



Aerospace Education

Winter 2013

News

Inspiring Students To Excel

Records and Research

Happy New Year!
---CAP AE Team

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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.

Editor
Judy Stone

Contributing Writers

Jeff Montgomery
Susan Mallett
Marian Gilmore
Debbie Dahl

Printing Service

Jim Tynan
Jacque Pebworth

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

As Austrian skydiver, Felix Baumgartner, took a record-breaking supersonic plunge to Earth from the stratosphere on October 15, 2012, only one person maintained constant communication with him. That person, retired Air Force colonel Joe Kittinger, had held the record for high altitude jumping for 52 years and was Felix's mentor for the five-year project. Kittinger could identify with the trepidation of stepping into space with only a spacesuit separating life and possible death. Even though the spacesuit that Baumgartner wore was much more advanced than the one worn by Kittinger in 1960, the danger was still as great.

Kittinger jumped from an open gondola wearing a partially pressurized suit from a height of 102,800 feet, reaching a speed of 614 mph, and landed, unharmed, 13 minutes and 45 seconds later. Baumgartner became the first person to surpass the speed of sound in only a high-tech suit as he jumped from 128,097 feet and reached a speed of 833.9 mph, or mach 1.24.

The purpose of both record-breaking research jumps was to advance the science of how the human body responds to the upper atmosphere. Kittinger successfully proved the Beaupre Multi-Stage Parachute system could provide safe human escape in high altitude flight emergencies. Baumgartner's feat, which was closely followed by doctors, engineers, and scientists who were evaluating his spacesuit's 50 million data points, tracked the physiological effects on the human body breaking through the sound barrier in order to make space

and high altitude flight accidents more survivable. Both men are brave scientific pioneers who surpassed technological limits while forging new paths for human exploration and discovery.



Two generations of space science researchers, Felix Baumgartner (left) and Joe Kittinger (right), exchange a handshake



Spacesuit comparison: Felix Baumgartner's on left and Kittinger's on right

Questions:

1. Who broke the 52-year record set by Joe Kittinger on October 15, 2012?
2. What was the research accomplished by the feats of Baumgartner and Kittinger?
3. What was the mathematical difference in the altitude from which both skydivers jumped?



Aerospace Education Member (AEM) Spotlight ...

Daphne Horstmeier, OH



Daphne Horstmeier believes in hands-on, inquiry-based science. She uses the CAP AE curriculum materials to help her accomplish this teaching method. Daphne has used rocketry, Aerospace Education Excellence books, and other products from CAP to help her students learn about aviation and space.

Daphne's peers and other professionals who know about her science education experience say that she is always thinking outside the box to develop effective lessons that reach all of her students. Daphne is a highly dedicated professional who knows how to motivate her students to strive for excellence. She is a powerful communicator who possesses the gift of being able to make complex scientific subject matter understandable and fun!

One of the opportunities that Daphne has provided for her students came as a result of her love of astronomy. Daphne took her students on a field trip to the Omni-Max Theatre to view "The Hubble;" returned to the classroom in the evening to use her telescopes to star gaze; and then had her students in Inventor's Club make their own telescopes. Daphne was able to do all of this due to her own pursuit of

knowledge. By taking a series of astronomy classes, she was able to earn a Galileo Telescope to use in her classroom. Daphne then used this technology to offer her students and their families viewing classes to learn more about astronomy.



Daphne Horstmeier has hosted star parties with her fifth grade class and their parents.
--Photo by Mary Strubbe

Daphne has a Masters Degree in Elementary Education and is currently teaching at Covedale Elementary School in Cincinnati, Ohio. She has served as the Science Curriculum Council Chairperson for K-12 Science

for the Cincinnati Public Schools; is a member of Kappa Delta Pi Honor Society; is a member of the National Science Teachers Association (NSTA); is the Staff Advisor for the Science and Inventor's Club at Covedale School; and is an Aerospace Education Member (AEM) of Civil Air Patrol. She uses all of the knowledge and resources from these endeavors to promote STEM subjects in her classroom.

Daphne Horstmeier is always learning and teaching about aerospace education. She is an inspiration to her students and her peers. Daphne's passion for science is contagious and we applaud her dedication and commitment to her students and their futures.



Daphne Horstmeier's Inventor's Club made and used telescopes

"In my classroom, we have used the Civil Air Patrol activities for designing and creating rockets using straws, paper, and clay. We have created parachutes, Rotor Motors, and several other suggested activities from *Aerospace for the Very Young* and other CAP curriculum guides. Students have appreciated seeing the connection between curricular areas as it makes learning more applicable and meaningful to them and links them to possible career fields in the future."

---Daphne Horstmeier



Aerospace Education Officer (AEO) Spotlight..... 1Lt Timothy Cole, Director of Aerospace Education, UT



There are many ways that CAP Senior Members get involved in the AE Specialty Track and become assigned to the role of AE officer. 1Lt Timothy Cole was assigned as Director of Aerospace Education because there was a need for leadership in this important mission and he wanted to make a difference. Lt Cole has gone above and beyond to provide the CAP UT WG with a well-rounded AE program.

Since joining CAP in July 2011, Lt Cole has tried to learn as many areas of CAP as possible. He first made progress in the professional development training that a new member must complete. He also worked on emergency services qualifications. In October 2011, Lt Cole was assigned as an Aerospace Education Officer (AEO) to work with senior members in his squadron. He was soon working with cadets, as well, and enjoyed the AE aspect of the job. Eventually, Lt Cole looked into the Teacher Orientation Program (TOP) Flights that involved teacher members of CAP. He decided to seek advice from the Director of Aerospace Education (DAE) in UT WG. Finding that UT WG Commander was looking for someone to lead the AE WG program, he offered to help and was appointed as DAE.

Being the DAE of UT WG, Lt Cole decided that he should get the best professional development for the position, so he attended the 2012 National Aerospace Education Officer School in Pensacola, Florida. This opportunity allowed Lt Cole the ability to communicate and share with others in his situation as well as those who had

been in the position for years. The wide range of experiences he was exposed to during this school allowed him to return to UT WG with more proficiency and information to perform his job. He was surrounded by AE professionals who loved the mission and were committed to sharing with others.

Civil Air Patrol is fortunate to have Lt Cole as the DAE of UT WG. He is dedicated not only to the AE mission but also the other two missions of CAP. He sees the missions as one and hopes to make a difference. With his willingness to learn and his enthusiasm, he will be a great asset to UT WG and all of CAP.



Left: UT teacher members of CAP receive pre-flight instruction from UT WG pilot prior to their TOP Flight
Top: 1Lt Cole instructs an AEX lesson
Bottom: Results of building a CD hovercraft....fun!

“Attending the National AEO School was a great opportunity,” said Lt Cole, “I was able to meet so many wonderful people from around the country involved in the Aerospace Education mission of CAP. It was great to be surrounded by experienced professionals as well as the fairly new folks such as myself. The school helped explain so many aspects of the AE program.”

---1Lt Timothy Cole, UT WG DAE



K-6 Aerospace Connections in Education

McLean Science and Technology Magnet, in Wichita, Kansas on ACE Lifftoff Day



CAP's K-6 Aerospace Connections in Education (ACE) program continues to grow in its 6th year. With over 19,000 students, 650 teachers, in 24 states, and a DOD school in Turkey, the program has grown 38% in the last two years.

CAP, the official Auxiliary of the United States Air Force, offers ACE to provide educators with engaging, cross-curricular lessons in aerospace education that support science, technology, engineering, and math (STEM) subjects. All of the lessons are correlated to national academic standards. ACE program teachers can: enrich classroom instruction (teach ordinary subjects in extraordinary ways); develop good-natured and healthy citizens; foster an interest in and appreciation for aerospace; and inspire the next generation's STEM workforce (especially the future aerospace workforce).

Throughout the country, many ACE schools held a school wide liftoff event to kick off their ACE program for 2013. Suzanne Reynolds, the ACE Program Coordinator at Bear Elementary School in Montgomery, Alabama, arranged for the *Air Evac Lifeteam medical helicopter to land on*

the school playground (photo on right) and students were able to tour the inside of the helicopter. The pilot and nurses from Air Evac talked to the students about their jobs and the significance of studying hard in school. *CAPPY, the official mascot for the ACE Program, also stopped by to meet the students and lend a hand to the liftoff. (Below)*



San Jose Catholic School, in Jacksonville, Florida, launched their liftoff by having a CAP color guard visit. Carla Chin, a 6th grade teacher at San Jose, had this to say about their liftoff, *"We had the CAP Color Guard from the Cecil Field Squadron come and they were excellent. (Below)*



Our 7th and 8th grade students did bullying skits for grades K - 6 and they did an excellent job. We did this in lieu of a guest speaker and it worked out well. Grades K - 8 then participated in a CAP lesson in each classroom." This is a great way to get the older students involved in the ACE program as mentoring by older students and volunteers is a major goal of the ACE program!

(Continued on page 5)

(ACE article continued from page 4)

There are many fun and creative ways to jump-start an ACE program. Pictures of ACE liftoff programs or students participating in their ACE lessons can be sent to ace@capnhq.gov. (Please ensure photos are permissible for use.)



ACE t-shirts welcome students for ACE Lift Off Day at Donegal Intermediate School, Marietta, Pennsylvania

The ACE program began in 2007 with 4,730 students. There have been many positive responses about the ACE Program through the years to include increased science thinking skills, standardized test scores, and increased interest in STEM subjects and careers.

“The incorporation of the ACE program has not only excited the elementary students in the area of science, but science scores are improving,” said Laura Pink, ACE coordinator at Antioch Elementary School. “As a result, many educators have found a new appreciation for science. This all coincides with the push for STEM, not only within the district, but in the state and nationally as well.” Antioch Elementary School, in Crestview,

Florida has been participating in the program since the 2011-2012 school year and was the 2011-2012 ACE school of the Year.

To learn more about CAP’s grade-specific, cross-curricular, aerospace-themed K-6 program that promotes STEM interest as well as good character and physical fitness, go to www.capmembers.com/ace. To find out what schools in your area are ACE schools, click on the Roll Call link. Registration for the 2013-2014 program will open in August. Please be sure to continue to check the website or contact ace@capnhq.gov.

TOP Flights Begin Another High-Flying Year!

Teacher Orientation Program (TOP) Flights have taken to the skies for the 2012-2013 year. CAP wings are taking advantage of this program to educate and motivate the AEMs (Aerospace Education Members) in their communities to include aviation lessons and classroom activities. Forty-seven AEMs from Florida, New Mexico, Arizona, and Alaska have already taken their orientation rides for this year. More are being scheduled.

One of the TOP Flight events for this year was at Holly-Navarre Intermediate School in Navarre, Florida. Melanie Peters, a third grade teacher and CAP AEM, coordinated and hosted the event. Along with Maj Pam Becker, CAP, Melanie addressed and inspired approximately 600 students. This event was also the liftoff for the CAP ACE program at Holly-Navarre. *(Information and pictures provided by Lt Col Kelly G. Noler, CAP, AEO, FL-434.)*

Arizona Wing held a TOP Flight event on December 1, 2012, to an eager group of eleven AEMs from Anthem and Fireside Elementary Schools. These schools also participate in the CAP ACE Program. Teachers were all smiles as they completed their flights and received their TOP Flight certificates.

AEM Melanie Peters addresses the Holly-Navarre Intermediate School’s Sea of Green (students in their ACE t-shirts)



Left: Barb Gosney, Fireside Elementary, and Kaelyn Milham, Anthem Elementary, return from their flight and receive their certificates. Pictured here with CAP pilot, Lt Col John Bauer.

If you are an AEM and wish to participate in the TOP Flight Program, please contact Judy Stone by email at jjstone@capnhq.gov.



CURRICULUM CORNER.....GRADES K-4

DESIGN YOUR OWN SPACESUIT

Objectives:

- Students will learn how spacesuits help astronauts by providing a mini-spacecraft for the astronaut.
- Students will use their imaginations to create and explain their own design of a spacesuit.

National Science Standards:

Content Standard A: Science as Inquiry

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

Content Standard E: Science and Technology

- Abilities of technological design

Content Standard G: History and Nature of Science

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

Grade Level(s): K-4

Background Information:

Space is a very challenging place to explore. There is no air in space, so there is nothing to breathe. It is very cold unless the sun is shining on you - and then, without air to protect you, the rays of the sun would soon burn you!

To survive in space you need a suit that protects your body from the heat and cold, and surrounds you with air to breathe. Spacesuits are pressurized, meaning they are full of air to support your body, which is why they look puffed up.

A spacesuit is like a tiny spaceship for one. It is a very complicated machine, with air conditioning, heating, air to breathe, and water to drink. It even has a built in toilet!

Some spacesuits attach to a rocket powered backpack, which allows the astronaut wearing it to fly around in space.

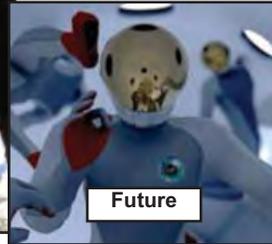
In the future, you will be able to go

into space for a holiday! Scientists are working on smaller, lighter, more comfortable spacesuits, that will be easier to put on and wear.

These suits may be tighter fitting, made mostly of fabric, with less metal and rubber pieces, and should make movement and working even easier.



Present



Future

Materials:

- Student sheet "Design Your Own Spacesuit"
- Art supplies such as crayons, colored pencils, pencils, etc.

Procedure:

1. Discuss with students what conditions are like in space by reading the Background Information section to the students. **Teacher Background: Astronauts need spacesuits in space because it is a hostile environment for living things. There is no oxygen in space and people need oxygen to breathe. There is no air pressure in space and fluids in your body need air pressure to keep your blood and other bodily fluids in a liquid state. Without air pressure, liquids in your body would boil. There are extreme temperature changes in outer space. In sunlight, it can be as hot as 248 degrees Fahrenheit. In the shade, temperatures can drop to minus 148 degrees Fahrenheit. Exposure to radiation and solar winds in outer space is very dangerous. Micrometeoroids and debris from spaceships fly through space at extremely high speeds, which can be**

fatal if they strike a person without proper protection. All of these reasons are why astronauts need spacesuits for protection in space.

2. Ask students to share what they think a spacesuit should have to protect the astronaut.

3. Give each student a copy of the Student Sheet and have them draw a spacesuit and color it to their specifications.

4. Have students share their drawings with the class and explain why they included each part of the suit.

Summary:

Students will learn why astronauts need a spacesuit and what the space environment is like.

Evaluation:

Students should be able to explain their drawings to the group.

Extension:

1. Ask students to draw a spaceship of the future or a space colony on the moon or a planet.

2. Have students write a story about wearing their spacesuit and having an adventure in space.

Resources:

1. National Geographic video called Inside a Space Suit – about EVA suit - <http://channel.nationalgeographic.com/channel/videos/inside-a-space-suit/>

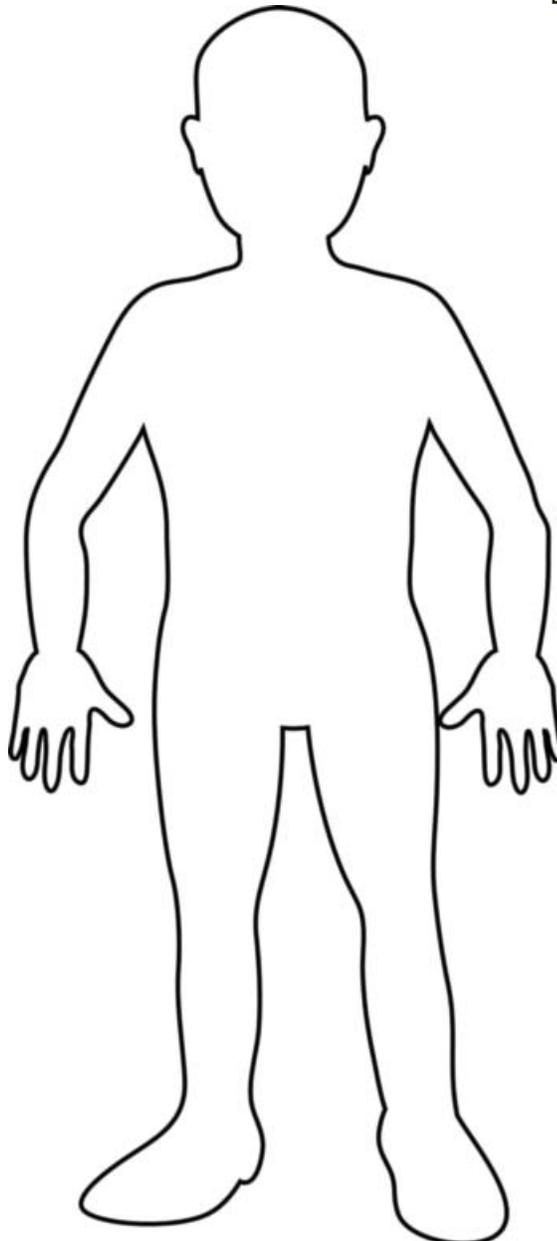
2. How to Make A Spacesuit for Kids - YouTube video from Nesquick Imagination Station UK - <http://www.youtube.com/watch?v=xA5oGXJRqhs>



Design Your Own Spacesuit Student Sheet

Name _____

Think about what your teacher discussed with you about the reasons for wearing a spacesuit. What would a spacesuit look like? What kinds of equipment or tools would you need? Draw a picture of your spacesuit on the figure below and label the parts. Be prepared to share your picture with your class!





CURRICULUM CORNER.....GRADES 5-12

SPACESUITS: POTATO ASTRONAUT

ACTIVITY CREDIT: NASA LUNAR NAUTICS GUIDE

(http://www.nasa.gov/pdf/200173main_Lunar_Nautics_Guide.pdf)

Objectives:

- Students will investigate the relationship between velocity and penetration depth.
- Students will explore how layered materials protect astronauts.

National Science Standards:

Content Standard A: Science as Inquiry

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

Content Standard B: Physical Science

- Motions and forces

Content Standard E: Science and Technology

- Abilities of technological design

Content Standard F: Science in Personal and Social Perspectives

- Natural hazards

Content Standard G: History and Nature of Science

- Science as a human endeavor

Unifying Concepts and Processes

- Evidence, models, and explanation

National Technology Standards:

Standard 10: Students will develop an understanding of the role of troubleshooting, research and development, invention and innovation, and experimentation in problem solving.

Grade Level: 5-12**Background Information (From NASA Quest):**

"Astronauts on spacewalks need spacesuits for impact protection; that is because they are likely to encounter fast-moving particles called meteoroids. A meteoroid is usually a fragment of an asteroid consisting of rock and/or metal. It can be very large with a mass of several hundred metric tons, or it can be very small - a micrometeoroid,

which is a particle smaller than a grain of sand. Micrometeoroids are usually fragments from comets. Every day, Earth's atmosphere is struck by millions of meteoroids and micrometeoroids. Most never reach the surface because they are vaporized by the intense heat generated by the friction of passing through the atmosphere. It is rare for a meteoroid to be large enough to survive the descent through the atmosphere and reach solid Earth. If it does, it is called a meteorite.

In space, there is no blanket of atmosphere to protect spacecraft from the full force of meteoroids. It was once believed that meteoroids traveling at velocities (speeds of objects in a particular direction) up to 80 kilometers per second (about 50 miles per second) would prove a great hazard to spacecraft. However, scientific satellites with meteoroid detection devices proved that the hazard was minimal. It was learned that the majority of meteoroids are too small to penetrate the hull of spacecraft. Their impacts primarily cause pitting and sandblasting of the covering surface.

Spacecraft debris has become of great concern to spacecraft engineers. Thousands of space launches have left many fragments of launch vehicles, paint chips and other space trash in orbit. Most particles are small, but they travel at speeds of nearly 8,000 meters per second (about 17,900 miles per hour). These space-age particles have become a significant hazard to spacecraft and to astronauts on extra vehicular activities (EVAs)."

Materials:

Per team:

- Student Data Sheets (on page 9)
- Plastic (milkshake-size) straw
- Raw potato
- Various materials to layer (e.g., tissue paper, notebook paper, handkerchiefs, rubber bands, napkins, aluminum foil, wax paper, plastic wrap, etc.)

Procedure:

1. Divide students into teams of 3-4.
2. Have teams read the directions and overview on the Student Data Sheet. Teams should decide what they will use to complete the task.
3. Have one member of the team collect the materials needed to perform the task described on the Student Data Sheet.
4. Have each team perform the procedure and share the results with the class.
5. Discuss the Questions on the Student Data Sheet as a class.

Summary:

The effects of high-speed micrometeoroid impacts on an astronaut are simulated with a potato astronaut in this activity.

Evaluation:

Teams will share their findings with the class.

Extension:

There is a comic book format of this activity by the American Society of Mechanical Engineers (ASME). It also gives career background on Astronaut Bonnie Dunbar as an engineer. <http://anniversary.asme.org/pdf/Dunbarflat.pdf>.



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

Potato Astronaut Student Data Sheet

Team Name: _____

Team Members: _____



Overview

Astronauts on spacewalks are likely to encounter fast-moving particles called meteoroids. A meteoroid is usually a fragment of an asteroid consisting of rock and/or metal. It can be very large with a mass of several hundred metric tons (each hundred metric ton weighing 220,000 pounds), or it can be very small - a micrometeoroid, which is a particle smaller than a grain of sand.

Materials

Per Team

- Plastic (milkshake-size) straw
- Raw potato
- Various materials to layer (e.g., tissue paper, notebook paper, handkerchiefs, rubber bands, napkins, aluminum foil, wax paper, plastic wrap, etc.)

Procedure

1. Hold a raw potato in one hand (see illustration). While grasping the straw with the other hand, stab the potato with a slow motion. Observe how deeply the straw penetrates the potato.
2. Repeat the experiment, but this time stab the potato with a fast motion. Observe how deeply the straw penetrates the potato. Compare observations with the results in steps 1 and 2.
3. Think of ways to protect the potato from damage caused by impacts using just the materials available in the classroom. Add one layer at a time (up to 3 layers may be used).
4. Test the new method for protecting the potato by stabbing the potato with the straw.
5. Refine your method for protecting the potato. Your layers of materials can be no thicker than 5 mm (about .2 inches).
6. Conduct additional impact tests with the straw.
7. Discuss the results and be prepared to present them to the class.



SAFETY PRECAUTIONS: Be careful to hold the potato as illustrated so that the straw does not hit your hand. Work gloves will provide additional protection.

Questions

1. Can you name other protective garments or devices used in spacesuits? List several.

2. How does the function of each spacesuit device in number 1 determine how that device is designed?



Air Force Association Partnership

CAP continues its sincere gratitude to the Air Force Association each quarter for the many years of financial support to CAP's units and educator members for grant funding to perpetuate the AE mission of both the AFA and CAP. Once again, CAP sends appreciation to the AFA for its belief in the worth of CAP's youth development programs. The CAP units and STEM projects/programs selected in a competitive grant process to receive the 2013 winter quarter grants of up to \$250 are:

- **Bangor State Belt Composite Squadron**, Bangor, PA - *Open Rocketry Computer Aided Design (CAD), Build and Launch Rocketry Program*
- **Black Sheep Senior Squadron**, Englewood, CO- *Aerodynamics/Wind Tunnel Community Service Program for Douglas County STEM Academy*
- **Cedar Rapids Composite Squadron, Cedar Rapids, IA**- *Iowa Skies Astronomy Program with Trips to Grout Science Museum & Palisades Kepler Observatory*
- **Col Johnny Pantanelli Composite Squadron**, Yorktown Heights, NY - *Community Connection Remote Controlled Airplane Program with Academy of Model Aeronautics and Area Schools*
- **Crow Wing Squadron**, Brainerd, MN - *WWII Military Aviation History Exploration with Trip to Richard I Bong Veterans Historical Center, WI*
- **Floyd Bennett Composite Squadron**, Garden City, NY - *Aerospace Scavenger Hunt Exploration of the Cradle of Aviation Museum and JetBlue Planetarium*
- **Gainesville Composite Squadron**, Gainesville, FL - *Fluid Mechanics and Orbital Dynamics Program with Wind Tunnel and Multi-level Rocketry with University of Florida*
- **Ionia CAP Flight**, Alto, MI - *AEX Outreach: AEX Program with Trips to Veen Observatory and The Air Zoo and Connection with Schools & Home Schools for AE Speaker Program*

- **Jacksonville Composite Squadron**, Jacksonville, FL - *Rockets and Reading Community Outreach Library Program*
- **La Crosse Composite Squadron**, La Crosse, WI - *Remote Control Airplane Community/School Outreach Program*
- **Naples Senior Squadron**, Naples, FL - *Lift-off with Kites CAP Public Awareness & Outreach Program*
- **Phoenix Composite Squadron**, New York, NY - *Cub Scout Outreach Partnership Program with Balsa Planes and Air-powered Rockets*
- **Prince William Composite Squadron**, Manassas, VA - *Optoma Projector STEM Presentation Program*
- **Sheridan Cadet Squadron**, Sheridan, IN - *Remote Controlled Aircraft Fly-in & Trip to National Model Aircraft Museum*
- **Steven Schiller Composite Squadron**, Burnt Hills, NY - *Out of the Classroom; Into the New England Air Museum Educational Program*
- **Southeast Group**, Delavan, WI - *Group AE Week-end Extravaganza*
- **Tehachapi Composite Squadron**, Tehachapi, CA - *Tehachapi Aviation and Space Challenge Week-end with LEGO Mindstorms Robotics*
- **Thunderbird Composite Squadron**, Oakley, UT - *Model Aircraft & Remote Control (MARC) and Take-off and Grow (TAG) Program with Ute R/C Association*
- **Washington County Composite Squadron**, Hillsboro, OR - *Hovercraft Exploration*
- **Wylie Apte Cadet Squadron**, Conway, NH - *McAuliffe-Shephard Discovery Center AEX Experience*

Twenty units in 13 CAP Wings will impact about 1,200 young people toward a greater interest in STEM subjects and careers! Congratulations to these units! And, much gratitude to the Air Force Association for grant funding from enthusiastic CAP members!

AFA Grant Funds Stimulate Rocketry Team Program in New Mexico

Gloria M. Kindig, of Picacho Middle School in Las Cruces, NM, used her AFA grant to help fund her dynamic rocketry program wherein her students meet after school in preparation for the national Team America Rocketry (TARC) competition.



Students discuss parachute function while building rockets



Students work with educator, Ms Kindig, to launch rockets

For information about Team America Rocketry Challenge (TARC) AND the scholarship opportunity to help fund YOUR rocketry team for the national competition (scholarship applications are due February 1st), check out TARC's website at: www.rocketcontest.org.



Join the Air Force Association today to help support this important partnership!
<https://www.afa.org/newforms/membership.aspx>

AFA info continued on next page.....



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

As we begin 2013, we have some exciting news to share with you. In late 2012, CAP became the recipient of National Defense Education Program (NDEP) funds to be used to establish an AE science, technology, engineering, and math (STEM) kit distribution program. All CAP units and teacher members can apply for these STEM kits. Our members can choose from five different STEM kits: astronomy, robotics, rockets, remote control aircraft, and flight simulation kits. To learn more about these kits and how to obtain them, go to <http://capmembers.com/stemkit>. This website will describe the application

and distribution procedures; however, I want to mention something here in this article. A Squadron AEO can complete the application (similar to an AFA grant application) and submit it to stem@capnhq.gov. Once the application has been reviewed and found to obtain the proper information, we will work with different vendors to obtain the kit you requested and be sure you receive it. After the squadron or classroom teacher has completed the different activities associated with that particular STEM kit and sent an after-action assessment form back to NHQ/AE, the squadron or teacher can then request

another STEM kit. We will provide these kits to CAP squadrons and teachers as long as the funds are available. So, be sure to go to <http://capmembers.com/stemkit> and learn more about the five kits and how to obtain them. These kits have a tremendous potential outreach for CAP's AE and STEM interests. We are excited and hope you will take advantage of this wonderful opportunity to receive terrific additional AE materials for your cadets and students.



Air Force Association continued from page 10.....

CyberPatriot Finalists Ready for "Battle of the Brains"

By the time you receive this newsletter, the finalists for the 2013 AFA High School CyberPatriot program will have been selected after three rounds of competition between 1225 teams across the nation. With two parallel divisions, the Open Division (comprised of any high school teams) and the All Services Division (comprised of any high school cadets from All Services JROTC and CAP), there has been plenty of healthy educational competition of the brains to seek the most proficient team of cyber defenders made up of young people who will one day enter cyber security, cyber forensics, cyber hardware, or other related cyber careers desperately needed in America to help maintain future national security. The final teams will move to the National Competition to be held March 14-15, 2013 in National Harbor, Maryland, where winners will be identified and rewarded with prizes, scholarships, and maybe even immediate jobs! We applaud all adult leaders who have taken personal time to encourage

and facilitate the team-building learning adventure for all 2013 teams, and, all high school students and cadets who have dedicated much personal time and brain power toward this exciting national fun and career development program. For any CAP adult member, All Services JROTC instructor, or CAP educator member----PLEASE consider NOW how YOU can help bring an unlikely team of high school tech-savvy computer enthusiasts together to learn more about how to use STEM knowledge to defend our country from cyber attacks and become a contender in the cutting-edge 2014 CyberPatriot program. 2014 Team Registration will begin in April, 2013, so continue to stay tuned and learn more at the comprehensive CyberPatriot website: www.uscyberpatriot.org. Also, check out CAP's CyberSecurity module found in the Lessons and Resources section at www.capmembers.com/ae wherein a variety of additional online resources include an aerospace careers link. These online STEM resources compliment the plethora of CAP printed and CD curriculum products, also found at that same link. Exciting new products coming to you soon to enrich YOUR STEM efforts are: revised Model Rocketry and new Advanced Model Rocketry, Model Aircraft & Remote Control (MARC) program, Astronomy,

Middle School Life Science, and Advanced Math.

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



2012 National Cyberpatriot Champions: Colorado Springs CAP Cadet Squadron, Colorado



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

February 13-14

The 1st International Teacher-Scientist Partnership Conference will be held at the Hynes Convention Center in Boston, Massachusetts.

<http://biochemistry.ucsf.edu/programs/sep/>

Deadline: April 1

Nanotechnology: A Summer Institute for Science, Math, and Technology Teachers will be held at the University of Massachusetts in Amherst, Massachusetts July 8-12, 2013.

<http://www.umassk12.net/nano/>

MIDDLE EAST REGION

January 30 - February 2

ScienceOnline will hold its seventh annual conference at North Carolina State University in Raleigh, North Carolina.

<http://scienceonline.com/scienceonline2013/>

March 16-17

The 2013 Physics Teacher Education Coalition Conference will be held at the Sheraton Inner Harbor Hotel in Baltimore, Maryland.

<http://wwwptec.org/conferences/2013/>

GREAT LAKES REGION

March 7-9

The International Technology and Engineering Educators Association will hold its 75th Annual Conference in Columbus, Ohio.

<http://www.iteea.org/conference/workshops.htm>

March 8-9

The Michigan Science Teachers Association (MSTA) will hold its annual conference at Eastern Michigan University in Ypsilanti, Michigan.

<http://www.msta-mich.org/conference-a-events/msta-conference>

March 16-18

The Association for Supervision and Curriculum Development (ASCD) will hold its 68th Annual Conference and Exhibit Show in Chicago, Illinois.

<http://www.ascd.org>

SOUTHEAST REGION

March 14-16

The 24th Annual International Women in Aviation Conference will be held at the Gaylord Opryland Resort and Conference Center in Nashville, Tennessee.

<http://www.wai.org/13conference/index.cfm>

April 25-27

The 20th Annual Great Moonbuggy Race will be held in Huntsville, Alabama at the U.S. Space and Rocket Center.

<http://moonbuggy.msfc.nasa.gov/>

NORTH CENTRAL REGION

February 22-23

The Minnesota Conference on Science Education will be held in Duluth, Minnesota at the Duluth Entertainment Convention Center.

http://mnsta.org/2013_Conference.html

SOUTHWEST REGION

February 7-9

The 19th Annual Space Exploration Educators Conference will be held at Space Center Houston in Houston, Texas.

<http://www.spacecenter.org/teachersseec.html>

Deadline: February 8

McDonald Observatory in the Davis Mountains of West Texas will offer teacher workshops during the summer of 2013.

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

April 11-14

The National Science Teachers Association (NSTA) National Convention will be held in San Antonio, Texas.

<http://www.nsta.org/conferences/2013san/>

ROCKY MOUNTAIN REGION

April 17-20

The National Council of Teachers of Mathematics will hold its Annual Meeting & Exposition at the Hyatt Regency Denver at Colorado Convention Center in Denver, Colorado.

<http://nctm.org/denver/>

PACIFIC REGION

March 14-16

The Annual CUE (Computer-Using Educators) Conference will be held in Palm Springs, California.

<http://cue.org/annual>

Answers to questions on front page:

1. Austrian skydiver, Felix Baumgartner, broke Kittinger's record.
2. Kittinger successfully proved the new parachute system, the Beupre Multi-Stage Parachute, could provide safe human escape in high altitude flight emergencies. Baumgartner's feat was closely followed by doctors, engineers, and scientists working to make space and high altitude flight accidents more survivable.
3. Kittinger jumped from a height of 102,800 feet and Baumgartner jumped from 128,097 feet; a difference of 25,297 feet.