



CIVIL AIR PATROL
AEROSPACE EDUCATION



WE INSPIRE

Civil Air Patrol's
Aerospace Education Program

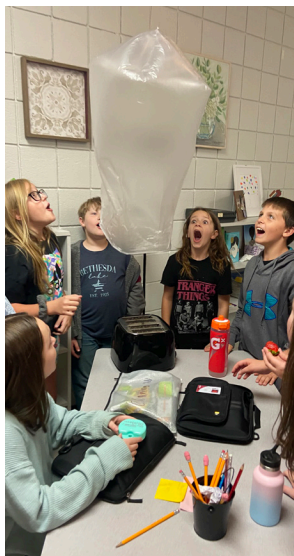
IMPACT STATEMENT FY23

The Aerospace Education (AE) program at Civil Air Patrol (CAP) serves as a dynamic platform **igniting curiosity, knowledge, and passion** for aviation and STEM exploration.

DID YOU KNOW?

The AE program plays a pivotal role in fulfilling CAP's mission by offering a number of comprehensive educational programs tailored specifically for grades pre-K through 12. Through interactive materials, engaging curricula, and access to aviation resources and mentors, it fosters a deep appreciation for aerospace sciences. All curriculum products are aligned with national education standards and are available free to CAP squadron members and educators (who join with a one-time membership of \$35).

Whether it's **inspiring young minds** through hands-on STEM activities or providing advanced aerospace education to adults, the aerospace education program is a hub of innovation and learning.



ENGAGEMENT DATA FY23

600,000+

Student Outreach

5,600+

Aerospace Education Members (Teachers)

27,136

Cadets

3,500

Aerospace Education Officers (Volunteers)

IMPACT DATA FY23

47%

of AEMs are Title I Teachers

3,596

number of schools

1,650

number of home schools, libraries, museums, universities, and other youth organizations using AE programs across the nation

Outcomes Observed by Educators

from Survey Conducted in May 2023



80%

Teamwork

Reported improved teamwork

75%

Interest

Reported increased interest in aerospace/STEM

70%

Behavior

Reported improved behavior

62%

Test Scores

Reported improved standardized test scores

53%

Attendance

Reported improved attendance

CAP's aerospace education program serves two distinct audiences throughout the country with a commitment to provide equitable access to high quality aerospace/STEM resources: 1- Internal (cadets and adult squadron members) and 2- External (educators and K-12 students)

AE MISSION:

Inspire the next generation of aviation, space, and cyber leaders through STEM education.



"With CAP AE materials, students are able to apply book learning to physical components, which is more engaging and aids in much better retention. Students are excited about learning and their future!"

- Sarah Denson, Alaska

"The materials are highly engaging for students and easily adaptable to multiple grade levels and ability levels."

- Lisa Stewart, Illinois



FOR CAP CADETS AND SENIOR MEMBERS

Aerospace/STEM education is an essential component of the internal activities of CAP's squadron members. Every month, adult and cadet members join forces to embark on exciting aerospace/STEM adventures, supported by a wide range of resources such as engaging lessons, hands-on kits, materials, and the amazing programs offered by AE.

FOR YOUTH IN SCHOOLS AND COMMUNITIES

The external AE program offers a unique opportunity to share aerospace/STEM education with the general public, particularly formal and informal educators. The AE program boasts more than 5,600 CAP aerospace education members (AEMs) who are public, private, parochial, and home-school teachers, as well as staff in libraries, youth organizations, museums, and after-school programs. AEMs receive free educational materials, lesson plans, and ongoing support from the AE staff and members from the field.

"If we are to stay competitive as a nation, then we need to build a scientifically literate citizenry and a bank of highly skilled, STEM-literate employees."

-Smithsonian Science Education Center Staff, 2020

STEM KITS

Civil Air Patrol's Aerospace Education STEM Kit program provides STEM resources for hands-on, inquiry-based learning. The STEM Kit program has been providing a selection of STEM Kits to CAP members since January 2013 to help inspire and prepare over 2 million youth of the next generation's STEM workforce.

The kits come at no cost to recipients, are designed to enhance current CAP educational curriculum and programs, and are ready for immediate implementation. CAP squadron AE officers (or commanders), as well as CAP members who are educators, can select one kit at a time from the available options.

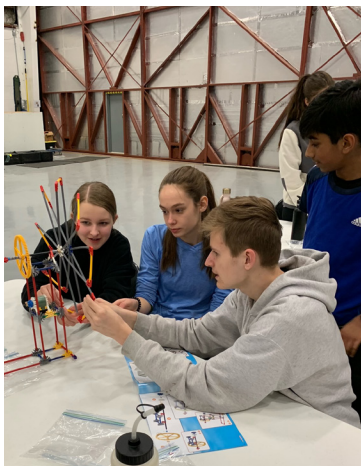


"The items our STEM lab has received over the past few years have given our 1,200 students access to engaging hands-on STEM activities they would otherwise not have experienced."

- Julie Skodack, Michigan

"The STEM Kits have improved and encouraged my son in those fields. He has now taken an interest in aviation as a career, which motivates him to do his schoolwork better than before."

- Maurietta Vargo, Ohio



FY23 STEM KIT IMPACT

4,700

Applications Filled

10,792

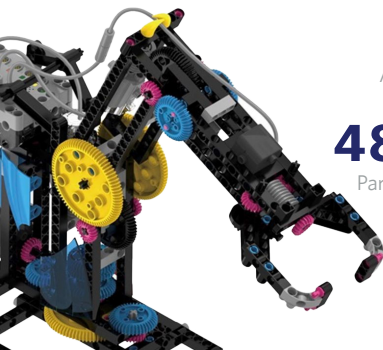
Kits Distributed

484,319

Participants Reached

43%

Increase from pre-test
to post-test scores
after using the STEM
Kit program



ACE PROGRAM



97,911

Students in FY23

607

Teachers

276

Title I Teachers

525

Total Schools

351

Public Schools

46

Wings

The Aerospace Connections in Education (ACE) program is a free, fun, interactive aerospace/STEM program used in formal and informal educational settings. The ACE program is designed to engage and inspire youth in grades K-6 toward an interest in aviation, space, and other STEM-related careers. Educators access grade-level appropriate online lesson plans that integrate the aerospace

theme to bolster academics, character building, and physical fitness, saving them hundreds of hours in planning. Associated class sets of student materials are provided to facilitate learning.





"The resources are an excellent fit for my middle school STEM program. These resources have brought my classes to the next level."

- Dianna Fiddler, Oklahoma

45%

of ACE Teachers
are Title I

SQUADRONS ADOPT CLASSROOMS

ACE Plus, an extension of the ACE program, invites squadrons to support teachers in the school system, specifically fifth grade and above. Adult and cadet squadron members join the classroom to conduct ACE and associated lessons for the students. Students are also introduced to the CAP cadet program and invited to visit, and potentially join the local cadet squadron.



8

Regions

22

Wings

28

Squadrons

29

Teachers

2,256

Students

TEACHER ORIENTATION PROGRAM

(TOP) FLIGHTS

One of the most exciting benefits of an AE membership is that it provides teachers across the country the opportunity to experience the wonders of aviation by taking a complimentary flight in a CAP airplane.

The Teacher Orientation Program (TOP) provides teachers the chance to fully immerse in the experience of flight and then share it with students back in the classroom.



381

Teachers took TOP Flights in FY23

5,775

Students had the opportunity to benefit from their teachers' TOP Flight experience, which included watching the teacher fly over the school, hearing from the CAP pilot, and engaging in follow-up lessons with their teacher (and possibly the pilot) after the flight



"What a wonderful experience and program. I feel so lucky to have been a part of it and look forward to sharing my experience more with my class."

- Megan Nandi, Washington

"This was a highlight experience of my professional career. The connections and lessons that I can make with this are already influencing my classroom activities. Thank you once again!"

- Jeremy Nathan Post, New Jersey



CAP CADETS

CAP's cadets are young leaders, ages 12 and above, who think seriously about their futures. They may not yet know exactly what they want to do in adult life, but they're test-flying potential careers in over 1,000 squadrons around the country. Thanks to CAP adult volunteers, cadets learn about the fundamentals of STEM, aviation, space, and cyber through classroom activities, self-study texts, encampments, and special summer cadet activities, as well as orientation flights and formal flight training. The CAP aerospace education program provides cadets with much of the curriculum and materials needed for their journey.



1,950

Total number of rocketry badges earned in FY23



HIGH-ALTITUDE BALLOON CHALLENGE

One of the special AE programs for cadets is the National High-Altitude Balloon Challenge, heading into its fourth year. In this national STEM competition, cadets research and design science experiments to test the effects of high altitudes on various items that could be used to support the quest to live and work in space. In FY23, almost **1,000 cadets** from **115 teams** participated, designing more than **1,000 experiments** for launching to the stratosphere in 50-milliliter test tubes on high-altitude weather balloons.



"I just want to thank you for putting this challenge together. My team has had a great time working on this. They've really learned a lot about the science behind our experiments and have formed a strong bond in the process. I hope that we are able to do this, or a similar challenge, again."

- Capt. Leslie Kneipfer, aerospace education officer,
Bridgewater State University Composite Squadron, Massachusetts Wing



For more information on AE STEM curriculum, products, or programs or becoming a CAP volunteer, contact: ae@capnhq.gov

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Special thanks to CAP volunteer members for their
tremendous support and efforts.