



Sept. - Oct. 2003

# News

## AEROSPACE EDUCATION

Inspiring Students to Excel



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AE Partners.....Technical Articles

### THE X- PRIZE

Not since Charles Lindbergh captured the \$25,000 Orteig Prize in 1927 for his spectacular trans-Atlantic flight has there been more excitement and professional competition for an aviation prize.

The X-Prize will be awarded to the team who can privately finance, build, and launch a spaceship, able to carry three people to 100 kilometers; return safely to Earth; and repeat the launch with the same ship within two weeks. The prize ---- \$10 million.

The X-Prize benefits include: creating a new generation of aviation heroes; inspiring and educating young people; focusing public attention and investors on this new business frontier; challenging explorers and rocket scientists around the world; and serving to stimulate four different industries (space tourism, low-cost satellite launching, same-

day package delivery, and rapid point-to-point passenger travel.)

The X-Prize Foundation anticipates a winner before January, 2005. For more information, go to [www.xprize.org](http://www.xprize.org).



X-Prize Trophy

### AE STAFF RESTRUCTURED

Before August 1, 2003, the CAP Aerospace Education staff structure had remained the same for approximately 50 years. It consisted of a small National Headquarters staff and eight Region Directors of Aerospace Education (RDAEs). Much of the RDAEs efforts in the field were spent supporting small teacher workshops at colleges and universities and providing advice and assistance to CAP units. In view of the shift over the years to large teacher in-service conferences, coupled with tremendous advances in educational technology that have reduced the need for much on-site training, the RDAE concept became outdated and was too expensive to support.

Moreover, the small staff at the National Headquarters needed to be increased to produce new AE educational products and pro-

grams, accommodate strategic partnerships with other national-level organizations, and provide support for the growth of the cadet program. Accordingly, effective August 1, 2003, the RDAE field structure was disbanded. Several positions were relocated to CAP National Headquarters at Maxwell, AFB. These positions are now known as Aerospace Education Program Managers (AEPMs). Personnel filling these positions will join ten other National Headquarters personnel to form a support team to assist AE efforts of CAP wings. This AE team concept should improve field support through "individualized" assistance to the wings. In summary, the restructuring of the CAP AE staff should streamline operations, improve support to CAP units, enhance AE in America's schools, and reduce costs.

## EAA in Partnership with Civil Air Patrol

The Experimental Aircraft Association (EAA) is a growing and diverse organization consisting of over 170,000 members and 1,000 Chapters worldwide. The annual convention (AirVenture) in Oshkosh, WI is a fly-in convention that features over 800,000 participants each year. Civil Air Patrol plays a role in AirVenture through exhibits and educational support. One of the missions of EAA is the outreach efforts to support youth through aviation education. This mission is accomplished through such activities as: The Young Eagles Program that has flown over 950,000 youth, with the goal of flying one million young people by December 17, 2003; The Wild Blue Wonders Program in which many Civil Air Patrol Cadets currently participate; and a new program in partnership

with Civil Air Patrol involving web-based aviation courses for high school students.

The Civil Air Patrol in partnership with EAA has added web-based aviation courses to its educational program offerings. These courses are developed in conjunction with Utah Valley State College, a quality leader in aviation web-based education. The first course was introduced at NCASE (National Congress on Aviation and Space Education) this year. This innovative approach to learning promises to bring the dream of flight to students everywhere.

Fundamentals of Aviation, available in the fall of 2003, will run for 17 weeks. This course follows national math and science standards and will be offered for high school and college credit. The multimedia instructional material will feature Civil Air Patrol's textbook *Aerospace: The Journey of Flight* and over 700 online questions and explanations; utilize EAA's award-winning photography and the



**EAA Youth Programs**

unique resources of the AirVenture Museum's Boeing Library; and offer an opportunity to fly with an EAA volunteer pilot as part of the Young Eagles Program.

To find out more about the web courses offered by EAA, please contact [webed@eaa.org](mailto:webed@eaa.org).

For more information about EAA, go to [www.eaa.org](http://www.eaa.org).

## COMING ATTRACTIONS

### NCASE 2004

#### National Congress on Aviation and Space Education Conference Update

The upcoming Congress is promising to be the best! The 37th National Congress on Aviation and Space Education will be held March 24-27, 2004, at the Atlanta Marriott Marquis in Atlanta, Georgia. The theme, "Teaching Today for Tomorrow," emphasizes the importance of both aerospace careers and students preparing for careers in aerospace fields.

**Special registration offer - \$79 until September 30, 2003!!!!** For more information on registration go to [www.capnhq.gov/conference/pages/n/nationalcongress.html](http://www.capnhq.gov/conference/pages/n/nationalcongress.html).

This special promotion introduces the Bring a Friend Program & Coffee with the 2003 Teacher of the Year, Dr. Betsy Rogers. If you register between July 1 and September 30, 2003, and have a friend place your name on the referral line of their registration form, you will be eligible to receive an invitation to a private coffee with the 2003 Teacher of the Year and other notable speakers. You will also be entered into the Grand Prize drawing to win three nights lodging and complimentary registration to the NCASE 2004 conference.

The winner of the free 3 nights lodging and registration fee for NCASE 2004 from our spring promotional effort was Marisol Colon from Mayaguez, Puerto Rico. Congratulations, Marisol!

See you in Atlanta!

### AE PROGRAM UPDATES

#### MORE AEX II !!!

The AEX (Aerospace Education Excellence) Award Program is designed to bring new and exciting aviation and space activities to Civil Air Patrol squadrons and community school classrooms. The program currently consists of two versions, one for elementary (K-5) and the other for secondary (6-12 and CAP cadets). The AEX II (secondary version) will soon have a second volume with new activities to motivate and inspire students and cadets. Such activities include: Building the NASA Wind Tunnel, Bernoulli's Beach Ball, CD Hovercraft, and much more. We are currently working on completion of this exciting project. Special thank you to project director, Dr. Ben Millsbaugh. Watch for this exciting new volume of *AEX II*!

IN THE AEM SPOTLIGHT...

# Susan Broderick Mallett



In the AEM Spotlight this month is Susan Broderick Mallett, a Montgomery, Alabama, elementary school principal. She has embedded the aerospace theme throughout her school to motivate the students, provide exciting activities for application of core curriculum skills, and reveal a myriad of career opportunities in the aerospace field. Susan's love of aerospace began in 1986 when, as a first grade teacher, she was asked to field test an aero-

space curriculum for the Alabama Department of Aeronautics. Through the years, she has spread her wings and those of her students by initiating a variety of programs such as "First Flights" for youth with the Maxwell AFB Aero Club, a Young Astronaut's Club, an aerospace Youth Camp at Auburn University at Montgomery (AUM), a "Dream Maker Friday" enrichment class, an annual school-wide Aerospace Adventures Week, and a "Touching the Future" aerospace careers program. At least 10,000 young people have soared through these programs with Mrs. Mallett.

As community outreach, which has impacted thousands more young people, Mrs. Mallett created a Mobile Aerospace Classroom that enables students to experience simulated flight in a hydraulically-controlled, student-sized airplane simulator housed in a redesigned traveling school bus. She has worked with the "Gathering of Eagles" program to facilitate an essay contest wherein the student winners receive airplane flights with noted aviation "Eagles" such as Scott Crossfield and Chuck Yeager. She has taught aerospace education courses at AUM and coordinated numerous teacher workshops throughout the southeastern US. Through these workshops, she has introduced hundreds of teachers to the extraordinary benefits of incorporating aerospace education throughout the curriculum. The teachers are provided awesome professional development opportunities when they take Air Force C-130 flights to tour aerospace facilities and museums around the country, take orientation airplane flights courtesy of the CAP's "Fly a Teacher" program, and take an array of free teaching materials back to the classroom. Participants in her Air Force Association

sponsored workshop this summer remarked that the new ideas and strategies for incorporating aerospace education in the classroom kept them rejuvenated to "continue the dream" of sharing the wonders of aerospace with their young students.

Mrs. Mallett has shared her aerospace expertise with participants at the National Congress on Aviation and Space Education, with Egyptian government and education officials, and with participants of CAP's National Staff College, as the participants learn how to take the aerospace education message to schools in their communities throughout the country. Her programs have brought community partners into the school setting such as CAP volunteers, Air Force Association members, USAF representatives, general aviation and commercial pilots, aircraft mechanics, flight attendants, air traffic controllers, meteorologists, and National Guard representatives. These volunteers provide positive role models, mentors, and career coaches for the students.

Susan remains dedicated to furthering aerospace initiatives in all schools. She is coordinating efforts for the Centennial of Flight year to incorporate a "Take Flight and Read" program to integrate the Centennial of Flight celebration with the school's intensive reading program. An inflatable "space station" will be the "new frontier" to impart an aligned reading and science/aerospace program. If Susan had her way, all young people would be provided an inspirational and motivational aerospace program; a program that would ensure a new generation of young citizenry who are armed with the "Wright Stuff" to lead our country upward and onward. ■



## REGION TO REGION

### NORTHEAST REGION

**Sept. 20-21** - New Hampshire is preparing for its Aviation Septemberfest. CAP will have a booth featuring a variety of activities. The New Hampshire Wing will have members assisting at this event as part of the Centennial of Flight Program on the 29th of September.

**Oct. 14-15** - The New Jersey Science Teachers Association is preparing for its two-day annual conference at the Garden State Exhibition Center. CAP is partnering with AEMs in the area and the NJ Aviation Education Council in presenting workshops and maintaining a booth with the FAA.

**Nov. 5-7** - The New Jersey Education Association will be holding its annual Teacher's Convention in Atlantic City. CAP is preparing to partner with the NJ Department of Transportation, the Federal Aviation Administration and the NJ Aviation Education Council in manning two booths with science demonstrations. CAP will also present a workshop featuring the value of AEM membership and including hands-on activities as well as having a Good Ideas session. More than 75,000 teachers and administrators attend each year.

**From summer into fall of 2003** - 1Lt Larry Nasano of the Walter Schirra Composite Squadron (NJ Wing) is participating in a Centennial of Flight activity sponsored by the Bergen Record's Newspaper in Education program with activities sponsored by CAP's partner - The Buehler Challenge and Science Center.

**Fall 2003** - The Robert J. Novins Planetarium, located at Ocean County College in New Jersey, will offer their Fall program which will feature *Exploring the Winter Sky*.

### MIDDLE EAST REGION

**Nov. 6-7** - 9 am to 4 pm each day, an educational exhibit for students

featuring aircraft from the 1903 Wright Flyer through the Space Age, will be on display at Owens Field in Columbia, SC.

For more information, go to [www.CelebrateFreedomFoundation.org](http://www.CelebrateFreedomFoundation.org).

### GREAT LAKES REGION

**Sept. 12-14** - The USAF Museum and the Great War Aeroplanes Association will offer a three-day flying event of about 50 authentic and reproduction World War I aircraft. This will be the largest ever gathering of WWI aircraft. This event will be held in Dayton, OH. To find out more, log on to [www.kcdawnpatrol.org](http://www.kcdawnpatrol.org).

**Sept. 13-14** - 10 am to 6 pm, The Cincinnati Lunken Air Show will be held in Cincinnati, OH, at Cincinnati Municipal Lunken Airport. Along with the 100th year of aviation, the 75th year of Lunken Airport (where Aeronca, Metal Aircraft and Embry Riddle started) will be celebrated. For the latest information, go to: [www.cincyairshow.com](http://www.cincyairshow.com).

### SOUTHEAST REGION

**Sept. 26-27** - SER Conference at the Westin North Hotel, Atlanta, GA. For registration information, go to [www.ser.cap.gov](http://www.ser.cap.gov).

### NORTH CENTRAL REGION

**Nov. 2003** - The Challenger Learning Center of St. Louis will open. This is a joint venture of the Ferguson-Florissant Schools District, cooperating school districts and the St. Louis Science Center. There are approximately 40 Challenger Centers through the U.S. that provide an exciting, hands-on approach to aerospace and science education.

To learn more about the Challenger Learning Centers and the location of a Challenger Learning Center near you, visit [www.challenger.org](http://www.challenger.org).

### SOUTHWEST REGION

Boeing El Paso in Texas has once again sponsored 117 schools with membership in the Civil Air Patrol Aerospace Education Member Program. This generous sponsorship allows teachers and students to benefit from the many educational products and programs offered by Civil Air Patrol.

In addition, Boeing employees, Albert DeSantos and Larry Spradlin, have created the Columbia Memorial Aerospace Education Appreciation Award in El Paso. This award pays tribute to schools, persons and organizations that exemplify superior dedication and performance in promoting Aerospace Education and Science. Thus far, four El Paso schools have achieved this award. The schools are: Lamar Elementary School, Blessed Sacrament School, Kohlberg Elementary School and Benito Martinez Elementary School. The award has been established with very selective and limited distribution so that the spirit of teamwork, enthusiasm and respect shown by Columbia can be maintained and propagated.

Mr. Spradlin is a member of the El Paso Composite Squadron of the Texas Wing Civil Air Patrol.

### ROCKY MOUNTAIN REGION

A team of adults and cadets of the Thunder Mountain Composite Squadron, in Grand Junction, Colorado, will be involved in all aspects of designing, constructing and flying a hybrid human-electric airplane. The project will be a highly motivating and educational mission that explores the feasibility of using current 'smart car'

## REGION TO REGION

technology in aircraft.

It is estimated the completed project will cost about \$3000 and, schedule permitting, should be flying in the fall of 2003. What better way to involve the schools and the community in the true meaning of aerospace education, especially during the 100th Anniversary of Flight. The Project Coordinator is Brad Loucks.

### PACIFIC REGION

**Sept. 23-25** - Space 2003 Conference, organized by AIAA (American Institute of Aeronautics and Astronautics) and sponsored by Boeing will be held at the Long Beach Convention Center in Long Beach, CA. For more information, go to: [www.aiaa.org/SPACE2003/](http://www.aiaa.org/SPACE2003/).



AFA Sponsored Workshop at Head School Montgomery, AL.

### Answers to Cappy's Quiz

1. Neil Armstrong
2. July 20, 1969
3. Apollo 11

## AEO NEWS AND VIEWS

### Aerospace Education Officers School

The second annual AEO School was held June 26-28, 2003 at Cocoa Beach, Florida. Twenty-four aerospace officers from fifteen different CAP wings were present. The goal of the school was to provide CAP members with an increased understanding and the ability to accomplish their aerospace education duties and responsibilities. The course objectives were to educate the aerospace leaders, share experiences to make aerospace education better and to increase communication between squadrons, wings, regions and headquarters.

All aspects of a DAE's and AEO's responsibilities were discussed. Numerous handouts were used as samples for submitting reports and awards. Emphasis was placed on active involvement from the attendees. Student participation was highly encouraged, and the interaction among the students always resulted in increased learning. Discussions surrounding how something was handled in a particular wing stimulated conversation and benefited the entire group.

In addition to the two and a half days of classroom discussions, the attendees went on a field trip to Kennedy Space Center which was very informative and well received. The end of course critiques unani-

mously recommended that this school should be continued.

### National Aerospace Education Academy

Twenty-one CAP cadets from across the country ranging in ages from 14 to 17 attended the NAEA held in Oshkosh, Wisconsin, on June 15-21. The academy was a joint effort between Civil Air Patrol and the Experimental Aircraft Association.

In the mornings, cadets experienced classroom instruction and lots of hands-on activities on the following subjects: aviation weather, aviation principles, aviation history, rockets, and space. Then, in the afternoons, the cadets participated in EAA's Sport Air workshops, Operation Aviation, and their EAA Challenge Course. Additionally, the cadets flew in a tethered hot-air balloon, received orientation rides from the CAP Wisconsin Wing, flew control-line airplanes, built wing spars, and visited a planetarium.

Thanks to EAA for allowing the use of their wonderful facilities and for also affording the cadets the marvelous opportunity of participating in their one-of-a-kind events. Also, thanks to the many CAP volunteers who contributed mightily to the success of this academy, and in particular the CAP Wisconsin Wing. The support and efforts of the Wisconsin Wing and

the other volunteers ensured an exciting educational week for the attendees. ■

### Congratulations to the Summer 2003 Aerospace Education Foundation Grant Winners!

- |                                |    |
|--------------------------------|----|
| 1. 55th Comp Sq                | CA |
| 2. Abilene Comp Sq             | TX |
| 3. Arlington Comp Sq           | TX |
| 4. Arundel Comp Sq             | MD |
| 5. Capital City Comp Sq        | PA |
| 6. Condor Comp Sq              | NY |
| 7. Corona Cadet Sq             | CA |
| 8. Flying Castle Comp Sq       | OK |
| 9. Gainesville Comp Sq         | FL |
| 10. Galt Comp Sq               | IL |
| 11. Lehigh Valley Comp Sq      | PA |
| 12. Lone Eagle/Morristown      | NJ |
| 13. Mt. Vernon Comp            | VA |
| 14. Pineland Comp Sq           | NJ |
| 15. Port Angeles Comp Sq       | WA |
| 16. Spirit of St Louis Comp Sq | MO |
| 17. Sullivan County Comp Sq    | NY |
| 18. Tusco Comp Sq              | OH |
| 19. Tamiami Comp Sq            | FL |
| 20. Wright-Patterson Comp Sq   | OH |

## AEO IN THE SPOTLIGHT

### LT COL DAVE GARNER, CAP



Dave Garner's interest in aerospace education began while teaching in the Oak Ridge Tennessee Schools. Dave attended both the basic Aerospace Education Teacher Workshop and the Advanced Workshop at Middle Tennessee State University. What he learned at these workshops "turned him on" to aerospace education. This inspired him to teach more on the subject to his Earth Science classes. Dave left teaching in 1981 to start a new career in the computer industry.

The "aerospace education bug" did not go away with his career change. Dave started in CAP in 1987 with the Oak Ridge, TN Squadron and served as the AE Officer for two years. Lt. Col. Frank Disney (at that time Tennessee Wing Director of Aerospace Education) instructed and mentored Dave in the job of Aerospace Education Officer (AEO).

In the next four years, Dave went from Internal DAE (Director of Aerospace Education) at Wing to replacing Col. Disney as Tennessee Wing DAE. As the DAE, Dave developed an aerospace education workshop for teachers at the University of Tennessee. The Tennessee Wing, under the leadership of the Wing Commander, Major General Richard Bowling, (then Col Bowling), took on this challenge as a Wing project. They were successful and the first University of Tennessee Aerospace Workshop for Teachers was held in 1994.

These workshops have since trained over 300 teachers in East Tennessee in AE and they, in turn, are teaching AE in their respective classrooms to thousands of students each year.

In 1996, Dave advanced to Southeast Region DCS/AE where he currently continues his outstanding work for Civil Air Patrol and aerospace education.

Dave has accomplished many objectives, such as initiating the first national level staff training school for Aerospace Education Officers. This school began two years ago under the leadership of Jim Mallett, National Director of Aerospace Education. Held in Cocoa Beach, Florida, this school (now in its second year) provides useful information and training to CAP AEOs and DAEs, as well as a field trip to Kennedy Space Center. Information about this school can be found at <http://ser.cap.gov/NationalAEOStaffSchool.htm>.

Dave currently serves as webmaster for the Southeast Region Headquarters website at <http://seer.cap.gov>. He also publishes an Aerospace Education website at <http://.ser.cap.gov/ae> that has been on the web since 1994.

Dave re-entered the teaching field in 2002, serving as an educational coordinator with the Knox County Sheriff's Department. This past year, he taught 40 adults in the probation system working on their GED. All 40 were enrolled in the CAP Aerospace Education

Excellence Award Program and loved it!

Dave Garner is married to Gail Garner, a first grade teacher in Knox County Schools and CAP member currently serving as the Internal TN Director of Aerospace Education. He has two daughters and four grandchildren.

Dave received the CAP National Aerospace Education Brewer Award for Senior Members in 1997.

To quote Dave, "As I hope you can see, I love teaching, and love aviation and aerospace education. I believe in our AE program and try to impart this love to every CAP member I meet." CAP is certainly fortunate to have volunteers like Dave Garner!

## TEACHER GRANTS



### Congratulations to Spring 2003 AEF Teacher Grant Winners!!!

1. Susan Busch, Herbert Hoover Elementary School, Kenmore, NY
2. John Chapman, Alamo Elementary School, Kalamazoo, MI
3. Susan Clayton, Thomas L. Head Elementary School, Montgomery, AL
4. Rhonda Cox, Orion High School, Orion, IL
5. Debra Evans, Chouteau High School, Chouteau, OK
6. Karen Gant, Carol City Elementary School, Miami, FL
7. Dave Garner, Community Alternatives to Prison Program, Knoxville, TN
8. Kathleen Giambattista, Fancy Gap Elementary School, Fancy Gap, VA
9. Jamie Jones, RESA Academy Alternative School, Grimmin, GA
10. Stacy Klinkhammer, Thomas L. Head Elementary School, Montgomery, AL
11. Richard Petrucci, Sarasota Military Academy, Sarasota, FL
12. Mark Rivard, Lewiston-Porter Middle School, Youngstown, OH
13. Theresa Santiago, Edward J. Patten Elementary School, Perth Amboy, NJ
14. Deborah West, D.F. Walker Elementary School, Edenton, NC

# CURRICULUM CORNER

## FLYING WING EXPERIMENTAL AIRCRAFT MODEL

**Objective:** To use variables to manipulate the design of an experimental aircraft model to increase the distance it travels.

**Grade Level(s):** Middle School or High School

**National Standards: Science Standards (Source: National Research Council)**

*Content Standard A: Science as Inquiry*

- Abilities necessary to do scientific inquiry
- Understanding about scientific inquiry

*Content Standard B: Physical Science*

- Motions and Forces

*Content Standard E: Science and Technology*

- Abilities of technological design
- Unifying Concepts and Processes
- Evidence, models, and explanation

**Materials:**

2 straws with different diameters, masking tape, scissors, index cards, rulers, tape measures, and charts for recording results.

**Estimated Time:** 45 - 60 minutes

**Procedure:**

1. Discuss thrust and four forces of flight.
2. Hand-out materials to each student.
3. Have students wrap a piece of tape around the front end of the straw with the larger diameter so that the opening is taped shut.
4. Using the index cards, have stu-

- dents create a flying wing to attach to the straw fuselage. The design and placement of the wing will be two variables to test.
5. To fly the wing, students insert the launch straw into the larger fuselage straw, leaving about an inch of the launch straw exposed. Students provide the thrust by blowing into the smaller straw, projecting the Flying Wing forward.
5. Before testing, have students predict how well the experimental aircraft will fly.
6. After testing, have students record distance traveled by aircraft and describe the flight of the test. Have them explain why they think the results were achieved. For older students, have them build a launcher to test different amounts of thrust or use angle measurements to test angle of launch.

**Teacher Notes:**

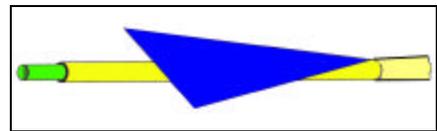
1. Instruct students to work with a partner. One person tests his/her Flying Wing while the other records distance and time aloft.
2. Set up a target and see which Flying Wing can land closest to the center of the target by adjusting the amount of applied thrust or airplane design.
3. Students should understand variables and the scientific method. They should also be able to chart results.

**Safety:** Make sure there is plenty of space for this activity and that students launch Flying Wings in the same direction and blow only into their own straws.

**Discussion:**

1. Diagram and label your best design.
2. What changes to the design of your Flying Wing aircraft were most successful? Why?

**Assessment:** Base evaluation on use of the scientific method as evidenced by explanation to class or use data tables with explanation and diagram as a portfolio or journal entry.



CAPPY'S QUIZ



1. Who was the first man to walk on the moon?
2. On what date in history did this occur?
3. What was the name and number of the manned space flight project?

The answers can be found in this newsletter on page 5 and in CAP's *Aerospace: The Journey of Flight*.

<u>Variable Tested</u>	<u>Trial 1:</u>	<u>Trial 2:</u>	<u>Trial 3:</u>	<u>Average Time:</u>	<u>Average Distance:</u>
	Time:  Distance:	Time:  Distance:	Time:  Distance:		

Sample Chart for Testing Flying Wing

