



Aerospace Education

Spring 2012

News

Inspiring Students To Excel

Two Hats...One Passion

June 19-23
National Aerospace
Education Officers School
in Pensacola, FL...
www.capmembers.com/ae
 (click "AE:What's New?")



From left: Joseph Acaba, Richard Arnold, and Dottie Metcalf-Lindenburger. Pictured at right: Barbara Morgan



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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, Alabama.

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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.

When the term "educator astronaut" is used, Christa McAuliffe or Barbara Morgan come to mind. But in the astronaut class of 2004, three other educators joined the ranks of the astronaut corps. Dottie Metcalf-Lindenburger, Ricky Arnold, and Joe Acaba went from the classroom to the International Space Station - a truly different kind of classroom. Not only did these educator astronauts get to fly aboard the space shuttle, but two of them, Joe Acaba and Ricky Arnold, were the first two to spacewalk together during the STS-119 mission.

Prior to joining the astronaut corps, Acaba taught at Melbourne High School and Dunnellon Middle School in Florida. Arnold taught science and mathematics at several schools in the U.S. and overseas, including John Hanson Middle School in Waldorf, Maryland.

These educators not only provide a remarkable experience to share with other educators and students, but are involved in an exciting career field and can identify with the reasons we explore space and continue our quest for knowledge. Educators who have become astronauts have a passion for aerospace and turn that passion into

new opportunities to pass on to the next generation of aerospace enthusiasts.



Joseph Acaba and Richard Arnold on conducting critical spacewalking tasks at the ISS during STS-119.

Questions:

1. What year did 3 former educators join the ranks of the astronaut corps?
2. Which educator astronaut taught overseas, as well as in the U.S.?
3. Which mission did two of the educator astronauts make a spacewalk at the same time?



Aerospace Education Member (AEM) Spotlight ...

Scott Erickson, Florida



Students at Milton High School are fortunate to have a teacher committed to aviation excellence. This teacher, Scott Erickson, has been instrumental in building the Milton High School Aviation Academy. According to Scott, "I have never been a part of building something like this and I'm not sure where the finish line is. The students' dreams will determine that. The CAP curriculum was a huge help last year as it took time to get all of our programs in place. I'm excited that next year I'll have time to get back to more of the CAP engineering activities."

While being involved in the aviation academy, Scott has also managed to pursue his own professional development in aviation. Scott participated in the CAP Teacher Orientation Program (TOP) Flight that gave him some real world ideas to relate to the simulation experiences in which his students participate.

Another CAP opportunity that helped Scott was the ability to apply for CAP AFA grant money. With the grant that he received, Scott was able to purchase some technology that helped his students complete a noise abatement project. This project included the Aircraft Management Services (AMS) Flight School at Peter Prince Field in Milton, Florida, members of the Milton High School Academy, and the local Aviation Explorers Post 421. All of these groups gathered on a Saturday to collect some noise level readings to

help develop conclusions related to the airport operations' impact on the local environment.

Scott has been recognized for his efforts on behalf of his students by being selected for such honors as: AFA Hurlburt Chapter Elementary Teacher of the Year; Holley-Navarre Intermediate School Math Teacher of the Year; Santa Rosa County Council of Teachers of Mathematics Teacher of the Year; and Northwest Florida Next Generation Learning Communities High School Most Ingenious Academy Concept winner. Scott is also a CAP AEM.

Scott is the Milton High School FAA Advanced Ground Instructor and as such, has just seen his first two students take and pass their FAA Private Pilot Knowledge Tests. The two students, Tyler Harris and Nicholas Duffy, have decided to go on to join the Marine Corps and attend Embry Riddle University, respectively. Scott sees this as a great start for the future of the aviation academy.



From left: Scott Erickson, Tyler Harris, and Nicholas Duffy

"My Civil Air Patrol TOP Flight gave me some real world ideas to relate to the simulation experiences in which my students are able to participate."

---Scott Erickson

Among Scott's students' many projects was building hovercrafts. Students used scrap materials and discussed Bernoulli and Newton as they completed seven hovercrafts. This included building, collecting data, and testing. The total cost of this project was only \$100!



Scott's students' hovercrafts

Scott Erickson is truly an innovator and motivator. His students are gaining knowledge and acquiring skills because Scott is dedicated to giving them the best he has to offer. We congratulate him and wish the best to the aviation academy in Milton, Florida!



Scott's students work on simulators



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

Capt Johnnie Royal, FL 822



Capt Johnnie Royal is a unique AEO who wears two hats, just as the astronaut educators do on the front page of this newsletter. Capt Royal is the Commander of FL-822 Cadet Squadron in Cape Coral, FL. He is also Mr. Royal, 6th grade history teacher at Oasis Charter Middle School who incorporates CAP's K-6 Aerospace Connections in Education (ACE) program into his school curriculum. So, during the day, Johnnie teaches a diverse group of students world history, and then meets after school and on week-ends with the CAP Cadets After School program.

Capt Royal is not only the Commander of his CAP squadron, he is also the Aerospace Education Officer, among other things. He, along with his staff of committed senior members, chartered the school squadron in March 2010. Since that time, the cadets have had extraordinary adventures and opportunities for themselves, and for other students in other after-school programs at the school. If one checks out the Oasis CAP Squadron website (google "Oasis CAP Squadron"), it would appear this is a well-established, long-standing unit. Activities have included participation in airshows, museums, parades, emergency services, and orientation flights, as well as earning AEX Awards and an AFAAE grant.

Capt Royal is a seasoned citizen; he is in his second career. He retired as a Chief Master Sergeant from the USAF, serving in a variety of aviation positions from jet engine technician to squadron ground safety and aircraft maintenance supervisor. His military honors include

earning the USAF Chief of Staff Team Excellence Award; USAF nomination for the prestigious "Collier Trophy"; and Lt. Gen Leo Marquez Award (USAF Europe nominee)—awarded to the most outstanding Aircraft Maintenance Person of the Year ((Supervisor-Manager category).

After graduating from Embry Riddle in 2000, Johnnie continued his USAF career, working in a variety of aviation positions which involved some form of teaching and training. He had always enjoyed working with youth, as well. As life paths go, he was introduced to the Troops to Teachers Program and knew that is what he was meant to do after his military career. Thus, in 2006, through the Troops to Teachers Program, he received his teaching certificate and has been teaching youth ever since.

Capt Royal just recently partnered with the local model rocketry club to start a rocketry program with his youth. He is also working with the local RC model aircraft club to put together a mini pilot ground school and flight training program. The cadets will receive basic aerodynamic

lessons in the classroom, practice flying aircraft on a computer flight simulator, and actually fly RC model aircraft at the park. The will receive a graduation certificate signed by both organizations. This will become an annual overnight event which will include teambuilding with aerospace-themed activities.

We applaud Capt Royal's passion, commitment to the betterment of his community, and dedication to CAP's AE and Cadet Programs. With Capt Royal at the helm of the squadron and the classroom, youth near him will truly soar onward and upward!



Picture at top: Capt Royal teaches an AEX lesson
Picture above: Mr. Royal with his school ACE class
Photos on this page courtesy of R.J. Theriault



Capt Royal helps build a foam rocket



Capt Royal's cadets land "Lucky Lindy"

"Teaching youth about my love of aviation is a dream come true for me."

---Capt Johnnie Royal



K-6 Aerospace Connections in Education (ACE) Program - Reflections and Connections

CAP's K-6 Aerospace Connections in Education (ACE) program is nearing completion of its third year, following the initial two years of field testing prior to the program's nation-wide beginning in the fall of 2009. The ACE program uses the aerospace theme to promote STEM subjects and careers, character education, and physical fitness. Nearly 700 educators and 18,000 students across 27 states participated this year, which is almost a 70% increase in student participants for the second year in a row! Additional Sponsors, such as the Air Force Association, Lightspeed Aviation Foundation, and FLIR Systems Inc., have made this possible. If not currently part of this exciting program, learn more, including how to register for the 2012-2013 school year, at www.capmembers.com/ace.

If you are an ACE teacher, **April 25** is the deadline to submit nominations for the National ACE Student, Teacher, and School of the Year awards! It is also time to complete end-of-year program assessment forms so your students will receive the nice ACE class plaque and student completion certificates for closing award ceremonies at your school! All information is found at www.capmembers.com/aceteachers.

REFLECTIONS

Each year, CAP studies the information that educators provide on the ACE completion forms. Below is just a small sample of the comments we have received over the past three years:

- "My second-grade students love to do ACE lessons. They do not think of it as learning. They think of it as FUN! Many of the ACE lessons go along with our math, language arts, science, and social studies curriculum. My students keep their ACE shirts in their cubbies at school. When they put them on before an ACE lesson, they know the fun is about to begin." **Mrs. Jenkins; 2nd grade teacher; Boaz, AL**
- "Fantastic program that engaged my students in active learning. It is a wonderful way to involve parents in

the school and also to showcase math and science skills." **Mrs. Chin; 6th grade teacher; Jacksonville, FL**

- "Great Program! It really brought the school together with a common theme." **Mr. Lambert; Principal; Fort Walton Beach, FL**

- "I use my 5th grade ACE students to mentor a kindergarten ACE class. It is a great leadership opportunity for them and gives the younger ones someone to look up to. The lessons are great. When we hit something in math we covered in an aerospace lesson, it is easier for them to remember." **Ms. Taylor; 5th grade teacher; Yuma, AZ**

- "The ACE curriculum is very well prepared, organized, easy to follow, and age appropriate. Very little special preparation needed. The children really enjoyed it." **Mrs. Moore, 2nd grade teacher; Thousand Oaks, CA**

- "WE LOVE THE CIVIL AIR PATROL CURRICULUM!!!! The kids are always excited to get to class and get started on whatever ACE activity we have scheduled and possibly, I get more excited than the students to see their enthusiasm and desire to delve into aerospace/engineering activities." **Ms. Hubbard; Gifted Teacher; Rainsville, AL**

- "The program is very well designed and the kids loved the lessons and materials. Several of the kids went home and did the experiments on their own. The fact that the program combines academic, character, and physical fitness with aerospace is unique and makes for a very well designed curriculum. The ACE program has been a great addition to our STEM curriculum." **Ms. Huemoeller, 3rd grade teacher; Anthem, AZ**

CONNECTIONS

CAP is proud that in addition to schools, other organizations, such as the Air Force Association, have embraced the ACE program to support in their chapters. Examples of partnership initiatives are found in the FL, AZ, and AL chapters where schools are recruited

and supported by the AFA chapters. AFA representatives assist with ACE Lift-off events, lesson presentations, field trips, and awards ceremonies. DoD STARBASE Academies promote the ACE program to the 5th grade teachers who attend the academies nationwide. These classroom teachers can take the excitement ignited from STARBASE's stimulating STEM curriculum conducted at military installations and perpetuate that back in the classroom and in the following grade levels. ROTC's college-level Arnold Air Society and Silver Wings chapters use the ACE curriculum to share STEM activities during school and community youth outreach initiatives. If YOU are interested in learning more about ACE, contact ace@capnhq.gov.



Top: Mrs. Miller and her students inside their space bubble in Boaz, Alabama
Center: A student of Mrs. Kaci Heins on a field trip at an airport in Flagstaff, Arizona
Bottom: Students from DeKalb County, AL send a "thanks" to CAP for the ACE program



NM WG Teachers Fly High!

Lt Col Roland Dewing and his team of AE professionals present a workshop and orientation flight for more than 35 teachers several times a year to acquaint the educators with aviation and space topics that can be used in the classroom to increase student interest and comprehension. Supported by a grant from the Boeing Company, and in cooperation with the Air Force Research Laboratory's La Luz Academy education outreach program, this program motivates teachers to inspire their students toward STEM careers.

The NM WG TOP flights take place on a Saturday, with morning time devoted to demonstrations and activities relating to aviation concepts and aerodynamics led by CAP volunteer Maj Ted Spitzmiller. In addition, teachers are able to try their skills on the flight simulators.

In the afternoon, teachers are assigned a flight time. While waiting their turn to fly, teachers are able to visit

several exhibits and hands-on activities provided in the hangar such as, building flying wing gliders, demonstrations of radio-controlled model aircraft and hovercraft, rocket displays, and aviation book displays. Teachers participating in the TOP Flights also receive many valuable curriculum materials to take back and use in their classrooms.

Many thanks to Lt Col Dewing for arranging this opportunity and to Ronda Cole for organizing and coordinating the La Luz effort! Many teachers and students have benefited from this program and will continue to be inspired by it.



Top right:
AEM prepares for flight
Bottom right:
Lt Col Roland Dewing and Maj Ted Spitzmiller instruct AEMs

MT WG Lt Col Ebelt Wears Two Hats



Kaye Ebelt in microgravity

CAP volunteer Lt Col Kaye Ebelt wears two hats, but with one passion. One hat is a dedicated CAP volunteer who is the Montana Wing Director of Aerospace Education. The other hat is educator to fifth graders at Target Range Elementary School in Missoula, Montana.

Kaye received an opportunity to realize two life-long passions (to train at NASA and inspire students as an educator) by putting together a team

of teachers from Montana and applying for the NASA Microgravity eXperience (Micro GX). Not only was Kaye's proposal accepted by NASA (after much problem solving by her teacher team), but the team was joined in the microgravity experience by two astronauts, Leland Melvin and Dottie Metcalf-Lindenburger.

The difference between enthusiasm and passion, as Kaye explained, is: "While enthusiasm can be temporary, passion is a constant, long-term commitment to your dream." Kaye will share her passion with her students and her cadets and hope they choose a career in the STEM subjects she so ardently believes is the wave of the future. Kaye explains, "Jobs for today's 5th graders haven't even been invented yet. But, I do know that STEM will be an integral part of such careers. And their success will heavily depend on devotion and teamwork."



Kaye's team posing with Zero G airplane

Congratulations to Kaye and the teachers in her NASA team! We know they will go forth and inspire the next generation to continue developing new technologies and facing tomorrow's challenges by getting prepared today.



CURRICULUM CORNER.....GRADES K-4

DO A SPACEWALK!

ACTIVITY FROM NASA'S "DO A SPACEWALK!" - EDUCATOR GUIDE

Objective:

Students will perform the "bear crawl" and "crab walk" to increase muscular strength, improve upper and lower body coordination, and record their observations.

National Physical Education Standards:

Standard 1: Demonstrates competency in motor skills and movement patterns needed to perform a variety of physical activities.

Standard 2: Demonstrates understanding of movement concepts, principles, strategies, and tactics as they apply to the learning and performance of physical activities.

Standard 3: Participates regularly in physical activity.

Standard 4: Achieves and maintains a health-enhancing level of physical fitness.

Standard 5: Exhibits responsible personal and social behavior that respects self and others in physical activity settings.

Standard 6: Values physical activity for health, enjoyment, challenge, self-expression, and/or social interaction.

Grade Level(s): K-4

Background Information:

In space, astronauts must be able to perform physical tasks that require muscle strength and coordination. One task that certain astronauts must be able to complete is an Extra Vehicular Activity (EVA), or spacewalk. Spacewalks allow a crew member to examine the outside of space vehicles (like the International Space Station) and make repairs or modifications to the vehicle, if necessary.

Although safely tethered to the space vehicle, the conditions under which a spacewalk is completed can be long and strenuous for the crew member. An astronaut must manipulate his or her fingers within large, thick gloves -

sometimes for hours at a time. A spacewalk also involves coordinating arm and leg movements to move around, or "translate." Astronauts prepare for EVAs by practicing these strenuous tasks and movements underwater at the Neutral Buoyancy Laboratory at NASA Johnson Space Center. By training on Earth, crew members learn to rely on their upper body strength and coordination to pull and secure themselves close to the vehicle and to complete their assigned tasks in space.

On Earth, muscle strength and coordination are important to being physically fit and help us perform a variety of everyday tasks. An increase in muscular strength and coordination can be developed by practicing exercises such as the "bear crawl" and the "crab walk".

Materials:

- a smooth, flat, and dry surface, at least 12 m (40 ft) in length
- paper and pencil
- tape measure or meter stick
- optional: watch or stopwatch

Procedure:

1. Measure a distance of 12 m (40 ft) on a smooth, flat, dry surface.
2. Students should maintain an arm's - length distance from each other when performing the movements.
3. Students get down on their hands and feet (facing the floor) and walk on all fours like a bear. They should understand that this is not a race. The students should get to the end of the course in a specified time; rest two minutes; and then repeat the movement two more times. While performing these movements, they should be asked open-ended questions before, during, and after the activity. Such questions as: How do you feel?; How far did you go?; Why might muscular strength and coordination be important for a

spacewalk?; and How do you think this activity would be different in space?

4. Students should write their observations and answer the questions on a piece of paper.

5. Students should then reverse the "bear crawl" by sitting on the ground and putting their arms and hands behind themselves, knees bent, and feet on the floor. They should lift themselves off the ground (facing upwards). They should finish, or complete what part of the course they can, in a specified time. They should rest for two minutes and repeat this activity two more times. Observations and answers to questions should be answered on paper.

Summary:

Physical strength and coordination are skills that astronauts and people on Earth need to have to do what is needed during daily activities.

Evaluation:

Students should share their experiences with this activity as a group and tell what they can do to improve these skills.

Extension:

- Have students try moving in a forward direction, then backward. They should do this for both the bear crawl and the crab walk.
- In the crab position, the students can play team soccer with a large inflatable ball.
- Set up a course for the students to travel through.

THINK SAFETY!

- Make sure the surface is suitable for hands, feet, and bodies.
- Students should keep proper distance from each other.
- Students should drink plenty of water and watch for overheating.



Student Directions and Questions for “Do A Spacewalk”

Your mission: You will perform the “bear crawl” and “crab walk” to increase muscular strength and improve upper and lower body coordination. You will record your observations on a sheet of paper and complete this sheet.

Your assignment:

1. Listen to your mission director (your teacher) to find out where to begin and end. Keep an arm’s length distance between you and any other student.

Do the Bear Crawl:

2. Get down on your hands and feet (facing the floor) and walk on all fours like a bear for as far as you can (up to 12 m or 40 ft).

3. Rest for two minutes.

4. Repeat two times.

Do the Crab Walk:

5. Reverse the “bear crawl.” Sit on the ground and put your arms and hands behind you, knees bent and feet on the floor. Lift yourself off the ground (facing upwards).

6. Rest for two minutes.

7. Repeat two times.

FOLLOW THESE INSTRUCTIONS TO TRAIN LIKE AN ASTRONAUT!

Answer the following questions with the group or individually:

1. How did you feel before you did the Bear Crawl? During? After?

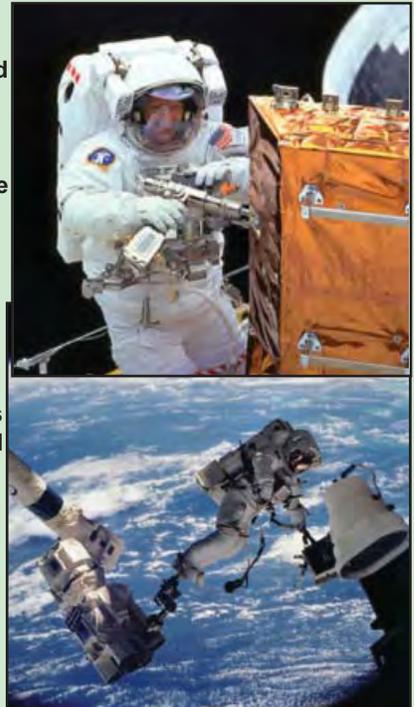
2. How did you feel before you did the Crab Walk? During? After?

3. How far did you go? _____ m/ _____ ft for the Bear Crawl and _____ m/ _____ ft for the Crab Walk.

4. How did the Bear Crawl feel different from the Crab Walk? Did you feel different muscles working?

5. Why might this type of strength and coordination be important in a spacewalk?

6. How do you think this type of exercise would be different in space?





CURRICULUM CORNER.....GRADES 5-12

STATION SPACEWALK GAME.....

NASA INTERACTIVE FOUND AT :

http://www.nasa.gov/multimedia/3d_resources/station_spacewalk_game.html

Objective:

Students will learn about the purposes and functions of the International Space Station by performing several different simulated EVAs.

National Science Standards:

Content Standard E: Science and Technology

- Understandings about science and technology

Grade Level: 5-12

Background Information:

What is the International Space Station? The International Space Station is an internationally-developed research facility located in Earth's lower orbit. It is the largest space station ever constructed. It serves as a research laboratory where astronauts from around the world conduct experiments in human health and exploration, technology testing for enabling future exploration, research in basic life and physical sciences, and earth and space science.

The orbiting laboratory provides the interior volume of a five-bedroom house, equipped with premier research capabilities, living quarters, and a 360-degree window on the world. From end to end, the space station is longer than an American football field and accommodates up to six astronauts at a time. Knowledge gained through space research conducted aboard the space station has led to improvements in life on Earth and prepares us for future exploration.

Materials:

- Station Spacewalk Game Manual - download this manual from NASA at

http://www.nasa.gov/pdf/448449main_ssg-manual.pdf

- Computer and web system requirements can be found in the manual or, go directly to game site at http://www.nasa.gov/multimedia/3d_resources/station_spacewalk_game.html

Procedure:

1. Discuss what students know about the purposes and functions of the components of the space station. Provide background and pictures from NASA (there are information and pictures found in the **Destination:Station Educator's Guide** at http://www.nasa.gov/pdf/622340main_destination_station_guide_090711.pdf.)
2. Allow students to become familiar with the menu and simulated spacewalks that they will be asked to accomplish.

spacewalking from this simulation.

Summary:

The Station Spacewalk Game allows the student to take on the role of an astronaut tasked with completing several missions around the International Space Station.

Evaluation:

Student reports can be evaluated with a rubric.

Extension:

1. Have students become an ISS tour guide and tell visitors about the station.
2. Have students draw a futuristic space station and tell what the purpose of the space station will be.
3. Have students research one spacewalk mission and tell: What the mission number was; who did the spacewalk; what the

spacewalkers qualifications were; and what the purpose and results of the spacewalk were.



3. After several sessions using this program, ask students to write two or three sentences about each spacewalk they did and create a display showing what they learned about the ISS and

Answer sheet for the questions on page 9 "Station Spacewalk Game Student Worksheet" can be found at http://www.nasa.gov/pdf/386195main_ssg-worksheet-answer-key.pdf.



Curriculum Corner (Grades 5-12) continued....

Station Spacewalk Game Student Worksheet

Overview: The Station Spacewalk Game allows you to take on the role of an astronaut tasked with completing several missions around the International Space Station. The majority of the missions take place outside of the Station. Freedom of movement in space is granted to you by your Simplified Aid For EVA Rescue (SAFER) unit, a propulsion backpack system. You have a limited supply of oxygen that you must be careful to conserve.

Main Menu: After viewing the docking of the space shuttle with the station, you will be asked to enter a name so that as you complete each mission, there will be a running total of your points. There are seven mission, to accomplish in the menu.

Spacewalk 1: Explore the Space Station

Spacewalk 2: Retrieve Your Tools!

Spacewalk 3: Unfurl the S6 Solar Array

Spacewalk 4: Repair the Torn Solar Array

Spacewalk 5: Bring the Auxiliary Antenna Online

Spacewalk 6: Install the S6 Truss

Spacewalk 7: Conduct the SPHERES Experiment



Write two or three sentences explaining what you learned about each of the spacewalks you accomplished. Use the back of your paper.

Answer the following questions (research the answers by going to nasa.gov):

1. What is the purpose of the International Space Station?
2. What are some of the hazards of spacewalking?
3. What is the role of an airlock?
4. What do the solar arrays do?
5. What is the benefit of installing the S6 truss?
6. Now that you've played the game, what do you think of the challenges that an astronaut faces?
7. The data from the SPHERES experiment will have to be sent back to Earth for analysis. Using what you learned, describe the path that a signal will take to get back to Earth.



Air Force Association Partnership

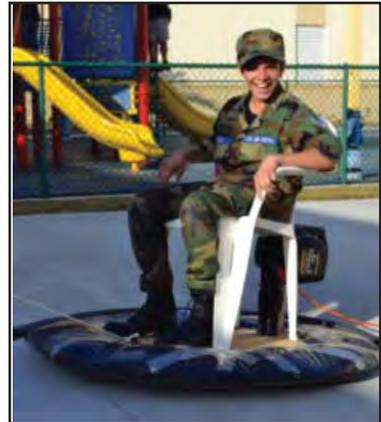
CAP continues to send sincere gratitude to the Air Force Association for the many years of financial support enabling CAP to perpetuate the AE mission via CAP's youth development programs for units and teacher members. This quarter, appreciation is extended to the AFA for providing \$250 AE grants to 20 deserving teacher members selected in a competitive grant application process. The winners and their excellent AE projects are as follows:

- **Melanie Byers**, Kettering Middle School, Kettering, OH
Work with Wright Patterson AFB on Rocketry/Physics Program and Careers
- **Dan Caron**, Aviation & Aerospace Ed Center at Winnepessaukee, NH
Female & Coed FAA Middle/High School Summer ACE Academies
- **Carla Chin**, San Jose Catholic K-8 School, Jacksonville, FL
CAP's ACE Program-Physical Fitness Robotics
- **Bonnie Dertz**, Freeport Middle School, IL
Microgravity Beam Balance Project
- **Brandi DeSandro**, Pike County Indian Education, AL
CAP ACE Program's Character Ed-Making a Difference Program
- **Cristin Dillard**, Banks Primary School, Banks, AL
Build Aerospace Library for CAP ACE Program
- **Geri Evans**, Bluff Park Elementary, Birmingham, AL
From Kites to Flight Program
- **Catherine Grimes**, Phoenix Ranch PreK-8 School, Simi Valley, CA
School Weather Station w/ Logger and Virtual Tracking System

- **J.B. Groves, III**, Wharton Cty Jr College & AFA member, Richmond, TX
K-12 Aerospace Discovery College
- **William Guth**, North Clarion School District, Tionesta, PA
Rocketry Physics & Careers
- **Rebecca Hill**, K-8 Maxwell Air Force Base School, AL
School-wide Science, Math, Aerospace, Research, & Technology (SMART) Day
- **Donald McKeon**, PhD, N FL
Rotary Camp for Physically Challenged, Tallahassee, FL STEM Career Exploration
- **Joan Marquez**, Curington Elementary, Boerne, TX
TI-BASIC Norland Research Calculator Robot Program
- **Andrew Notarfrancesco**, St. Malachy K-8 Catholic School, Philadelphia, PA
STEM Technology Program
- **Patrick Scholle**, Deep Run High School, Glen Allen, VA
Engineering Design of 2-axis Personal Flight Simulator
- **Stuart Sharack**, Aerospace Adventures, Juliet Long School, Gales Ferry, CT
Family and Community Partners Aerospace Festival
- **Donna Smith**, Russell Elementary School, Smyrna, GA
14th Annual Russell Space Team Mission
- **Angela Stanford**, Gardner Math-Science-Technology Magnet School, Hot Springs, AR
Spring Space Event & Star Gazing Night

- **Jessica Walker**, Goshen Elementary School, AL
Math Technology in Aerospace
- **Heather Watkins**, Brunswick High School, GA
Museum of Science, History & Planetarium Field Trip

Once again, CAP extends appreciation to the AFA for dedicated support to the youth of America! To find out more about all the AFA/CAP partnership programs, go to the www.capmembers.com/afa. If you are NOT a member of AFA, find out how YOU can join a community-based/community outreach AFA chapter!



A previous grant winner, Capt Johnnie Royal, is both a unit leader and an educator who used his AFA grant to benefit both his cadets in FL-822 and his 6th grade students at Oasis Charter Middle School build and share hovercrafts. Photo courtesy of R.J. Theriault.

AFA's 2012 CyberPatriot Program Ends and 2013 Competition Registration Begins

AFA's CyberPatriot program, the premier high school cyber competition, ended the 2012 season with winners from around the country. March 22-23 in National Harbor, MD, 24 top teams from throughout the nation convened to compete in the 4th CyberPatriot final competition and the 1st CyberForensics competition. Competing were two parallel divisions comprised of over 1,000 original teams:



CAP's Big Sioux team shares Commander-in-Chief trophy with pride. Photo courtesy of AFA.

the All Service Division with cadets from CAP and all services JROTC; and the Open Division with students from public, private, and home schools. Each division walked away with national CyberPatriot champion team members each earning \$2,000 scholarships from Northrop Grumman, the program's presenting sponsor. (Continued on page 11)



From The Deputy Director's Desk.....Dr. Jeff Montgomery

2012 AEO Schools

CAP will conduct three AEO Schools in 2012: the National AEO School, the Great Lakes Region AEO School, and the Pacific Region AEO School. The national school will be held at Pensacola NAS, FL, from June 19-23. The GLR school will be held at Wright-Patterson AFB, OH, in the USAF National Museum from August 8-11. The PCR school will be held at Nellis AFB, Las Vegas, NV, from November 11-13. These schools discuss the AE mission, the duties and responsibilities of AEOs at all levels, and all of the many AE programs/products. Several hands-on activities are demonstrated for local unit use. Because of the interaction between attendees, these schools are terrific events for new and experienced AEOs. AEO schools are a wonderful opportunity to see how other AEOs handle their responsibilities and also



Pictures are from the 10th anniversary of National AEO School in 2011

Left: Class of 2011

Below: Capt Gary Dahlke, FL WG, prepares for a rocket launch



learn the latest about AE programs available to our members. For more information contact the following people:

- National AEO School – Dr Jeff Montgomery– jmontgomery@capnhq.gov
- GLR AEO School – Lt Col Sherwood Williams – dr-w@new.rr.com
- PCR AEO School – Col Virginia Nelson – vmnelson@juno.com

(CyberPatriot Continued from page 10)

The All Service national champs were from CAP's Colorado Springs Composite Squadron. The Open Division national champs were from Alamos Academies, in San Antonio, TX. In the new cyber forensics category, the All Service national champs were from CAP's Big Sioux Composite Squadron, Sioux Falls, SD. The Open Division forensics national champs were from Lewis and Clark High School in Spokane, WA. NOW--- it is time for ANY high school team in America to register for the 2013 event! For cadets in CAP and any service JROTC there is NO COST, as the parent organizations fund this. For regular high school teams, the registration is \$375. NEEDED: Team coaches and mentors! Find out all the exciting technical, coaching, mentoring, and registration information at www.uscyberpatriot.org.

Association of Model Aeronautics (AMA) Offering FREE Membership to CAP Cadets

The Association of Model Aeronautics (AMA) has joined hands with CAP and is providing complimentary membership to any cadet under age 19. The AMA's TAG (Take-off And Grow) events partner CAP cadets with AMA chapters for exciting remote-controlled aircraft experiences. This partnership allows CAP cadets great mentorship and career exploration opportunities. To find out more, contact ae@capnhq.gov. To access CAP's related remote-controlled aircraft lessons, go to "Lessons and Other Resources" at www.capmembers.com/ae.



AMA member mentors CAP cadet in R/C flying

Answers to questions on front page:

1. The year 3 former educators joined the astronaut corps was 2004.
2. Richard Arnold is the educator astronaut who taught in schools overseas as well as in the U.S.
3. STS-119 was the mission during which two of the educator astronauts made a spacewalk at the same time.



REGION TO REGION

For information on other pertinent dates for CAP Members and Educators, go to our calendar at www.capmembers.com/ae.

NORTHEAST REGION

April 21 and May 5

Earth 2 Class teacher workshops will be held at Columbia's Lamont Campus in Palisades, New York.

<http://www.earth2class.org>

May 17-19

National Science Teachers Association (NSTA) will present a STEM forum and expo in Atlantic City, New Jersey.

<http://www.nsta.org/conferences/2012atl/>

June 20-22

6th Biennial Education Conference: "Integrating Science and Mathematics Education Research into Teaching: Knowledge of Student Thinking" will be held at the University of Maine in Orono, Maine.

<http://umain.edu/center/conferences-workshops/>

MIDDLE EAST REGION

April 28-29

The 2nd USA Science & Engineering Festival will be held at Walter E. Washington Convention Center in Washington, DC.

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

May 8-15

2012 Joe Nall RC Flying Event will be held at Triple Tree Aerodrome (330 Mary Hanna Rd.) in Woodruff, South Carolina.

<http://www.joenall.com/nall.html>

June 9-10

The Ocean City Air Show will be held in Ocean City, Maryland.

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

GREAT LAKES REGION

No events for this issue.

SOUTHEAST REGION

June 15-17

The Gulf Coast Hot Air Balloon Festival will be held in Foley, Alabama.

<http://www.hotairballoon.com/Gulf-Coast-Hot-Air-Balloon-Festival/>

June 19-23

CAP National AEO School will be held on the Pensacola Naval Air Station in Pensacola, Florida.

http://www.capmembers.com/aerospace_education/internal_specific/aeo_resources/aeo_school.cfm

NORTH CENTRAL REGION

June 19-22

The National Charter Schools Conference will be held in Minneapolis, Minnesota.

<http://www.publiccharters.org/conference/2012/home.aspx>

SOUTHWEST REGION

June 9

K-12 teachers are invited to attend the ASEE (American Society for Engineering Education) Annual Conference Workshop on Engineering Education. The one-day workshop will be held in the Henry B. Gonzales Convention Center in San Antonio, Texas.

<http://www.asee.org/conferences-and-events/conferences/K-12-workshop/2012>

August 4-8

The Astronomical Society of the Pacific will hold a national conference entitled "Communicating Science" in Tucson, Arizona.

<http://www.astrosociety.org/events/meeting.html>

ROCKY MOUNTAIN REGION

July 10-12

Science in the Rockies with Steve Spangler (a three-day training) will be held at the Sheraton Denver West Hotel in Denver, Colorado.

<http://www.stevespangler.com/teacher-training/science-in-the-rockies>

PACIFIC REGION

No events for this issue.

Space Exploration Educators Conference (SEEC) 2012 at

Space Center Houston

(Photos below are from the CAP AE ACE Workshop)

