

Blast off to Space Academy for Educators

“My message to everyone is that space is for everybody. It’s not just for a select group of astronauts. That’s our new frontier out there, and it’s everybody’s business to know about space.”

—Christa McAuliffe, *Challenger* astronaut

For the sixteenth consecutive year, the U.S. Space and Rocket Center will provide the Space Academy for Educators program in conjunction with the Continuing Education Department at the University of Alabama in Huntsville. During the six-day, 40-hour program, teachers at Space Academy have an opportunity to attend several sessions where they get a chance to both experience real-life simulations and participate in workshops on space science related topics led by a trained staff of teacher counselors. (see Figure 1).

Though most participants teach space science subjects, this summer the professional development opportunity is open to K–12 educators of all disciplines. Participants who opt to take the course for credit will earn three semester hours of graduate credit with a letter grade from a course offered by the University of Alabama called “Exploring Space: The Classroom Connection.” Educators are housed nearby in university dormitories and meals are provided at the U.S. Space and Rocket Center. Five options are available for summer 2004 (see Figure 1). Scholarships are available through several corporations, such as Boeing, and teachers can also check with their central office to see if their schools or districts will provide funding.

Teachers who complete the program will receive many curriculum materials to take to their classrooms, including materials from the onsite NASA Educator Resource Center, the “Throttle Up” CD-ROM that contains information on Space Camp programs for students, and lesson materials on topics such as hot-air balloons, rockets, mission patches, and hydroponics on the CD-ROM “Space Academy for Educators.” Teachers also receive a list of contacts of team members and U.S. Space and Rocket Center employees in order to have access to support and references for lessons during the school year.

In addition to receiving extensive teaching resources, the program also provides valuable workshops and unique experiences for those who realize that “hands-on learning” is important for adults too. Workshops include such topics as crystallography (growing crystals in space), shuttle orientation, and crew systems so that teachers can develop their space-science knowledge. Participants are then trained on astronaut simulators such as the Multi-Axis Trainer, the



Microgravity Chair, and the Manned Maneuvering Unit, similar to those used by the real astronauts. Staff members also prepare the teachers for two simulated shuttle missions where each team must demonstrate strong cooperation. On the final day, educators attend a graduation in their own flight suits and earn astronaut wings.

Implementing new knowledge

Many Space Academy graduates use and apply space science lessons throughout the year as a result of their experiences. For example, one teacher implemented a shuttle construction and launch activity, an idea presented to him at Space Academy. Scale replicas of the space shuttle and accessories were built in class and students were trained to complete a simulated launch and space mission. Materials were donated from parents and local businesses to build a full-scale space shuttle in their school’s gymnasium. (See activity sheet for a portion of the entire project.)

Additionally, students cycled through training centers during the project where they learned about the function of the astronauts’ protective gear and performed physical fitness activities in order to get ready to go into “space.” Each classroom created a mission patch similar to those created by each group of teachers during the summer program. They rehearsed for a mission using scripts provided by the U.S. Space and Rocket Center. Finally, they performed their “launch” in front of cameras from three local television stations, reporters from two newspapers, and dozens of proud parents.

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Professional growth

The change undergone by teachers who attend this program can be extraordinary. Space Academy for Educators provides them with the confidence and the knowledge to go back to their classrooms and teach space science more effectively. Through this professional development experience, teachers reap many varied professional and personal benefits. This unique program can inspire, excite, and challenge you to be a more knowledgeable and enthusiastic space science teacher.

FIGURE 1 Space Academy for Educators

Program dates for summer 2004

- June 8–13
- June 15–20
- June 22–27
- July 6–11
- July 13–18

The cost is about \$849, which includes meals and lodging. Three semester hours of graduate credit from the University of Alabama in Huntsville are available for an additional \$225. For more information, see www.spacecamp.com. For information on flights to the Huntsville International Airport, visit www.hsvairport.org.

Available activities

- Space in the classroom
- Hydroponics
- Crystallography
- History of flight/Balloon construction
- Rocket construction
- Astronomy
- Space week in your school
- Educator resource center
- Museum exploration
- IMAX theater
- Aviation challenge activities
- Astronaut simulators
- Shuttle orientation
- Mission patch
- Mission overview
- Mission training
- Shuttle mission

Building a satellite

An orbiter deploys and repairs many satellites. Some of them look down to learn about the Earth and others look to space to learn about the universe. Others make cell phones and satellite television a reality. You will be building a satellite following the rough guidelines below.

Materials

- boxes (paper boxes of assorted sizes)
- foil (enough to cover the boxes)
- PVC pipe (four long pieces of 1-inch pipe)
- assorted decorations (such as buttons, lights, old car fuses, shiny things, etc.)
- box cutters or scissors

Procedure

1. Look up a satellite on the Internet to model yours after. It doesn't have to be perfect. Feel free to be as creative as you'd like.
2. Use a box or several boxes to form the body of the satellite and wrap them in foil.
3. With adult supervision, cut holes using box cutters or scissors and insert a scrap piece of PVC pipe through the center of the satellite.
4. Cut rectangular scrap pieces of cardboard to form solar panels. Wrap these in foil and tape them to the PVC pipe.
5. Decorate the satellite.

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Resources

If you are interested in "blasting off" this summer, contact the U.S. Space and Rocket Center at P.O. Box 070015, Huntsville, Alabama 35807; 256-837-3400; www.spacecamp.com. You can also call 1-800-63-SPACE for reservations or contact your local NASA teacher resource center for more information.

References

NASA mission STS-107 (113)—science.ksc.nasa.gov/shuttle/missions/sts-107/mission-sts-107.html
 U.S. Space and Rocket Center—www.spacecamp.com
 NASA Johnson Space Center—www.jsc.nasa.gov