

Employees share joy of engineering with local students

This year, JSC celebrated nine years of observing National Engineers Week when some 165 civil service and contractor employees visited elementary, middle and high school classrooms to encourage students to

The visits were part of a national outreach program called Discover "E" ("E" for Engineering). This year's activities continued through March.

"We thank Team NASA for its substantial increase in support which

"Although the focus was on engineering for National Engineers Week, we had a lot of fun going around the room thinking of different NASA jobs for students in the class," said Trainor. "One girl expressed an interest in sports, so we decided that she could be a physical trainer for the astronauts in training or help rehabilitate them upon their return to Earth. Another boy expressed an interest in architecture, so we decided that he could design an outpost on Mars. It was fun to talk about dreams and share in their imagination and enthusiasm."

To make her presentation as interactive as possible, Trainor tossed NASA antenna balls to students who asked good questions or answered questions correctly. Tony Smith, a major in the U.S. Air Force and Department of Defense Shuttle and International Space Station Payloads deputy director, used a similar technique, rewarding students with mission stickers.

"My first goal was to cover the main objective of National Engineers Week which is to enlighten students on what an engineer is and what one does," said Maj. Smith. "We began by making a list of as many types of engineers that the students could come up with and describing what each one does."

"Once this main objective was met, I showed the students some applications from the perspective of a space shuttle mission. We talked about the various disciplines used in launch, on-orbit operations, and re-entry. I had them call out the main types of engineers involved in the different phases of flight and why a certain type of engineer would be involved. The students were very involved and, in the end, appeared to have a better understanding of what engineers do and could apply their new knowledge to address how certain fields are involved in certain tasks."

Maj. Smith says that getting students interested in whatever profession they want to pursue should be encouraged at an early age. "I learned it is never too early to start them down the path to

pursue whatever dream they may have. But it is really up to us, as adults, to ensure they have the knowledge and experiences to formulate these dreams."

For the second consecutive year, astronauts participated in NEW activities. NASA Astronauts Dr. Bonnie Dunbar, Rex Walheim, and Astronaut Candidate Gregory H. Johnson visited local schools.

Dr. Dunbar, JSC assistant director for University Research and Affairs, is also the NASA representative to the NEW Board in Washington, D.C. The Board consists of representatives from all of the major engineering societies, as well as federal agencies, which depend upon the continual education of engineers in this country. She stated that there is growing concern regarding the decrease in engineering graduates in this country, a decline that started in the late 1980s. Both aerospace and electrical engineering graduates have declined approximately 50 percent since peaking in 1987.

Because of the near term impact on technology and economic development in this country, the National Academy of Engineers has also become involved, both in studies to determine the reasons behind the decline as well as in developing strategies for encouraging more students to study math and science in order to prepare for engineering careers.

"We need to make certain that today's youth are literate in math and science," Dr. Dunbar said. "Without this background, they cannot go on to pursue a career in engineering."

The Department of Defense recently addressed the NEW board, stating that the decline in U.S. engineering graduates was impacting the nation's defense readiness. The early days of the space program were a tremendous incentive for a generation of students to study engineering, and it provides a vehicle to continue the interest of students.

Neil Armstrong keynoted a National Press Club luncheon in February sponsored by the NAE announcing the great 20th Century engineering achievements. Landing on the Moon was among them, although "electrification" was elected in first place. Maintaining U.S.

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NASA JSC Photo 2000-01780 by Bill Stafford

Joy Conrad, a software analyst with Averstar, demonstrates the outer space environment with a vacuum pump to students of Wedgewood Elementary School. A student prepares to eat a marshmallow that Conrad had just deflated.

pursue careers in engineering, science, math and technology. These fields of study have seen steep declines in enrollment across U.S. universities over the past 13 years – a matter of concern to NASA and to aerospace contractors since this is the pipeline that supplies them.

The volunteers who visited the schools provided more than 450 classroom presentations at 115 schools to an estimated 12,000 students and teachers in the local educational community. For 2000, 101 contractor employees provided engineering career presentations from the following 16 companies: Averstar, Barrios Technology, The Boeing Company, Draper Labs, Dynacs Engineering, G. B. Tech, Hamilton Sundstrand, Hernandez Engineering, Honeywell, Indyne, Inc., Johnson Engineering, Lockheed Martin, Raytheon, SAIC, United Space Alliance, and Wyle Laboratories.

made this year's program so successful," said Nancy Robertson, chief of the Education and Community Support Branch in the Public Affairs Office. "This program shows the strength of combining our civil service and contractor volunteers to meet a common education goal."

The volunteers shared their unique space-related knowledge with students and teachers as part of JSC's commitment to the local educational community. During their classroom presentations, they engaged students by using a variety of hands-on experiments and visual props like spacesuit items, helmets, and gloves.

Debbie Ramos Trainor, NASA increment training integrator, Expedition 1, spoke on the International Space Station Program to a class of fifth graders at Stuchberry Elementary School in the Pasadena Independent School District.



NASA JSC Photo JSC2000-05253 by James Blair

Debbie Ramos Trainor, NASA increment training integrator, Expedition 1, speaks to students at Stuchberry Elementary School.

**For information
on volunteer opportunities call Robin Hart at
281-483-4754.**

For more information on NEW and the engineering profession visit
<http://www.eweek.org>
and <http://www.discoverengineering.org>.