



Aerospace Education

May-June 2008

News

Inspiring Students To Excel

Mars Lander Phoenix will land on Mars on May 25!



Summer Sizzles with AE!

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Aerospace Education News

Aerospace Education News is the official aerospace education bimonthly 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@cap.gov.

Now that summer is on the way and there is a need to rejuvenate and choose exciting and beneficial professional development to start next fall with a bang, we have some aerospace adventures that will give you a great start. Whether you are an AEM (Aerospace Education Member) or a Civil Air Patrol Aerospace Education Officer, we have something for you.

• The first is for Aerospace Education Officers (AEOs) in Civil Air Patrol. National AEO School will be held in Pensacola, Florida, on June 25-28 at the Pensacola Naval Air Station.

Contact Jeff Montgomery at jmontgomery@cap.gov for further information.

• AEOs can also participate in the Pacific Region AEO School to be held in Seattle, Washington on June 25-28, 2008. For more information, contact Richard Edgerton at http://edgerton.us/pcr_aeo-s/.

• Next, Space Education Initiatives and the Iowa Space Grant Consortium will offer a behind the scenes tour of Kennedy Space Center in Florida. Three days of tours and events will be topped off with a Saturday evening banquet with an astronaut guest speaker. This event will occur July 10-12. Go to www.cap.gov/ae or contact Holly Liss at holly@spaceed.org for more information.

• The U.S. Space &

Rocket Center and the Civil Air Patrol will partner for a Fly A Teacher workshop on July 26, 2008 in Huntsville, Alabama. Participants must be an educator member of CAP. To find out more, go to www.cap.gov/ae or http://www.spacecamp.com/educators/profdev/specev/index.php#cap_fly.

• CAP Aerospace Education will offer a workshop prior to CAP National Board in Kissimmee, Florida, on August 6. This unique experience will offer CAP educator members and CAP uniformed members the opportunity to work with our national standards-based curricula and earn continuing education units. For more information, contact Judy Stone (jstone@cap.gov) or Debbie Dahl (ddahl@cap.gov).

These aerospace adventures will be sure to excite and motivate you to even greater heights in aerospace education. We look forward to seeing you there!





In the AEM spotlight ...

Barbara Walters-Phillips

When you grow up with aviation and flying in your blood, the progression of events in your life are dictated by that fact. As such, Barbara Walters-Phillips has built her passion through the years fostered by her father, Melvin King. Mr. King was a private pilot and taught Barbara much of what she needed to know to earn her private pilot's license.

Barbara's youth was spent in Pennsylvania where she graduated from Shippensburg State University. She then moved to Hagerstown, Maryland, where she taught fifth grade for over twenty years. The aviation component of her youth came to bear as she became dedicated to bringing young people, teachers and others the excitement of aerospace education. Barbara did this by receiving the Eleanor Roosevelt Grant from the American Association of University Women and writing *Aviation Invasion*, a program using aviation and space to motivate middle school girls to take higher level math and science classes.

After moving to Orlando, Florida, Barbara continued to teach aviation to both girls and boys at Orlando Executive Airport. She wrote curriculum to accompany this class and involved the Orlando Experimental Aircraft Association Chapter 74 in instructing and inspiring the students that participated.

Barbara Walters-Phillips spends her time involved with workshops and classes that engage students and teachers with aviation. She has been the chairman of the Sun 'n Fun teachers' workshop in Lakeland, Florida, for the last 15 years. With a very dedicated committee, the workshop is planned

for Saturday during the Sun 'n Fun air show. The workshop features an astronaut speaker (this year's speaker was Bob Springer), and many fun and educational aerospace activities. (Sun 'n Fun teachers' workshop for 2009 will be April 25, 2009.)



Barbara has earned many national awards for her work in aerospace education including the A. Scott Crossfield Teacher of the Year Award in 1994 and the Air Force Association's Christa McAuliffe Teacher of the Year in 1995. She is recognized and valued by the Air Force Association in Florida as is indicated in a quote from AFA, Florida, VP Richard A. Ortega, "By her (Barbara Walters-Phillips) continuous desire to display professional class-



Barbara Walters-Phillips and husband, Pat, in front of their newly restored Piper J-3 Cub.

room teaching techniques and innovative classroom educational initiatives, Barbara has substantially inspired and motivated her students and CAP cadets to achieve academic excellence in aerospace sciences and technologies."

Barbara and her husband, Patrick Phillips, enjoy flying their PT-17 Stearman and their recently restored J-3 Cub around the central Florida area. Pat is not only an avid pilot, but he is also the airshow coordinator for Sun 'n Fun.

Barbara Walters-Phillips continues to bring aviation to every venue she attends, such as AirVenture in Oshkosh, Wisconsin this year. She looks for every opportunity to share the excitement and thrill of aviation with students and teachers everywhere. We salute her efforts and hope her star continues to shine brightly as she touches the lives of young people.



Barbara Walters-Phillips with Astronaut Bob Springer at this year's Sun 'n Fun Teacher Workshop.

In the AEO Spotlight.....

Capt Brian Smiley

A quickly rising star in CAP's Aerospace Education family is Capt Brian Smiley. He joined CAP in January 2003 and has shown initiative and drive. Capt Smiley is leading Colorado Wing's aerospace program to become a shining example for Civil Air Patrol.

Capt Smiley's educational background and current vocation allow for a wealth of talent that he brings to CAP. He received his undergraduate business degree from Hartwick College in Oneonta, New York, and a Masters in Business Administration (MBA) from the University of Phoenix. Capt Smiley has worked as a Regional Sales Director in the Wholesale Division of Qwest Communications for the past eight years.

Among his many accomplishments, Capt Smiley is an instrument rated, mountain-qualified, CAP Mission Pilot as well as being Counter Drug, AFROTC and Cadet Orientation pilot qualified. He has prior service as a reserve officer in the U.S. Air Force, graduating Officer Training School in April 1990. Capt Smiley has progressed through the Level IV requirements and currently holds a Master Rating in Aerospace Education as well. His many awards and decorations include National Commander's Unit Citation, the Grover Loening Award, the Scott Crossfield Award, the Leadership Ribbon with Silver Star, the Membership Ribbon, and the General "Chuck" Yeager Award among others.

Colorado Wing's Aerospace Education Day, in the fall of 2007, was created and directed by Capt Smiley. Internal Aerospace Education Officers as well as external teacher members attended this event which included a Fly A Teacher flight and guest speakers in addition to a vintage and corporate aircraft static display. There was an awards presentation, and special guests attended, including community leaders.

Capt Smiley has a personal commitment to CAP, and his loyalty and dedication are commendable. He

is also the loving husband to Kimberly and proud father to Katelynn and Lauren. We thank Capt Smiley and wish him continued success as he demonstrates the true "volunteer" spirit.



Brian Smiley's philosophy can be summed up by the quote which appears in his email signature block. "Life's journey is not to arrive at the grave safely in a well preserved body, but rather to skid in sideways, totally worn out, shouting: YEEHAW, what a ride!"



CAP's School Enrichment Program (SEP) for Middle and High Schools

CAP's Cadet Program is offered to students in grades 6-12. Currently, there are 22,000 cadets throughout the nation. The cadet squadrons meet in airports, churches, museums, and schools. The school squadrons are part of the School Enrichment Program (SEP) and meet either during school as an elective subject or as an after-school enrichment program, addressing many areas of the No Child Left Behind Act. Opportunities for youth include: orientation airplane and glider flights; aerospace career field experiences; international travel; and awards and scholarships.

The basic elements of CAP's core cadet program are:

- principles of effective leadership;
- strength of integrity through character;
- awareness of aerospace and related career opportunities; and
- life-long benefits of physical fitness and a drug-free lifestyle.

For more information on CAP's Cadet Program and the School Enrichment Program for middle and high schools, go to

www.cap.gov/cadets wherein you will find phenomenal educational opportunities and a complete curriculum for our nation's youth. If interested in starting a SEP at your middle or high school, you may also contact SEP Managers: Susan Mallett at smalllett@cap.gov and Angie St. John at astjohn@cap.gov.



Physical Fitness



Aerospace Education



Color Guard

Local Air Force Association (AFA) Chapters Sponsor Teachers for Aerospace Education Membership in Civil Air Patrol

AFA Chapters across America are beginning to sponsor teachers to become Aerospace Education Members (AEMs) of CAP. The purpose of this sponsorship is to help AFA Chapters to fulfill their mission to educate the public about the importance of aerospace for our country. The future workforce development, as well as future national security, depends on an educated populace via Science, Technology, Engineering and Math (STEM) educational initiatives. The classrooms of America provide the fertile ground for such education and preparation for the future.

When chapters sponsor teachers for this program, the chapter members

may also volunteer to assist the teacher in promoting the aerospace education programs being conducted in their classrooms, to include the Cadet and AEX programs. It is hoped that the sponsored teachers will, in turn, become AFA members that will further fulfill the AE mission.

To inquire about the AFA sponsorship of teachers, find out where a local chapter of AFA is located at http://www.afa.org/contact_link_search.asp. If needed, contact Susan Mallett at smalllett@cap.gov for assistance.

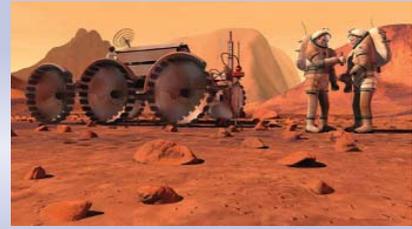


AFA members giving aerospace education tour for students



CURRICULUM CORNER

Mars Archeology



This activity is adapted from *Mission to Mars* materials from the Pacific Science Center in Seattle, WA and Adler Planetarium.

Submitted to NASA's *Live From Mars* curriculum by April Whitt and Amy Singel, Adler Planetarium.

Objective:

The student will have the opportunity to:

- Examine a simulated Martian surface core sample.
- Learn how an unknown core sample can be identified by matching it with a known sample.
- Discover how surface core samples can tell us about the history and make-up of Mars.
- Consume the core samples at the end of the exercise!

National Science Standards:

Content Standard A: Science as Inquiry

- Abilities necessary to do scientific inquiry

Content Standard G: History and Nature of Science

- Nature of science
- Unifying Concepts and Processes
- Evidence, models, and explanation

Grade Level(s): 6-8

Background:

As we learn more and more about the Red Planet, we continue to ask questions that we hope will be answered by the landers and rovers, present and future. The latest Mars lander, the Phoenix, will land on Mars on May 25, 2008. Phoenix will dig to an ice-rich layer expected to lie within arm's reach of the surface. It will analyze the water and soil for evidence about climate cycles and investigate whether the environment there has been favorable for microbial life.

Materials needed (for each student):

- "Fun or bite size" candy bar (*Snickers, Milky Way, Mounds, Reeses Peanut Butter Cup, etc.*)

- Two 3" long section of clear plastic soda straws
- Paper plate
- Plastic knife
- Graph paper or small ruler
- Wet wipes (optional for hand clean-up prior to activity, since edible material is involved.)

Procedure:

1. Give students student sheet. Give students the following directions:

You have just received a Martian surface sample. It is your job to observe and determine all the scientific information you can from this sample. You will be taking a core sample from this Martian surface sample and answering the following questions. You will then receive a second core sample to compare to the first. List anything that is similar or different between the two samples.

2. Distribute one candy bar to each student. (Use candy at room temperature, or a bit warmer.) Instruct students not to show their brand to anyone else. Ask students to unwrap their bars and record observations about the surface: color; texture; composition; etc.

3. Have students take a "core sample" by carefully and steadily drilling a straw into their candy bar. Then ask them to record the number and thickness of layers, as well as color and texture of layers. What are the layers made of? Any repeated layers?

4. Have the students use knives to cut candy in half, so the layers can be viewed more easily in a cross-section. Discuss which layers were made first. How were the layers made?

5. Have the students make a second core sample using the other straw. Two students then exchange core

samples. Can they identify a new sample by comparing it with one that is known?

6. Complete student sheet.

7. Finally, allow the students to consume the samples.

Answers to student sheet questions on page 6:

1. Have the students observe the exact color of the surface. Is it milk chocolate, dark chocolate, etc. Have them define in word variations to more distinctly describe what they are seeing.

2. Is it smooth, wavy, lined, bumpy, speckled, etc.? Can they see different colors integrated into the surface?

3. Have them label some of their features (optional).

4. If this was a Martian sample, what physical processes could have caused the textures or features you are seeing? (e.g. Water erosion (fluvial), wind erosion (aeolian), impacts, etc.

5. This will vary, depending on the candy bar.

6. Answers will vary.

7. The chocolate covering would be the surface the youngest area of deposit. The stratigraphy (the order of the layers) would grow older as they go down the straw, towards the bottom. This would generally be true, barring any unusual events, like earthquake faulting or magma (liquid rock) intrusion.

8. Answers will vary.

9. Unless the student got an identical core sample in the exchange, there should be some change. Compare the thickness of the top layers, colors, textures, smells, number of layers, softness, hardness, etc.

Mars Aerology (continued)

(continued from page 5)

10. A core sample would be very important to the study of Mars! Most of our science observations have been of surface features. To have a better understanding of the processes that formed the Martian features, probing the subsurface would be very important. There are also many unanswered questions the scientists are trying to find answers for: Is there water in the subsurface (perhaps that a human mission to Mars could access?) How many layers are there and how thick are the layers in the subsurface? Are there different rocks

underground than there are on the surface of Mars? What can we tell about the climatic history of Mars from these layers (Mars '98 Mission - information can be found at http://www.windows.ucar.edu/tour/link=/mars/exploring/M98_overview.html)?

11. Actually, a case could be made for both sides...Earth would probably have better, more sensitive science equipment available, since spacecraft equipment is somewhat limited to space/cost/sensitivity factors. Studying the sample on Mars would allow the scientist to observe the actual site and surroundings of

the core sample. Was this sample typical of the rest of the terrain, or an unusual occurrence? A field study could be better conducted on Mars.

12. The core samples may have been taken from different sites or different places on the planet. Remember that one sample does not necessarily translate to the whole planet being like the sample. (A good story is "The Blind Men and the Elephant" where the blind men all feel a different part of the elephant and think they know what the whole elephant is like.)

Student Sheet

Name _____

Date _____

Directions: You have just received a Martian surface sample. It is your job to observe and determine all the scientific information you can from this sample. You will be taking a core sample from this Martian surface sample and answering the following questions. You will then receive a second core sample to compare to the first. List anything that is similar or different between the two samples.

- 1) Describe the color of your Mars sample. _____
- 2) Describe the surface features of your Mars sample: _____
- 3) Draw a picture of any surface features you see on your Mars sample: (Use the back of your paper)
- 4) What is your hypothesis (science guess) about the cause of any texture that you see on your Mars sample?

- 5) How many layers does your Martian core sample contain? _____
- 6) Draw a picture showing the layers of your Martian core sample: (Use the back of your paper.)
- 7) Which layers were made first, and why do you think this is so? _____
- 8) Draw a picture of the second core sample showing any layers and surface features: (Use the back of your paper.)
- 9) Compare the two core samples and list any similarities or differences from your first Martian core sample. _____
- 10) Would a core sample from Mars be important to the study of Mars? Why? _____
- 11) Where would be the best place to study a Martian core sample....on Earth or on Mars? Why? _____
- 12) What would account for the samples being different, if both come from Mars? _____

(if you need additional space to answer any question, use the back of your paper.)



AEO/AEM News and Views



AFA continues to provide outstanding support to Civil Air Patrol and aerospace education. AFA has now given CAP over \$240,000 in \$250 aerospace grants that have been used to promote aerospace education in CAP squadrons and in the classrooms of America. The next summer grant cycle is for CAP squadrons and the deadline for submission of the application is **June 30, 2008**. Go to www.cap.gov/ae for an application.

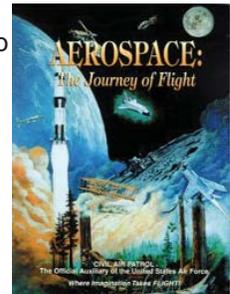
If you have any questions, please contact jstone@cap.gov or jmontgomery@cap.gov. Congratulations to the grant winners for the Spring 2008 AFA Educator Grant cycle! They are:

- Laurie Cowgill - Kenai, AK
- Gigi Dendy - Northport, AL

- Brandi DeSandro - New Brockton, AL
- Penny Glackman - Ardmore, PA
- Reba Godfrey - Shreveport, LA
- Mary Gurley - Montgomery, AL
- Peter Hurd - Houlton, ME
- Angela Krause-Kuchta - Menomonie, WI
- Tim McCreery - Pine Valley, CT
- Julie Muffler - Oregon, OH
- Carol Mullinax - Boaz, AL
- Richard Olson - Montague, MI
- Christina Paape - DePere, WI
- Marguerite Parino - Billerica, MA
- John Pedace - Westby, WI
- Linda Ruehle - Mankato, MN
- James Schmidt - DePere, WI
- Dana Thompson - New Smyrna Beach, FL
- Jamie Wilhelm - Troy, AL
- Deborah Williams - New Brockton, AL

Special for AEM Renewals in 2008!

For any AEM that renews his/her membership in 2008, we have a special benefit. You will receive a **free** copy of the 2nd edition of our comprehensive textbook, *Aerospace: The Journey of Flight*. This full color, 676 page book is a wonderful addition to any resource center or library. We appreciate your continued support of Civil Air Patrol and aerospace education and look forward to offering many educational opportunities in the future.



CAP Scholarship Opportunity from Embry-Riddle

Embry-Riddle Aeronautical University, the world's leader in aviation and aerospace education, is offering an exciting new scholarship exclusively for the Civil Air Patrol. Thanks to this partnership, active members of CAP are eligible to receive a \$500 scholarship toward their degree through Embry-Riddle Worldwide. Applicants must meet university admission requirements and write a paragraph about why they want to attend Embry-Riddle. A variety of undergraduate and graduate degree programs are offered by the Worldwide Campus, both through local campus locations and online (for a list, see <http://www.erau.edu/ec/alldegrees.html>)

Of special interest to CAP aerospace educators, this scholarship can be applied to a brand new degree, the

Master of Science in Space Education (MSSE). This innovative, 100% online degree is offered in collaboration with the Fischler School of Education and Human Services at Nova Southeastern University. Through an interactive program of online coursework, students learn:

- Key concepts in Space Studies: 21 credits delivered by Embry-Riddle
- How to apply those concepts

in the classroom for maximum effectiveness: 15 credits delivered by Nova Southeastern University's Fischler School of Education and Human Services.

According to Dr. Martha Hollis, Dean of Embry-Riddle Worldwide Online, "We're thrilled to partner with CAP on this scholarship. Now, with the launch of the *Master of Science in Space Education*, CAP aerospace educators can not only take advan-



tage of the scholarship, but also apply it toward a graduate degree designed specifically for them. And since all courses are delivered online, students don't have to interrupt their lives in the process."

For more information about the MSSE or the CAP Scholarship opportunity, interested members should contact: worldwide.online.recruitment@erau.edu or 1-800-359-3728: Option 3.



REGION TO REGION

NORTHEAST REGION

June 22-25

The 2008 American Society for Engineering Education (ASEE) will hold its annual conference and exhibition in Pittsburg, Pennsylvania.

<http://www.asee.org/conferences/annual/2008/index.cfm>

July 10-13

Hillsborough Balloon Festival and Fair will be held at Grimes Field in Hillsborough, New Hampshire.

<http://www.balloonfestival.org/balloonhome.html>

MIDDLE EAST REGION

October 16-18

National Conference on Aviation and Space Education (NCASE) will be held at the Crystal Gateway Marriott Hotel in Arlington, Virginia.

<http://www.ncase.info>

GREAT LAKES REGION

July 10-13

Experimental Aircraft Association (EAA) presents AirVenture in Oshkosh, Wisconsin.

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

SOUTHWEST REGION

June 26

STEM (Science, Technology, Engineering, and Mathematics) Teaching Strategies workshop will be held at Texas Tech University in Lubbock, Texas.

<http://www.tstem.ttu.edu/workshops/catalog/summer/stemstrategies/>

July 15-16

The Vintage Flying Museum, FAA and Tarrant County College present Aerospace Education Workshop for teachers to be held in Fort Worth, Texas.

<http://www.vintageflyingmuseum.org/events.htm>

NORTH CENTRAL REGION

May 31-June 1

The Center for Astronomy Education will hold a workshop entitled "Improving the College Introductory Astronomy Survey Course for non-Science Majors through Active Learning: A Tier I (Introductory) workshop" at the St. Louis Executive Convention Center in St. Louis, Missouri. Find out about other workshop locations at:

<http://astronomy>

101.jpl.nasa.gov/workshops/index.cfm

May 31-June 4

Preparing for the International Year of Astronomy, a hands-on symposium, will be held at the St. Louis Convention Center in St. Louis, Missouri.

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

SOUTHEAST REGION

June 25-28

Civil Air Patrol National Aerospace Education Officer's School will be held in Pensacola, Florida, at the Pensacola Naval Air Station.

<http://www.cap.gov/ae>

June 21-29

SECME (Southeastern Consortium for Minorities in Engineering) 32nd annual Summer Institute will be held at Tuskegee University in Tuskegee, Alabama.

<http://www.secme.org/home/index.html>

ROCKY MOUNTAIN REGION

No events available for this issue.

PACIFIC REGION

June 25-28

Pacific Region Aerospace Education Officer School will be held in Seattle, Washington.

http://edgerton.us/pcr_aeo-s/

Special Events

May 10 - Astronomy Day - Local astronomical societies, planetariums, museums, and observatories will sponsor activities in association with this day.

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



AEO School 2007