

The International Space Station Education Accomplishments and Opportunities

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2000 - 2011

- **5** ISS Partners
- **43** Countries
- **25,000** Schools
- **2,800,000** Teachers
- **43,100,000** Students

“The most important thing we can do is inspire young minds and to advance the kind of science, math and technology education that will help youngsters take us to the next phase of space travel.” ~John Glenn



The International Space Station Invaluable Learning Platform

- Collaboration
- Captivation
- Imagination
- Inspiration
- Motivation
- Experimentation
- Exploration

“Education is not the filling of a bucket,
But the lighting of a fire.” ~W.B. Yeats

Inspiring the Next Generation

*International Space Station
Education Opportunities and Accomplishments
2000-2011*



РОСКОСМОС

Accomplishments

- Student-Developed Investigations
- Educational Competitions
- Students Performing Classroom Versions of ISS Investigations
- Students Participating in ISS Investigator Experiments
- Cultural Activities

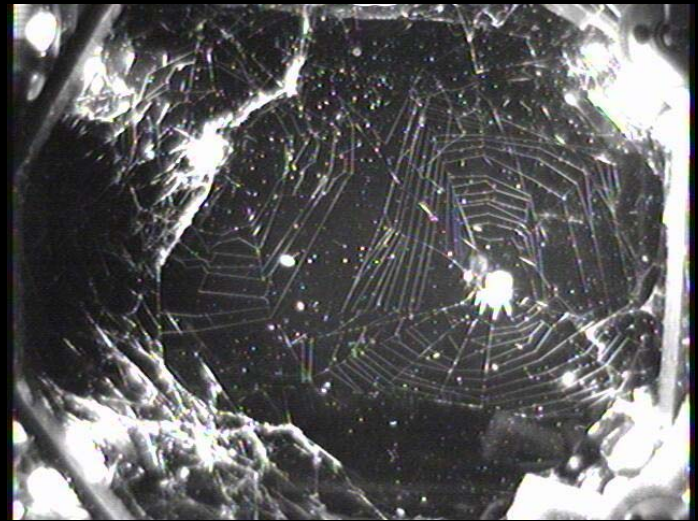


- Students Participating in ISS Engineering Education: Hardware Development
- Educational Demonstrations and Activities

CSI-03

- Life cycle of Painted Lady and Monarch Butterflies
- Web spinning characteristics of orb weaving spider
- Classroom kits provided
- Daily ISS images and video

➤ 176,000 Students
➤ 3,000 Teachers
➤ 2,900 Schools



Kids in Micro-g



- 951 Students
- 50 Schools
- 53 Teachers



"It's kind of mind boggling. He's in space. He's floating. It's basically my idea in space. Well, it is my idea in space!" ~ Hanna, Hamlin School, San Francisco, CA

- 5th – 8th Grade Experiment Design Challenge
- 2009-2010 Winner
Water Absorption/Capillary: 8th Grade, Brownwell Middle School, Grosse Pointe Farms, MI
- 2010-2011 Winner
Attracting Water Drops: 5th Grade, Chabad Hebrew Academy, San Diego, CA

Tomatosphere-III

- How do we supply long-duration space exploration missions with the life support requirements of food, water and oxygen?
- Educational Units Include:
 - How to Feed a Martian (Gr. 3-4)
 - Surviving on the Red Planet (Gr. 6)
 - The Martian Environment (Gr. 7-8)
 - The Energy to Survive (Gr. 9-10)

➤ 13,000 Classrooms



“These authentic experiences are essential for hooking children on science and provide a wealth of learning opportunities.” ~ Jo-Ann LaCharity, Castor Valley Elementary School, Ontario

Opportunities

- Ongoing activities and projects
- Increasing ISS Education Portfolio
- Building partnerships



"That's a moment I'll never forget. It's going to live with me for the rest of my life."
~ Student, Central Florida Aerospace Academy, Lakeland, FL

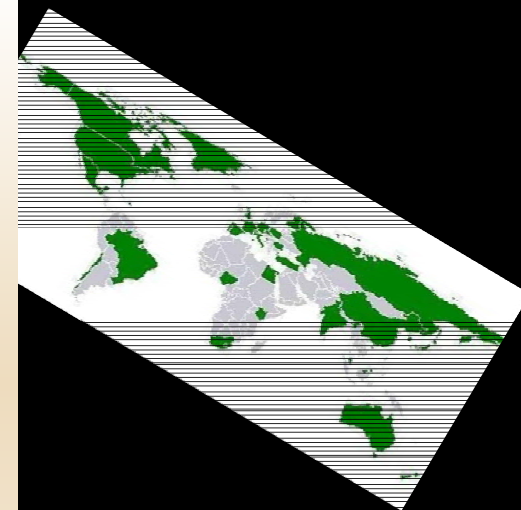


EarthKam



- ▶ 177,000 Students
- ▶ 3,000 Teachers
- ▶ 2,500 Schools
- ▶ 43 Countries

- Integrates Earth images with inquiry-based learning
- Allows students and teachers to participate in a space mission
- Students control a special digital camera on the ISS

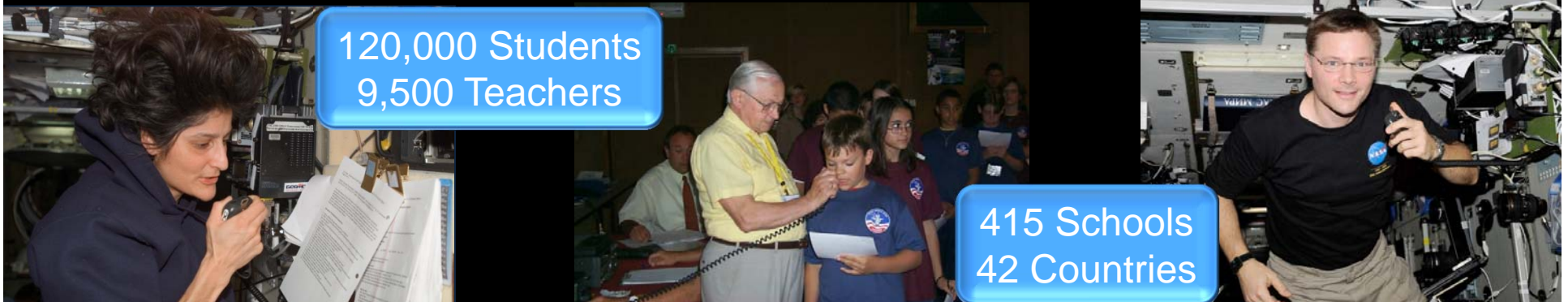


"Our 4th graders truly enjoyed working together on this mission and learning about the geography of our Earth and the role satellites and the ISS plays in providing information to scientists around the world." ~Maria Alexis, Pope John Paul II Regional Catholic Elementary School, West Brandywine Township, PA

ISS Ham Radio - ARISS

"It was one of the greatest days of my life. I think when I grow up, I'll be in aeronautics, maybe with the Navy, maybe building jets and flying them." ~ Colin Yee, 5th grader, Flory Academy of Science, Moorpark, CA

- Students research topics such as the ISS, space exploration, radio waves and amateur radios
- Students participate in hands-on activities such as building model rockets, models of the solar system or crystal radios
- Students prepare a list of questions for the ISS crewmembers

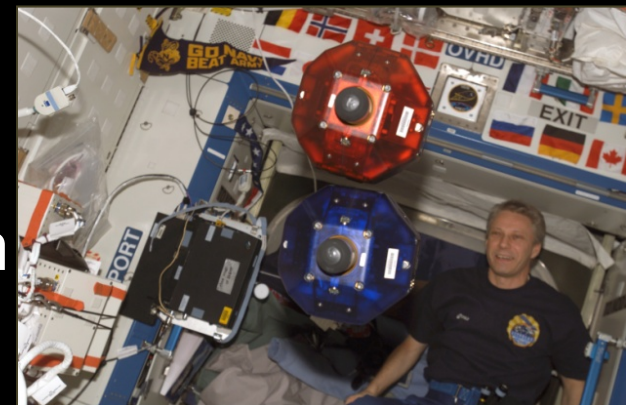


SPHERES-Zero Robotics



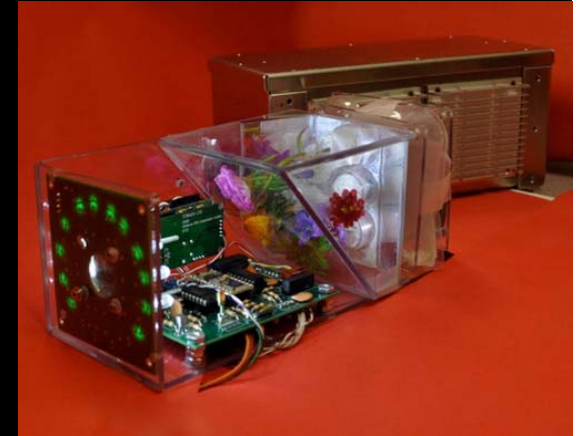
- Student competition that takes arena robotics to new heights — literally

- College and high school students program the satellites to play a challenging game
- Teams create, edit, share, save, simulate and submit software code
- The winning codes are programmed into the mini-robots and the crew conducts the championship competition with a live broadcast from the station



NanoRacks - NanoLabs

- NanoRacks provides a “plug and play” multipurpose research facility on the ISS
- NanoRacks offers flight opportunities to K-12 schools and universities to conduct student-developed experiments
- Valley Christian High School of San Jose, CA was the first commercial high school experiment on U.S. National Lab



6.5 Months
22 Students
4 Mentors



“It feels great to have a project in space and aboard the space station with astronauts.”
~Dustin Laucella, 11th Grade,
Valley Christian High School, San Jose, CA



Hubble completed its 100,000th orbit on August 11



“Too often we give children answers to remember rather than problems to solve.”

~Roger Lewin

ISS Program Science Office Research Resources



- ISS Research & Technology
<http://www.nasa.gov/iss-science/>



- @ISS_Research



- ISS Research Blog “A Lab Aloft”
 - <http://go.usa.gov/atl>