

# The Space Team Program

In Memory of Ilan Ramon

School Year 2006-2007 Report

NASA's Endeavour Shuttle may have recently held the world in suspense during its journey at the forefront of space research, but this past year's **Space Team Program (STP)** saw a total of over 300 Israeli children also endeavoring to reach for the stars! Sheike Shafir, the program's Developer and Coordinator, explains that Space Team students look up to many Israelis involved in pioneering space research. Even Israel's Air Force is officially titled the Air and Space Force while the outgoing and incoming heads of the Hubble Observatory in the US are Israelis too.

## Program background

The STP, now in its fifth consecutive year of operation, is offered to Mitchell Excellence 2000 (E2K) students in 14 Israeli schools by the Society for Excellence through Education (SEE), in partnership with the Technion's Asher Space Research Institute, Israel's leading space research center. It is dedicated to the memory of Ilan Ramon, the first Israeli astronaut. A generous grant from the Bell/Goldman family of Highland Park, Illinois, has allowed for the permanent continuation and growth of this vital, exciting, educational Space Team Program.



This extra-curricular program, for eighth and ninth grade students, takes place during two hours per week and is in addition to the four weekly hours in science and math that comprise the regular E2K program. The schools that participate in STP are all schools that excel in their E2K program and want additional challenges.

The tone is set by an inauguration ceremony held by SEE at the start of the academic year, when new participants are presented with a very attractive membership certificate.

During the course of the year, all STP students in participating schools are offered a core program of topics in astronomy and astrophysics, complemented by exciting space-related experiential activities. These include lectures and field trips to planetariums, space observatories and laboratories.

The Program is based on an innovative curriculum created by SEE. Participation is regarded as a privilege as well as fun for these motivated students, and they are enthusiastic and delighted to be interacting with some of the most fascinating aspects of applied science.

### **Mentors in abundance...**

Teachers receive 28 hours of additional teacher training annually, complementing their Chais Teacher Institute training. This includes an initial workshop and ten training days during the school year. Technion graduate students from the Asher Space Research Institute provide Space Team Program teachers with state-of-the-art substantive content matter, based on an interdisciplinary approach that includes physics, astronomy, chemistry and technology. SEE's professional staff regularly visits all schools participating in the program to offer guidance and supervision.

Every Space Team location features a graduate student from the Technion who accompanies the class. The combined abilities of the highly motivated and experienced E2K teachers together with the enthusiasm of the young university scholars create an exciting and highly rewarding atmosphere of learning.



Students also benefit from lectures by prominent researchers including many from the Asher Space Research Institute. One of this year's talks by a space observatory representative, for instance, focused on the use of robots in planet discovery – including on spacecraft.

### **This year's special emphases...**

Building on E2K's experience in the teaching of astrophysics, the program's emphasis shifts from year to year. This year's focuses were rockets and astronomy for eighth grade Space Teams, and astronomy and the quest for life in space for ninth graders.

One highlight of the year was the January 2007 visit to Israel by NASA astronauts Steve Maclean, a Canadian physics expert, and Joseph Tanner, an American, on the anniversary of the 2003 Colombia tragedy, at the request of Rona Ramon. Students went to meet them at two venues: The Fisher Institute for Air and Space Strategic Studies, in Herzlia, and the Technion. The connection with NASA doesn't end in a shared interest in space! A visit by NASA astronauts has become a tradition, thanks to the support of Rona Ramon.

Another highlight, this year's space quest competition, revolved around the Apollo program and the moon. It provided a good illustration of the creativity and thought that goes into creating this program. There were several challenges to this quest. Among them was a virtual competition. In this challenge, students answered questions and performed laboratory experiments through which they investigated how craters are formed. Another



challenge involved several extracts from Jules Verne's *Journey to the Moon*, which were placed in a table and parallels had to be found with items in another table relating to the Apollo mission. These were two good learning experiences that brought knowledge, fun and excitement to a great group of youngsters.

### **About school space laboratories**

Space laboratories are created by the matched investment between SEE and the individual schools. They feature equipment such as telescopes, maps, computers, libraries and audiovisual materials. To date, 7 of the 14 schools offering the Space Team Program to their E2K students have qualified for a space lab on their own premises. In keeping with the E2K philosophy of helping spread excellence throughout the school, teachers of the general school populations are also invited to make use of the labs. It is hoped that more space laboratories will be established in participating schools exhibiting outstanding teacher and student performance. Moish Berdichev, SEE's Deputy Director and Program Director of Mitchell Excellence 2000 explains: "Schools will invest in a 'space lab' even if it's initially only for the 10% of their most able students. This is because it will impact upon the majority of the school's students and pull the rest of the school community upwards – that's the ethos of E2K. The E2K students are like ambassadors to other young people." Two new space laboratories opened this year, one at the Kuftan Halabi School, Dalyat El Carmel, and at the Yavneh Yeshiva High School in Haifa.

### **End of year event**

This year's closing event marking the final activities of the Program for the 2006-07 school year was held at the Kuftan Halabi Junior High School to commemorate the unveiling of the school's new space laboratory. This space laboratory contains a library of books on space, as well as sophisticated educational software programs containing short films, visual aids and study plans on astrophysics and space.

The year's Space Team 'graduates' were kept on their toes by a series of challenging intellectual activities operated by students, Technion graduate mentors and SEE staff. Students moved between seven 'stations' solving questions about the moon and the Apollo mission. Taking part in the final ceremonies were Mrs. Rona Ramon, Dr. Akram Hasson, Mayor of Daliat al Carmel, Professor Moshe Gelmen, Director of the Asher Space Research Institute, and Hezki Arieli, SEE's Director.



A letter from a principal of one participating school conveys the breadth and impact of the space journey: "Thank you for a year of learning, activities and enhancement in the framework of the Space Club. Every moment of the journey was worthwhile. During the course of the year we engaged in the activities from the space club textbook; we played 'space games'; we embarked on a journey of thought to Mars; we debated the tragedy of the Columbia shuttle; we checked laws governing space; we measured the earth's radius; had fun with the space station; watched the solar eclipse and compared the planets and searched for signs of life, among many other things. Thank you for your guidance, opening the world of space to our students."

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Dedication of new space lab at Kuftan Halabi Junior High School, Dalyat El Carmel

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