

Space Port Indiana™ / IMAX Corporation STS-125 Hubble “Jr. Mission Expert Program”

Project: STS-125 Hubble “Junior Mission Experts Program”

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Program Year: 2009-2010

Project Description: STS-125 Hubble Mission student learning/teaching program

Project Background Premise

It has been said that if you really want to know something, teach it. This is the premise on which the Junior Mission Experts program was founded. In other words, one of the best ways to engage and educate STEM oriented high school students is to have them go through the process of communicating what they have learned to other students as well as the general public.

In this program the STS-125 Hubble Servicing Mission served as the particular high-profile event, the NASA website served as the information conduit and the “Jr Mission Experts” provided the connections (i.e. the teaching of the concepts) to middle and high school students.

Project Overview



STS-125 Hubble servicing mission was chosen because it offered the opportunity to use an actual shuttle mission to focus the students on all of the components that make a mission successful. Due to Hubble’s popularity, the successful mission attracted worldwide media coverage as well as additional attention within the State of Indiana due to the presence of two Indiana connected astronauts, Andrew Feustel and Michael Good.

On May 12th, 2009 STS-125 left KSC for Hubble. The 11 day mission employed seven crew members with unique disciplines to create a successful mission. In the months leading up to the mission, Space Port Indiana™ and IMAX™ Theater at the Indiana State Museum conducted a state-wide recruiting effort with the help of a panel of judges from several different disciplines in order to choose seven (7) 11th or 12th grade students. The advance recruitment and orientation of the students allowed them to follow the mission from pre-launch activities to mission completion. During that time, each student was assigned a mission specialist to shadow. The students’ roles were to follow the specialist and then become a “Jr. Expert” on that specialist’s mission role. Becoming a Jr. Expert involved 1) a study of the history of the Hubble Telescope, learning how to effectively use the vast resources contained in the NASA website, 2) a general study of the STS-125 mission, and 3) a specific study of the background and STS-125 role of the specific astronaut that the student had



been assigned to follow. Note: see the Appendix for specific lesson plans, connections to national and state standards, documentation, and assessment rubrics.

IMAX™ and Space Port Indiana™ then traveled to several pre-determined locations state-wide to promote the team. The team members could then explain the mission and answer questions based on their “unique” expertise. Each student completed all outlined tasks during the STS-125 Mission project, and received a \$1,000.00 scholarship to attend any Indiana college or university in fields of science, technology, engineering or mathematics (STEM). These Jr. Experts were able



to take their message to thousands of Hoosier K-12 students and teach them the importance of the Hubble Telescope and its impact on life here on Earth. Space Port Indiana™ also participated in the “Indiana Space Travels” exhibit at the Indiana State Fair along with IMAX™, Indiana Space Grant Consortium and the Indianapolis Challenger Center. During that time the Jr. Experts interacted with over 70,000 Hoosiers (actually counted) and taught them about the value of space exploration and that included nearly 21,000 K-12 Students.

Significance and Merit

For the Jr. Mission Experts:

Understanding the importance of reaching solutions to complex problems in a teaming environment is recognized by industry and government agencies. This approach gives students the chance to experience the preparation, decision process, and execution of complex tasks. The students on the team are impacted by this learning process, but at the same time, those students who hear the team’s experiences can understand those processes as explained by a peer versus a more traditional lecture environment. Moreover, by providing a path to financial scholarship, students can be helped to overcome, in some small way, the effects of a sluggish economy and perhaps be less likely to put off a college education. It also helps to address the brain drain by promoting an educational path utilizing an Indiana college or university.



For K-12 Students:

The STS-125 Jr. Mission Program provides a tangible result of pursuing STEM choices for students. The use of students as experts, as opposed to scientists or professors, makes the possibility of personal success (becoming an engineer or scientist) seem more present. The high-profile nature of the STS-125 project provides tangible role models (i.e. heroes) of STEM success at a critical decision making time (to pursue STEM or not) for the K-12 students.

For Educators:

There will be other NASA missions and projects in the coming year, which will offer many opportunities to educators to replicate the success of this program. In addition, while the STS-

125 Jr. Mission project was conducted as the actual events unfolded, the detailed STS-125 mission timelines, recorded video transmissions, and computer simulations provided by the NASA website would allow this to be replicated in a classroom or after school program. The NASA website provides numerous well documented examples of other famous missions that could be adapted in much the same way. This approach would keep costs very low, while also providing a high interest focus for the participants in lieu of a current mission or if flight delays cause the actual mission to move beyond the timeframe allotted by the educator for the exercise.

Conclusion

The Junior Mission Experts program successfully used a current event, NASA Mission STS 125, the final Hubble repair flight and NASA resources readily available to teach students by challenging them to prepare to teach others.

National Teaching Standards were satisfied as Junior Mission Experts were given the opportunity to participate in what may be a significant career building experience. They were also motivated by earning a \$1,000 scholarship to assist in future collegent endeavors. All students participating in the program either have been accepted in Indiana Universities or are in process of enrolling.

The Junior Mission Experts provided a valuable service to the general public and other students by promoting knowledge and enthusiasm for space exploration. They set positive examples by being presenters and mentors for other students, served as representatives to the media and “go to” experts for information concerning STS 125.

Maybe, above all, Junior Mission Experts, attired in the same flight suits as were worn by their astronaut mentors, learned the value of teamwork and pride in participating on a high performance team.

IMAX/ SPACE PORT INDIANA STS-125 MISSION CANDIDATE EVALUATION

Applicant Evaluation

APPLICANT INFORMATION
Candidate
Date of
Grade
Interview

SELECTION RECOMMENDATION (SCALE OF 1-100 PLEASE RANK)

CANDIDATE EVALUATION	Poor	Fair	Satisfactory	Good	Excellent
Understands Requirements	<input type="checkbox"/>				
Related School Activities	<input type="checkbox"/>				
Science/Technical Aptitude	<input type="checkbox"/>				
Demonstrated Initiative (Business Projects)	<input type="checkbox"/>				
Communication Skills	<input type="checkbox"/>				
Attitude	<input type="checkbox"/>				
Appearance/Neatness	<input type="checkbox"/>				

STRENGTHS

WEAKNESSES (IDENTIFY WEAKNESSES THAT COULD BE OVERCOME IN SHORT PERIOD IF ANY)
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ADDITIONAL COMMENTS



Requirements for STS-125 Mission Program

Requirements:

- Student Must be enrolled in an Indiana school (or home schooled and at the equivalent level of education/grade and age) and be a junior or senior grade level in either the 2009 or 2010 school year.
- Student must be in good academic standing in school where currently registered.
- Students GPA should be 3.0 on a 4.0 scale or higher and not on academic probation when selected and throughout program.
- Student must be a minimum of 16 years of age by end of program
- Student must be a U.S. citizen, not convicted of a felony.
- Student must attend an Indiana university or college that is an affiliate of INSGC.
- Student must meet ALL requirements of program including travel and personal appearance schedules.
- Student must be neat in appearance and have any uniforms supplied by the program clean, ready and available for public appearances; shall act in a responsible, professional and courteous manner during the program; and positively represent the program during official functions and in his/her personal activities throughout its duration.
- Should the student act in any manner, harmful to the program or in a manner that would reflect poorly on his/her teammates or colleagues, that student will be removed from the program and forfeit any and all awards, scholarships, or benefits of any kind provided during or anticipated to be provided at the conclusion of the program.
- Any decisions made by the Program Manager or Principle Investigator relative to the team or team members will be final.
- Scholarship awards will be held in escrow by the Indiana Space Grant Consortium until such time as the student is accepted and enrolled in an Indiana university or college that is a member of the Indiana Space Grant Consortium. Once the student has enrolled and contacts INSGC, the proceeds of the scholarship will be sent through the college or university financial aid office to be forwarded to the student. The INSGC requires that the money go to the student and that only the

student decides on the use of the money (it is specifically not to be attached by the school to pay tuition or fees).

- Student must complete any coursework in which the scholarship was applied and receive a grade of C (2.0) or higher.