

Civil Air Patrol

Aerospace Education

Teacher Orientation Program (TOP) Flight Guide



*Out of the classroom;
Into the sky!*

Overview

Teacher Orientation Program (TOP) Flights provide the opportunity for CAP Aerospace Education Members (AEMs) or other CAP educator members to experience orientation flights in CAP aircraft at their local airports. Any educator member of CAP (AEMs or Sr Members who are educators) can receive these orientation flights as a part of their membership benefits. Educators can receive one TOP Flight per year- powered or glider (where available), or, in the very few locations, hot air balloon.

[TOP Flight certificates](#) are available at the end of this guide, and, on the [TOP Flight webpage](#). Printing and presenting these certificates, with photos with the pilot, makes the experience an even more special one.



The excitement and enthusiasm for the program is evident. Some of the responses from past participants:

"I found this flight experience engaging, well planned, and inspiring. I learned about all the parts of the airplane and how it works in flight. I even got to fly the plane!"

"The flight opportunity that was given to me was unbelievable!. My students were able to watch my flight from the school grounds. They loved my video when I returned!"

"I can't wait to bring what I learned back into my classroom to my students! I can connect all areas of STEM to this flight experience!"

"Thank you very much for making this possible for teachers! This is an experience like no other!"

"I loved my pilot! He was amazing and taught me so much. The flight would not have been so beneficial without his expertise and guidance!"

The Wing Point of Contact (PoC)

The TOP Flight PoC in each Wing is the Wing Director of Aerospace Education (DAE). Teachers are directed to contact their Wing DAE (Wing DAE Contact List found [HERE](#)) to begin coordination of the flight. The Wing DAE coordinates each flight request with the Wing Director of Operations and/or his/her designee.

*** If unit AEOs or others in a Wing are contacted by a teacher about a TOP Flight, the Wing DAE should be copied on coordination efforts for the DAE's records.

*** If the Wing DAE has a designee (such as Asst DAE for External Programs), all e-mail coordination should copy both of these persons to ensure the request is handled in a timely manner.

*** If a school leader or a teacher workshop leader requests TOP Flights for a group of teachers, the Wing DAE is responsible for helping to coordinate an associated workshop. [More details about the workshop experience follows in this guide.](#)

Wing DAEs should:

1. Seek/confirm Wing Commander's approval for TOP Flights to be conducted at the beginning of each Fiscal Year (or, as is appropriate and/or needed).
2. Stay in contact with Wing DO about upcoming TOP Flights to determine the best way to coordinate between the DAE and Ops team-- which arranges planes and pilots for these flights. (Ops team also enters missions in WMIRS- [more info to follow.](#))
3. Recruit TOP Flight participants:
 - a. Communicate the opportunity with the current AEMs in the Wing.
 - b. Encourage AEOs to initiate program in their area.
 - c. Visit/contact local schools and/or encourage AEOs to visit/contact local schools to recruit new AEMs to participate in program.
4. Post any promotional program information or announcements electronically on the Wing web page, newsletters or social media sites, or, at local schools. [\(TOP Flight Info flier follows.\)](#)
5. Maintain a record of TOP Flight participation each fiscal year with a Wing TOP Flight Spreadsheet to:
 - a. provide Wing Commander TOP Flight updates, and
 - b. utilize for continued AEM promotion & follow up of program.

Planning the Flight(s)

1. Determine how many teachers will fly. (Try to fly two at a time, if at all possible. If not, flying only one teacher is acceptable, but not the preferred practice.)
2. Plan the number of planes and pilots needed, as is determined by how many teachers and how long in the day they are to fly. If only one plane/pilot is available, it is best to schedule two teachers at a time to come to the airport every 1.5 hours. This will reduce any wait time for the teachers. If there is an optional workshop being conducted, all can come and participate in learning activities until their time to fly. If there are more planes/pilots, plan accordingly.
3. If there is a large number of teachers to fly, planning WELL in advance is mandatory to ensure a workshop and enough planes/pilots are scheduled for the day(s). **(See sample workshop plans further in this guide.)**
 - a. Ask for assistants to help with instruction of the workshop and for any other assistance that is needed to ensure a professional experience is had by all.
 - b. If a tour of the airport is a part of the workshop, ensure all coordination is preplanned for smoothly run tours.
 - c. Enlist the help of others to take photos and help with refreshments, media coverage, or signing certificates, etc.
 - d. If desired, have one CAP member in charge of the safety briefing and/or the pre-flight briefing. As many persons as can help will improve the overall experience.



4. Ensure teachers' CAP ID#s are current or they cannot fly. Have the teachers bring either their CAP Membership card OR a photo ID that will match the CAP ID info in eServices.
5. Instruct teachers on what to bring and what to expect for the flight experience. Refer to the TOP Flight FAQs found mid page [HERE](#).

Flight Day

1. Prepare for the day of flight(s) by having teachers' certificates printed; someone assigned to take photos; comfortable indoor seating/accommodations; refreshments (water, crackers, mints); and activities, tours, or aviation videos to fill participant "wait time."
2. Present a professional and congenial image. Any of the authorized CAP uniforms may be worn by CAP members. **(NOTE: Teachers do not have a CAP uniform, so they can wear any comfortable clothes & closed-toed shoes.)**
3. Stress safety and adequately prepare teachers for their flights to alleviate any nervousness.
4. CAP would like every TOP Flight participant to have a positive, fun, and educational experience. Thus, as stated before, it is important that an orientation session is conducted prior to the actual flights. Such topics as airplane parts (and purposes of each), fuel topics (tank location, mph, etc.), safety issues, classroom STEM topic relevance, benefits of aerial photography, etc. could be discussed to maximize benefits of this experience.
5. Discuss with the teachers where they will fly, to include planning to fly over their schools and community, if at all possible, to make the flight more personal and relevant for them.
6. If possible, have a CAP Flight Simulator from the STEM Kit program available for the teachers to work on prior to their flight. It will bring some confidence if and when the teacher gets to take the yoke and fly the plane. (Which they want to do!)



7. At the end of the flight, ensure the [certificate](#) is signed by the pilot and presented to the teacher in front of the plane (with a photo).
8. Before the teachers depart, have them complete the [TOP Flight evaluation form](#). Submit their forms to ae@capnhq.gov.



Why conduct TOP Flights?

- To connect CAP units with area teachers (and, their students).
- To provide teachers exciting professional experiences and relevant aviation-related STEM knowledge that can be transferred directly to classroom STEM content areas.
- To foster student interest in aviation-related STEM careers via the teachers' shared experiences.
- To share an appreciation for Civil Air Patrol's missions for America.

BEST PRACTICES:

The [ALWing](#) has a special [O'flight page](#) on their website. This is used to request pilots and aircraft for O'flights for CAP cadets, USAF JROTC and ROTC cadets, and educator members of CAP. In the related links section of that page is a [Request Form](#) for use. These requests go directly to someone who works with the DO in the AL Wing and who can then push out the requests to Ops where flights are planned most efficiently.

This could be replicated in other Wings.
Please share other BEST PRACTICES with ae@capnhq.gov.

Since Feb 2019, TOP Flights are USAF A Missions (vs the C Missions of the past). This allows any pilot approved for Cadet O'flights to also be approved for TOP Flights.

Using the [Cadet O'flight Program Guide](#) is an excellent way to maximize the TOP Flights!

Offer teachers either powered or non-powered flights where gliders are available.



Can teachers take control of the airplane?

As part of the overall educational flight experience, it is beneficial for the pilot to provide flight control surface instructions and follow with allowing the teacher to control airplane's movement under his/her hand on the yoke and/or pedals. Involving the teacher in the entire flight process will ensure better transfer of knowledge to students.

Length of TOP Flights:

When flying one teacher, the flight can last between 30-45 minutes, up to an hour, if needed. (Not more than an hour.)

When flying two teachers at a time, the "time in air" should be one hour total. The flight should be planned as two sorties, 30 minutes in flight time each. Start with one teacher in front seat for first sortie; then, land, switch seats, and return to home base for second sortie. This gives both teachers the opportunity to see the cockpit operations and take the yoke, if desired and appropriate.





Civil Air Patrol ~ Aerospace Education
Teacher Orientation Program Flights



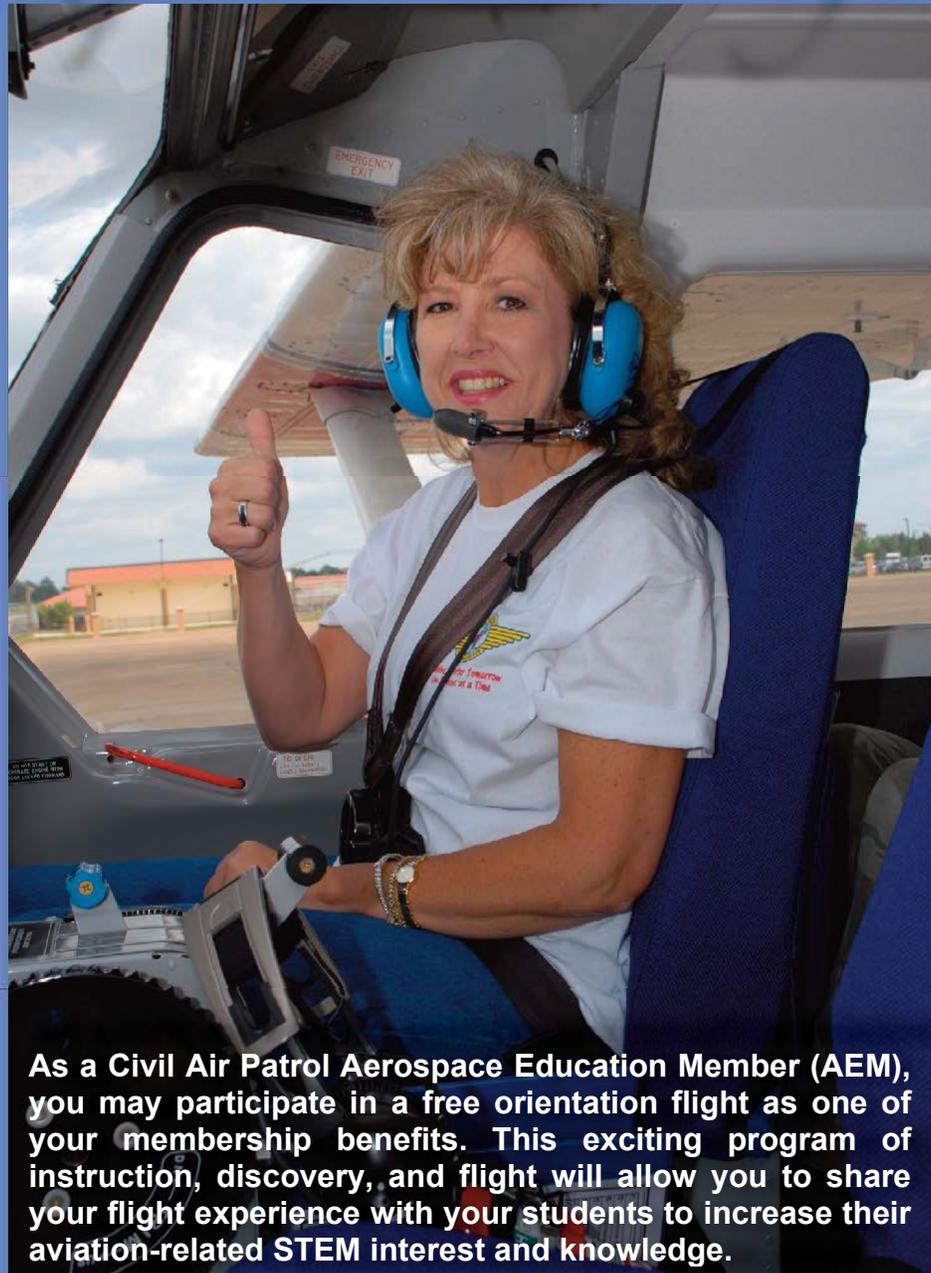
Attachments and Resources

1. Educator TOP Flight Recruitment Flier
2. WMIRS Instructions
3. Evaluation Form
4. Sample Pre-flight Lesson Plan Procedure
5. Sample Schedules for TOP Flights and, if appropriate, Associated Workshop
6. TOP Flight Certificate



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 aviation-related STEM interest and knowledge.

To arrange your Teacher Orientation Program Flight, please contact ae@capnhq.gov. You will be connected with your state's Director of Aerospace Education to then coordinate with the Operations team in your state to locate a pilot and plane to fly you at your closest airport!

It is more fun to fly with a friend, so, 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 Flight Day! All participants must be CAP members. Contact ae@capnhq.gov for more information.



Civil Air Patrol ~ Aerospace Education Teacher Orientation Program Flights



WMIRS Instructions for Teacher Orientation Program (TOP) Flights

1. The Wing DAE should develop/maintain a working relationship with the Wing DO and/or designee and give all pertinent information for a WMIRS Mission TOP Flight Request to be entered in eServices.
 - a. A WMIRS TOP Flight mission request can be entered for one day's flight(s)- or for a month or longer- depending on the Wing's preference.
 - b. If funding becomes an issue, the Wing DAEs will be informed by NHQ/AE to have the mission closed. (Otherwise, funding is open for flying, so, FLY!)
2. Entering a WMIRS New Mission Request (**only enter what is NOT designated for NOC to enter**):
 - a. **Training Mission** should be checked.
 - b. **Requesting Wing** should be entered.
 - c. **Mission Name** can be a specific school or teacher name, or simply TOP Flights.
 - d. **Description** should list how many teachers at one location OR can be an open TOP Flight mission description for multiple sorties in coming weeks or months.
 - e. **Training Request** is Teacher Orientation Program.
 - f. **Mission Start and End Dates** can be for a few days; a few weeks; or, a few months. (Ensure mission back-up start and end dates are also entered.)
 - g. **Estimated Expenses** should be entered as is predicted or known, if possible.
 - h. **Mission Scenario** should indicate as detailed information as is needed or desired in the Wing to designate flights, expenses, or extended dates for flights.
 - i. **Number of Non-CAP Crew/Personnel** should be "0" for TOP Flights unless a special designation has been approved by CAP NHQ/DO, as all teachers flying should be Aerospace Education Members or other teacher members of CAP.
 - j. **Customer Information** should be CAP as Agency; name of entering person as POC, e-mail address, and contact phone #.
3. Once the mission request is entered, the National Operations Center (NOC) or CAP NHQ/AE will update the mission with appropriate funding source and mission symbol.
 - a. After this update, the mission will be ready for Wing Coordination. (Wing CC, or designee, will be automatically notified of this pending status needing attention.)
 - b. After Wing Coordination, the mission will be ready for CAP-USAF Liaison Region approval. (CAP-USAF Liaison Region will be auto-notified of this pending status.)
 - c. Once all approvals are ready, the mission will be ready for DO/pilots to enter sorties.
 - d. Each mission will have sorties for each take-off and landing.
4. Questions or concerns should be directed to the NOC. (OPSCenter@capnhq.gov)
5. Prior to, or, at the completion of the mission, the original requester goes back into WMIRS and completes the form with all relevant data, including the names of the educators who flew.



Civil Air Patrol ~ Aerospace Education
Teacher Orientation Program Flights



Teacher Evaluation

(Have teacher complete this prior to providing certificate at the end of the flight.)

On a scale of 1-5 (with 5 being the highest):

1. How would you rate this experience? _____
2. How would you rate the usefulness of this experience to you as a teacher? _____
3. How likely is this experience going to help you connect aviation-related STEM topics to the subjects you teach? _____
4. How likely is your experience, when shared with students, going to increase interest in aviation or related STEM careers? _____

Select all subjects can you connect to this flight when you get back to your students.

Science Technology Engineering Math Geography
 Reading Language Arts/Communication Other? _____

In what state did you take your flight? _____ Do you work with Title I students? _____

How many students do you work with who can benefit from your experience? _____

Did you fly over your school? _____

How will you share this experience with your students? _____

Do you plan to invite your pilot or another CAP pilot to speak to your students? _____

Add any other comments you desire. _____

Please save and submit this form to ae@capnhq.gov. Add photos, video, and/or comments to the e-mail you send and we could possibly post you and your comments on our [CAP Aerospace Facebook page!](#) (@CAPAerospace)



Civil Air Patrol ~ Aerospace Education —Teacher Orientation Program Flights—



Sample Pre-flight Lesson Plan for TOP Flights

Objective: Participants will learn procedures for pre-flight inspection, and, learn about the control surfaces of airplane, the use of flight controls and instruments in cockpit during flight, aerial photography as a teaching tool, and other subjects dealing with an “Introduction to Flying.”

Procedure for Pilots and Others Involved in the TOP Flight Experience:

1. Prior to flight- Introduce themselves and give backgrounds as pilot(s) and/or ground crew.
 - a. Discuss safety issues pertinent before, during and after the flight.
 - b. Using an appropriate checklist, demonstrate a routine pre-flight inspection of the airplane. During this inspection, point out specific parts of the airplane and identify its function.
 - c. If appropriate, demonstrate how the airplane is fueled.
 - d. Using the checklist, show teachers the routine cockpit checks prior to takeoff.
 - e. Discuss weather and how this affects flight.
 - f. Discuss what teachers will experience and make suggestions as to how this experience can be used to motivate students (such as aerial photography of their school, videos of the flight showing demonstrations of principles of flight, flying the plane, etc., and how areas of STEM are involved in aviation).
2. During flight – Explain how the airplane responds to controls. Point out instruments and use for takeoff, flying, and landing. Allow the teacher to take the yoke, if appropriate and reasonable.
3. After flight –Answer questions teachers may have. The pilot should sign and present the TOP Flight [certificate\(s\)](#) to the teacher(s), with photos at the plane with the pilot.
4. Have teachers fill out [TOP Flight evaluation form](#) and discuss how CAP can be a resource for the classroom. Discuss CAP membership programs, and how teachers and students can be involved in CAP, if so desired.





Civil Air Patrol ~ Aerospace Education

Teacher Orientation Program Flights



Flight Day with Pre-Flight Session Only
Sample Schedule
for One or More Than One Teacher

- 9:00-9:15 Welcome and Introductions
- 9:15-9:30 Pre-flight Overview
- Safety
 - Airplane Parts
 - Connecting the Experience to the Classroom
 - Aerial Photography to Share with Students
 - Aviation Careers
- 9:30-10:30 Teacher O'Flights (plan one hour per flight)
- Plan activities or aviation-related videos for pre and post flight time, if needed, or
 - Plan a field trip to aviation sites near flight line for pre and post flight time, if needed
 - Provide rest and refreshment area
 - Present [certificates](#) to teachers after flight
 - Have teachers complete [TOP Flight evaluation form](#)

- **Teachers should plan on being at the airport not less than 1.5 hours. With more than one teacher, time at the airport should be expected to be not less than 2 hours.**

NOTE: Try to fly two teachers at a time; one in front seat and one in back seat. For first sortie, fly and let front seat teacher fly the plane; then, land and switch front and back seats. For second sortie, the other teacher gets a chance to fly the plane.



Civil Air Patrol ~ Aerospace Education —Teacher Orientation Program Flights—



Optional One-Day Workshop Sample Schedule

9:00-9:20	Welcome and Introductions Workshop Overview
9:20-10:00	Flight Basics (activities enhance the instruction) <ul style="list-style-type: none">• Bernoulli's Principle (sample lesson; sample lesson)• Four Forces of Flight (sample lesson; sample video)
10:00-10:15	Break
10:15-11:15	Parts of the Airplane (activities enhance the instruction) <ul style="list-style-type: none">• Axes of Movement (sample video)• Outside Control Surfaces (sample video)
11:15-12:00	Flight Orientation/Plans for Afternoon Flights
12:00-1:00	Lunch
1:00-4:00	Teacher O'Flights <ul style="list-style-type: none">• Plan activities or aviation-related videos for pre and post flight time, or• Plan a field trip to aviation sites near flight line for pre and post flight time• Provide rest and refreshment area• Present certificates to teachers, with photos• Have teachers TOP Flight evaluation form

An alternate schedule is to divide the teachers into two groups with one doing classroom instruction while the other half flies. Have lunch and switch group assignments.

NOTE: Try to fly two teachers at a time in each plane; one in front seat and one in back seat. For first sortie, fly and let front seat teacher fly the plane; then, land and switch front and back seats. For second sortie, the other teacher gets a chance to fly the plane.



Civil Air Patrol ~ Aerospace Education

Teacher Orientation Program Flights



Optional Two-Day Workshop

Sample Schedule (or, make your own!)

9:00-9:30	Welcome and Introductions Workshop Overview
9:30-10:30	Flight Basics (activities or video enhance instruction) <ul style="list-style-type: none">• Bernoulli's Principle (sample lesson; sample lesson)• Four Forces of Flight (sample lesson; sample video)
10:30-10:45	Break
10:45-12:00	Parts of the Airplane (activities or video enhance instruction) <ul style="list-style-type: none">• Axes of Movement (sample video)• Outside Control Surfaces (sample video)
12:00-1:00	Lunch
1:00-1:30	Instrument Panel (sample video of G1000 glass cockpit)
1:30-2:00	Aerospace Careers (EAA video series is good to use)
2:00-2:20	Break
2:20-3:20	Aeronautical Charts (sample lesson) (Pilot could present this lesson & conduct activities)
3:30-4:00	Flight Orientation/Plans for Tomorrow's Flights

Schedule teachers for flights the following day in 1.5 hour increments.

Teacher O'Flights

- Plan activities or aviation-related videos for pre and post flight time, or
- Plan a field trip to aviation sites near flight line for pre and post flight time
- Provide rest and refreshment area
- Present [certificates](#) to teachers
- Have teachers complete [TOP Flight evaluation form](#)

NOTE: Try to fly two teachers at a time in each plane; one in front seat and one in back seat. For first sortie, fly and let front seat teacher fly the plane; then, land and switch front and back seats. For second sortie, the other teacher gets a chance to fly the plane.



CIVIL AIR PATROL TOP Flight



Certificate of Completion

This is to certify that

has completed _____ aviation-related STEM contact hours in CAP's Teacher Orientation Program

Pilot

Aircraft



Flight is good.

Airport

Date