

# SPACE CAMP TURKEY / COSA PROGRAM ACTIVITY EXPLANATION, 9 – 13 APRIL 2012 SIMULATORS

**Space Station Mobility Trainer(SSMT):** This simulates exercise in space. Exercising in space is needed to prevent calcium loss and loss of muscle tone. The astronauts on Skylab lived and worked in space for periods of one to three months. While living on Skylab astronauts would run around the inner surface of Skylab.

**Zero-G Wall:** The wall simulates neutral buoyancy. Specially designed chairs are attached to a counter-weight system which allows the chairs to move up and down effortlessly. This effortless movement allows trainees to experience a feeling of weightlessness.

**T-Chair:** Trajectory chair is used to demonstrate how we launch objects from the Earth to their intended target in space.

**5 Degrees of Freedom (5DF) Chair:** Simulates the frictionless environment of space and demonstrates Newton's Third Law of Motion (For every action, there is an equal and opposite reaction.)

**1/6th Micro Gravity Chair:** Designed to give the trainee an idea of what it is like to walk on the moon. The chair is called the 1/6 chair because it is designed to simulate the Moon's gravitational pull, which is 1/6 that of Earth's.

**Manned Maneuvering Unit (MMU):** Allows for the experience of working in space unattached to the spacecraft which gives astronauts more freedom and mobility to perform activities in space.

**Multi-Axis Trainer (MAT):** Simulates the disorientation one would feel in a tumble spin during re-entry into Earth's atmosphere. Because the trainee's stomach will stay centered, the trainee shouldn't feel nauseous. Also, the MAT shouldn't spin more than twice in a row in the same direction, so the trainee's inner ear fluid won't shift and he shouldn't feel dizzy.

**P.S.** Campers must be at least 4 feet (120 cm) tall and weigh no more than 210 pounds (95 kg) to ride the simulators.

## MISSION RELATED ACTIVITIES

**Mission Orientation:** Provides a general, big picture of the shuttle mission.

**Mission Positions:** Each camper completes a form stating his/her preferences for mission positions and the reasons why. These are given to their team leaders who will, later in the day, assign a position to team members.

**Mission Training:** Campers will have a 1-hour training session to learn their roles in their team mission.

**Script Practice:** Campers will be provided an opportunity to read the mission script in order to become familiar with the vocabulary of the mission and to introduce the ideas of professionalism and teamwork.

**Mission:** At the Space Shuttle and Mission Control Room, campers working in teams of 12, will have 6 in Mission Control and 6 in the Shuttle to work on specific problems that could be encountered in space. The team participates in the simulated 1 hour space shuttle mission from launch to landing while learning teamwork, problem solving and time management.

**Mission Patch Design:** Each team works to design a large mission patch and submits the patch along with a written description.

**Shuttle Orientation:** By the end of this briefing, campers will be familiar with the space shuttle, how the components work together, and a basic launch timeline.

**Shuttle Anatomy:** Campers review the parts of the space shuttle.

**Time Line Shuffle:** Campers will learn about the timeline of a spaceflight with a card game.

## SCIENCE / ASTRONOMY SUBJECTS

**Rocket Construction / Launch:** Campers will construct their own small rockets that they later launch outside.

**Astronomy Presentation:** By the end of this briefing, campers will be familiar with the solar system and night sky objects.

**Observatory-night:** Space Camp has a 10-foot rooftop observatory with a 12-inch telescope where campers will get a chance to observe what they have learned during the astronomy lecture.

**Star Lab:** Indoor mobile planetarium used to observe the night sky.

**Astro Race:** Improve the campers' knowledge of astronomy with dart game.

**Newton Car:** To investigate the relationship between mass, acceleration, and force described in Newton's Second Law of Motion.

**Strange Science:** Campers will observe and learn several different experiments given by the counselor. They may take these home or use in a science fair.

**Hydroponics Lab:** Hydroponics is the science of growing plants without soil. Campers learn the importance of hydroponics and are given a sample to take home to grow their own hydroponics.

**Meteorology:** This activity uses science demonstrations to explore the causes of weather phenomena and their relationship to shuttle launch criteria.

## SPACE RELATED ACTIVITIES

**Land The Shuttle (LTS):** The campers will get a chance to land a simulated shuttle via head set and computer screen.

**International Space Station (ISS):** Basic information about the ISS is given to the campers while they are working on designing space stations with a specially designed computer program.

**Apollo 15** Activity that gives the trainees the experience the Apollo 15 astronauts had during their training for their moon mission landing.

**Crew Systems:** Presentation and video provides trainees with information about living and working in space. Campers sample freeze dried ice cream and get a chance to look at real astronaut packaged foods taken into space.

**Space Suits:** Campers will learn the evolution of the spacesuit through each NASA program and the basics of the suits used today.

**General Space History:** A power point presentation given on the history of space flight.

**Heat Tiles:** A brief lesson about the Thermal Protection System (TPS a.k.a. Heat Tiles)

**Thermal Design Challenge:** Campers as a group of two or three people will design their own thermal protection system.

**Midweek Review:** The counselors can choose to use Pictionary, Charades or Sculptionary to review space-related vocabulary.

**NASA Taboo:** NASA uses the term Spin-Offs for technology and materials developed for the space program that are now used in everyday life These have many practical applications on Earth, allowing the money used on space research to benefit everyone.

Introduce the campers developed technologic space products by NASA.

## TEAM-BUILDING ACTIVITIES

**Space Bowl:** This jeopardy-style quiz game helps the trainees review all of the material presented over the week.

**Area 51:** Space Camp Turkey's unique teambuilding course to have participants work together to solve problems presented to them.

**Team Time Activities:** During this time, the counselor can choose one of three activities. These either involve examining the space program in a unique way or teaching the trainees the teamwork and communication skills they will need during the simulated mission.

**Balloon Construction / Launch:** Students will have the opportunity to practice science as inquiry and develop their team building skills as they construct and launch a hot-air balloon.

## OTHER CAMP ACTIVITIES

**Mini Golf:** Students will play a round of mini golf with their team and counselor.

**Movie Night:** Campers watch space related movies ( Apollo 13, October Sky, Space Cowboys Robots, Wall-E, Transformers ) at Space Camp Theatre

**Registration:** The campers will receive their name badges and t-shirts. Then the campers will give any medication to the nurse and turn in their money to the accounting department in order to receive a credit card. The last stop is the dormitories.

**Program Orientation:** Campers are given an orientation to the program and also told the rules of SCT.

**Facility Tour:** Campers are given a tour of the SCT facility by their team leader and given their program supplies.

**Ice breakers:** Games to introduce one another and get to know each other more.

**Gift shop:** Students will have a chance to shop in our gift shop for such items as t-shirts, hats, toys, books, etc.

**Evaluations:** At the end of the week, campers will evaluate the program attended as well as the staff, service and educational value.

**Graduation:** Certificates and pins are given to each camper for graduation.