



ALASKA WING HEADQUARTERS
CIVIL AIR PATROL
United States Air Force Auxiliary
P.O. Box 6014
Joint Base Elmendorf-Richardson, AK 99506-6014

12 February 2020

RE: AK Civil Air Patrol Aerospace Education Membership and FREE STEM kits

As an educator, school, homeschool, library, museum, or youth organization, Civil Air Patrol has programs to assist you in teaching ordinary subjects in an extraordinary way, no matter what grade you teach! Our Aerospace Education Officers are enthusiastic to visit your school or organization and present how Civil Air Patrol Aerospace Education Membership can benefit educators and support students by bringing stimulating new ideas to your classrooms. Joining is quick and easy! A \$35 **one-time** membership fee brings all of CAP's **FREE** curricula and classroom materials, **18 FREE STEM kits, teacher orientation flights in CAP planes**, and much more directly to you.

CAP & Aerospace Education Officers Offer

- ✈ School Business Partnerships
- ✈ Classroom presentations
- ✈ Field trips
- ✈ STEM activities and workshops
- ✈ Aerospace Education Membership Presentations & Educator Workshops
- ✈ Professional Development training ways to utilize the STEM kits in other subjects

. With the unique geographical separation of Alaskan schools, CAP Aerospace Education Officers have the capacity to travel to remote locations to deliver the same aerospace education presentations as those schools positioned on the road system.

Aerospace Education Member Benefits

- ✈ Aerospace Connections in Education (ACE) Programs
 - o A free, cross-curricular, grade-specific program for grades K-6 including participation certificates
- ✈ STEM Kit Program
 - o A program that delivers **FREE STEM Kits** to our Aerospace Education members to use in their classrooms, libraries or youth group meetings. Choose from 18 different subject area kits ranging from rocketry to computer programming and so much more.
- ✈ Aerospace Education Excellence (AEX) Award Program
 - o AEX is a free K-12 hands-on aerospace program with completion and student certificates
- ✈ TOP Flights
 - o Free program that allows our valued educators to get "out of the classroom and into the skies" to learn about aviation principles and how to integrate these in the learning environment for youth.

CAP offers support along with news, successes and best practices, and the latest in available grants and STEM kits on our Facebook/AlaskaAEM page. Teachers who regularly practice aerospace education in their classrooms are eligible to receive national awards for excellence in the field. As an educator, you can also benefit from CAP by familiarizing your older students to the CAP cadet program. This multi-step training gives young men and women an opportunity to do meaningful volunteer work while developing valuable leadership and technical skills, physical fitness, personal responsibility and moral values.

If you have questions, regarding the Civil Air Patrol Aerospace Education Membership, programs, or to schedule a school presentation, field trip, or visit, please contact me directly at Lynda.macpherson@akwg.cap.gov or 907-240-7888. I look forward to hearing from you and scheduling a visit to your school or organization.

Respectfully,

LYNDA MACPHERSON, 1st Lt., CAP
Alaska Wing Director of Aerospace Education



Aerospace Education Membership (AEM) Application

(Please print clearly)

Last Name _____ First _____ MI _____
DOB _____ Gender _____
Address _____
City _____ State _____ Zip Code _____
Primary E-mail (Not school email) _____
Secondary E-mail _____
Day Phone _____

BACKGROUND: Yes or No

• Are you a citizen of the United States? _____

• Have you ever been convicted of a felony? _____

*Do you have prior Military Service? _____

If yes: ☐ Retired **OR** ☐ Honorable Discharge

• Are you **currently** charged with any felony? _____

EMPLOYMENT: ___ Teacher ___ Counselor ___ Principal ___ Superintendent ___ Other

CLASSROOM: ___ PreK-Grade 2 ___ Grades 3-5 ___ Grades 6-9 ___ Grades 10-12 ___ Other

INSTRUCTIONAL AREA: ___ Science ___ Math ___ Social Studies ___ Language Arts
___ Aerospace Education ___ JROTC ___ Other ___ Not Applicable

SCHOOL NAME: _____

SIGNATURE OF APPLICANT

DATE

SOCIAL SECURITY NO. (LAST 4)

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Membership commences on the date processed by National Headquarters and the individual's name appears on the National Headquarters database.

\$35 MEMBERSHIP DUES

Select payment option below:

- ☐ Check - payable to Civil Air Patrol NHQ
☐ Credit card - complete the following information:
☐ Visa ☐ Master Card ☐ Discover

Credit Card Number _____

Expiration Date _____ Security Code _____

Daytime Telephone _____ Email _____

Name as it appears on credit card _____

Signature of credit card holder _____

SEND TO:

CIVIL AIR PATROL / AE
Aerospace Education Membership
105 S. Hansell St.
Maxwell AFB, AL 36112-6332
FAX: (334) 953-6891
E-mail: ae@capnhq.gov
(send scanned, completed application as attachment)

For CAP NHO use only!

NAT CC/DESIGNEE: INITIAL / DATE _____

Special Application Number 021507

AEROSPACE EDUCATION EXCELLENCE (AEX)

The Civil Air Patrol offers a very popular free program to its members that involves engaging and interesting hands-on aviation and space-related STEM activities conducted in schools, youth organizations, community events, or museums. It is called "Aerospace Education EXcellence," or, simply AEX.

The requirements for full implementation are simple:

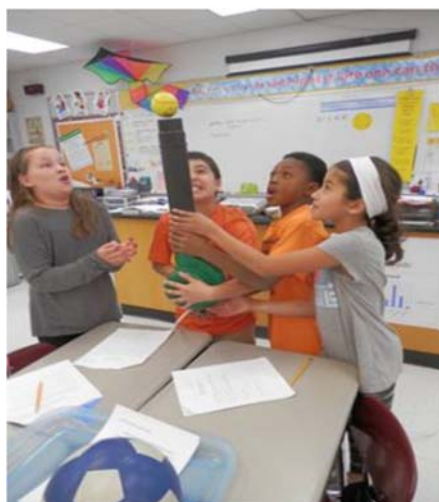
- (1) Complete any six aerospace and/or STEM activities
- (2) Complete a two-hour or longer field experience * (space day, rocket, hot air balloon, or airplane launches, trip to the airport or an aerospace museum, etc.).
- (3) Completion of the above requirements earns a teacher certificate plus color certificates for all students involved.

The activities are designed to fit into any curriculum. Schools' state-approved curriculum may replace or supplement the AEX activities created for this program. (Lesson plans for any supplemental activities need to be attached to final reporting form.) AEX program activities should take place from Oct. 1 - Sept. 30 of each year.

All of the activities featured in AEX I (Volumes 1 and 2) (grades K-5) or AEX II (Volumes 1 and 2) (grades 6-12), as well as new AEX books: Middle School Physical Science; Middle School Earth Science; Model and Remote Controlled Aircraft; Astronomy; Advanced Math; Robotics; and more are very "instructor-friendly" and involve readily available, low-cost materials.

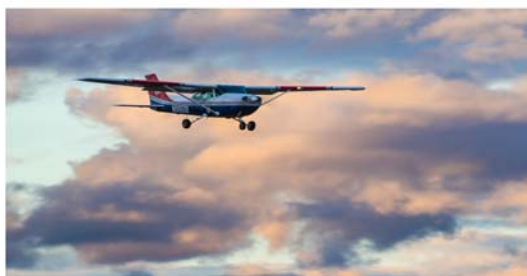
When you are ready to enter your AEX activities, go to eService's at www.capnhq.gov and click "AEX." Then, click "AEX Award Report." You may enter the AEX activities as each one is finished, or you may wait until all activities are completed. This must be done no later than Sept. 30 for the past year. You should submit your completion report at least 3 weeks prior to the date you plan to distribute student certificates!

*** In the event that you do not fully complete the requirements for successful completion of the AEX Program, no notification is necessary. Simply register again during the next school year, and try again!



CIVIL AIR PATROL **AEROSPACE EDUCATION EXCELLENCE PROGRAM** **2019-2020**

For outstanding achievement in CAP's Aerospace Education Excellence Award Program



PRESENTED TO

STUDENT

TEACHER

SCHOOL

DATE

STARFINDER HOLDER

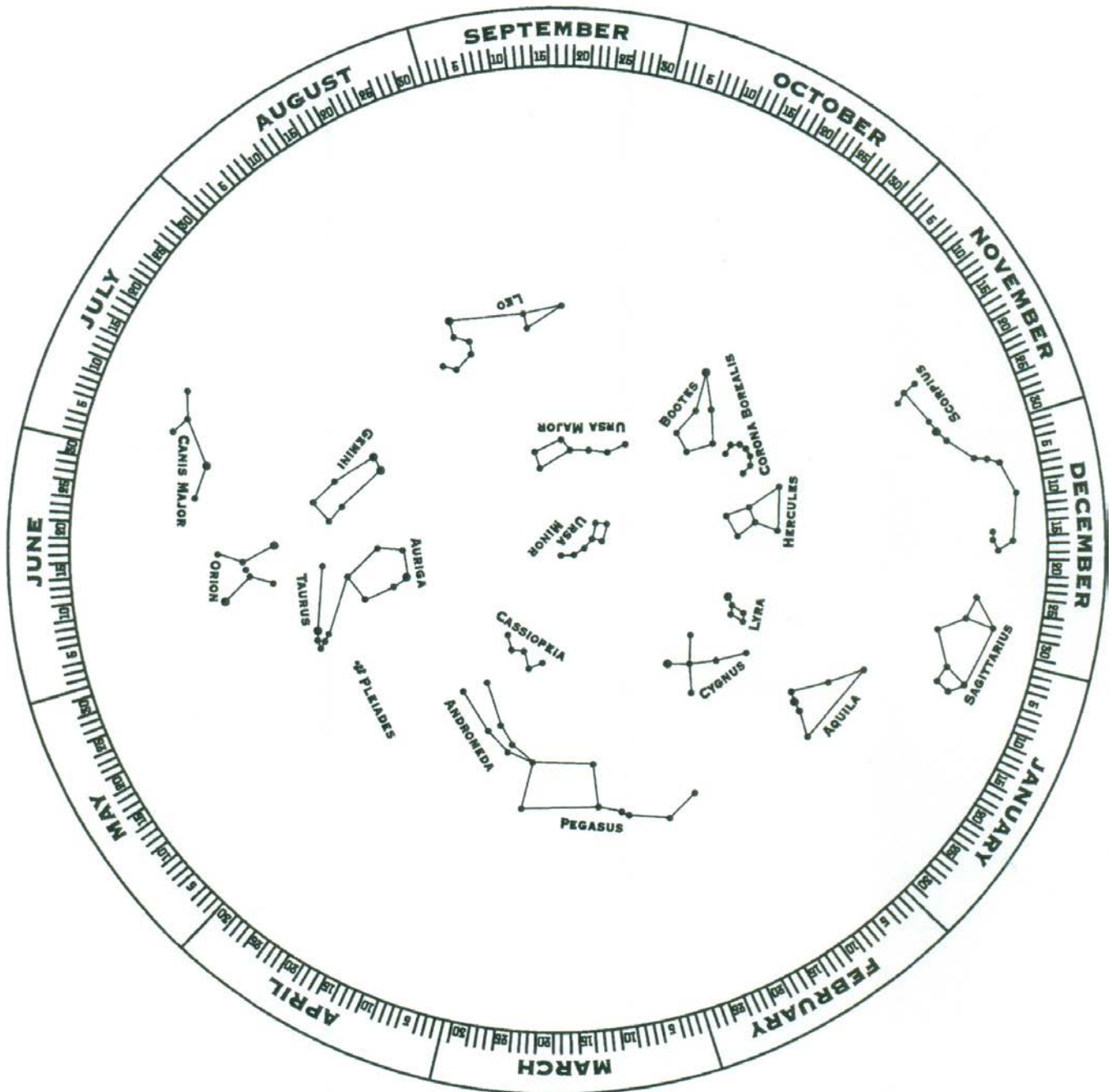


Starfinder Holder Backing



STAR WHEEL

SIMPLE STAR FIELD

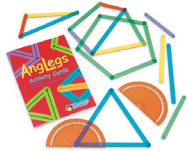




Civil Air Patrol/Aerospace Education Member's STEM Kit Program



AVIATION



AngLegs



**Build &
Learn
Geometry**



**Cross
Country
Navigation**



**Flight
Simulator**



Quadcopter



**Ready To
Fly Quads**



**Remote-
Controlled
Aircraft**



Snaptricity

SPACE



Astronomy



**Hydraulic
Engineering**



**Renewable
Energy**



Robotics



Rocketry



**Weather
Station**

CYBER



**Bee-Bot/
Code & Go
Mouse**



Kano



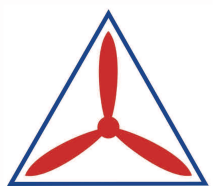
Raspberry Pi



**Sphero Mini/
Sphero SPRK+**



**Virtual Reality
Goggles**



CIVIL AIR PATROL

Aerospace Education's



ACE

K-6 STEM program



The free **Aerospace Connections in Education (ACE)** program is a fun, interactive aerospace/STEM program for CAP educator members who teach grades K-6. ACE is designed to engage and inspire early-aged youth toward an interest in aviation, space, and other STEM-related careers.



Quick Points

1. The free curriculum guides are grade-level specific with 21+ lessons per guide and aligned with NGSS and other national academic standards.
2. Each ACE teacher receives free educational manipulatives for each student participant.
3. End-of-program ACE certificates are provided for each teacher and all students.
4. Easy online registration opens August 1st each year.
5. Have a K-8th grade school? We can work with you for grades 7-8!



Aerospace

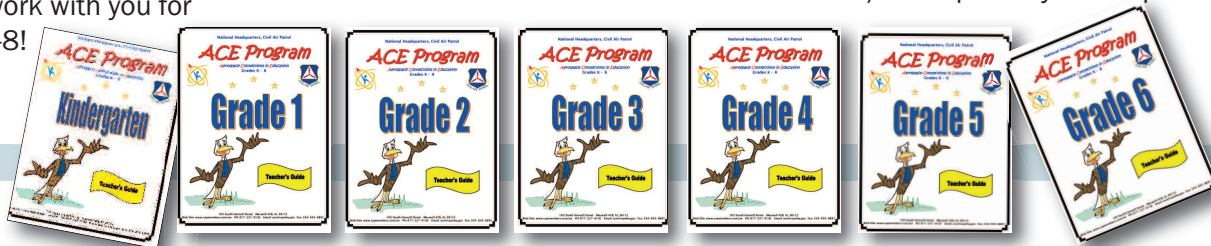
CAP uses the aerospace theme to introduce young learners to air and space flight and the related reading, art, history, and STEM concepts involved. Students are each given a grade-appropriate educational tool to use and keep to learn about and apply the principles of aerodynamics via easy-to-teach lessons.

Connections

Using the aerospace theme, the ACE program integrates 3 important educational components: *academics, character ed, and physical fitness*. In this cross-curricular program, students can connect content skills with real-life applications and positive adult and teen CAP role models.

in Education

After 10 years in action, this program has had stellar student-centered results, such as 27% increase in science thinking skills. 96% of ACE teachers agree that ACE fits well with skills/standards/concepts they are required to teach.



**Register YOUR students
as ACE students today!**

**Questions?
Contact ace@capnhq.gov**

NATIONAL SCIENCE STANDARDS

- Content Standard A: Science as Inquiry**
- Abilities necessary to do scientific inquiry
- Content Standard B: Physical Science**
- Position and motion of objects
- Content Standard E: Science and Technology**
- Abilities of technological design
- Unifying Concepts and Processes**
- Evidence, models, and explanation

CREDIT

This wonderful activity was taken from the "Energy and Control - Energy From Wind and Water" by the Quinte School Group, WOW Science Initiative- May 2001.

Related web sites:

<http://www.jameshovercraft.co.uk/Frames/index.htm>
<http://www.hoverclubofamerica.org/>

MATERIALS

1. A toy balloon
2. A pop-up lid from a water bottle
3. A hot glue gun
4. A used CD

PROCEDURE

1. The pop-up lid is hot-glued to the CD. Be sure that your glue is applied only to the perimeter of the lid and that you make a good air-tight seal to the CD.
2. Make sure the lid is in the closed position.
3. Install the balloon onto the bottle lid.
4. Inflate the balloon from the opposite side after opening the sliding lid seal; once full, seal.
5. Try sliding the balloon along and you will notice a resistance to movement.
6. Now carefully release the lid sealer and let the air flow through the CD. You will notice the little hovercraft starts to move.
7. Blow the balloon up again and when the pressure is released, flick it with your finger and you will be amazed to see it glide away.
8. Variations on this project include a larger balloon and various surfaces.
9. Fun Stuff!



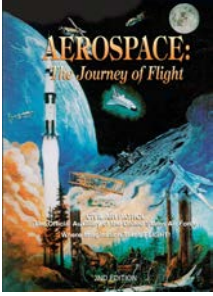
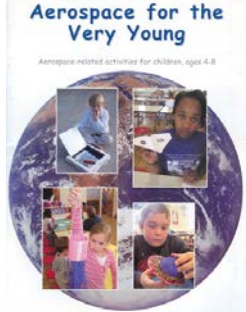
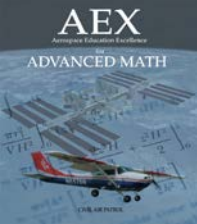
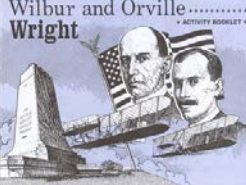
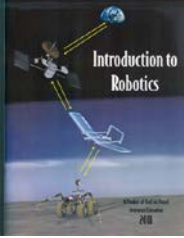
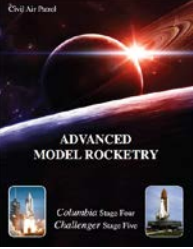
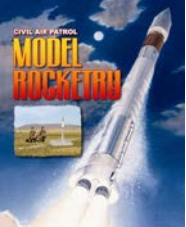
Civil Air Patrol Aerospace and STEM Education Products

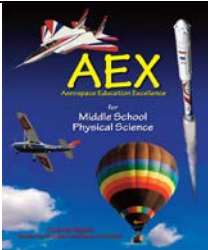
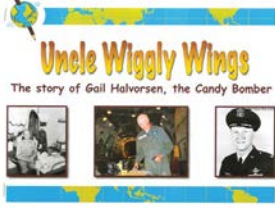
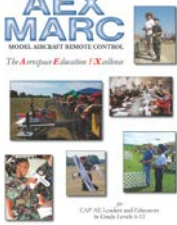
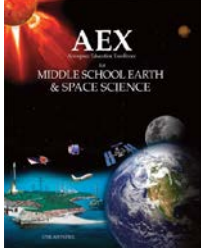
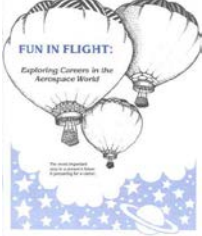
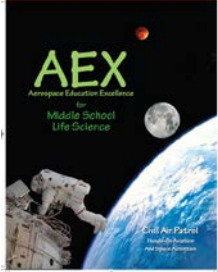
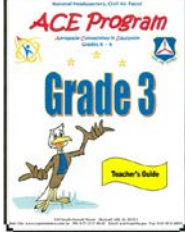
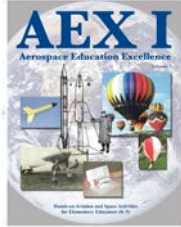
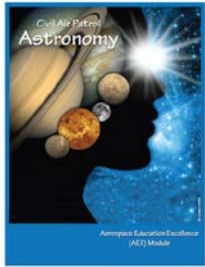
Available with CAP membership in print and/or online (in CAP's eServices AE Download Section)

Other aerospace/STEM online resources, to include a STEM Career Module, are found at

www.capmembers.com/ae



 Aerospace: The Journey of Flight (Textbook with Teachers Guide) Grades 9-College	 Aerospace Dimensions (Six Modules & Teachers Guide) Grades 6-9	 Aerospace for the Very Young Grades K-3
 AEX- Advanced Aerospace Math Grades 10-college	 Wright Brothers Thematic Unit Grades 4-9	 Wright Brothers Activity Book Grades K-3
 Robotics Grades 6-12	 Amelia Earhart Thematic Unit Grades 4-9	 Amelia Earhart Activity Book Grades K-3
 Advanced Model Rocketry Grades 6-12	 Model Rocketry Grades 6-9	 4 in 1 Activity Books (Two books) Grades K-3

 UNMANNED AERIAL VEHICLES (UAVs) ACTIVITY BOOKLET <i>Aerospace Education Excellence</i> The Aerospace Education Excellence Series Unmanned Aerial Vehicles Grades 6-12	 AEX Aerospace Education Excellence For Middle School Physical Science AEX- Middle School Physical Science Grades 6-9	 Uncle Wiggly Wings The story of Gail Halvorsen, the Candy Bomber Uncle Wiggly Wings (The Candy Bomber from WWII) Activity Book Grades K-3
 AEX MARC MODEL AIRCRAFT & REMOTE CONTROL <i>The Aerospace Education Excellence Series</i> CAP All Levels and Educators in Grades Levels K-12 Model Aircraft & Remote Control (MARC) Vols 1 & 2 Grades 6-12	 AEX Aerospace Education Excellence MIDDLE SCHOOL EARTH & SPACE SCIENCE AEX- Middle School Earth & Space Science Grades 6-9	 FUN IN FLIGHT: Exploring Careers in the Aerospace World Fun in Flight- Aerospace Careers Grades K-3
 CAP-TERS Civil Air Patrol - Teachers Educational Remote Sensing PROGRAM www.capmembers.com/ae CAP-TERS CD CAP Teaching Educational Remote Sensing Grades 6-12	 AEX Aerospace Education Excellence For Middle School Life Science Civil Air Patrol Special Activities For Educators AEX- Middle School Life Science Grades 6-9	 ACE Program Aerospace Connections in Education Grade 3 Teacher's Guide Aerospace Connections in Education (ACE) 7 Separate Grade Level Curriculum Guides Grades K-6
 AEX II Aerospace Education Excellence Adult Module For Aerospace Activities Aerospace Education Excellence (AEX) 5 Volumes (I, II & Adult) Grades 6-12 & Adult	 The International Space Station A Thematic Unit of Instructional Resources A NASA Program Developed by the International Space Station Education Working Group International Space Station Thematic Unit Grades 6-9	 AEX I Aerospace Education Excellence Grades K-5 Aerospace Education Excellence (AEX) 4 Volumes (I & II) Grades K-5
 CIVIL AIR PATROL - SATELLITE TOOLKIT CAP-TERS AEROSPACE PROGRAM CAP All Levels and Educators in Grades Levels K-12 Systems Tool Kit CD, Instructions, and Activities Grades 6-12	 WOMEN IN AVIATION PARTNERS IN AEROSPACE & STEM EDUCATION Women in Aviation Historical Booklet, Vol I Grades 6-12	 Civil Air Patrol Astronomy Aerospace Education Excellence (AEX) Module Astronomy Module and Astronomy Activity Book Grades 5-12

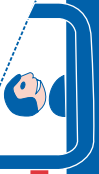
www.gocivilairpatrol.com



GAP



WHERE IMAGINATION TAKES FLIGHT



WHERE IMAGINATION TAKES FLIGHT

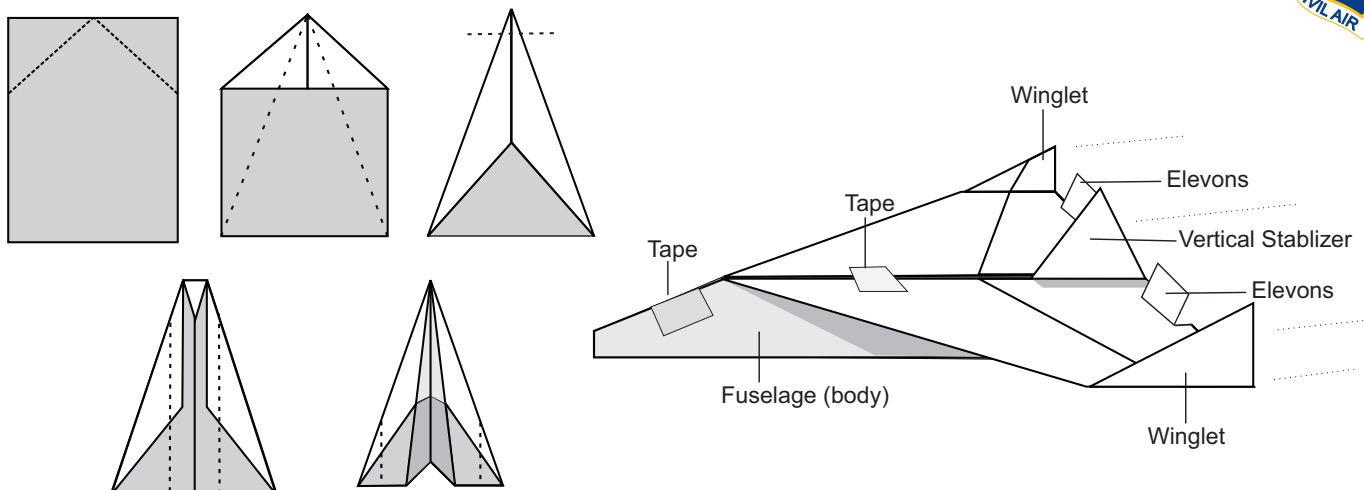


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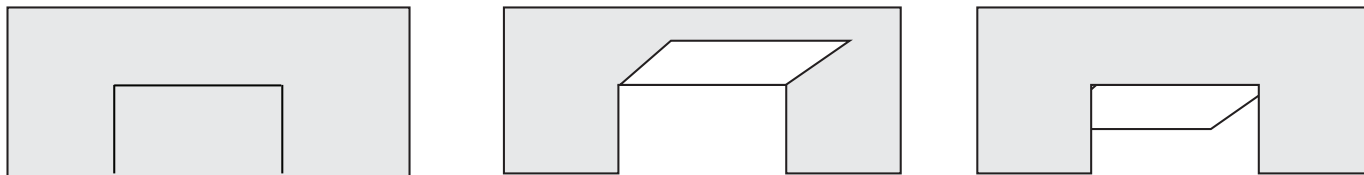
GAP

AIRPLANE FOLDING INSTRUCTIONS



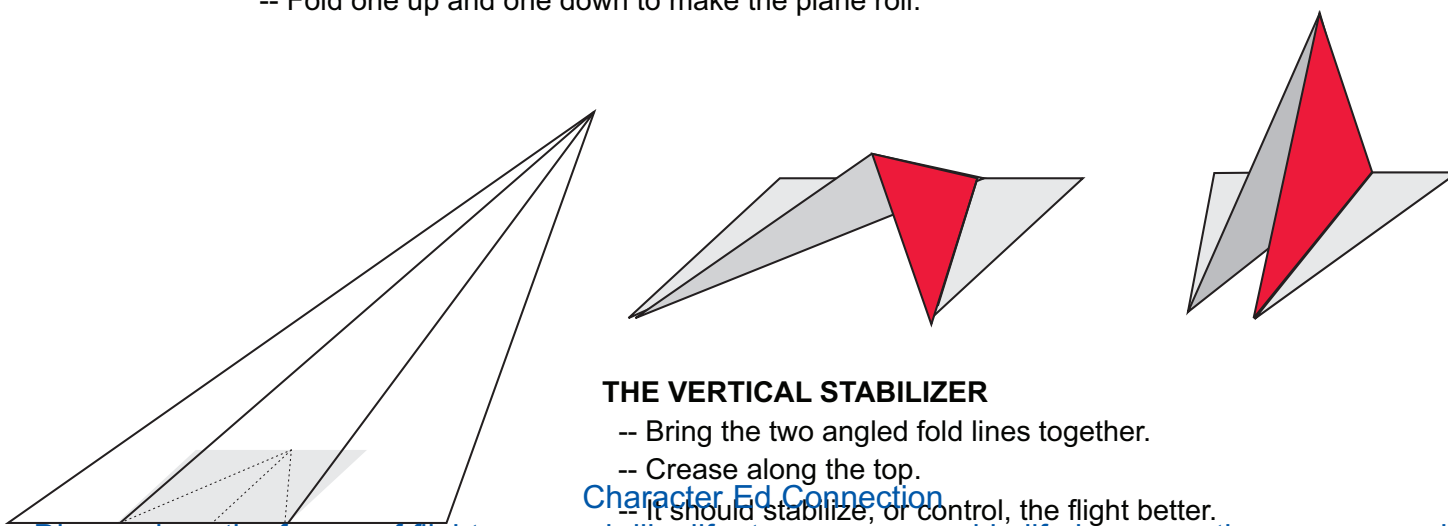
THE PLANE

- Flip the paper over so that the printed fold lines are facing down.
- Fold the top corners along the outside fold lines and crease down. Repeat for the next set of folds.
- Fold the nose back, as shown.
- Fold along the center line so the lines and graphics are on the outside.
- Fold down each wing and fold up the corner flaps.
- Tape together nose, wing and fuselage for optimum performance.
- Throw smoothly.



THE ADJUSTABLE ELEVONS

- Cut on sides, as shown.
- Fold up to make the plane rise...fold down to make the plane drop.
- Fold one up and one down to make the plane roll.



THE VERTICAL STABILIZER

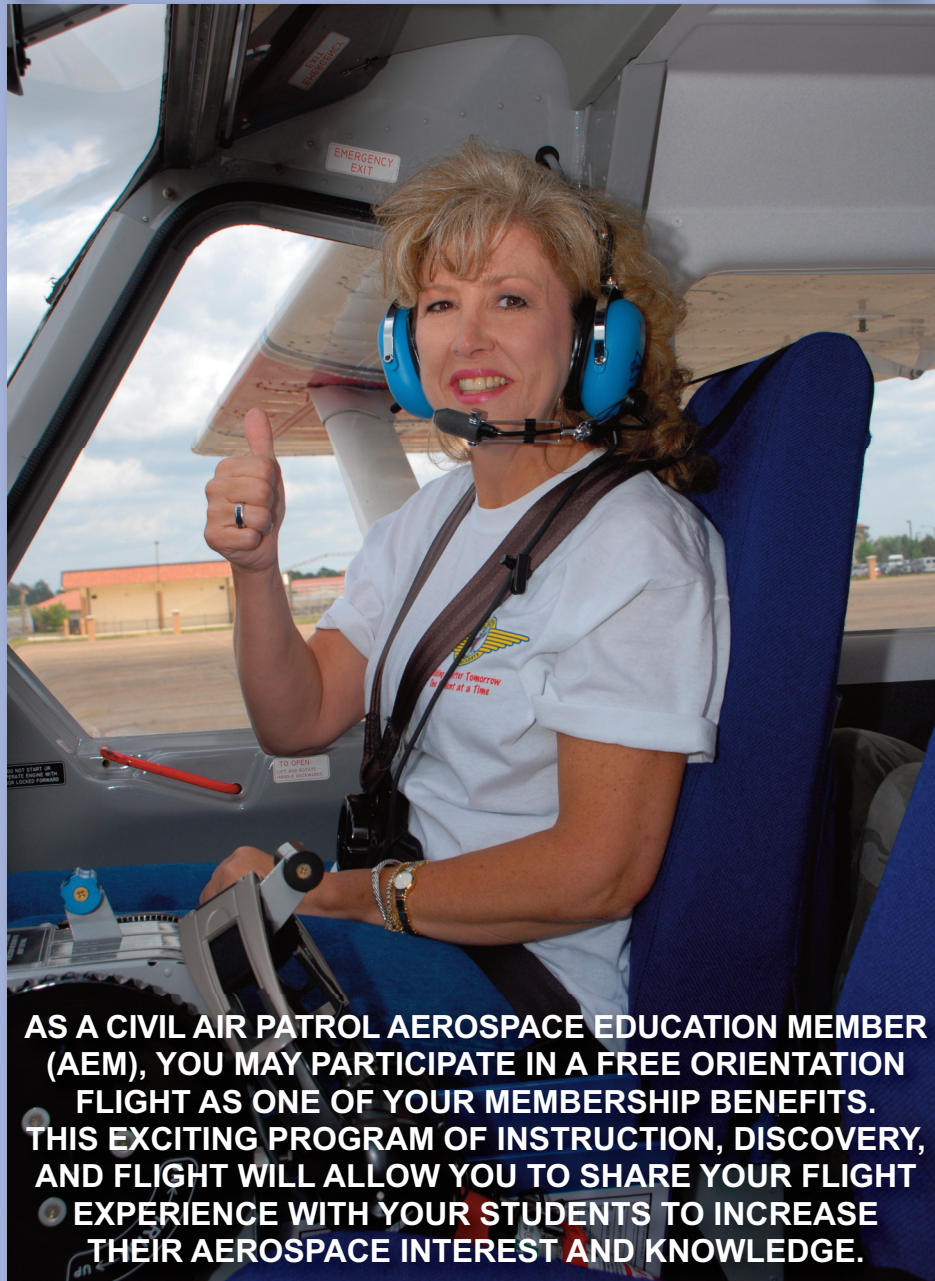
- Bring the two angled fold lines together.
- Crease along the top.
- It should stabilize, or control, the flight better.

Discuss how the forces of flight are much like life: to move upward in life in a smooth manner, one has to keep all positive forces in good balance; not allowing negative forces to gain control. Aim high!

For more AE lessons and materials go to: www.capmembers.com/ae

CAP EDUCATORS!

Experience TOP Flights



AS A CIVIL AIR PATROL AEROSPACE EDUCATION MEMBER (AEM), YOU MAY PARTICIPATE IN A FREE ORIENTATION FLIGHT AS ONE OF YOUR MEMBERSHIP BENEFITS. THIS EXCITING PROGRAM OF INSTRUCTION, DISCOVERY, AND FLIGHT WILL ALLOW YOU TO SHARE YOUR FLIGHT EXPERIENCE WITH YOUR STUDENTS TO INCREASE THEIR AEROSPACE INTEREST AND KNOWLEDGE.

To arrange your Teacher Orientation Program Flights, please contact Aerospace Education at ae@capnhq.gov. We will then locate the coordinator in your state and that person will contact you for a time and location for your flight. But...it is more fun to fly with a friend!

Encourage one of your peers to join CAP with you and you can fly together.

The BEST experience is with several members of your school or school system joining together and planning a fun-filled TOP Flights Day! All participants must be CAP members.

For more information, please go to our website at www.capmembers.com/ae.