Space Academy for Educators
Pending Workshops
For Summer 2007

Throughout the week at Space Academy for Educators®, teachers experience a wide variety of activities that use an engaging space focus to meet math and science objectives. All activities are correlated to National Science and Math standards. For Alabama Teachers they are also correlated to the Alabama Course of Study. Most activities can be adapted to any grade level and most subject objectives.

The participants are given a CD –ROM with all lesson plans, standards and any relevant information to make it easier for them to adapt these activities to their own class environment.

Teachers, who come from all over the country, to share their love and passion for space, science and math, present all of the activities and lessons. Teachers teaching other teachers is one of the unique things about this program.

We are currently developing other activities to include in this summers program so some of the activities may vary. If you are concerned about something, please contact me katrineb@spacecamp.com. We look forward to meeting you this summer.

Martian Math

This highly interactive and energetic session gets everyone up and out of their seats to practice basic skills, factorials, probability and order of operations. These fun activities help students gain confidence and knowledge. These activities are easily adaptable to higher level math concepts and can also be adapted to other subjects.

Hydroponics -

Participants will be introduced to the history of hydroponics along with current and future uses of hydroponics in the space program. Techniques for building inexpensive hydroponic units for the classroom will be shared, and teachers will have the opportunity to create a small unit to take back to the classroom.

NASA's Engineering Design Challenges-

Marshall Space Flight Center sponsors this exciting opportunity for students and schools to replicate engineering challenges faced by NASA engineers. Working under the supervision of their teachers, students design, build, test, re-design, and re-build models that meet specified design criteria. Students employ the same analytical skills as engineers as they improve their designs. In this session, participants attempt to solve some of the previous challenges.

Rocket Construction

Participants will design, select materials, construct and launch water bottle rockets. Each group will form a "company" as well as assign tasks to each team member. Groups will complete a scaled drawing of the rocket and test for stability and accuracy. This activity is based on NASA's rocketry curriculum.

Engine Rockets will also be built utilizing higher level math and physics. This workshop will also cover ways to bring rocketry across the high school curriculum.

Space Week in your School

This session will introduce participants to ideas and activities that support the idea of "Space Week" in a school or classroom. Teachers who have actually planned and coordinated "space Week" at the classroom, school, and district levels. lead this session. The session ties together

many of the programs activities and how they can be recreated in the school environment. Activities include weeklong themes like building a space shuttle and writing your own mission script to one day rocket activities and career exploration activities.

Geography

Building on the five themes of geography students will explore how physical systems affect human systems. This is a fun team building activity for your classroom.

Mission Patch

This hands-on activity allows participants to learn about the history and symbolism of space mission patches. The participants then apply their knowledge in creating a patch that uniquely captures the characteristics of their individual team along with the goals of their simulated mission.

Crew Systems

Learn about what it is like to live and work in space. Including food, exercise, experiments and how to go to the bathroom. Lots of fun demos and hands on things for your students to do.

Balloons to the Moon

This activity traces the history of flight, from the development of hot air balloons to rocketry. Participants will also design, build, and launch hot air balloons and paper rockets. Activities will also be included to cover highlights on timeline.

History of Space Program

Ed Buckbee, founder of Space Camp, recounts the early days of NASA in Huntsville. Hear about stories from behind the scenes at NASA and Space Camp.

Astronaut Speaker

We will have a shuttle astronaut tell about his or her experience and how you can prepare your students for careers in aerospace.

MISSIONS

Shuttle Orientation

Introduction to the major components of the Space Transportation System, as well as the highlights of a mission sequence, will be discussed in this briefing. The topics are illustrated using hands-on activities that can easily be transferred to the classroom setting.

Mission Overview

Participants will be given an overview of the mission in which they will participate. A description of the different simulation areas of the mission will be given, along with an explanation of astronaut and ground positions and responsibilities. The mission timeline will be reviewed, and an explanation of activities to be conducted and experiments to be performed will be given.

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Mission Training

Participants are provided specific, in-depth training on how to conduct their simulated shuttle mission. Training is conducted in all areas of the mission simulation including cockpit procedures, EVA procedures, satellite deployment, scientific experimentation aboard Space Station, and Mission Control responsibilities. Practice time is given in following checklists and solving problems.

Shuttle Mission

Participants will conduct a simulated space shuttle missions during the week. Specific activities in the mission include launch and landing of the shuttle, satellite deployment, assembly of a large space structure, and the conducting of experiments while in space. In this scenario, participants are challenged with various types of problems that require teamwork and critical thinking in order to solve the problems and have a successful mission.

Astronaut Simulators

The unique sensations of space flight are reinforced through the use of simulators, such as the 1/6 gravity chair that allows a person to experience how astronauts trained to walk on the moon. The MMU is a full-sized mock-up of NASA's Manned Maneuvering Unit. The Multi-Axis Trainer allows the participant to experience the dramatic sensation of being aboard a tumbling aircraft. All simulators are patterned after actual simulators used for training NASA astronauts. The simulators are also tools for demonstrating and experiencing Newton Laws of Motion. Astronaut Simulators have a weight limit of 260 pounds.

Educator Resource Center

Participants will be given an overview of the many resources provided by the NASA/Marshall Space Flight Center's resource center for educators and Digital Learning Network. The ERC has an extensive collection of lesson plans and software for viewing. The ERC also provides grade-specific information packets upon request that contain NASA fact sheets, information summaries, catalogs, and other resources. Learn about all the free resources NASA offers.

Museum

During the week, participants will have time to explore the museum, and counselors will lead discussions regarding the following topics:

- History of Space Travel
- Rocket City Legacy
- Mercury, Gemini, and Apollo programs
- Pathfinder and the Shuttle Program
- Rocket Park and the restoration of the Saturn V

Lesson plan ideas will also be provided to incorporate space history along with your regular history curriculum.

IMAX Theater

Participants will see a movie filmed in IMAX at the Omnimax Theater.

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Aviation Challenge

Participants will have the opportunity to experience some of the same activities that our trainees at Aviation Challenge experience. There will be a walking tour of the facility and an opportunity to participate in water activities that will include raft activities, the helo-dunker, and the zip-line.