



Aerospace Education

Spring 2009

News

Inspiring Students To Excel

How Much is Too Much?

Our newsletter will be sent to you every quarter beginning with this issue. We hope to offer many other materials and opportunities for our Aerospace Education professionals....so stay tuned!

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Aerospace Education News

Aerospace Education News is the official aerospace education quarterly publication of the Civil Air Patrol at CAP National Headquarters, Maxwell Air Force Base, Ala.

Judy Stone
Editor

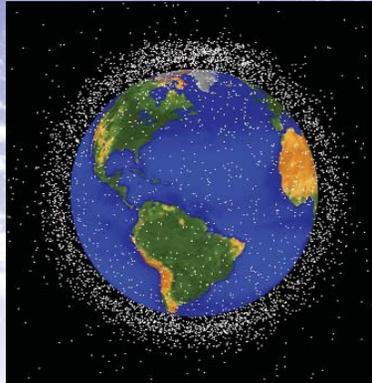
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If you have news, events, or ideas we might consider for the newsletter, please submit them electronically to jstone@capnhq.gov.

Call it space trash, space debris, or space junk...all three terms refer to the same thing -- man-made objects remaining in space though they no longer serve any useful purpose. Whether it is the most recent incident involving a U.S. satellite that accidentally hit an out-



of-commission Russian satellite, scattering a trail of debris in space in mid-February or a case of a tool bag lost during a spacewalk in November 2008, the amount of debris in Low Earth Orbit (LEO) is cause for concern.

While our "space litter" hasn't reached epic proportions yet, the growing belt of cosmic junk could eventually lead to more collisions and possible damage to working space objects such as the International Space Station. Even though chances of collisions and falling debris is not the norm, the fact that 17,000 pieces of debris measuring at least 10 cm are orbiting Earth is cause for monitoring. The data is tracked by such agencies as the United States Strategic Command, NASA, NORAD, and even the FCC.

Some statistics concerning this problem are:

- A pea-sized piece of debris measuring 1 cm that is traveling at 10 km/sec has the same kinetic energy as a 250 kg dumpster whirling along at 100 km/hr.
- The approximate amount of time debris that are orbiting more than 1,000 km above the Earth's surface will continue to travel around the Earth is 100 years.

- There is only a one in a trillion chance that a person will be struck and injured by a piece of space debris that falls to Earth.
- Oh, and by the way, that tool bag that was lost during a spacewalk in November 2008 cost \$100,000. Expensive trash, huh?

There is currently no international treaty governing space debris, though the U.S., Russia, Japan, France and the European Space Agency have rules they follow to keep the junk to a minimum. These rules include limiting the amount of debris produced from normal operations, such as throwaway orbital stages or components. The next generation of space professionals will have to contend with this problem -- will that mean we need space traffic controllers or space debris collectors? With this problem growing, it will also cause a new set of careers to emerge. So, how would you solve this problem?

Further classroom discussion:

- 1. How would you address the international space community to ask for cooperation in solving the space debris problem?**
 - 2. What careers could be developed to address the problem?**
 - 3. Draw a possible solution and share your poster with the class.**
 - 4. Research the topic and present a multimedia presentation on the subject.**
- (See Curriculum Corner for additional activities.)



In the Aerospace Education Member (AEM) Spotlight ...

Penny Leon Glackman

Penny Leon Glackman has refined her teaching of science in her over 25 years of experience with elementary students. Currently a teacher at Merion Elementary School, her interest in aerospace education began when she participated in NASA's Educational Workshop for Elementary School Teachers (NEWEST) program at Kennedy Space Center in 1997. After this experience, Ms. Glackman began infusing her classroom with space-themed curriculum.

Among her training and accomplishments, Ms. Glackman has participated in the Science Training for Enhancing Leadership and Learning through Accomplishments in Research (STELLAR) program at NASA Ames Center as an Associate Teacher; has participated in Students On-Line Atmospheric Research (SOLAR) program at Biomedical Research Institute Teacher Academy Project at Texas A&M and Johnson Space Center; was awarded an educator scholarship to participate in the Space Academy Program in

Huntsville, Alabama, sponsored by Honeywell; and Penny was honored by the National Space Society with its Special Award for Excellence in 2005 as a result of her working with state legislators on resolutions in Pennsylvania supporting space exploration.

Penny Glackman renewed her CAP membership at the Space Exploration Educators Conference (SEEC) in 2008 and participated in the Fly A Teacher Program in conjunction with the conference. She was inspired by the flight and shared this experience with her students. Ms. Glackman expressed that the Fly A Teacher session was the highlight of this great conference.

Being a member of the National Science Teachers Association, where she serves on the Aerospace Education Advisory Board, Ms. Glackman has been able to present at conferences related to science education at regional



Penny Glackman with CAP pilot Sandy Meyerson at Fly A Teacher session in Houston at SEEC.

and national levels. She was also selected to serve on the Advisory Board of the Coalition for Space Exploration in 2007.

In her third grade classroom, Ms. Glackman has built model rockets, one-straw kites and straw airplanes with her students. They have also visited the American Helicopter Museum and they celebrate the Wright Brothers' accomplishments every December. She offers a wide range of stimulating and motivating experiences for her students and keeps them involved and interested in science and learning. As she says, "It is very important to continue to ensure that

children are excited about learning, and that we offer a learning environment that is not confined to the classroom. I have found that space science is a way to engage, enrich and encourage my students. It is a powerful learning experience."

"It is very important to continue to ensure that children are excited about learning, and that we offer a learning environment that is not confined to the classroom."

---Penny Glackman



Penny Glackman's class visits the American Helicopter Museum.



In the Aerospace Education Officer (AEO) Spotlight.....

Lt Col Steve Stein, OH 219

The three E's describe Lt Col Steve Stein's Model Rocketry Program - enthusiasm, expertise and energy. His dedication to making his program a success and a great learning experience for his participants can be attributed to the preparation and training he puts into this program.

Because of an intense interest in all things about aviation and space, Lt Col Stein joined CAP in 1988 and has been an active part of the organization for the past 21 years. His family is also heavily involved. His wife is CPT Dona (Smith) Stein and they have two teenage boys - Jacob (15 and a CAP c/2Lt) and Gerard (14). Rocket, their famous dog, completes the family.

Lt Col Stein is presently the Aerospace Education Officer with the Medina County Skyhawks (GLR-OH-219). In his professional working life he is a digital media specialist in the Digital Media Communications group at Lorain County Community College in Elyria, Ohio (where he is primarily a videographer and video editor). He has been with this company for 24 years.

In his 21 years at CAP, Lt Col Stein has been an instructor in Ohio Wing's old "Ground Operations Training School," had two stints as an acting squadron commander; and has been a Deputy Commander for Cadets, Deputy Commander for Seniors, Communications Officer, Leadership Officer, Professional Development Officer, and Group E.S. Training Officer, as well as other positions. Not only has Lt Col Stein been active in CAP, but he has over 300 hours on Air Force missions and 22 non-hazardous finds. He has a Senior Rating in Cadet Programs and Aerospace Education, as well as a Master Rating in Professional Development and a Unit Citation. As a seasoned CAP member, Lt Col Stein

has participated in all of the mission areas.

Because he loves aviation and space, Lt Col Stein has done an outstanding job with and for CAP. He has recently returned to the hobby of model rocketry. He belongs to the Skybusters Rocketry Club and the Mantua Township Missile Agency Rocketry Club where he is learning a lot from a great bunch of guys. He is using the CAP Model Rocketry Program., and is improving and sharing his skills and knowledge with others. You can find some of his materials on our national CAP website at <http://members.gocivilairpatrol.com/ae> under the Best Practices link. He has been kind enough to share this with us and we, in turn, are sharing it with you. We have already received requests for his email address to thank him for sharing.

Lt Col Stein is also into physical fitness and lives the example for his cadets. He has a 1st Dan Black Belt in Tai Kwon Do and exercises on his treadmill. He is learning constantly and keeping healthy at the same time. We appreciate his commitment to CAP and the youth of our organization. He is truly an AE treasure!



"Anything worth doing is worth over-doing."

--(Attributed to Chris Smith, one of those who got Lt Col Stein into CAP)



OH cadets enjoying the Model Rocketry Program



STARBASE NEBRASKA and CAP AE

In the fall of 2008, STARBASE Nebraska, Inc. held a teacher-training workshop in Lincoln, Nebraska for eight middle school teachers who were eager to excite their students in the fields of STEM. Representing schools in Lincoln and surrounding communities, these teachers work with a diverse population in Title 1 programs. Being mindful of the reports from business and industry which criticize the achievement levels of American students in those disciplines, the goal of the teacher training was to provide teachers with an interactive, hands-on curriculum within the context of an aerospace education framework.

The training was a collaborative effort among STARBASE Nebraska, Inc., STARBASE Nebraska, Lincoln Public Schools, Lincoln Community Learning Centers, and the lead agencies of the Lincoln Community Learning Centers (Lincoln Parks & Recreation, Family Service, Lincoln YMCA, the Clyde

Malone Center, and Heartland Big Brothers Big Sisters). NASA Nebraska Space Grant awarded them a mini-grant of \$2,025 and STARBASE Nebraska, Inc. bought Civil Air Patrol AE memberships for each of the teachers so they could receive additional aerospace education materials to include the framed AEX award for their school and certificates of completion for their students. A \$125 stipend was given to each teacher, and they returned to their schools with a detailed syllabus and a tub containing their make-it and take-it activities. A desirable outcome is the creation of sustainable after-school clubs that promote student interest in science, math, and technology fields.

STARBASE Nebraska, Inc. is committed to making a difference in the lives of those who someday may choose careers in aviation and space. If you have any questions about this program contact: Diane R. Bartels at

402-489-3059 or email her at DBSharpie@aol.com .

For information about the national STARBASE program, go to starbase-dod.org.



Diane Bartels (bottom row, left) and teachers who participated in the teacher-training workshop



Teacher participant makes hot air balloon

Arlen Sykes's Aerospace Club

The Colina Aerospace Club of Kyrene de la Colina Elementary School in Phoenix, Arizona, started three years ago under the leadership of Mr. Arlen Sykes, a retired navy air traffic controller. Mr. Sykes joined CAP as an AEM in 2006 and his club has earned the CAP Aerospace Education Excellence (AEX) Award during each of those years.

Mr. Sykes motivates the 35 members of the aerospace club from the AEX activity books, teacher-created activities and field trips. The students have built and launched model rockets, learned the pragmatics and fundamentals of the use of radios in aviation, toured the new air traffic control tower at Sky Harbor International Airport, toured and explored the U.S. Airways Flight Training Center in Phoenix, Arizona, and toured Salt River Project's flight operations and hangar at Sky Harbor

International Airport. The field trips were supplemented with hands-on activities during and after the visits.

Mr. Sykes has used the CAP AE programs, along with his special teaching skills, to bring aviation and space to life for these young people. He is a shining example of how anyone can take this exciting and inspiring subject and motivate students to develop an interest in science and aerospace. This is an example of integrating the aerospace theme into the educational experience.



Arlen Sykes and his class visit Phoenix Airport and the class participates in aviation activities.



CURRICULUM CORNER (Grades 5-12).....

Space Debris Tester... NASA's "Suited for Spacewalking" Activity Guide

Objective:

Students will measure the resistance of sample materials to impacts.

National Science Standards:

Content Standard A: Science as Inquiry

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

Content Standard B: Physical Science

- Structure and properties of matter
- Motions and forces

Content Standard E: Science and Technology

- Abilities of technological design

Content Standard F: Science in Personal and Social Perspectives

- Natural and human-induced hazards

Unifying Concepts and Processes

- Evidence, models, and explanation

Mathematics Standards

2. Algebra Standard

- Use mathematical models to represent and understand quantitative relationships.

4. Measurement Standard

- Apply appropriate techniques, tools, and formulas to determine measurements.

9. Connections Standard

- Recognize and apply mathematics in contexts outside of mathematics.

Grade Level: 5 -12

Background Information:

One of the hazards of spacewalking is the presence of small high-speed particles. These small particles, that may only be a fraction of a gram, when traveling at high speeds, can severely injure an astronaut. The near-Earth environment (LEO or Low Earth Orbit)

of space debris, such as paint chips and metal fragments from old rocket boosters and satellites, can be equally dangerous. As a consequence, spacesuits have to be constructed from materials that are resistant to impacts.

Before running tests on impact resistance, allow students some research time on the history of spacesuits at

<http://www.history.nasa.gov/spacesuits.pdf>

Also, have students check on the advances being made in the development of the next generation spacesuit at <http://web.mit.edu/newsoffice/2007/biosuit-0716.html>.

Materials:

- Wooden base (6" x 1" x 2')
- PVC plastic water pipe (3/4" x 10')
- Pipe elbows (2 pcs)
- Pipe flanges (1 pc)
- Screws for flange
- Bell wire
- Large eye screw
- Electronic project box
- On/off switch
- Pilot light
- Push button switch
- 6 volt battery holder
- Wooden block (1" x 6" x 6")
- Center punch
- Screw driver
- Meter stick
- Test materials
- Tape or pins

Additional Material Information:

1. Parts for the impactor design pictured in this activity are available from hardware stores (pipe parts, screws, eye screw, center punch) and electronic parts stores (project box, switch, battery holder, pilot light, electromagnet wire).

2. Make your electromagnet by wrapping electromagnet wire about 400 times around a large eye screw. When

the magnet is electrified the blunt end of the impactor will be held by the magnet. When the current is turned off, the magnet impactor will drop straight to the target.

3. Have students bring in various materials for testing, such as fabrics and plastics. Encourage students to create composite materials by combining two or more materials together.

Safety:

1. All operators and observers must wear eye protection during drops.

2. The materials to be tested should be placed on the test stand before the impactor is suspended from the electromagnet. Nothing but the materials to be tested should be under the suspended impactor.

Mathematical Equations:

In physics, the energy of a moving object is called kinetic energy (KE). The amount of that energy is related to the object's mass and its speed. The equation below can be used to determine the kinetic energy of the falling center punch at the moment of its impact on the test surface. The answer will be in joules.

A **joule (J)** is a unit of work equal to a force of one Newton exerted over a distance of one meter; in English units, a joule is approximately equal to 0.75 foot pounds.

$$1 \text{ J} = 1 \text{ kg} \cdot \frac{\text{m}^2}{\text{s}^2}$$

$$\text{KE} = \frac{1}{2} mv^2$$

m = mass of impactor
v = velocity at impact



CURRICULUM CORNER (Grades 5-12).....

Space Debris Tester...NASA's "Suited for Spacewalking" Activity Guide

To determine the velocity at the impact, use the following equation:

$$v = gt$$

g = the acceleration of gravity or 9.8m/second²

t = length of time the impactor fell

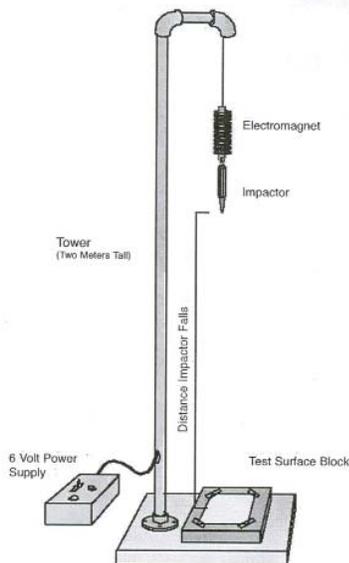
To determine the length of time the impactor falls, use the following equation:

$$t = \sqrt{\frac{2d}{g}}$$

d = the distance the impactor fell, in meters

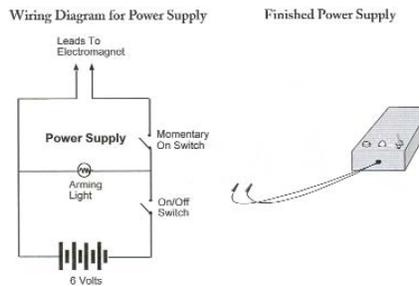
Procedure:

1. Assemble the Impact Resistance Tester according to the "Special Procedures" and the diagram below:



The test stand consists of a tower, made from pipe, with an electromagnet near the top. A center punch (impactor) is suspended from the magnet and drops when the electricity is cut off. The center punch falls into a test sample placed below on the test surface block.

The Finished Power Supply Diagram:



2. Cut the materials to be tested into small squares and tape or pin each on the test surface block (1" x 6" x 6" wooden block.)
3. After positioning each test material, turn on the electromagnet and attach the impactor.
4. Measure the distance between the point of the impactor and each test material.
5. When the impactor and magnet stop any swinging motion, turn off the electric current to release the impactor. As it falls, the impactor will accelerate into the sample and make a dent or even penetrate it.
6. Evaluate the resistance to impacts of various materials by comparing the damage done to them. Use a metric ruler for measuring the diameter of the dent or hole.
7. Discuss the relative merits of the materials the students tested. For example, a thick layer of steel would make an excellent shield but would probably be too heavy and too inflexible to be of use in a spacesuit.
8. Ask students to keep a test log containing data from each test. Encourage

students to predict the amount of damage a sample will receive during a test and compare that to the actual results.

9. After students have determined the best materials that could be used for spacesuits, challenge them to wrap a potato in each material and conduct the same drop procedures.

10. Discuss some relative merits of each material.

11. Collect data in a test log for potato experiment to determine which materials would potentially best protect an astronaut in space.

Sample Problem

Given: d = 2 m and

Impactor mass = 50 grams (0.05 kg)

What is the KE?

$$v = gt$$

$$v = 9.8 \text{ m/s}^2 \times 0.64\text{s} = 6.3 \text{ m/s}$$

$$KE = \frac{1}{2} m v^2$$

$$KE = \frac{1}{2} \times 0.05\text{kg} \times (6.3\text{m/s})^2 = 0.99 \text{ joules}$$

Extensions:

1. For younger students, begin studying the mathematics of the device with observations on the speed of the impactor as it falls. It will be observed that the farther the impactor falls, the faster it falls.
2. The impactor can be dropped from any height when testing materials. At what height should the impactor be suspended to equal the impact of a micrometeoroid in space if the micrometeoroid has a mass of 1×10^{-5} grams and a velocity of 8,000 meters per second? Velocity of 16,000 meters per second? (Your answers will depend upon the mass of the impactor you use.)
3. How much kinetic energy is expended by the micrometeoroid above?



CURRICULUM CORNER (GRADES 3-5).....

Meteoroids and Space Debris Activity

Objective: Students will learn how the penetrating power of a projectile with little mass but high velocity presents a hazard.

National Science Standards:

Content Standard B: Physical Science

- Properties of objects and materials
- Position and motion of objects

Background Information for Teacher:

Astronauts on spacewalks are likely to encounter fast-moving rocky particles called meteoroids. There is no blanket of atmosphere to protect spacecraft and astronauts from the full force of meteoroids. The majority of meteoroids are too small to penetrate a spacecraft or do harm to an astronaut. However, of greater concern to spacecraft engineers is the problem of space debris. Thousands of space launches have deposited many fragments of launch vehicles, paint chips, and other "space trash" in orbit. Most particles are small, but traveling at speeds of nearly 30,000 kilometers per hour, they could be a significant hazard to spacecraft and to astronauts outside spacecraft on extravehicular activities.

Engineers have protected spacecraft from micrometeoroids and space trash in a number of ways, including construction of double-walled shields. The outer wall, constructed of foil and hydrocarbon materials, disintegrates the striking object into harmless gas that disperses on the second wall. Spacesuits provide impact protection through various fabric-layer combinations and strategically placed rigid materials.

Although effective for particles of small mass, these protective strategies do little if the particle is large. It is especially important for spacewalking astronauts to be careful when they

repair satellites or do assembly jobs in orbit. A lost bolt or nut could damage a future space mission through an accidental collision.

Student information:

Astronauts wear special suits that protect them from most small pieces of matter that may be in space. This "trash" can be a paint chip or a small piece of a spacecraft that came off in space. These bits of trash are normally not a problem but the speed they are traveling may make them a problem. This activity will allow you to test the effect that a fast moving object has on a solid.

Materials:

- raw potato
- large-diameter plastic straw

Procedure:

1. Hold a raw potato in one hand. Stab it with the straw using a slow push. The straw should bend before penetrating the potato very deeply. **Caution: Be careful not to strike your hand.** (You might want to have the student wear a heavy duty glove on the hand holding the potato.)

2. Again grasping the potato with one hand and the straw with the other hand, stab the potato with a quick, sharp motion. The straw should penetrate completely through the potato.

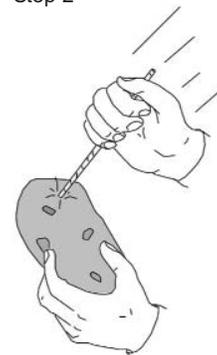
Explanation:

The plastic isn't strong enough to support the slow force exerted at the opposite ends of the straw. However, when the straw is thrust rapidly into the potato, the straw easily penetrates and passes into the potato. The straw enters the potato before it has a chance to collapse. As it enters, the surrounding potato helps the straw by shoring up its sides.

Step 1



Step 2



Extensions:

1. Compare other protective devices that we use in our lives on earth such as bullet-proof vests, suits of armor, shields on power tools, and windshields on vehicles. How does the function determine the form? (e.g. Motorcycle helmet - provide protection during crash - streamlined - comfortable to wear - protect from bug and rock impacts, etc.)
2. Experiment with different fabrics or other coverings on your potato and see how the fast-moving straw impacts it.

Note: Teacher can demonstrate for younger students in grades K-2.



AFA Update

The Air Force Association (AFA) continues their outstanding support of CAP and aerospace education since the AFA has now contributed over \$270,000 in aerospace grants for our CAP units and our teachers who are promoting aerospace in their squadrons and classrooms. The application for these \$250 grants can be found at <http://members.gocivilairpatrol.com/ae>. The spring CAP teacher grant cycle ended March 31, and the next teacher deadline is September 30. The upcoming grant cycle for CAP units has a June 30 deadline.

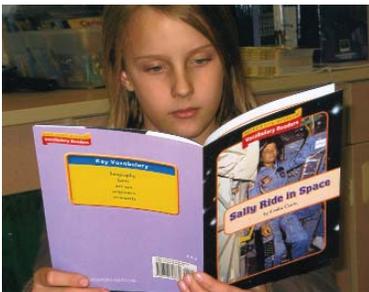
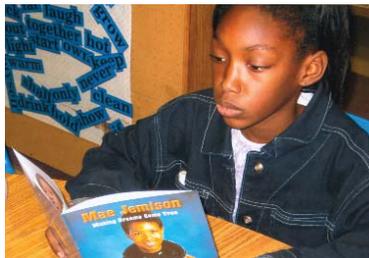
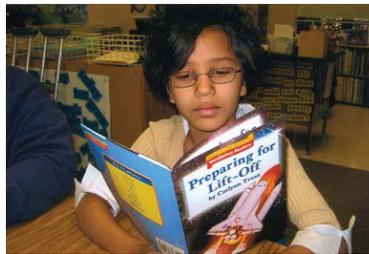
Winners of the spring educator grant cycle will be announced in the summer issue of AE News. Congratulations to all!



Local elementary school benefits from MS Squadron 051 building hovercraft from AFA Grant funds in 2008.

The winners for our Winter Unit grant cycle were:

- | | |
|------------------------------|----|
| Santa Cruz County Comp. Sq. | AZ |
| Vanguard Comp. Sq. | NY |
| Bellingham Comp. Sq. | WA |
| Wright Brothers 282nd | |
| Aero Comp. Sq. | OH |
| Colorado Springs Cadet Sq. | CO |
| Milwaukee Senior Support Sq. | WI |
| Jon E. Kramer Comp. Sq. | CA |
| Voyager Squadron 120 | CA |
| Arundel Comp. Sq. | MD |
| Glenn R. Martin Comp. Sq. | MD |
| Green Mountain Comp. Sq. | VT |
| Condor Comp. Sq. | NY |
| Winchester Comp. Sq. | VA |
| Muskegon Comp. Sq. | MI |
| Niagara Falls Comp. Sq. | NY |
| Rio Del Fiero | TX |
| Crystal Lakes M.S. Cadet Sq. | FL |
| Pineland Comp. Sq. | NJ |
| Offutt Comp. Sq. | NE |
| Worcester Cadet Sq. | MA |



Students at Gardner Magnet School in Hot Springs, AR benefit from an AFA Grant to read about space and astronauts.

Air Force Association and Civil Air Patrol Cadets in First CyperPatriot Competition

The Air Force Association (AFA) conducted the first-ever CyberPatriot competition February 26-27 in Orlando, FL. In an effort to promote education and awareness of cyber security, seven Air Force Junior Reserve Officer Training Corps (AFJROTC) teams and one Civil Air Patrol (CAP) team from the greater Orlando area competed.

CyberPatriot was held in conjunction with AFA's 25th annual Air Warfare Symposium. The CAP team took second place and was coached by Captain Timothy Walker of the CAP's Cooper City Composite Squadron and included Cadets Isaac Harding, Joshua Dovi, Christian Kearns, and Charles Walker.

The competition replicated real life situations and a series of cyber attacks. The mission was to defend and maintain service on a virtualized network of computers representative of a typical commercial network. The teams competed on a commercial platform called TeamDefend, donated by Science Applications International Corporation (SAIC).

The preparation for and overall conduct of the competition was led by Professor Greg White, Director of the Center for Infrastructure Assurance and Security (CIAS) at the University of Texas at San Antonio. CIAS hosts the highly acclaimed National Collegiate Cyber Defense Competition (NCCDC), and the CyberPatriot winners will travel to San Antonio in April for further participation with the NCCDC.

Plans call for the competition to expand next academic year to AFJROTC/CAP units in all high schools across the nation.



AEROSPACE EDUCATION PROGRAM ANNOUNCEMENTS

New and Improved!

Have you visited AE's website lately? If not, it's time to take a tour! Go to <http://members.gocivilairpatrol.com/ae> and you will see the new navigational page. We hope these changes will make it easier for you to find information. AFA grant documents, AEX forms, award documents, ACE Program forms, and other forms are available for you to download at your convenience. NOTICE: If you have any links on your own website that direct visitors to the former www.cap.gov sites, please update your links!!!



Aerospace Connections in Education (ACE)

Not familiar with the ACE Program?? Find out more at <http://members.gocivilairpatrol.com/ae>

The 2008-2009 ACE Program is fast nearing completion, and, thus, it is time for participating teachers to make preparations to submit end-of-program forms. From the many photos and newspaper reports we have seen, it appears this has been a most successful year. To be considered for ACE awards, please refer to your program guidance to ensure all deadlines for submission are met.



Students enjoy the ACE Program.

Aerospace Education Excellence (AEX) Award Program



If you have conducted at least six aerospace lessons with your students or your cadets from our curriculum (or yours) as well as 2 additional hours of other aerospace related activities (such as a field trip,

a rocket launching event, or a combination of other lessons), don't forget to submit an AEX completion form for your unique wood plaque and completion certificates for your students or cadets. If you have further questions, contact Debbie Dahl at ddahl@capnhq.gov.

Fly A Teacher Program

Are you interested in the Fly A Teacher Program? If you are an AEO who is trying to give teachers an awesome experience to share with their students or if you are an AEM who wants to find out how to receive your free teacher orientation flight, information about this program is found on our website at <http://members.gocivilairpatrol.com/ae>. If you have further questions, please contact Judy Stone at jstone@capnhq.gov.



Teachers from Boaz, AL participate in the Fly A Teacher Program



Professional Development Opportunities....

CAP Aerospace Education Officer (AEO) Schools for 2009

Four AEO schools are planned for 2009. All four will be based on the national model that has been ongoing for seven years.

The agendas and curriculum content for the four schools will be very similar. Field trips and outside classroom activities will be different based on the location of the schools.

- The 8th annual National AEO School will be held 24-27 June at Pensacola NAS, FL.
- The 2nd annual Pacific Region AEO School will be held in McMinnville, OR, from 9-11 July.
- The Great Lakes Region will conduct an AEO School at Wright-

Patterson AFB, OH, from 5-8 August

- The Northeast Region is also planning to hold an AEO School but the dates and location have yet to be decided.

These AEO Schools are a great venue for aerospace officers to learn all about CAP's aerospace mission and how to use the many resources available to them. The schools will provide the guidance and tools to conduct aerospace programs in CAP units, as well as in outreach to local educational institutions. Experienced AEOs, as well as brand new AEOs at squadron, group, wing, and region are all welcome. The interaction that occurs between the

attendees is one of the strong points of the school and sharing those different experiences is very important to the success of the school.

If you are looking for new and creative ways to conduct aerospace at your unit and in service to your community, please consider attending one of these four schools. You are guaranteed to learn ways to help you become more effective and efficient as an AEO. Information about the AEO School in Pensacola is located at http://members.gocivilairpatrol.com/aerospace_education/ Click on AEO Resources. Links are being created for the other schools and will be available soon.

University of Tennessee Aerospace Education Workshop for Teachers

From July 6-24, 2009, the University of Tennessee will conduct its annual Aerospace Courses for teachers. Basic and Advanced AE Courses are offered for college credit. The three-week course includes a multitude of aerospace speakers, activities, and field trips. The advanced course even includes flight school!!! For more information, contact Dave Garner at dgarner@usit.net.

Kennedy Space Center Educators Conference

Space Education Initiatives and the Iowa Space Grant Consortium are coordinating a behind-the-scenes educator tour of Kennedy Space Center (July 16-18) with many educational and interesting events including a banquet with guest speaker, former astronaut, General Tom Stafford.

For more information, contact Jason Marks at jmarks@spaceed.org.

Aerospace Education Institute and Fly A Teacher in Seattle, Washington

This institute is for classroom teachers who are interested in extending and sharing their aerospace education experiences with others. Attendees must be CAP Aerospace Education Members (AEMs). The institute consists of sessions in Seattle's Museum of Flight on Saturday 8 August followed by airplane orientation rides on Sunday 9 August (weather permitting). The institute fee is \$10. For an additional \$10 attendees may participate in an optional field trip to the Boeing Wide Body Assembly Plant (to view 747, 777, and 787s being built), the Museum of Flight's Restoration Center, and the Pacific Science Center (for a planetarium show). College credit will be available for an additional fee. For more information, go to <http://edgerton.us/aem/>.

National Aviation Hall of Fame Teacher Conference

In conjunction with the National Aviation Hall of Fame (NAHF) induction of the 2009 A. Scott Crossfield Aerospace Education Teacher of the Year, a teacher conference will be conducted at the Wright-Patterson National Museum of the US Air Force in Dayton, Ohio on July 16-17.

There will be a wide variety of concurrent sessions conducted by former Crossfield Teachers of the Year, as well as other AE enthusiasts. Civil Air Patrol will conduct a "flight-line workshop" that includes an orientation airplane flight. Attendees will also enjoy a guided tour and individual exploration of the USAF Museum. Special luncheon speakers will be on hand to inspire teachers to "continue the dream" of space exploration.

Teacher attendees will be invited to Friday evening's exquisite President's Reception and Dinner, which will be a memorable affair when naming the 2009 Crossfield Teacher of the Year, and will receive a special one-half price ticket. Teachers are encouraged to stay until Saturday to attend the Dayton Air Show. Efforts are being made for military airlift to the conference. For more information, contact Susan Mallett @ smallett@capnhq.gov

Visit www.nationalmuseum.af.mil to learn more about the world's largest and oldest military aviation museum. Visit www.daytonairshow.com/ to find out more about the exciting Dayton Air Show.



REGION TO REGION

For information on other pertinent dates for CAP Members and Educators, go to our calendar at <http://members.gocivilairpatrol.com/ae>

NORTHEAST REGION

May 23 - 24

New York Air Show at Jones Beach will be held at Republic Airport in Wantagh, New York.

<http://www.jonesbeachairshow.com/>

July 13 - 17

Empire State Aerosciences Museum offers children a summer aviation program in Glenville, New York.

<http://www.esam.org/content.php?menu=Calendar&a=v-month>

MIDDLE EAST REGION

April 22 - 25

87th annual meeting of the National Council of Teachers of Mathematics will be held in Washington, D.C.

<http://www.nctm.org/annual.aspx>

May 30 - 31

12th Annual Virginia Regional Festival of Flight will be held in Suffolk, Virginia.

<http://www.virginiaflyin.org/>

GREAT LAKES REGION

June 5 - 7

13th Annual Indianapolis Air Show will be held at the Mt. Comfort Airport in Indianapolis, Indiana.

<http://www.indyairshow.com/>

July 16 - 17

Teacher conference in conjunction with National Aviation Hall of Fame induction and 2009 A. Scott Crossfield Aerospace Teacher of the Year award will be held at the Wright-Patterson National Museum of the U.S. Air Force in Dayton, Ohio.

www.nationalaviation.org/

August 5 - 8

The Great Lakes Region will conduct an AEO School at Wright-Patterson AFB, Ohio. For more information, contact Yvonne Demyan at yrc111@aol.com.

SOUTHEAST REGION

April 21 - 26*

The 35th Annual Sun 'n Fun Fly-In will be held at Lakeland Linder Airport in Lakeland, Florida.

<http://www.sun-n-fun.org/content/>

*The special teacher day is held on Saturday, April 25, with great speakers and activities. For information, contact Barbara Walters-Phillips at barbara.walters-phillips@ocps.net

May 28 - 31

International Space Development (ISDC) conference will be held in Orlando, Florida at the Omni Orlando Resort at ChampionsGate.

<http://isdc.nss.org/2009/>

June 19 - 21

5th Annual Gulf Coast Hot Air Balloon Festival will be held in Foley, Alabama.

<http://www.gulfcoastballoonfestival.com/>

July 6 - 24

University of Tennessee Aerospace Workshop for teachers will be held at the University of Tennessee.

<http://www.capae.info/>

July 16 - 18

Space Education Initiatives and the Iowa Space Grant Consortium are coordinating an educator tour at Kennedy Space Center in Florida.

<http://www.spaceed.org/>

June 24 - 27

The 8th annual National AEO School will be held at Pensacola NAS, Florida.

<http://members.gocivilairpatrol.com/ae>

July 9 - 11

The 2nd annual Pacific Region AEO School will be held in McMinnville, Oregon. For more information, contact Nick Ham at nicham@saif.com.

NORTH CENTRAL REGION

May 8 - 10

Branson Air Show will be held at the Branson Airport in Branson, Missouri.

<http://bransonairshow.com/>

SOUTHWEST REGION

June 18 - July 29

The McDonald Observatory at the University of Texas at Austin offers summer workshops in astronomy for teachers.

<http://mcdonaldobservatory.org/teachers/profdev/>

ROCKY MOUNTAIN REGION

No items for this issue.

PACIFIC REGION

June 20 - 21

11th Annual Olympic Air Show will be held at the Olympic Flight Museum in Olympia, Washington.

<http://www.olympicflightmuseum.com/airshow.php>

August 8 - 9

CAP Aerospace Education Institute and Fly A Teacher will be held in Seattle, Washington. This is a Pacific Region CAP sponsored workshop.

<http://edgerton.us/aem/>

Special Events

April 22 - Earth Day

<http://www.earthday.net/>

April 24 - National Arbor Day

<http://www.arborday.org/>

May 1 - Space Day

<http://www.spaceday.org/> 

May 2 - Astronomy Day

<http://www.astroleague.org/al/astroday/astroday.html>



*Did You Know
That.....*

**FROM 1941 TO TODAY
CIVIL AIR PATROL'S AEROSPACE EDUCATION PROGRAMS
HAVE SUPPORTED INCREASED NATIONAL SECURITY FOR AMERICA**

HISTORY:

On December 1, 1941 the national Director of Civilian Defense established Civil Air Patrol to garner civil aviation resources to be used for homeland security in preparation for WW II.

In 1946, the US Congress incorporated CAP and chartered it to educate the general public about the importance of maintaining aerospace supremacy for America.

In 1948, CAP became the civilian volunteer Auxiliary of the newly created United States Air Force and both organizations joined hands to promote Aerospace Education for the nation.

THE PROCESS:



Starting in 1953, CAP's approach to Aerospace Education turned to the American school system, primarily grades K-12, as the best means to educate the general public. Today, CAP provides educational programs and products to schools to enrich their standard academic subjects using an aerospace theme.* CAP's programs inspire teachers and students to explore the wonders of the aerospace environment, and to appreciate the Air Force's role in maintaining aerospace supremacy worldwide to strengthen our nation's security.

CAP's programs not only emphasize aerospace education and associated career opportunities, but they also promote character development, citizenship skills, and physical fitness for America's youth.

Students interested in the aerospace environment join organizations such as the CAP Cadet Program, AFJROTC, or AFROTC and/or pursue flight/technical training/college degrees to prepare for aerospace careers.

THE OUTCOME:



Students who become employed as adults in the aerospace industrial/commercial base, the Air Force, or the DoD (military or otherwise), serve to support world-wide aerospace supremacy for America, and as a result, increased national security---the primary reason why CAP was created in 1941, incorporated by Congress in 1946, established as the civilian volunteer Auxiliary of the United States Air force in 1948, and still exists today.

***In March 2008, the National Science Teachers Association endorsed Aerospace Education as an important component of pre-K-12 science education programs. All of CAP's aerospace education materials meet national academic standards.**