Civil Air Patrol ~ Aerospace Education

FLY A TEACHER

Program

Fly-A-Teacher Handbook

Civil Air Patrol ~ Aerospace Education

FLY-A-TEACHER Program

Overview

The Fly-A-Teacher Program provides the opportunity for teachers to experience orientation flights in CAP aircraft. Teachers can receive these orientation flights following optional workshops at local area airports and can then share their experiences with their students.

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

"I found this workshop engaging, well planned, and inspiring."

"The opportunity that was given to me was unbelievable!."

"I can't wait to bring what I learned back into my classroom."

"Thank you very much for making this possible for teachers!"

"It made me proud to be a teacher!"

"I loved it! The workshop was very well organized, and the speakers, extremely informative. "

The CAP Fly-A-Teacher Wing Point of Contact (POC)

The ease of implementing the CAP Fly-A-Teacher Program within a Wing depends on the Wing POC. The Wing POC has the responsibility for handling all coordination and communication among Wing members interested in the program. While the Wing POC is not expected to accomplish all the details for setting up multiple Fly-A-Teacher programs within the Wing, all Unit AEOs and others interested in implementing the program should coordinate their efforts with the Wing POC.

Wing POCs should:

1. Seek/Confirm Wing Commander's approval for Fly-A-Teacher POC position assignment.

2. Notify AEOs and Unit Commanders of your POC assignment with your contact information.

3. Post any promotional program information or announcements electronically on the Wing web page, in Wing newsletters or at local schools. (Attachments 2 and 3)

4. Recruit Fly-A-Teacher Program participants:
   a. AEOs (encourage AEOs to initiate program in their area)
   b. Current AEMs (assist AEOs in promoting program for current AEMs)
   c. New AEMs (visit/contact local schools and/or encourage AEOs to visit/contact local schools to recruit new AEMs to participate in program)

5. Provide requested assistance and support for the program.

6. Maintain optional record of unit's o'flight participation. (Attachment 6 in this handbook)
   a. Provide Wing Commander periodic Fly-A-Teacher Program updates.
   b. Utilize for continued promotion of program.

7. Submit CAP Fly-A-Teacher mission request through WMIRS for approval and then finish filling in time and other information after flight. Reimbursement of at least $500 per Wing in one fiscal year is available until funds are exhausted. Reimbursement is provided on a first-come, first-served basis. Refer questions pertaining to WMIRS to your Wing Administrator.

Unit AEOs and/or other CAP Adult Members or Pilots implementing the program should (in coordination with Wing POC):

1. Request contact information for AEMs (teacher members) in your area from your Wing Director of Aerospace Education (DAE). (DAEs can request this information by contacting ae@cap.gov).

2. Recruit new AEMs by visiting/contacting local schools to share information about CAP's Teacher Member Program, educational products and Fly-A-Teacher Program. (Attachment 2) Request recruiting brochures by contacting ae@cap.gov or download from www.cap.gov/ae.

3. Organize orientation flights for current and new teacher members.
   a. Recruit CAP pilots and reserve CAP airplanes for flight day.
   b. Advertise flight day to current and new teacher members via emails, letters or phone calls. Use Attachment 1 in this handbook.

4. Prepare for your pre-flight orientation session for teachers. Use Attachment 4 in this handbook, if desired. *Optional half-day or full-day teacher workshop infomation is included in this handbook, as well. (Attachment 8)*

5. Adjust number of pilots and planes needed after teacher participant number has been confirmed.

6. Select assistant(s) to help with instruction, collection/ distribution of materials, completing certificates, taking photos, or simply providing a brief overview of CAP.

7. **Ensure that all teacher participants are current AEMs** and that they are made aware that membership cards are required to attend the flight day.

8. Prepare for the flight day by having certificates ready (request from NHQ or download from handbook - Attachment 10),a camera to take pictures, comfortable and functional seating and accommodations, refresh ments, and teacher activities or aviation videos to fill participant "wait time."

9. Be well prepared and organized.

10. Present a professional and congenial image. (Any of the authorized CAP uniforms may be worn.)

Pre-flight Orientation Session for Teachers

Civil Air Patrol would like every Fly-A-Teacher participant to have a positive, fun and educational learning experience. Thus it is important that a brief orientation session is conducted prior to the actual teacher flights. Such topics as airplane parts, safety issues, classroom relevance, benefits of aerial photography, etc. should be discussed to maximize benefits of this experience.

Why conduct the Fly-A-Teacher Program?

- **To connect CAP units with teachers in the community.**
- **To foster aviation career interests in the classrooms of America.**
- **To provide professional experiences, excitement and knowledge for teachers that can be transferred directly to their students.**
- **To share an appreciation for Civil Air Patrol's missions for America throughout our country.**

Massachusetts Fly-A-Teacher Program participant receives First Flight certificate.

Attachments and Resources

1. Attachment 1 (Registration Flyer) .....page 1

2. Attachment 2 (Educator Recruitment Flyer).....page 2

3. Attachment 3 (AEO Recruitment Flyer) .....page 3

4. Attachment 4 (Sample Pre-flight briefing lesson plan) .....page 4

6. Attachment 6 (Record of unit's o'flight participation) .. ..page 5

7. Attachment 7 (Sample evaluation form).....page 6

8. Attachment 8 (Sample lesson plans for optional aviation workshop) .....pages 7-19

9. Attachment 9 (Sample schedules for Fly-A-Teacher Program) .....page 20-22

10.Attachment 10 (Sample Orientation Flight Certificate).....page 23

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What? Free airplane orientation flights for teachers.
Who? Any teacher who is a member of CAP or who wants to become a member of CAP.
When? _____
Where? _____

Fill out bottom portion. Cut along dotted line and mail to Point of Contact listed on this flyer. Information may also be emailed to Point of Contact. Deadline date for registration: _____

Teacher Name:_____

Address: _____

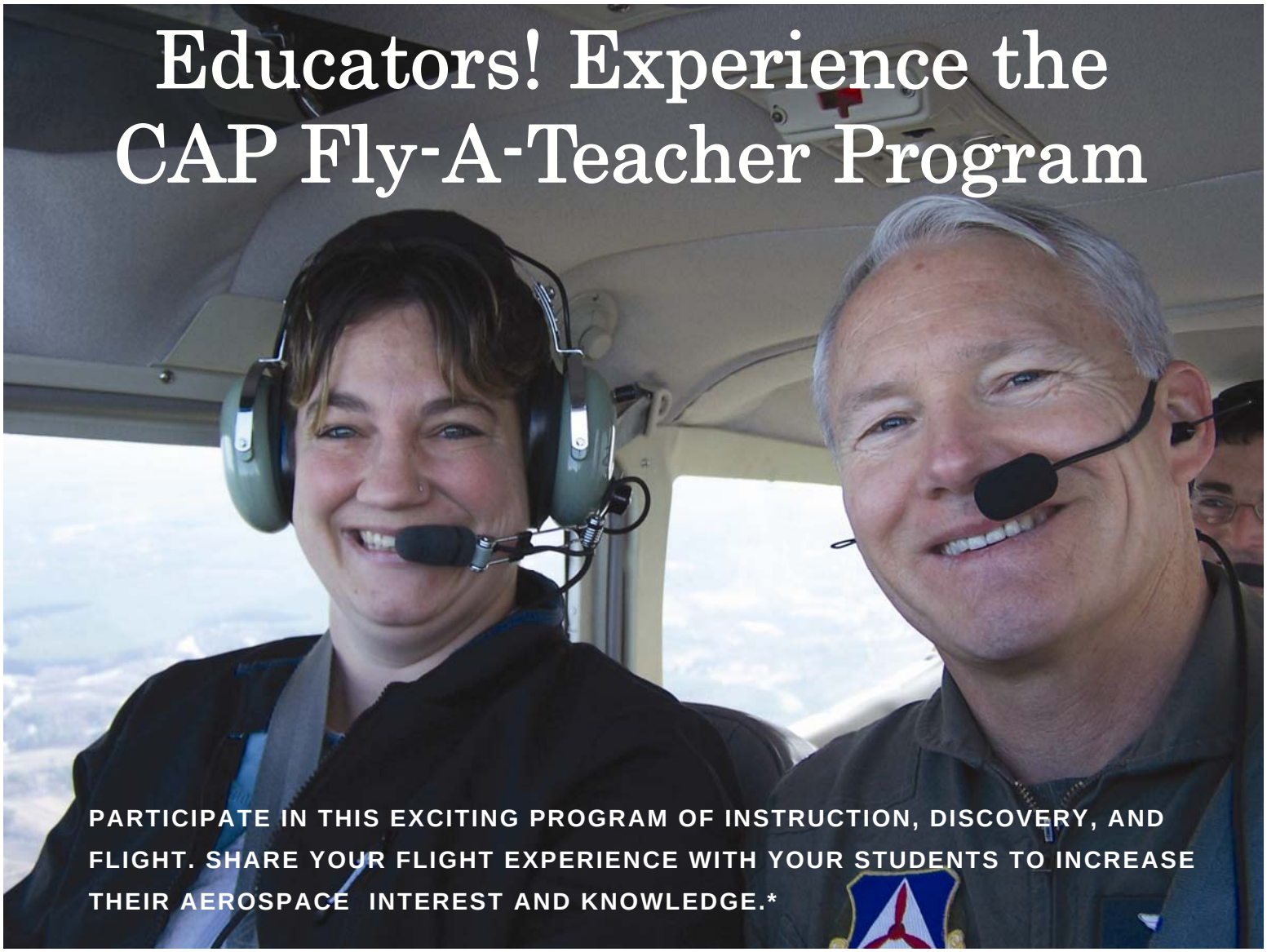
Email address: _____

Phone number and best time to contact: _____ _____

CAP Identification Number _____ (*You must be a member to participate!)

*If you need the application to become an Aerospace Education Member (AEM), go to www.cap.gov/ae and download from the bullet titled "Making Aerospace Real for Students."

Educators! Experience the CAP Fly-A-Teacher Program



PARTICIPATE IN THIS EXCITING PROGRAM OF INSTRUCTION, DISCOVERY, AND FLIGHT. SHARE YOUR FLIGHT EXPERIENCE WITH YOUR STUDENTS TO INCREASE THEIR AEROSPACE INTEREST AND KNOWLEDGE.*

Join Civil Air Patrol for a motivational first flight and an optional workshop using National Standards-based materials to teach aviation basics in a fun and exciting way!

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FLY-A-TEACHER

Program

To find out more about this opportunity, please go to our website at www.cap.gov/ae and click on Fly-A-Teacher Program.

For more information, contact ▸▸▸

Civil Air Patrol NHQ
Email:
ae@capnhq.gov

*Must be a teacher member of Civil Air Patrol to participate. For membership information, go to www.cap.gov/ae

Civil Air Patrol's Fly-A-Teacher Program

PARTICIPATE IN THIS EXCITING PROGRAM AND ENCOURAGE EDUCATORS TO CONNECT THEIR CLASSROOMS TO AEROSPACE EDUCATION

This program is designed to unite the CAP member with the educator.

- **Coordinate with the Fly-A-Teacher Point of Contact (POC) for your wing.**
- **Receive the materials and information needed to conduct an optional one-day workshop for teachers.**
- **Coordinate with CAP pilots to conduct orientation flights for teachers.**

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- **Apply for an AFA Grant to offset optional workshop cost.**
- **The Wing will be reimbursed for the teacher orientation flights up to $500 on a first-come, first-served basis until funds are exhausted.**

For more information, contact ▸▸▸ **Civil Air Patrol NHQ**
Email:
ae@capnhq.gov

Participants must be teacher members of CAP. For membership information, go to www.cap.gov/ae

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Sample Pre-flight Lesson Plan for Fly-A-Teacher

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

Procedure:

1. Prior to flight – Pilot(s) introduce themselves and give backgrounds as pilot(s).
2. Discuss safety issues at this time.
3. Using an appropriate checklist, demonstrate a routine preflight inspection of the airplane. During this inspection point out specific parts of the airplane and identify its function.
4. Using the checklist, show teachers the routine cockpit checks prior to takeoff.
5. Discuss weather and how this affects flight.
6. 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, writing prompts, and reading more).
7. During flight – Explain how the airplane responds to controls. Point out instruments and use for takeoff and landing.
8. After flight – Have a group sharing time (if possible). Answer questions teachers may have.

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Record of Fly-A-Teacher O'Flight

Unit _____

FY _____

Teacher Name	Teacher CAPID#	Date of Flight	Pilot	Type of Plane	Location

Send copy to Wing POC with CAPF 108.

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Evaluation

On a scale of 1-5 (with 5 being the highest), how would you rate this experience? _____

Was the workshop interesting, fun and useful? Please provide a brief explanation.

What changes, additions or deletions would you make to the workshop?

As an Aerospace Education Member, what would be most beneficial that Civil Air Patrol's Aerospace Education Program could provide you to enhance your classroom curriculum or instruction?

Sample Lesson Plans

Bernoulli's Principle

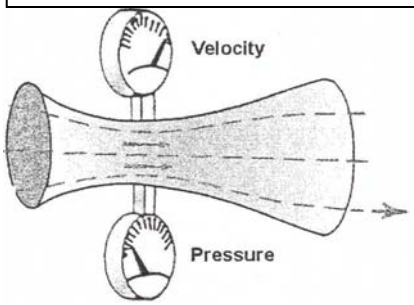
Activities taken from Civil Air Patrol's *Aerospace Dimensions* and *AEX II, Vol. I*

TWO GREAT SCIENTISTS NEVER FLEW, BUT THEY UNLOCKED THE SECRET OF FLIGHT

Although they never attempted to fly, Dutch-born Daniel Bernoulli and Englishman, Sir Isaac Newton, are very important in the history of aerospace. The laws and principles they discovered laid the groundwork for the science of manned flight.

Daniel Bernoulli
Not as well known as Isaac Newton, but certainly one who holds an honored place in the history of aerospace science, is Daniel Bernoulli. His discovery of the relationship between pressure and fluids in motion became the cornerstone of the theory of airfoil lift. He found that a fluid, like air in motion, has a constant pressure. However, when that fluid is accelerated, the pressure drops. Utilizing this principle, **Wings are designed to make air flow go faster on the top**. This in turn causes the pressure to drop and the wing moves upward, against gravity.

Daniel Bernoulli (1700-1782) Courtesy of The Royal Society, England



Bernoulli found that the pressure of a fluid, like air, drops when it is accelerated. An example of this can be shown when air passes through a tube that has a restriction. This tube, known as a venturi, causes the air to accelerate when it passes through the middle. The pressure at the restriction drops. Notice the two gauges-the velocity gauge shows an increase and the pressure gauge shows a decrease. This is the secret of flight that eluded mankind for centuries.

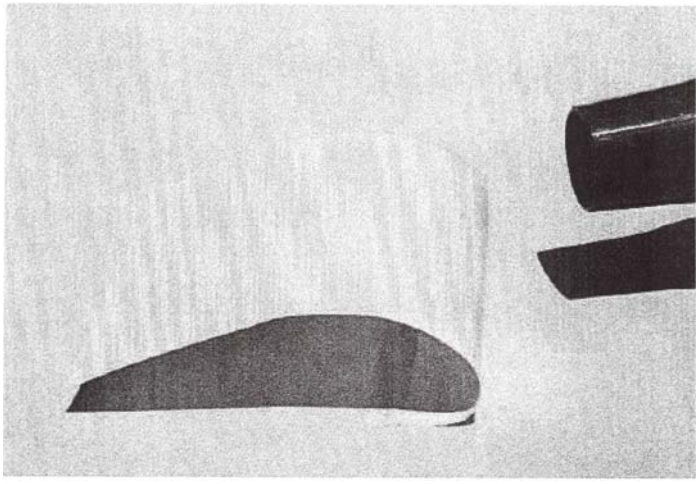
Activity One – The Lung-Power Wing Tunnel

One of the first activities demonstrates Bernoulli's Law. It's simple, it's fun and you can easily prove that Bernoulli was right. All you need is a sheet of good quality paper.

The girl in the photograph is holding the paper so that it curls away from her. This gives the paper its "wing shape." When you do it, hold the rounded leading edge of the paper close to your mouth. As you blow over the paper, it will rise. This means that the "wind" created by blowing on the paper, accelerates as it changes direction and passes over the top. This causes a drop in pressure and the paper will rise.

IS BERNOULLI' S PRINCIPLE WORTH TWO CENTS?

OBJECTIVE - The objective is to create an airfoil out of a piece of file folder and then make it "fly" with a source of high velocity wind.



MATERIALS
a. One, or more, filing folders cut to about the size of a sheet of paper.
b. One hair dryer.
c. Masking or Scotch-type tape.
d. Two pennies.

This is a fun way to teach Bernoulli's Principle. Using, a piece of file folder, cut to the size of regular sheet of printer paper and a hair dryer, you can make a wing that will lift not only its own weight, but the weight of coins taped to the underside. The high velocity wind blowing over the airfoil-shaped folder, will accelerate. This causes the pressure on top of the curved surface to drop, and this creates lift.

In simplified terms, Bernoulli, an 18th century scientist and mathematician, stated that a fluid in motion will have a pressure change when its velocity increases. In the example of our wing, air flows faster over the upper curved surface. As the air going over the upper surface accelerates, the pressure drops. The air on the underside, relative to the upper surface, has a higher pressure. This difference, in pressure causes the wing to react by rising toward the area of lower pressure. If the air is flowing fast enough and the surface of the wing is curved enough, it will fly! Cool!

PROCEDURE

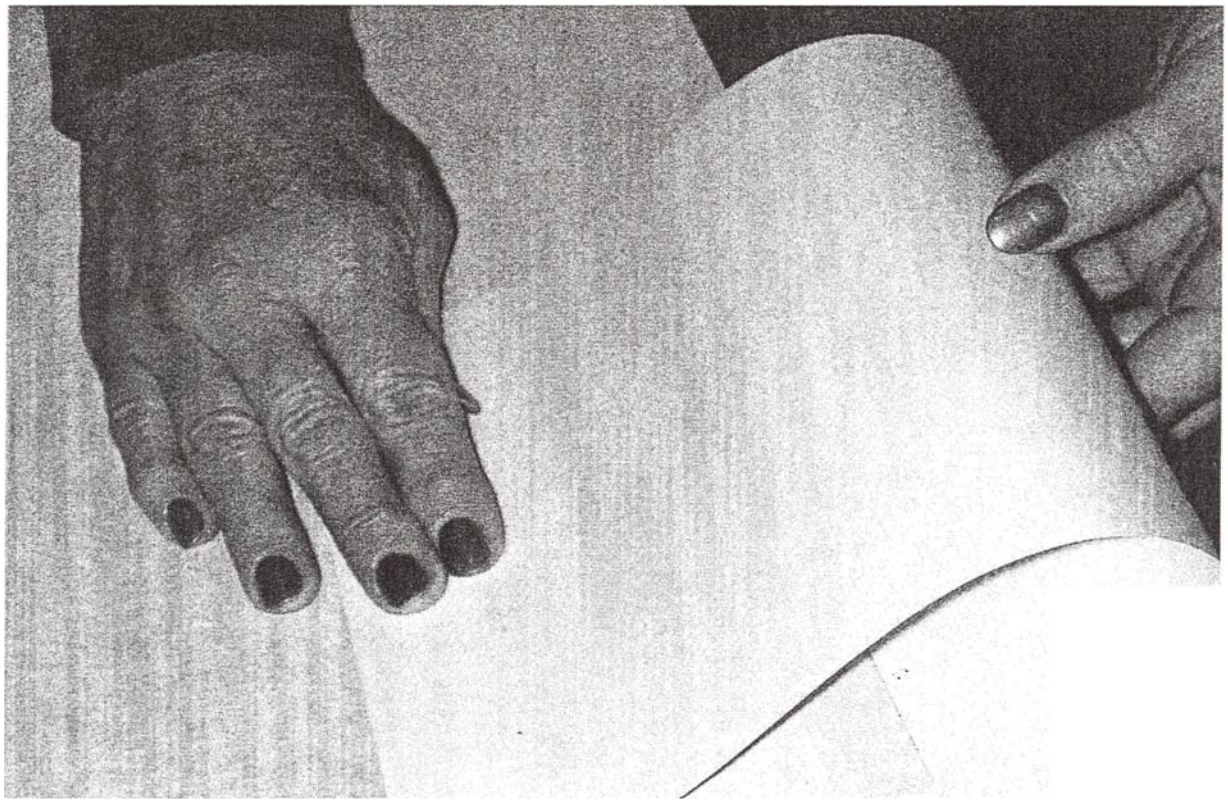
a. Tape the file folder piece to the edge of a smooth table.
b. Fold so that it eventually has the shape of an elongated tear drop.
c. Point the hair dryer toward the leading edge and experiment with wind flow.
d. After a few trys, the "wing" will lift right off the table.
e. Next, tape a penny to back of the underside of the wing.
f. Try the air flow again...and if you've done it correctly, it will lift 2, sometimes 3 pennies.

NATIONAL STANDARDS
Science Standards:
Standard A: Science as Inquiry
Standard B: Physical Science Motions and forces
Standard E: Science and Technology
- Abilities of technological design
- Understandings about science and technology

Standard G: History and Nature of Science
- Science as a human endeavor
- Nature of scientific knowledge

Unifying Concepts and Processes
- Evidence, models, and explanation
- Form and function

Technology Standards:
6. Understanding the role of society in the development, and use of technology.



The secret to success is to keep working the file folder so that a perfect wing is formed. When the high velocity wind from a hair dryer is blown at the leading edge, the rest of it will FLY!

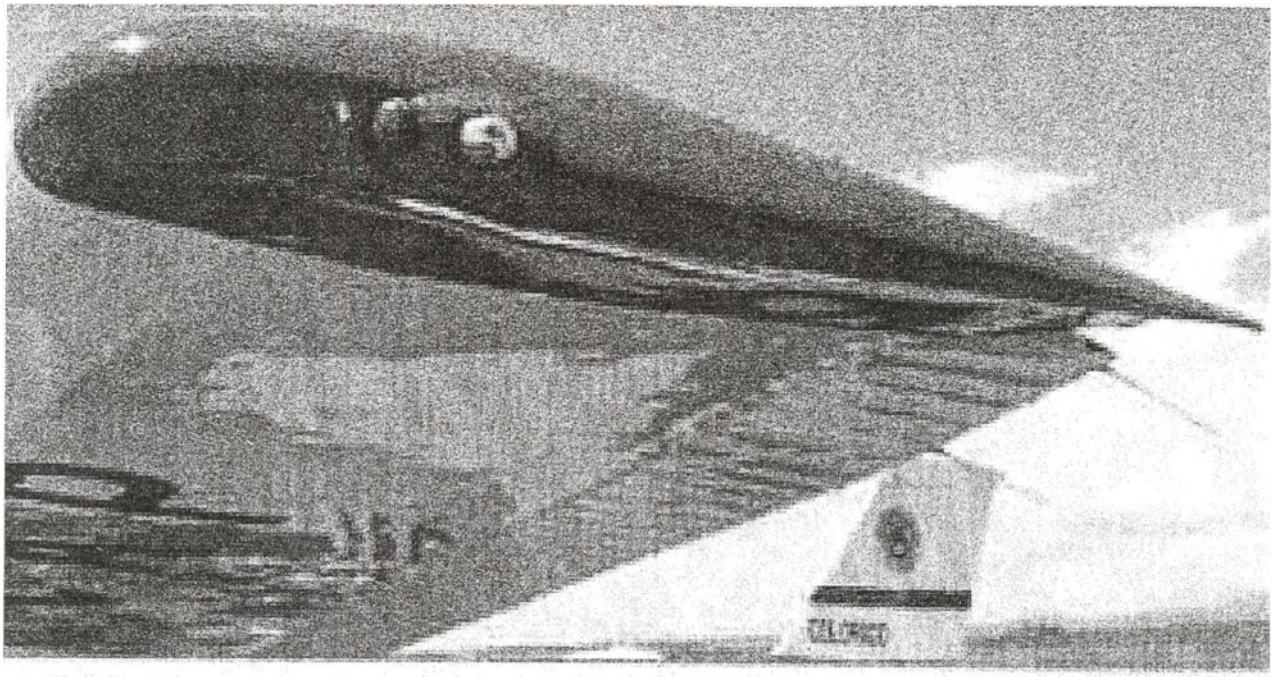
Extra Bernoulli Experiments:

1. Blow through a straw between two ping-pong balls suspended from the ceiling on strings. Account for what happens. Before blowing, ask students about Bernoulli's Principle and what they hypothesize should happen.

2. Using a hair dyer (cool setting), suspend a ping-pong ball in the airflow. Tilt the blower until the ball falls. Measure the angle. Increase the speed of the hair dyer from a low to a high setting and repeat. Does the angle at which the ball drops differ? For larger version, use lawn leaf blower and beach ball.

3. Have each student hold two sheets of notebook paper parallel to each other and about 2 inches apart. Each student should then blow between the two sheets of paper. Like magnets attracting each other, the two pieces of paper will come together. Bernoulli's Principle is at work causing the 2 sheets of paper to come together because the increase in air speed between the 2 sheets of paper cause a decrease in the pressure.

4. Design your own example of Bernoulli's Principle and demonstrate to the class. Explain what happens.



This is the wing tip of a CAP Cessna. The upper curvature of the wing is called the "camber."

Can you think of other examples of Bernoulli's principle at work besides airplanes?

1. Racecars use airfoils, which create downward lift to increase traction (help the car stay on the road.)

2. Boating - a hydrofoil is a submerged wing attached beneath a boat. As the boat picks up speed, the hydrofoil generates lift in the water in the same way a wing generates lift in the air. The lifting force raises the boat's hull out of the water, reducing drag and allowing the boat to move faster. A sailboat has a sail that acts like a wing, creating lift in a forward direction like an airplane wing creates lift in an upward direction.

3. Pitching in baseball - curveball - when the baseball is given a spin as it is pitched, the rough surface of the ball causes the layer of air near the rawhide to spin the ball. This causes the relative velocity to be higher on the bottom and lower on the top, which results in a higher pressure on the top and a lower pressure on the bottom. This pressure deflects the ball and makes it curve downward.

Four Forces of Flight

Activity taken from Civil Air Patrol's *Aerospace Dimensions*

THE FOUR FORCES ACTING UPON AN AIRPLANE IN FLIGHT

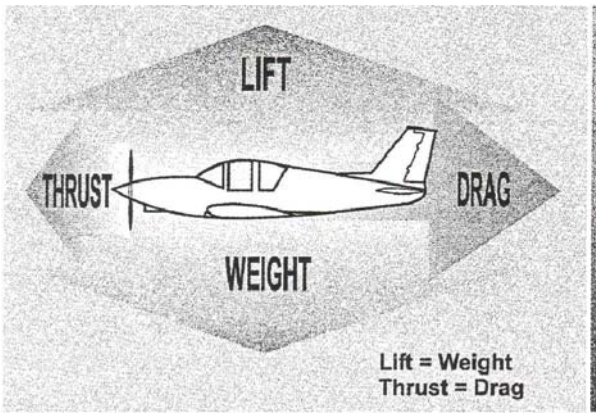
There are four forces acting upon an airplane in flight. They are **lift, gravity, thrust** and **drag**. Each of these forces has an opposing force. The word 'oppose' means to work against. Therefore, lift opposes gravity and drag opposes thrust. You have already been exposed to these terms, but let's expand them for better understanding.

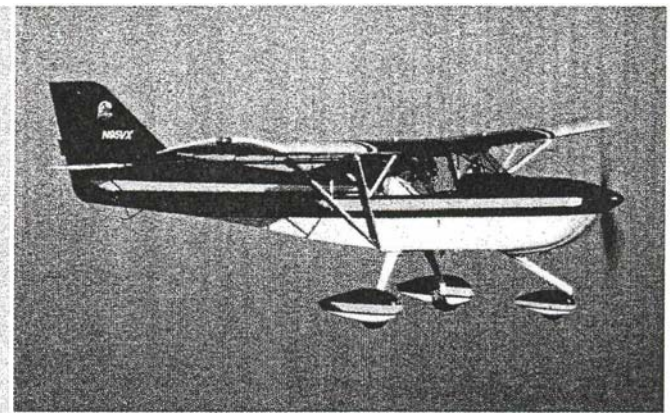
The Two Natural Forces

Drag - the best way to understand drag is to imagine walking waist deep in a swimming pool. Now imagine what it's like to walk faster! It is difficult because of the drag of the water on your body. A similar resistance occurs when riding a bicycle against a strong head wind! Like water, air creates drag. Drag is a natural force that is common throughout all of nature.
Gravity - there is a natural force which pulls everything toward the center of the Earth. This is the force of gravity and we speak of that force as being one "G."

The Two Artificial Forces

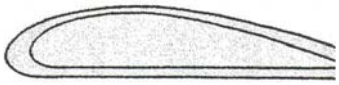
Thrust - this is a force that pulls, or pushes, an airplane forward through the air and it opposes drag. In some airplanes, thrust is provided by a propeller; in others, it is provided by a jet engine. This force is artificial because it takes a mechanical device, like an engine and propeller, to generate it.
Lift - this is an *artificial force* because it requires a mechanical device to create the pressure changes discussed in Bernoulli's Law. It's pressure differential that creates lift... not flapping! To put this into practical terms, when an airplane is ready for takeoff, the pilot adds power and the machine moves forward. The relative wind starts to flow under and over the wings. The wings (a mechanical device) are being forced to move through air (a fluid). When the wing is moving fast enough through the air (relative wind), lift occurs. This lifting force is created artificially.





Look at the diagram of the four forces, then imagine you can see them working on the *VIXen. (EAA)*

Creating Even More Lift



Over the years since the airplane was first developed, aeronautical engineers found that there are four ways of creating more lift.

(1) First a wing will lift more weight if it is larger. Up to a point, a greater surface area will generate more lift.

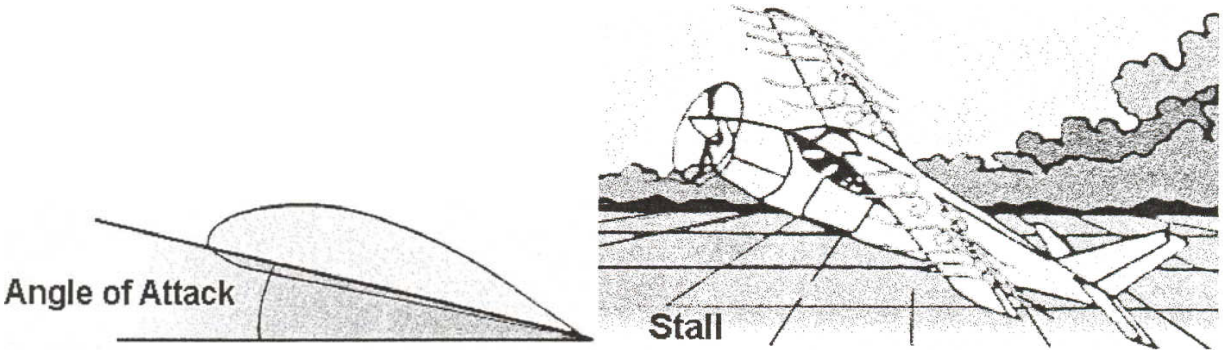
(2) A wing will lift more weight if the upper curvature, called

upper camber, of the wing is greater. You can see that airflow over a greater curvature will have to accelerate to a much higher speed to reach the back of the wing. This causes a greater drop in pressure and more lift will occur.

(3) By increasing the speed of the airplane, more

lift will occur. This stands to reason because more air molecules are flowing over the wing and air molecules contain energy.

(4) When a wing is tilted upward, it will create more lift because the airflow over the top of the wing again has to travel faster to get to the back. This action is called **"increasing the angle of attack."** The angle of attack is the angle between the chord line and the relative wind. Like size, raising the angle of attack is limited and there is a point where the air flow on top of the wing will separate and start tumbling. This airflow breakaway, from the surface of the wing, creates a loss of lift and is known as a **stall**. For most general aviation wings, this occurs around 17 degrees. The point at which a wing will stall is called its critical **angle of attack**.



When the angle of attack exceeds a certain point, a stall normally occurs.

Outside Control Surfaces

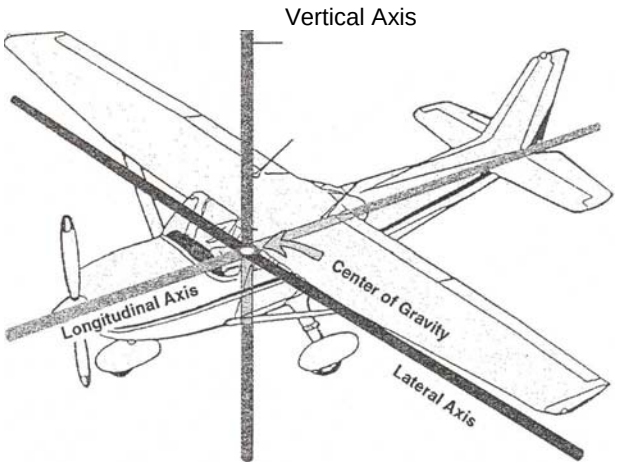
Activity taken from Civil Air Patrol's *Aerospace Dimensions*

THE THREE AXES

Imagine that you are an aeronautical engineer and one of your jobs is to suspend an airplane from a cable so that it will hang perfectly level in all directions. For the sake of illustration, let's say that you are going to do this experiment in a large building area like a hangar or a gymnasium. Somewhere up high, you would hook the cable to one of the ceiling supports. The other end would be hooked to the airplane at precisely the right point where it would hang level. This cable line would be known as its **vertical axis**.

Now, visualize a line that goes from wingtip to wingtip and passes through the center where the cable suspends the airplane; this side to side line is called the **lateral axis**. Imagine yet another line now that passes through the nose and ends at the tail. This line also passes through the cable that is suspending the airplane. This nose to tail line is known as the **longitudinal axis**.

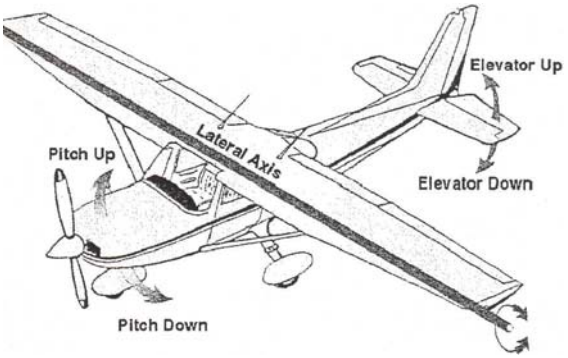
If you hooked your cable at the point where all three of these "axes" come together, that point is called the **center of gravity**.



The Three Axes Of An Airplane

Airplanes Can Only Move In Three Directions

In flight, an airplane can only move in three directions; i.e., nose right, nose left, roll right, roll left, nose up, nose down. Using the example given above, if you walked out to the end of the wing of this suspended airplane and pushed up or pulled down on its wingtip, it would rotate around a different axis. It is called the longitudinal axis. It's a line from nose to tail. Rotation around this axis is called **roll**. If you went back to the tail and moved it up and down, the airplane would rotate around its lateral axis. This motion is called **pitch**. If you moved the tail from side to side, this would be a rotation around the vertical axis and is called **yaw**. Flight is said to be three dimensional. So how does a pilot get the airplane to move in these three dimensions? It's done by using the dynamic forces of the air as they rush over the **control surfaces** of the airplane.

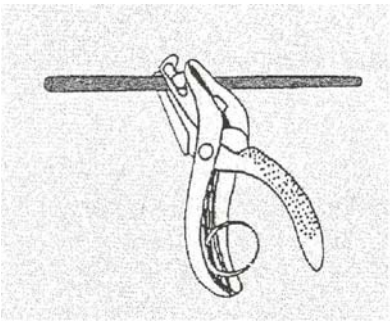


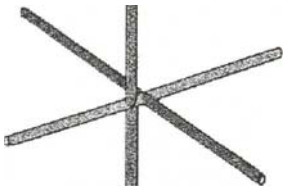
Rotation Around the Lateral Axis

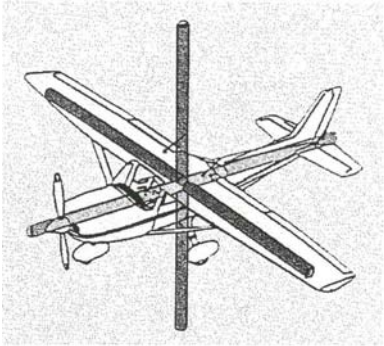
Rotation around the lateral axis is called pitch and the elevator causes this motion. When the elevator moves up, the nose pitches up. When the elevator moves down, the nose pitches down.

Three - The Soda Straw Three Axis Demonstrator

You can make a simple three-axis demonstrator. It is easy and only requires three soda straws and a hand held, single hole, paper punch. The first step is to carefully punch 2 holes in the center of one of the straws. These holes should be near the center and perpendicular to each other. Once punched, pull one soda straw through one of the holes. You now have two axes. Now insert the third soda straw into the remaining hole. What you now have is a three-axis demonstrator. Now, imagine that your three-axis demonstrator is an "airplane." If you hold one straw on each end, that's your "wings." If you rotate the straw, you are pitching the demonstrator around the lateral axis. If you grab the vertical straw and rotate it, you are "yawing" the demonstrator. And finally, if you grab the "nose" and "tail" ends of the straw, and rotate it, you are "rolling" the demonstrator.







The three-axis soda straw demonstrator was developed by Dee Ann Mooney, Civil Air Patrol member and math teacher at Big Sky High School, Missoula, Montana.

Control Surfaces - CAP Cardstock Airplane

1999 by VFM (Reprinted with permission). Adapted from *'Lesson Plans That Fly'*

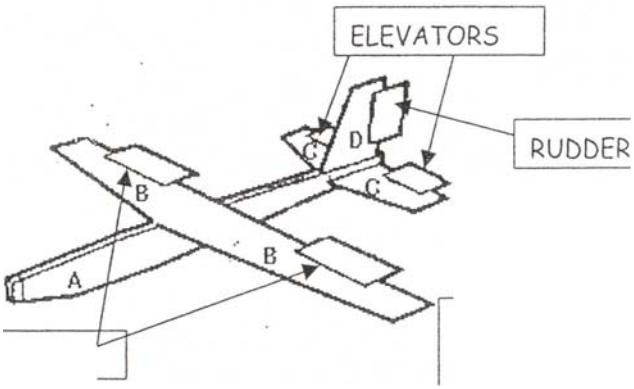
Objective: Students will experiment with the control surfaces of a cardstock airplane to learn how they affect flight.

Description: Using a cardstock airplane and a target, flight will be observed. Adjustments will be made to the control surfaces of the wings and tail, and changes in flight will be observed. Conclusions will be made about the effects of changing the control surfaces.

Materials: Cardstock airplanes, copies of student pages for each group and masking tape.

Procedure: Have students assemble the cardstock airplanes. Allow for approximately 30 minutes for assembly.

- The instructor will determine a distance for flight-testing (at least 15 feet) to a target (chair, desk, even a hula hoop works well as a target) and mark a starting line on the floor.
- Have each student predict whether their airplane will reach the target, then give each student two throws at the target. Have each student record the results on the 'student page'.
- See airplane illustration on next page. Using airplane, bend one aileron up and one down. Make predictions, conduct flight tests and record results.
- See illustration again. Bend both elevators up or down. Make predictions, conduct flight tests and record results.
- Bend the rudder right or left. Again, predict, flight test and record results.



TEACHER INFO:

Right Bank: Right aileron is up; left aileron is down.

Left Bank: Left aileron is up; right aileron is down.

Climb: Elevators are up.

Glide or Dive: Elevators are down.

Right Turn: Rudder is turned to the right.

Left Turn: Rudder is turned to the left.

Evaluation: Discuss the flight test results. Which design reached the target the best? Why? Did predictions improve? Option: Have students write a paragraph summarizing their results.

Extended Activity: Create new experiments, changing the distance, height or size of the target. Or, draw several pictures of airplanes. In each picture show with arrows how the air flow will change when the rudder, ailerons and elevators are moved.

Flight Test Chart

Control Surface Adjustments	**Prediction: Will it reach the target?**	**1st Try**	**2nd Try**	**Observations**
Without Control Surfaces				
With Right Aileron Up, Left Down				
With Left Aileron Up, Right Down				
With Both Elevators Up				
With Both Elevators Down				
With Rudder To The Right				
With Rudder To The Left				

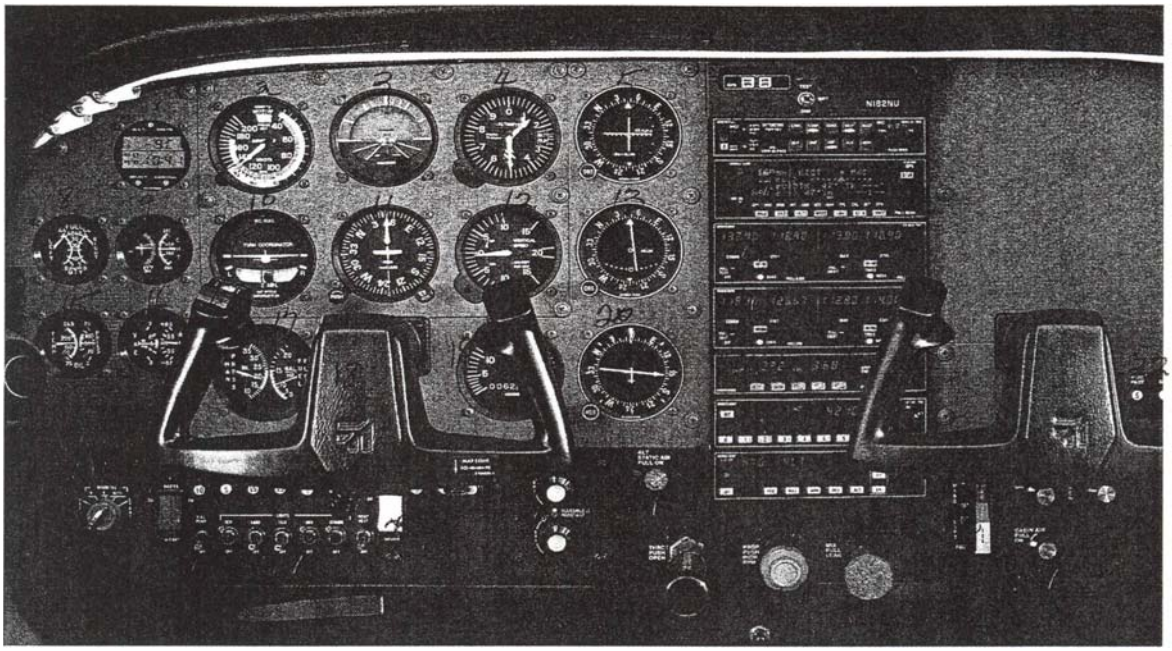
Instrument Panel

Activity taken from Civil Air Patrol's *Aerospace Dimensions*

Activity Two - The Instrument Panel Shootout

Materials: Picture of a Cessna 182 instrument panel

Procedure: Using the photograph of an actual instrument panel, identify all of the components listed below. The instruments, and other items are given, in order, left to right, top to bottom. After a thorough study, cover the answers with a sheet of paper and see how many you can identify--- then working with someone else, try an "instrument panel shootout." This is done at random as fast as someone can call them out, you point. Then it's your turn! See if you can name the whole panel in 60 seconds, 30 seconds…who's the *Top Gun* who can do it in 20 seconds?



The Instrument Panel of the Cessna 182

Outside Air Temperature/Clock
Airspeed Indicator
Attitude Indicator
Altimeter
Course Deviation #1 and Glide Slope Indicator
Audio Control Panel and Marker Beacons
GPS Receiver (Below Audio Panel)
Fuel Quantity Gauges
EGT/CHT Gauges
Turn Coordinator
Directional Gyro/Heading Indicator
Vertical Speed Indicator
Course Deviation Indicator #2
Com/Nav #1 Radio
Oil Temperature and Oil Pressure Gauges
Vacuum and Ammeter Gauges
Manifold Pressure and Fuel Flow Gauges
Yoke
Tachometer (partially blocked by yoke)
ADF Bearing Indicator
Com/Nav #2 Radio
ADF Receiver (Below Com/Nav #2)
Transponder (Below ADF Receiver)
Ignition Switch
Master Switch
Fuel Pump Switch
Various Light Switches
Pitot Heat Switch
Avionics Master Switch
Radio and Consol Light Dimming Controls
Alternate Static Air Control
Auto Pilot
Throttle Control (Below Auto Pilot)
Propeller Control
Mixture Control
Flap Switch and Indicator
Cabin Heat and Air Controls

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FLY A TEACHER Program

Optional One-Day Workshop
***Sampl*e Schedule**

9:00-9:30	Welcome and Introductions Workshop Overview
9:30-10:30	Flight Basics • Bernoulli's Principle • Four Forces of Flight
10:30-10:45	Break
10:45-12:00	Parts of the Airplane • Axis of Rotation • Outside Control Surfaces
12:00-1:00	Lunch
1:00-2:15	Instrument Panel
2:15-2:30	Break
2:30-3:00	Aerospace Careers
3:00-3:30	Aeronautical Charts (Please ask your Civil Air Patrol pilot to present this lesson)
3:30-4:00	Flight Orientation/Plans for Tomorrow's Flights

Schedule Teachers for Flights the following day in 45-minute 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 evaluation forms

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FLY A TEACHER Program

Optional Half-Day Workshop
***Sample* Schedule**

9:00-9:20	Welcome and Introductions Workshop Overview
9:20-10:00	Flight Basics • Bernoulli's Principle • Four Forces of Flight
10:00-10:15	Break
10:15-11:15	Parts of the Airplane • Axis of Rotation • Outside Control Surfaces
11:15-12:00	Flight Orientation/Plans for Afternoon Flights
12:00-1:00	Lunch
1:00-3:00	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 evaluation forms

Civil Air Patrol ~ Aerospace Education

FLY A TEACHER

Program

Flight Day with Pre-Flight Session Only
***Sample* Schedule**

9:00-9:15	Welcome and Introductions
9:15-10:00	Pre-flight Overview • Safety • Airplane Parts • Connecting the Experience to the Classroom • Aerial Photography to Share with Students • Aviation Careers
10:00-12:00	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 evaluation forms

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FLY-A-TEACHER

Program

CERTIFICATE OF FLIGHT

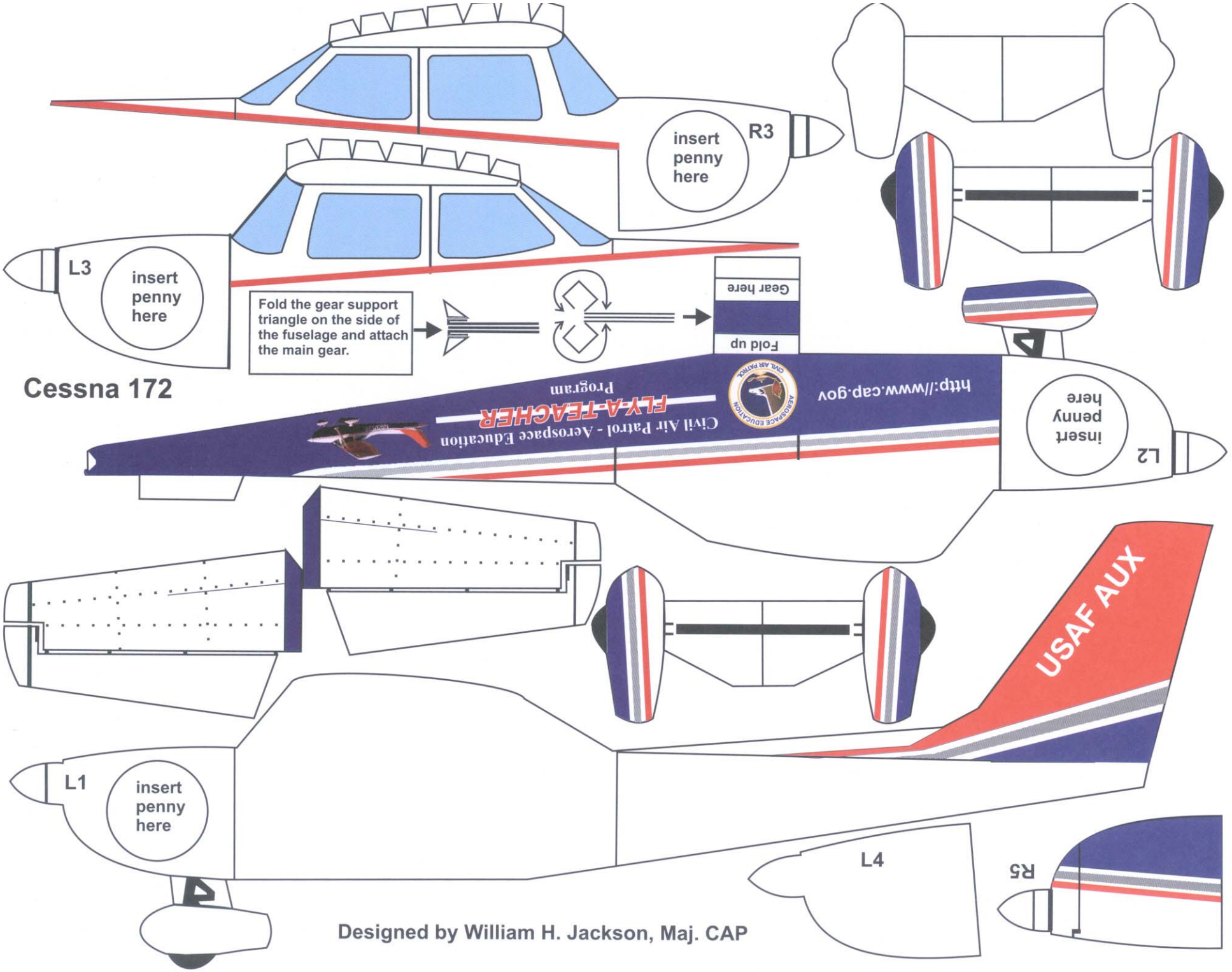
This is to certify that

_____

has completed the CAP Fly-A-Teacher Orientation Flight Program

_____	_____
Date	Pilot
_____	_____
Type of Plane	Location

CAP
CAP Cadet Program is dedicated to developing academic and moral leadership in our nation's youth through an interest in aviation.
USAF AUX
cut slits to here
CAP Aerospace Education Program is bringing the joy and wonder of aviation to the American public.
R4
R2
insert penny here
Fold up
Gear here
Civil Air Patrol - Aerospace Education
FLY-A-TEACHER
Program
http://www.cap.gov
Glue to wing root over slits.
R5
insert penny here
R1
Cessna 172



Cessna 172

Designed by William H. Jackson, Maj. CAP