



Aerospace Education

Winter 2010

News

Inspiring Students To Excel

Destination: Moon

We hope 2009 was a good year with many accomplishments and that 2010 will be even better!

--- Your AE Team

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The Apollo Program in the late 1960s and early 1970s marked the first "giant leap for mankind." The United States put men on the moon as an answer to a challenge issued by President John F. Kennedy. No other program or country since has had a human presence on our nearest neighbor, the moon.

On October 28, 2009, NASA successfully launched the test rocket, Ares 1-X, that will provide data to be used to improve the design and safety of the next generation of American spaceflight vehicles - vehicles that could again take humans beyond low Earth orbit. In other words - back to the moon and beyond!

the moon again? The main goal is to provide opportunities for research and technology development that will prepare humans for further human exploration to Mars and beyond. Astronauts will learn how to work safely in a harsh environment. Scientists may find clues about the time when the planets were formed. All of this requires a sustainable, long-term presence. How will this be done? To find out the possibilities and challenges of a Lunar Outpost, go to <http://www.nasa.gov/externalflash/LunarOutpost/index.html> and learn what technologies must be in place for man to live and work on the moon.



Left: Launch of Ares 1-X in October
Top: Lunar Surface Manipulation System, shown here being tested, may be used to move objects on the moon

This new space program is called Constellation and the first test flights with the Ares 1-X have begun. The future of this program is awaiting decisions on funding, but the pursuit of the moon and beyond is on the horizon.

What are U.S. goals as we head to

Questions:

1. When was the test rocket for the Constellation program launched?
2. What is the main goal for returning to the moon?
3. Go to the Lunar Outpost website and name and describe one of the technologies that may be used on the moon.
4. Think creatively! What careers can you envision as a result of man living and working on the moon? (Answers on page 9.)

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.

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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.



Aerospace Education Member (AEM) Spotlight ...

Angela Krause-Kuchta



Angela Krause-Kuchta, a 9-12 grade science teacher in Wisconsin, has inspired and instructed her students to "reach for the stars." She has also led presentations to her peers and helped them understand how to engage students in the classroom while supplying them with the necessary tools to effectively integrate new concepts related to aerospace.

In her position as educator at Menomonie High School, Angela was instrumental in the development of their Astrobiophysics class and in the development of a nanotechnology curriculum. She took the lead in working with other colleagues from other subject matter areas to develop and receive funding for a highly-competitive grant centering on participating in a Reduced Gravity Flight Opportunity for students and staff. This grant culminated in three teachers from her school, including Angela, taking a reduced gravity flight on NASA's C-9 (otherwise known as "The Vomit Comet"). The experiment included the testing of a special chamber designed by more than 100 Menomonie High School students to learn what happens to plants when they are subjected to microgravity conditions.

Not only has Angela been a won-



Angela in Micro-G on NASA's "Vomit Comet"

derful mentor to students and colleagues, but she has also won several awards and honors that reinforce her efforts and contributions to aerospace education. She has received such honors as: CAP's Frank G. Brewer Award for Wisconsin; NASA Network of Educator Astronaut Teachers (NEAT) - identified as "highly qualified" for Educator Astronaut position; and Space Education Initiatives - Aerospace Teacher of Distinction, just to name a few.

Since becoming an Aerospace Education Member (AEM) of Civil Air Patrol in 2007, Angela has pre-

sented at CAP Wing Conferences and CAP teacher flight programs. She has presented her self-designed unit titled "Spin Me Dizzy" to over 50 teachers from four states. Teachers attending the workshops have praised Angela's knowledge and excitement in presenting material that stresses

the personal connection students must have with concepts, the necessity of including physical and mental activities, the importance of students working collaboratively, and the usefulness of students being actively engaged in science as a process.

To quote one of Angela's former students, Zhicong Wang, who is now a freshman at the University of Pennsylvania majoring in bioengineering, "Mrs. Krause-Kuchta works hard as an educator, is a dedicated advisor, and is an inspiration as a role model. She has a rare sense of dedication to her students and an unparalleled passion for the sciences and space exploration."

Angela was a nominee for CAP's first AE Teacher of the Year Award, and, just recently received a \$250 AFA/CAP Grant to continue her excellent AE initiatives.

We congratulate Angela Krause-Kuchta on being the AEM Spotlight educator for this quarter and know that she will continue to motivate future engineers, scientists and space travelers for years to come!

*"Her (Angela's) promotion of science knowledge in everyday life truly sets her apart from other teachers."
----Heidi Vanderloop (former student)*



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

Capt Nick Ham, Director of Aerospace Education - Oregon Wing



Nick Ham has been involved in Civil Air Patrol's Aerospace Education program since 2004. First as a squadron AEO for Salem Composite Squadron, then as squadron commander and currently as Oregon Wing Director of Aerospace Education (DAE), Nick has given his time and talents to aerospace and CAP. Nick's great work ethic and interest in aerospace are only surpassed by his joy in working with young people. He finds their talents and enthusiasm, as well as their willingness to question currently accepted theories, a refreshing challenge.

craft and proving the math behind why a ball curves in flight.

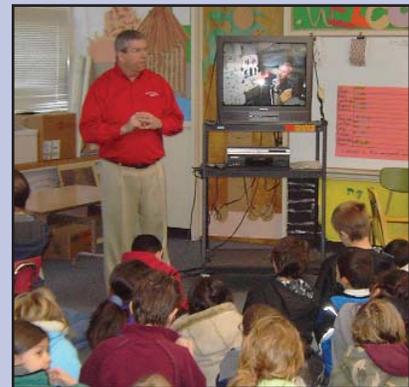
Nick Ham understands and appreciates the challenges and problems yet to solve that our next generation of science, technology, engineering and mathematics professionals face. He encourages cadets and students to question, explore and test current theories, and make their own conclusions. An example of the opportunities that Nick Ham provides his cadets happened a few months ago when cadets and Aerospace Education Officers (AEOs) shared a session with NASA - AESP (Aerospace Education Services Project) representatives on the LRO-LCROSS (Lunar Reconnaissance Orbiter - Lunar CRater Observation and Sensing Satellite) mission. The educator from NASA was thrilled by the cadets' knowledge and willingness to ask tough, thoughtful questions.

Model Rocketry weekend for Oregon Wing cadets for the last three years to taking on a robotics curriculum for CAP, Nick tackles each challenge with the energy and enthusiasm that is typically Nick. We applaud his efforts and appreciate his continued support of AE. He truly has the CAP "right stuff."



Nick Ham presents an aerospace lesson to students at Howard Elementary

Mentoring middle school students on their science projects has given Nick Ham first-hand experience on how students respond to aerospace. He has found that these students have wonderful minds and they think about questions that more experienced minds don't even consider. During Nick's first mentoring experience, he helped students use a wind tunnel to develop airfoil designs, taking their projects to the state science fair. His current mentoring group is developing experiments studying aerodynamic forces affecting longboards, building a solar powered air-



Students at Howard Elementary learn about Toys in Space from Nick Ham

Nick Ham has a "can do" attitude and a joy of learning that excites those around him. From helping to host a

"It is so much fun to watch the people I mentor and assist in developing skills. Younger people look at aerospace with no restrictions and this helps them become brighter leaders and engineers for our future."

--- Nick Ham, DAE ORWG



Aerospace Connections in Education (ACE) Program - Onward and Upward!



Heatherly Smith (left) and Angela Kelley (right) of Kinston pose with ACE Mascot, Cappy

The 2009-2010 ACE Program is well underway, and many schools have already "lifted off" with the elementary aerospace ACE Program. One such ACE School is Kinston School in Kinston, Alabama. On November 20, Kinston held its 3rd annual ACE Lift-Off event.

This year, Ms. Heatherly Smith, the guidance counselor, collaborated with Ms. Angela Kelley, the high school science club sponsor, to create an aerospace fair in their auditorium. High school science club members each manned a booth (or station) in the auditorium. Stations ranged from the asteroid belt game to the station where students learned about high and low pressure and saw balloons and ping pong balls come together due to low pressure between the two. Additional stations included a place where students could make planet bracelets, make paper rockets, see freefall demonstrated, and learn about the forces of flight.

There were a total of 18 stations where elementary students visited as many stations as they could during a 30-minute time span and received stickers from the science club members manning each station. Students placed their stickers on their personalized 4 x 6 index card, and the students were pleased to show their teachers how many stickers they earned after attend-

ing the "ACE Fair."

When a science club student was asked what she thought of the experience, she commented that she loved participating in the event. She said, "I really liked talking to the older elementary kids because they seemed to understand more about what I was talking about. They were surprised that space did have gravity; microgravity. It was hard for the kindergarten and first grade students to understand and pronounce microgravity, but they did like watching the paper astronaut in the bottle seem to float when we dropped the bottle."

Ms. Smith and Ms. Kelley commented on how pleased they were to see the aerospace fair come together. "The science club students were very excited that they had the opportunity to provide an experience like this for the elementary students. The high school students worked extremely hard designing their stations to reflect aerospace concepts taught in the ACE curriculum. It was great to see such positive interaction between the high school students and the elementary kids!" Ms. Smith and Ms. Kelley commented.

Kinston is just one of more than 60 schools across the nation participating in the ACE Program. Schools eagerly began registering for this year's program as early as April.

CAP provided each ACE teacher an expanded grade-level specific curriculum guide, a classroom set of ACE shirts, and a classroom set of aerospace lesson manipulative items (such as Frisbees, Fun Shuttles, and Prop Planes). In turn, each participating teacher has committed to provide at least 12 ACE lessons to their students during the school year.

The ACE Program uses the aerospace theme to supplement the core curriculum with inquiry-based lessons focused on STEM academics, character education and physical fitness. If you are interested in participating, you may

e-mail ace@capnhq.gov to see if any remaining items are available for your grade level. Otherwise, click "ACE" at www.capmembers.com/ae to learn more about the program and how to register for the 2010-2011 school year.



High School Science Club members at Kinston School share ACE activities with younger students during Kinston's Aerospace Fair (All photos)



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

ON TARGET.....

FROM NASA'S "ON THE MOON" GUIDE

Objective:

Students will engineer a paper cup so it can zip down a line and drop a marble onto a target using building, testing, evaluating and redesigning skills.

National Science Standards:

Content Standard A: Science as Inquiry
• Abilities necessary to do scientific inquiry

Content Standard E: Science and Technology

• Abilities of technological design

National Technology Standards

Standard 8: Students will develop an understanding of the attributes of design.

Standard 9: Students will develop an understanding of engineering design.

Grade Level: (6-12)**Background Information:**

Mankind is trying to learn many things about the moon before humans become a constant presence there. One of the questions we are asking is: Is there water on the moon? To answer this question, NASA sent the Lunar Crater Observation and Sensing Satellite (LCROSS) hurtling into a crater near the moon's South Pole. According to initial data collected from the LCROSS collision, the moon does have water! The impact of LCROSS with the moon's crater, Cadeus, showed the presence of water in both the high angle vapor plume and the ejecta curtain created by the 5600 miles per hour crash.

This activity simulates the precision that LCROSS had to have in order to hit the target exactly. Being unmanned and dependent on the accuracy of the engineers that developed it, this engineering design was tested and evaluated before the actual mission.

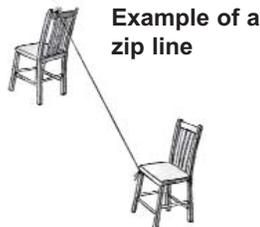
For more info on the LCROSS mission, go to <http://lcross.arc.nasa.gov/>.

Materials: (per zip line)

- 6 feet (1.8m) of smooth line such as fishing line or kite string
- index card
- marble
- masking tape
- paper clip
- 1 medium-sized paper cup
- scissors
- target drawn on a piece of paper

**Procedure:**

1. Before class, set up a zip line for testing designs, as shown below.

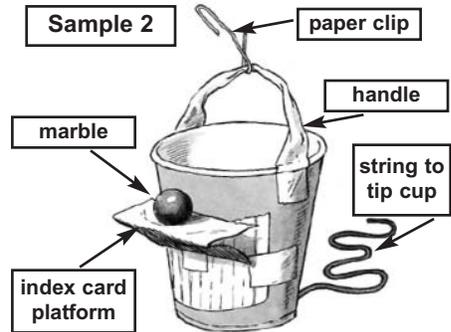
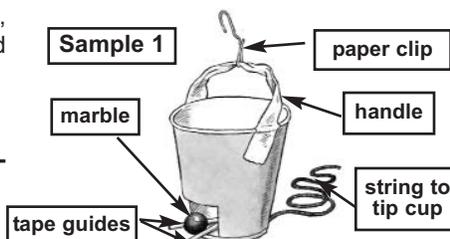


Example of a zip line

2. Prepare cups with a handle and paper clip to slide down the zip line, as shown in the sample marble carriers in the diagrams.

3. Challenge the students (in design teams) to modify a paper cup so it can zip down a line and drop a marble onto a target.

4. The two samples shown in the diagrams are examples of possible solutions. Students should come up with their own design by brainstorming and modifying their ideas.



5. Students then build, test and redesign to see how their designs work.

6. As they are testing, students should take measurements of the height from which the marble is dropped and how far it lands from the target.

7. Finally, students should discuss what happened and how they came up with their final design.

Discussion:

The concepts and ideas that this lesson support are:

• **Newton's First Law** -As it travels down the zip line, the marble builds up a forward speed. Once launched, it will keep going at that speed until a force acts on it, such as hitting the ground.

• **Acceleration** - Due to Earth's gravitational pull, the marble's speed increases as it falls.

• **Trajectory** - When an object that's already moving horizontally is dropped (like a marble dropped from a cup moving down a zip line), it travels in a curved path, called a trajectory.

• **Potential and kinetic energy** - The marble's stored (potential) energy changes to motion (kinetic) energy as it falls.

• **Measurement** - Measurement is utilized in making a zip line and in measuring the height from which their marble is dropped and how far it lands from the target.



NASA'S "ON TARGET" LESSON...STUDENT DIRECTIONS

NASA is trying to find out many things about the moon. One of them is: Is there water on the moon? In order to find out the answer, NASA sent an unmanned spacecraft, the Lunar Crater Observation and Sensing Satellite or LCROSS, hurtling into the moon's surface forming a crater that sent up a plume of dust and gas. Scientists are analyzing the data from this debris and looking for ice crystals and water vapor.

YOUR CHALLENGE IS TO.....

...modify a paper cup so it can zip down a line and drop a marble onto a target.

BRAINSTORM AND DESIGN

Think about how you might design a way to carry and launch a marble:

- How will you modify the cup so it can carry a marble down a zip line and also drop it onto a target?
- How will you remotely release the marble from the cup?
- When do you need to launch the marble so that it will hit the target?

BUILD

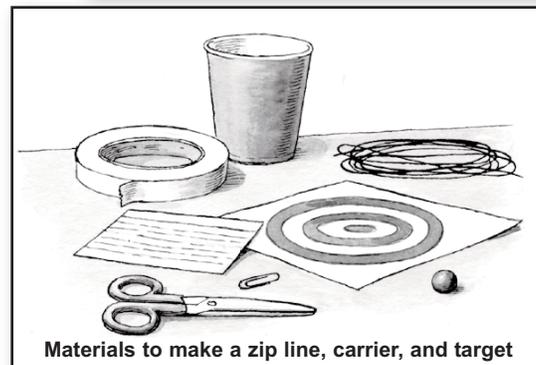
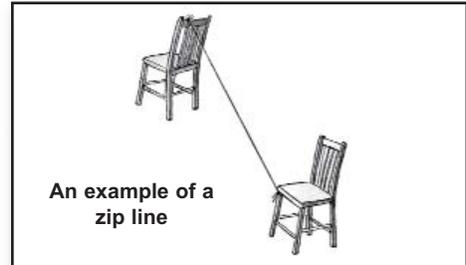
1. First, set up a zip line. Tie 6 feet (1.8 m) of a smooth line to two objects (e.g., two chairs or a table and chair). Make sure it's stretched tight and that one end is about 20 inches (50 cm) below the other.
2. Next, figure out how to modify the cup to carry the marble down the zip line. Will it travel inside the cup? Outside the cup on a platform? Underneath?
3. Then, add a remote release. Decide how you will tip the cup at just the right instant to launch the marble toward the target.
4. Finally, clip the cup to the zip line. Figure out how to hook the cup onto the zip line so it slides easily.

TEST, EVALUATE, AND REDESIGN

Ready for a test run? Place the target near the end of the zip line. Using the remote release, send the cup down and try to hit the target with the marble. How close did you get? See a way to improve your design? Engineers improve their designs by testing them. The steps they follow are called the design process. Try your idea and build an improved version. For example, if your cup:

- goes slowly - Check that the zip line is steep enough. Also, make sure the cup slides freely.
- can't keep the marble in - Roll a small tube of tape to keep the marble from falling out accidentally. Also, adjust the tilt of the cup so the marble can roll out more easily.
- doesn't let the marble out - Roll small tubes of tape and build a chute to funnel the marble toward the opening. If necessary, adjust the tilt of the cup so the marble can roll out more easily.
- misses the target - Since the marble is already moving forward along the zip line, it keeps moving forward as it falls. Make sure to take this forward motion into account as you choose a release point.

Finally...share and compare your results with your class!



Career Connection....Dr. Anthony Colaprete, Planetary Atmospheric Scientist and top scientist for NASA's LCROSS mission



As a kid, Tony Colaprete was interested in nature and ecology. He was happier running around the woods than sitting at home in front of a TV. His father introduced him to space science and engineering early with at-home experiments they would perform together. By the time he was in high school he knew that he wanted to be involved in space sciences. Later, in college, he realized that he could bring his love for nature and space together by studying the nature of other worlds.

Tony's advice to anyone interested in space sciences is "to develop the tools needed to be a scientist early on! If you know your math and physics, it frees up your time to think about the real problems. Learn to observe and ask questions. All science starts with an observation, an idea or a question."



CURRICULUM CORNER.....K-4

LAUNCHING TO THE MOON AND BEYOND

(This is a NASA product and can be found in its entirety at http://www.nasa.gov/pdf/305946main_Ares_Coloring_Book.pdf)

Objective: Students will learn about the Constellation Program and the Ares I rocket and put the parts of the Ares I together as a paper model.

National Science Standards:

Content Standard E: Science and Technology

- Understanding about science and technology

Content Standard G: History and Nature of Science

- Science as a human endeavor
- Unifying Concepts and Processes
- Evidence, models, and explanation

Grade Level(s): K-4

Background Information:

As the space shuttle approaches retirement and the International Space Station nears completion, NASA is building the next fleet of vehicles to bring astronauts back to the moon, and possibly to Mars and beyond. This program is called Constellation. Ares is one component of the NASA Constellation Program. There are two Ares rockets, Ares I and Ares V, that will provide the power to send astronauts, cargo and equipment to the moon and beyond, as well as service the International Space Station.

NASA's Ares rockets, named for the Greek god associated with Mars, will return humans to the moon and later take them to Mars and other destinations. Future astronauts will ride to orbit on Ares I, which uses a single five-segment solid rocket booster, a derivative of the space shuttle's solid rocket booster, for the first stage. A liquid oxygen/liquid hydrogen J-2X engine derived from the J-2 engine used on Apollo's second stage will power the second stage of the crew exploration vehicle (Orion). The Ares I can lift more than 55,000 pounds to low Earth orbit.

Planning and early design are under way for hardware, propulsion

systems and associated technologies for NASA's Ares V cargo launch vehicle -- the "heavy lifter" of America's next-generation space fleet. Ares V will serve as NASA's primary vessel for safe, reliable delivery of large-scale hardware to space -- from the lunar landing craft (Altair) and materials for establishing a moon base, to food, fresh water and other staples needed to extend a human presence beyond Earth orbit.

Materials:

- Ares I pattern sheet
- scissors
- crayons
- glue stick
- black construction paper

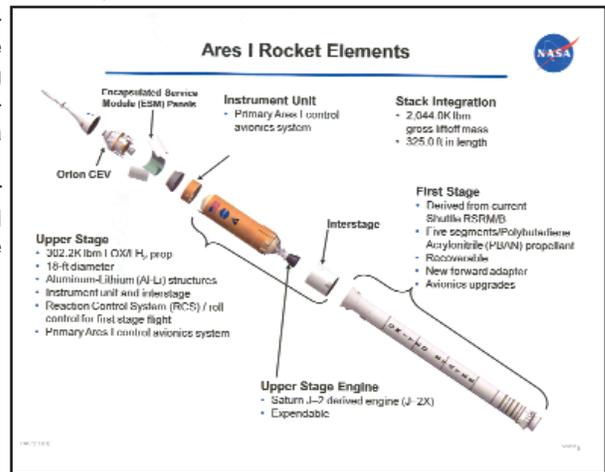
Procedure:

1. Discuss the Constellation Program and how this is the next generation of space exploration for the United States. (You can find out more about this program by going to http://www.nasa.gov/mission_pages/constellation/main/index.html.)
2. Next, have the students color, cut out, and paste the Ares I rocket pattern (in the correct order) on the piece of black construction paper.
3. Have the students add pictures of the moon and stars, if desired.
4. Have each student tell the class one fact they remember about the Constellation project and the teacher can record these facts in a book about the Constellation project.

Take this activity one step further...

1. Through creative writing or story telling on audio tape, have students tell what they would do if they lived on the moon. Story starter: "If I lived on the moon, I would..."
2. Have students draw what they think a

moon habitat would look like. This might begin with a discussion of what the moon is like and what they would need to survive there.

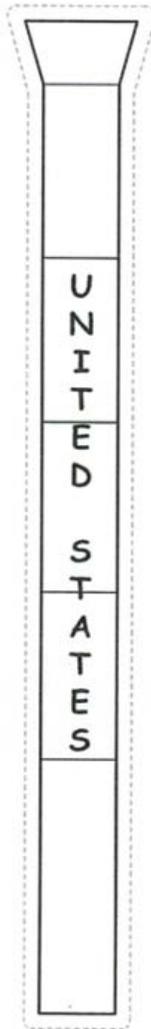
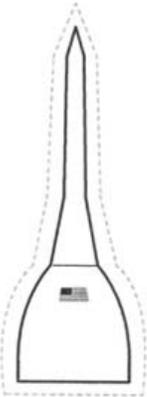
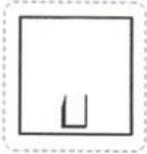


Teachers! NASA Kids' Club has a great interactive site for your students that incorporates many disciplines and standards. Go to http://www.nasa.gov/audience/for_kids/kidsclub/flash/extras/Game_Descriptions_National_Standards.html for teacher descriptions of all flash programs.

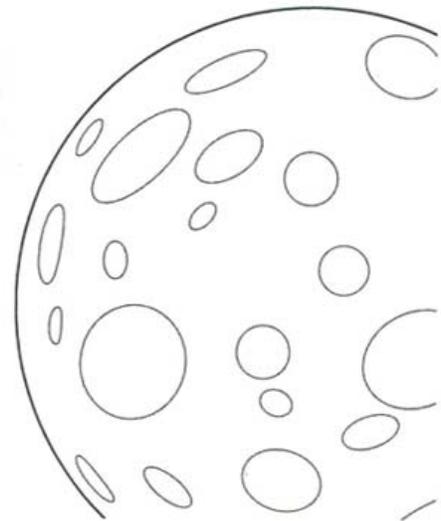
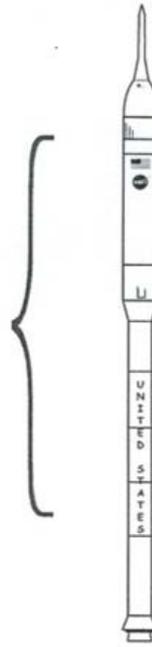


Ares I Cut-Out

Cut-out the pieces to create an Ares I rocket.



*Here is a hint!
It should look like this
when you are done!*



www.nasa.gov

Did you know....

The Ares I rocket is considered the number one invention for 2009 by Time magazine.



The Best of Aerospace Education.....

Celebrating the memory of Lt Col William Turner...

Aerospace Education and Arizona Wing have lost a dear friend and long-time supporter of CAP and Aerospace Education. Lt Col William "Bill" Turner was not only the Director of Aerospace Education for AZ Wing for ten years but also a talented photographer that gave of his time and ability to many National Conferences for Aviation and Space Education. Along with his best friend,

Pete Feltz, Bill was a "regular" at NCASE and gave the name "volunteer" a new, unique meaning. As DAE for AZ Wing, one of his biggest accomplishments was setting up a traveling Aerospace exhibit in a twenty-four foot trailer! This is just one example of Bill's dedication to the Aerospace mission. We miss his quiet, easy manner and his willingness to do "whatever was needed" to get the job done. He will be missed among us but his memory and accomplishments will live on.



Presenting Waltersboro's Best... Cleveland Gore



Cadets from Waltersboro Composite Squadron and Squadron Commander, Cleveland Gore.

Although Cleveland Gore has only been in CAP since 2008, he has put all of his unique and never-ending energy into his squadron - SC 113 in Waltersboro, South Carolina. He has managed to recruit cadets, AEMs (many who later became regular members), and anyone else that he happened to come in contact with during his many, long trips across South Carolina. Cleveland Gore is one of those rare people that can persuade others to join his cause with his very likable manner. He has paid for several memberships out of his own pocket and owns two airplanes - a C-150 and a C-172 Skyhawk - that he uses as recruit-

ing and retention tools whenever possible. He has been "at the right place, at the right time" to see several celebrities land at the airport where his squadron meets. Among these are entertainer Jimmy Buffett and historical icon and Tuskegee Airman, Lt Col Leo Gray (Ret.).

Cleveland Gore puts all of his energy and resources into making his squadron the best it can be and exciting his members, especially cadets and teachers, to want to be the best they can be. He mentors, recruits, and gives, gives, gives! We are happy that this powerful force is working to promote aerospace education for CAP in his community. Thank you, Cleve!

Arizona Wing Aerospace Education Program Flying High!

The AZ AE program has been energized by working with local AFA Chapters to conduct AE workshops and orientation flights for AFA Chapter Teachers of the Year and their peers. In addition, the AZ Wing assisted the NHQ staff in conducting AE workshops at the Dec. National Science Teachers Association Conference in Phoenix. Noted AZ Wing staff and cadets: DAEs Lt Col Pete Feltz and Col Phil Hubacek (shown working with teachers); Lt Col Bob Anderson; Lt Wendy Fields; Capt Matt Fields; Lt Col Fritz Seifritz; 2 Lt Brian Benard; C/SSgt Blake Benard; Capt David Gregor and SM Daryl Javier. AZ Teacher, Phil McBride, is shown with

his new rocket and launchpad from CAP. With him is C/CC Alexa Soria, who has led the first CAP Mars Student Imaging Project between the US and China. Alexa is working on an astronomy project for her senior class and has a career goal of becoming an astronaut!



Top: AZ Teacher, Phil McBride, winner of rocket and launch pad poses with AZ Cadet of Distinction, C/CC Alexa Solorio

Left: AZ DAE, Lt Col Pete Feltz and Col Phil Hubacek work with teachers at NSTA Conference



Thank You



Air Force Association!

Air Force Association Partnership



For many years, the Air Force Association (AFA) has recognized the significant aerospace contributions of Civil Air Patrol to our nation. In an effort to demonstrate the esteem AFA holds for the work CAP members accomplish throughout our country, the AFA provides annual awards and grants for our units and our teacher members. Each squadron can annually recognize an outstanding cadet with a special medal and ribbon provided by AFA. In addition, AFA gives national recognition to one exemplary CAP Aerospace Education Cadet of the Year. The AFA also provides \$250 grants to

CAP units and teachers to assist them in perpetuating the AE mission in their units and classrooms.

The grant competition is quite competitive with only 20 grants given in each of the four grant cycles during the year.

The current "unit" grant cycle ended December 31, with winners to be announced in our next newsletter.

The September 30 "educator" grant cycle winners were:

- JoAnn B. Anderson - New Holstein, WI
- Stephanie Benedict - New Madison, OH
- Michael Bero - Green Bay, WI
- Steve Chance - The Dalles, OR
- Scott Cutler - Tumwater, WA
- Stuart Dewhurst - New Holstein, WI

- Glenn Fortmayer - Cunningham, KS
- Bart Gadola - Wilkesburg, PA
- Susan Hayes - Oneida, WI
- Kathy Keeney - Green Bay, WI
- Martha Koho - Knoxville, TN
- Angela Krause-Kuchta - Menomonie, WI
- Jessica McDaniel - Oxford, OH
- Martha Roberts - Oklahoma City, OK
- Dale K. Robinson - Bristol, TN
- Alex Rode - Ledyard, CT
- Shelby Soeder - Waverly, IA
- Stephen Sycuro - Oakboro, NC
- Jaelene Wentland - De Pere, WI
- Heather Whitehead - Marietta, GA

Thank you so much for promoting aerospace education!

Lynn Toney- Alabama Air Force Association Teacher of the Year Ignites School System and State



Lynn Toney was named AL's 2009 AFA Aerospace Education (AE) Teacher of the Year and for good reason. Lynn works in the Boaz, AL City School System as the Gifted Education Coordinator, and for the last several years has led an initiative to ignite this rural, agricultural town to provide STEM-related career development opportunities for her school system. Lynn began her mission several years ago when one of her students had an interest in aerospace. In her research to quench the student's inquisitiveness, she found out about the Civil Air Patrol. Working with her Asst Superintendent, Dr. Randall Haney, who was an active CAP member, Ms Toney began the first CAP School Cadet Program in Alabama for students in grades 6-12.

These middle/high school cadets have become shining stars in their community. As a natural extension for the elementary grades, Lynn coordinated the national lift-off program for the first CAP Aerospace Connections in Education (ACE) Program for grades K-6 in 2007. Lynn now works with her gifted students with robotics and other aerospace-related STEM programs, but also shares her passion and talents with the entire school system as one of CAP's volunteer state Directors of AE.

As a DAE, Lynn not only coordinates AE activities for her school system students and teachers, but works with students and teachers throughout the state, encouraging students to join as CAP cadets and teachers to join as CAPAE Members. Lynn has organized numerous orientation flights and AE workshops for both cadets and teachers. Most recently, she worked with NASA to coordinate a system-wide AE Week in Boaz to lift-off the 2009 CAP ACE Program and to integrate the upper and lower age students in common AE programs. NASA scientists inundated the school system, training teachers to implement AE in the classroom, and motivating students to work toward aerospace careers. Ms Toney has taken the initiative to secure AFA, CAP and NASA grants to continue her

work with all students, to work with her state governmental leaders to garner support for her rural area to receive high-tech training and career opportunities, and to work with the CAP National HQ to help produce new programs to inspire the next generation of aerospace workforce. Lynn Toney has boundless energy and enthusiasm that is putting her small community "on the map!" Lynn's commitment is, "As an educator, a community member, and a parent, it is my duty to help educate and motivate our youth. It is also my civic responsibility to push for better workforce development for our young people today so they will be prepared to fulfill the technological needs on this Earth for tomorrow." The AFA and CAP are proud to share Lynn's journey and look forward to highlighting another dynamic AFA Teacher of the Year.

Answers to "Destination: Moon on front page:

1. October 28, 2009, Ares I-X was launched.
2. The main goal for returning to the moon is to provide opportunities for research and technology development that will prepare humans for further human exploration to Mars and beyond.
3. Answers will vary.
4. Answers will vary.



Chief's Corner.....

From the desk of Dr. Jeff Montgomery,
HQ Chief of Aerospace Education



Fly-a-Teacher Program Renamed

CAP's Fly-a-Teacher Program has been renamed Teacher Orientation Program (TOP) Flights. The acronym TOP Flights will be routinely promoted and used. The AE Advisory Committee suggested this new name, and it is consistent with the other CAP flying programs, such as Cadet Orientation Flights or AFJROTC Orientation Flights.

This new name also helps emphasize that the flights are part of a complete program that includes workshop activities to assist teachers in being able to transfer the learning experience into the classroom. CAP NHQ reimburses wings for these flight opportunities so AEOs and teachers should make every effort to team up for this experience to take teachers out of the classroom and into the sky. The ultimate excitement is transferred directly back to students in the classroom." To find out more, go to <http://www.capmembers.com/ae>.

Aerospace Education Officers' Handbook



The update of the AEO Handbook, also known as CAPP 15, is complete. The revised pamphlet should appear on the website for download 1 January. Go to the Forms and Publications link to access this very helpful tool.

CAP Cadets Move to Final Round in National High School CyberPatriot Program

The Air Force Association (AFA) sponsored a Cyber Defense Competition for high school CAP cadets and Air Force Junior Reserve Officer Training Corps (AFJROTC) cadets this fall.

The top eight teams in the nation include four CAP cadet squadrons:

- CAP Beach Cities Cadet Squadron 107, Torrance, CA (Top Scorer)
- CAP Rochester Oakland Comp Squadron, Rochester Hills, MI
- CAP Burlington Comp Squadron, Burlington, NC
- CAP Seacoast Composite Squadron, Portsmouth, NH

CyberPatriot II, likely the largest simultaneous high school cyber defense competition ever staged, began Nov. 7 with a one-of-a-kind concurrent opening round of nearly 200 high schools from 41 states and Japan competing over the Internet. Over two weeks, that group was narrowed to 36 teams for the Medalist Flight competition on Nov. 21, out of which emerged the final eight teams.

In a race against the clock, the Medalist Flight competitors had no more than six hours to find and correct

vulnerabilities in a complex, three-operating-system virtual network made possible by Science Applications International Corporation (SAIC), and were tracked according to success and speed. Using a commercial platform called CyberNEXS, the teams had to "lock-down" two Windows and one UNIX servers.

The finalist team rewards are an all-expense-paid trip to the Championship Round, February 19, 2010, in conjunction with AFA's Air Warfare Symposium at the Rosen Shingle Creek Convention Center in Orlando, FL. There, they will compete in the most complicated series of live challenges yet, against a "Red Team" opponent that will actively counter their defense strategies.

"CyberPatriot II has been a tremendous success and an excellent learning opportunity. We appreciate the enthusiastic participation from across the nation, and look forward to expanding CyberPatriot III next year," said S. Sanford Schlitt, AFA's Vice-Chairman of the Board for Aerospace Education. "As a career field, cyber defense is essential to our nation's prosperity and national security. One of our primary missions at AFA is promoting education in science, technology, engineering and mathematics, and we're so proud to

spearhead this exciting educational program."

CAP's National Commander, Maj Gen Amy Courter, praised the CAP cadets for their exemplary performance. "The efforts of the cadets and their adult leaders to develop technological skills that will benefit our country go far beyond a competition. These young people are on the cutting edge of technology that may well protect the critical infrastructure of our nation from cyber attack. These squadrons are to be applauded for the time devoted to such a noble and historic event with the Air Force Association."





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

March 5-6
Celebration of Teaching & Learning 2010 - 5th Annual Conference will be held at the Hilton New York in New York City, New York.
<http://thirteencelebration.org/>

March 18-21
2010 National Conference for National Science Teachers Association (NSTA) will be held at the Pennsylvania Convention Center in Philadelphia, Pennsylvania.
<http://www.nsta.org/conferences/2010phi/?lid=con>

March 22
The Spring Science Education Conference for the New Hampshire Science Teachers' Association will be held at Southern New Hampshire University in Manchester, New Hampshire.
http://www.nhsta.net/home/conference_info

MIDDLE EAST REGION

No events this quarter.

GREAT LAKES REGION

March 4-6
Michigan Science Teachers' Association will hold its 57th Annual Conference at the Lansing Radisson and Lansing Center in Lansing, Michigan.
<http://www.msta-mich.org/>

SOUTHEAST REGION

February 11-13
Georgia Science Teachers' Association will hold its annual conference in Savannah, Georgia.
<http://www.georgiascienceteacher.org/conference.htm>

February 18-19
AFA's Air Warfare and Technology Exposition in Orlando, Florida.
<http://www.afa.org/events/aws/2010/default.asp>

February 25-27
21st Annual International Women in Aviation Conference will be held in Lake Buena Vista, Florida.
<http://www.wai.org/10conference/index.cfm>

April 10-11
Maxwell-Gunter Open House & Airshow will be held at Maxwell AFB, Alabama.
<http://www.maxwell.af.mil/>

April 13-18
Sun 'n Fun Fly-In - 36th Annual Fly-In will be held at Lakeland Linder Regional Airport in Lakeland, Florida.
<http://www.sun-n-fun.org/>

NORTH CENTRAL REGION

February 4-6
South Dakota Science Teachers' Association will hold its 18th Annual Conference at the Crossroads Hotel & Events Center in Huron, South Dakota.
<http://www.sdsta.org/>

February 26-27
North Dakota Science Teachers' Association will hold their conference at Bismark State College in Bismark, North Dakota.
<http://www.ndsta.k12.nd.us/new/conferences.htm>

July 18-30 (Closing date for applications is March 31)
Project ATMOSPHERE: Sensing, Analyzing, and Forecasting, sponsored by the American Meteorological Society, is a summer workshop for K-12 teachers and supervisors at the NOAA/National Weather Service Training Center in Kansas City, Missouri.
http://www.ametsoc.org/amsedu/project_atm/projectatm.html

April 15-17
Minnesota Science Teachers' Association will hold its Spring Conference at Willmar High School in Willmar, Minnesota.
<http://www.mnsta.org/events.php>

SOUTHWEST REGION

February 4-6
16th Annual Space Exploration Educators Conference (SEEC) will be held at Space Center Houston in Houston, Texas.*
<http://www.spacecenter.org/TeachersSEEC.html>

*CAP will conduct a session on ACE and offer aerospace sessions and Teacher Orientation Program (TOP) Flights in CAP aircraft.

March 19-21
Aerospace & AZ Days Tucson Airshow will be held at Davis-Monthan Air Force Base in Tucson, Arizona.
<http://www.dm.af.mil/news/story.asp?id=123178286>

ROCKY MOUNTAIN REGION

No events this quarter.

PACIFIC REGION

July 18-24 (Application submission period - January 4 - February 12)
Astrobiology Summer Science Experience for Teachers (ASSET) will be held at San Francisco State University in San Francisco, California.
<http://www.seti.org/epo/ASSET>

March 12-14
Washington Science Teachers' Association will present its conference at H.M. Jackson High School in Everett, Washington.
<http://www.wsta.net/>

Special Events

February 14-20
Engineers Week - During E-Week teachers can show students how engineering depends on math and science.
<http://www.eweek.org/Home.aspx>

May 2
National Astronomy Day.
<http://www.astroleague.org/al/astroday/astroday.html>