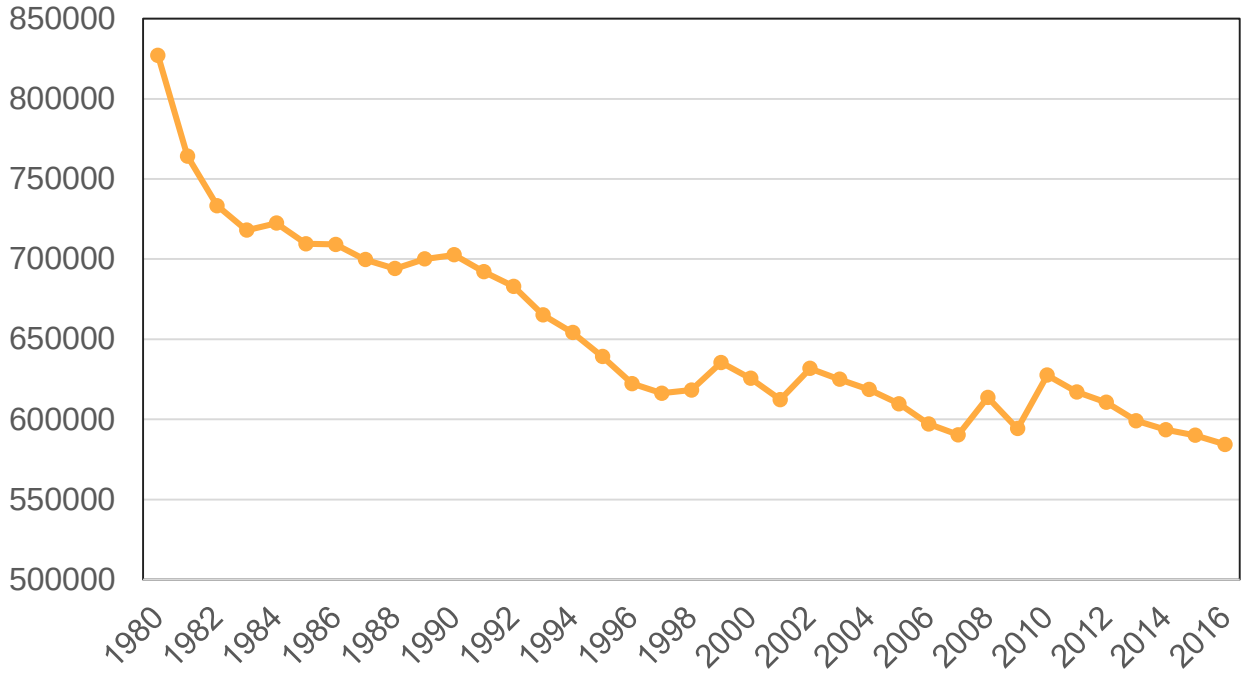
Technicians
118,000

Source: 2017 Boeing Pilot and Technician Outlook

YOU CAN FLY™ | HIGH SCHOOLS POWERED BY AOPA

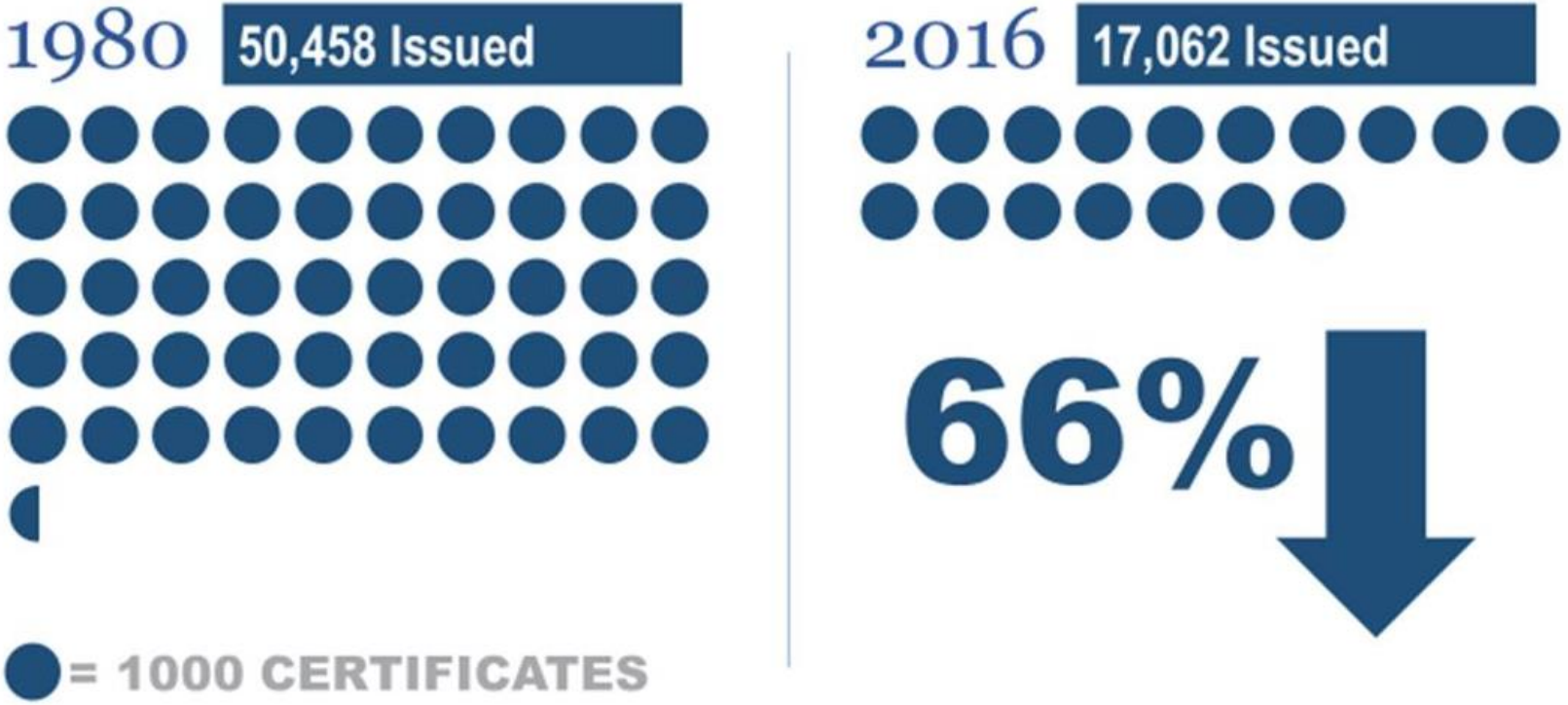
Active Certificated Airplane Pilots, U.S.

1980 827,071 active pilots **2016** 584,362 active pilots



HIGH SCHOOLS
POWERED BY AOPA

FAA Private Pilot Certificates Issued



AOPA HIGH SCHOOL AVIATION INITIATIVE

Increase student awareness of and engagement in career opportunities in aviation and aerospace.

1. Increase the number of high school aviation STEM programs around the country.
2. Improve and expand current high school aviation STEM programs.

HIGH SCHOOLS
POWERED BY AOPA

THREE AREAS OF FOCUS

1. High School Flight Training Scholarship Program
2. Annual High School Aviation STEM Symposium
3. High School Aviation STEM Curriculum Development

HIGH SCHOOL FLIGHT TRAINING SCHOLARSHIP PROGRAM

- 44 awards made, $5,000 each for initial flight training expenses
- Accomplishments - 1 IFR, 5 private pilots, 11 soloed
- Requirements – current high school students, ages 15 to 18 yrs. old, minimum 2.75 GPA
- 2018 program – opens in 1st quarter, closes in late spring

YOU CAN FLY | HIGH SCHOOLS POWERED BY AOPA

HIGH SCHOOL AVIATION STEM SYMPOSIUM

- For high school educators and administrators
- Sharing of best practices by high school educators
- Connection to industry
- Learning, networking, collaborating, sharing

The 2018 symposium location will be announced tomorrow!

YOU CAN FLY™ | HIGH SCHOOLS POWERED BY AOPA

- "High School Aviation Group"
- Online community group focused on high school aviation education
- Maintain connectivity throughout the year
- Learn about new topics
- Share lessons learned

Sample Topics:

Starting a new aviation program
High school flight training programs
Using flight simulators
How to recruit students
Drones

HIGH SCHOOL AVIATION STEM CURRICULUM

The Basics -

- Three Career and Technical Education pathways
  - Pilot
  - Aerospace engineering
  - Drones (UAS)
- Industry credential in each pathway
- Four year program, can implement individual courses
- Thanks to donations to the AOPA Foundation, this curriculum is offered at no charge to high schools.

HIGH SCHOOLS
POWERED BY AOPA

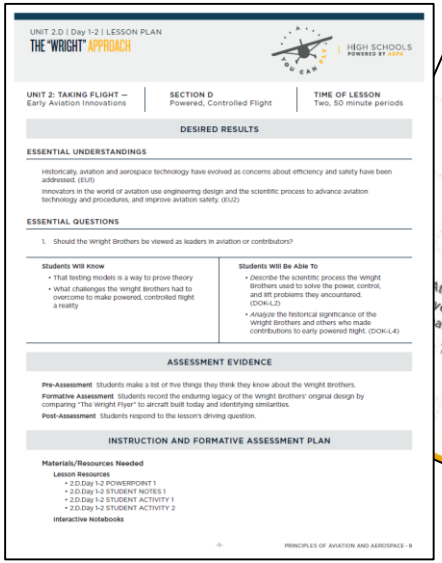
FOUR YEAR CURRICULUM OUTLINE

	9th Grade		10th Grade		11th Grade		12th Grade	
	Semester 1	Semester 2	Semester 1	Semester 2	Semester 1	Semester 2	Semester 1	Semester 2
Pilot	Principles of Aviation & Aerospace	Exploring Aviation & Aerospace	Introduction to Flight	Aircraft Systems	Private Pilot Fundamentals I	Private Pilot Fundamentals II	Aviation Safety	Pilot Capstone
Unmanned Aircraft Systems	Principles of Aviation & Aerospace	Exploring Aviation & Aerospace	Introduction to Flight	Aircraft Systems	UAS Operations I	UAS Operations II	UAS Design & Applications	UAS Capstone
Aerospace Engineering	Principles of Aviation & Aerospace	Exploring Aviation & Aerospace	Aerodynamics for Engineers	Principles of Engineering for Aerospace Applications	Aerospace Materials	Aerospace Engineering Drawing	Advanced Aerospace Design	Aerospace Engineering Capstone

HIGH SCHOOLS
POWERED BY AOPA

Lesson Resources

- Lesson Plans
- PowerPoints
- Student Projects
- Student Notes
- Student Activities
- Student Assessments
- Teacher Notes
- Teaching Aids


UNIT 2.D | Day 1-2 | LESSON PLAN

THE "WRIGHT" APPROACH

HIGH SCHOOLS POWERED BY AOPA

UNIT 2: TAKING FLIGHT — Early Aviation Innovations | SECTION D Powered, Controlled Flight | TIME OF LESSON Two, 50 minute periods

DESIRED RESULTS

ESSENTIAL UNDERSTANDINGS

Historically, aviation and aerospace technology have evolved as concerns about efficiency and safety have been addressed. (EU1)

Innovators in the world of aviation use engineering design and the scientific process to advance aviation technology and procedures, and improve aviation safety. (EU2)

ESSENTIAL QUESTIONS

1. Should the Wright Brothers be viewed as leaders in aviation or contributors?

Students Will Know
- That testing models is a way to prove theory
- What challenges the Wright Brothers had to overcome to make powered, controlled flight a reality

Students Will Be Able To
- Describe the scientific process the Wright Brothers used to solve the power, control, and lift problems they encountered. (DOK-L2)
- Analyze the historical significance of the Wright Brothers and others who made contributions to early powered flight. (DOK-L4)

ASSESSMENT EVIDENCE

Pre-Assessment Students make a list of five things they think they know about the Wright Brothers.

Formative Assessment Students record the enduring legacy of the Wright Brothers' original design by comparing "The Wright Flyer" to aircraft built today and identifying similarities.

Post-Assessment Students respond to the lesson's driving question.

INSTRUCTION AND FORMATIVE ASSESSMENT PLAN

Materials/Resources Needed

Lesson Resources
- 2.D.Day 1-2 POWERPOINT 1
- 2.D.Day 1-2 STUDENT NOTES 1
- 2.D.Day 1-2 STUDENT ACTIVITY 1
- 2.D.Day 1-2 STUDENT ACTIVITY 2

Interactive Notebooks

PRINCIPLES OF AVIATION AND AEROSPACE - 9

HIGH SCHOOLS POWERED BY AOPA

HIGH SCHOOL AVIATION STEM CURRICULUM

The Process -

- 29 high schools field testing 9th grade curriculum during 2017-18 school year
- External evaluators are collecting data and feedback on the lessons and materials.
- Will utilize feedback to make improvements, ready for full implementation of 9th grade curriculum, 2018-19 school year.

CURRICULUM DEVELOPMENT TIMELINE

	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
9th grade	Develop Courses	Field Test	Implement			
10th grade		Develop Courses	Field Test	Implement		
11th grade			Develop Courses	Field Test	Implement	
12th grade				Develop Courses	Field Test	Implement

HIGH SCHOOLS
POWERED BY AOPA

What is being said from our field test teachers…

“I want you to know how much I enjoy teaching this new course! It is an awesome course and our students love it!”

“I really appreciate AOPA’s effort to listen to our input and make improvements to the curriculum! I’m excited to see what next semester holds!”

What's next….

- Sample curriculum materials will be available for viewing on the AOPA High School Initiative website, https://youcanfly.aopa.org/high-school
- Online applications to use the ninth grade curriculum will open by early spring, 2018
- Will offer professional development for ninth grade courses in Frederick, Maryland, June 2018, in our new You Can Fly Academy, or virtually.
- Ninth grade courses ready for 2018-19 school year
- Stay connected through the AOPA Hangar
- Save the date- 2018 Symposium- November 5 and 6.

HIGH SCHOOLS
POWERED BY AOPA

Highlights of the 2017 Symposium

- Extended time – now two days of content
- Panel discussions with leading experts in their fields
- Industry tours – American Airlines, Fort Worth ATC Center
- More breakout sessions
- New exhibit area – features 15 exhibitors
- The Connect Event is back

Goals for the Symposium

•Share ideas and challenges with like-minded aviation educators

•Learn about career opportunities in the aviation/aerospace industry for your students.

•Build relationships that will be ongoing and helpful.

•Create a path for next steps in building or improving your own program based on what you have learned.

Logistics

- If you signed up for a tour, you will need to check in in the lobby and meet 10 minutes prior to start time to walk over.
- For either tour, you must have a government-issued photo id.
- No pictures allowed inside the Ft Worth ATC Center.
- Please check out our new exhibit area, open today, during the reception and tomorrow until 2:00 pm.