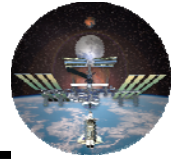




International Space Station

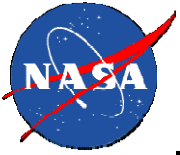


National Laboratory Education Plan

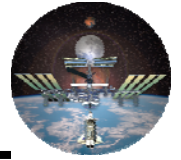


Concept Development Report

Oct. 2006



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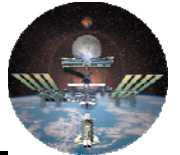
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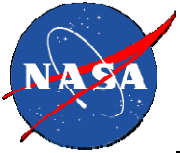
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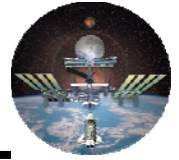
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AUTHORIZATION



National Policy Background



NASA Authorization Act of 2005, Sec.507 NATIONAL LABORATORY DESIGNATION (Public Law 109-155)

(a) Designation- the US segment of the ISS is hereby designated a national laboratory.

(b) Management-

- 1) PARTNERSHIPS-- The Administrator shall seek to increase the utilization of the ISS by other Federal entities and the private sector through partnerships, cost-sharing agreements, and any other arrangements...

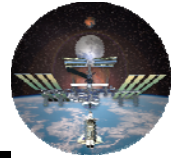
(c) Plan-- Not later than 1 year after the date of enactment of this Act, the Administrator shall transmit to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a plan describing how the national laboratory will be operated.

At a minimum, the plan shall describe--

- (1) any changes in the research plan transmitted under section 506(3) and any other changes in the operation of the ISS;
- (2) any ground-based NASA operations or buildings that will be considered part of the national laboratory;
- (3) the management structure for the laboratory;
- (4) the workforce that will be considered employees of the national laboratory;
- (5) how NASA will seek the participation of other parties described in subsection (b)(1); and
- (6) a schedule for implementing any changes in ISS operations, utilization, or management.

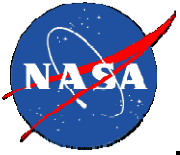


Objective

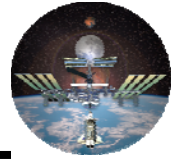


**Develop non-NASA users
for the ~ 50% of ISS accommodations and resources capability
that is currently idle during the post-assembly period.**

- **Enter into formal agreements across the **government, academic and industrial** sectors.**
- **Produce a diversified portfolio of productive applications projects.**
- **Target 50% non-NASA utilization of the International Space Station.**



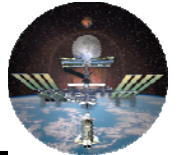
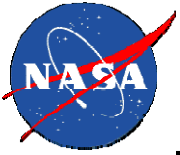
WHY IS EDUCATION INCLUDED?



- Nation is facing a critical shortage of young people entering STEM careers.
 - Graduate enrollment in aerospace engineering declined steadily in recent years suggesting a diminishing interest in that career field.
 - More than half of all engineering doctoral degrees awarded by U.S. engineering colleges are to foreign nationals.
- Shortage impacts our ability to sustain economic vitality, technological leadership and security.
- There is national discourse on increasing the American student's focus on science, technology, engineering and mathematics education.



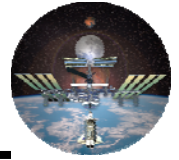
Protecting America's
Competitive Edge



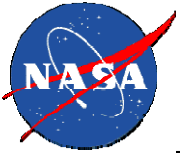
ACTION PLAN



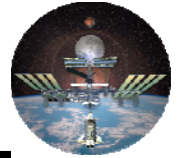
OBJECTIVE



Examine the feasibility of, and develop a strategy for, the use of idle ISS resources and accommodations as a venue to engage, inspire and educate students, teachers and faculty in the areas of science, technology, engineering and mathematics (STEM). It will be managed as a national education center accessible to teachers, students in kindergarten through post-doctoral studies, and university/college faculty.



Task Force Membership



Peirce Hammond
Department of Education

Bernice Anderson
National Science Foundation

Wanda Ward
National Science Foundation

Peter Faletra
Department of Energy

Kevin M. Hartman
Albert Einstein Distinguished Educator Fellow

Dawn Mercer
Marshall Space Flight Center

Chuck Brodell
Wallops Space Flight Center

Alan Holt
Lyndon B. Johnson Space Center

Shawnta M. Ball
NASA Headquarters

Keith Thompson
Department of Defense

Dan Berch
National Institutes of Health

Bruce Fuchs
National Institutes of Health

Frank Bauer
Goddard Space Flight Center

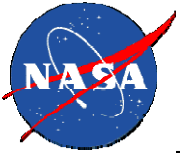
Jonathan Neubauer
Lyndon B. Johnson Space Center

Barbara Morgan
Educator Astronaut

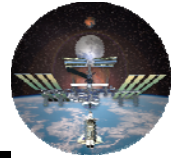
Dottie Metcalf-Lindenburger
Educator Astronaut

Bradley Carpenter
NASA Headquarters

Anngienetta R. Johnson
NASA Headquarters



Consultants



Michael Wiskerchen
Director, California Space Grant

Harriett G. Jenkins
Retired Federal Exec-Consultant

Ken Huff
Chair, NSTA Aerospace Advisory Board

Kendall Starkweather
Executive Director International Technology Education
Association

Ronnie Lowenstein
Lowenstein Associates

George Whiteside
Executive Director, National Space Society

Harold Stinger
President, CEO, SGT

Bonnie Van Dorn
Executive Director, ASTC

Mike Hynes NCTM
Professor, Teaching & Learning Principles, UCF

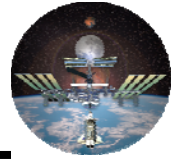
Steve Brock
AIAA Student Programs

Laureen Summers
Program Manager, American Association for the
Advancement of Science

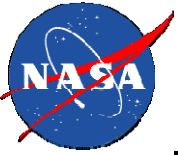
R. Lynn Bondurant
Educator



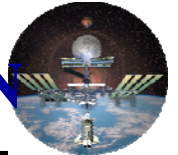
WHY USE THE ISS?



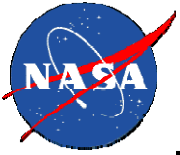
- The International Space Station (ISS) is the largest international scientific project in history.
- The International Space Station (ISS) draws upon the scientific and technological resources of 16 nations-United States, Canada, Japan, Russia, Brazil and the 11-member European Space Agency.
- The International Space Station (ISS) is the worlds only continuously inhabited outpost and laboratory in space.
- The United States (US) segment of the International Space Station (ISS) is meeting its planned goals, has payload resources and accommodations that exceed the requirements for planned NASA missions for space exploration, and is exceeding its planned life.



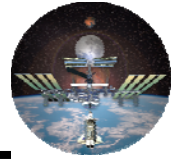
THE INTERNATIONAL SPACE STATION A DESIGNATED RESOURCE FOR EDUCATION



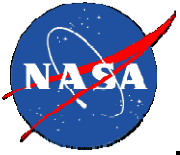
- Use the National Laboratory as a venue for education.
 - Extraordinary opportunity to stimulate mathematics, science, and engineering excellence for America's teachers and students.
 - Engage the public in a journey that will shape the course of human destiny.
- Use the uniqueness of space to energize STEM education in the US.
- Leverage the excitement of space research as a banner to focus on training the workforce and engage learners of all ages.
- Utilize partnering across federal, state, local and private sectors to sponsor scholarships, internships, on-the-job training, and to establish a shared education vision.
- Collaborate extensively with educators in the Federal Government.
- Seek new and innovative educational concepts, curricula, and certification programs supported by government, industry and academia.



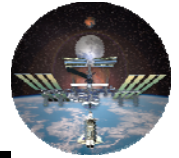
ISS National Laboratory Concept of Operations



- U.S. National Laboratory will have access to approximately one-half of the ISS, U.S. utilization capability. The education community will have a negotiated portion of that amount.
- An ISS Education Coordination Working Group (IECWG) will be established composed of representatives of any Federal agency having an interest in using the ISS National Lab.
- Federal Agencies will be responsible for soliciting, selecting, and submitting education payload and/or activity recommendations.
 - Federal Agencies will serve as sponsors of education payloads and activities.
 - Federal Agencies may seek industrial/non-profit partnerships and collaborations.
- Each user/sponsor organization will be responsible for funding the payload development, integration and operations activities/requirements, which are required beyond the standard payload services provided by NASA and the International Space Station program.
- NASA will cover the functions and costs associated with the operation of ISS Education Coordination Working Group (IECWG).
- The sponsor is also responsible for funding the cost of transportation to the ISS.

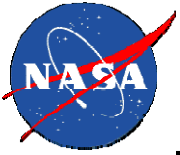


PARTNERSHIPS AND COLLABORATIONS

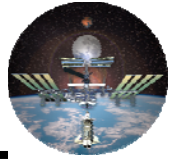


NASA Authorization Act of 2005, Sec.507 NATIONAL LABORATORY DESIGNATION (Public Law 109-155)

- **PARTNERSHIPS--** The Administrator shall seek to increase the utilization of the ISS by other Federal entities and the private sector through partnerships, cost-sharing agreements, and any other arrangements that would supplement NASA funding of the ISS.
 - Nation shares the same goals to inspire our nation's youth to pursue careers in STEM
 - Nation desires to improve scientific and technological literacy.
 - Partnerships and alliances with national, state and local education associations multiply the impact of education programs by leveraging knowledge, identifying additional target audiences and organizations, and sharing program resources.



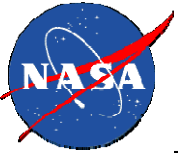
Next Steps



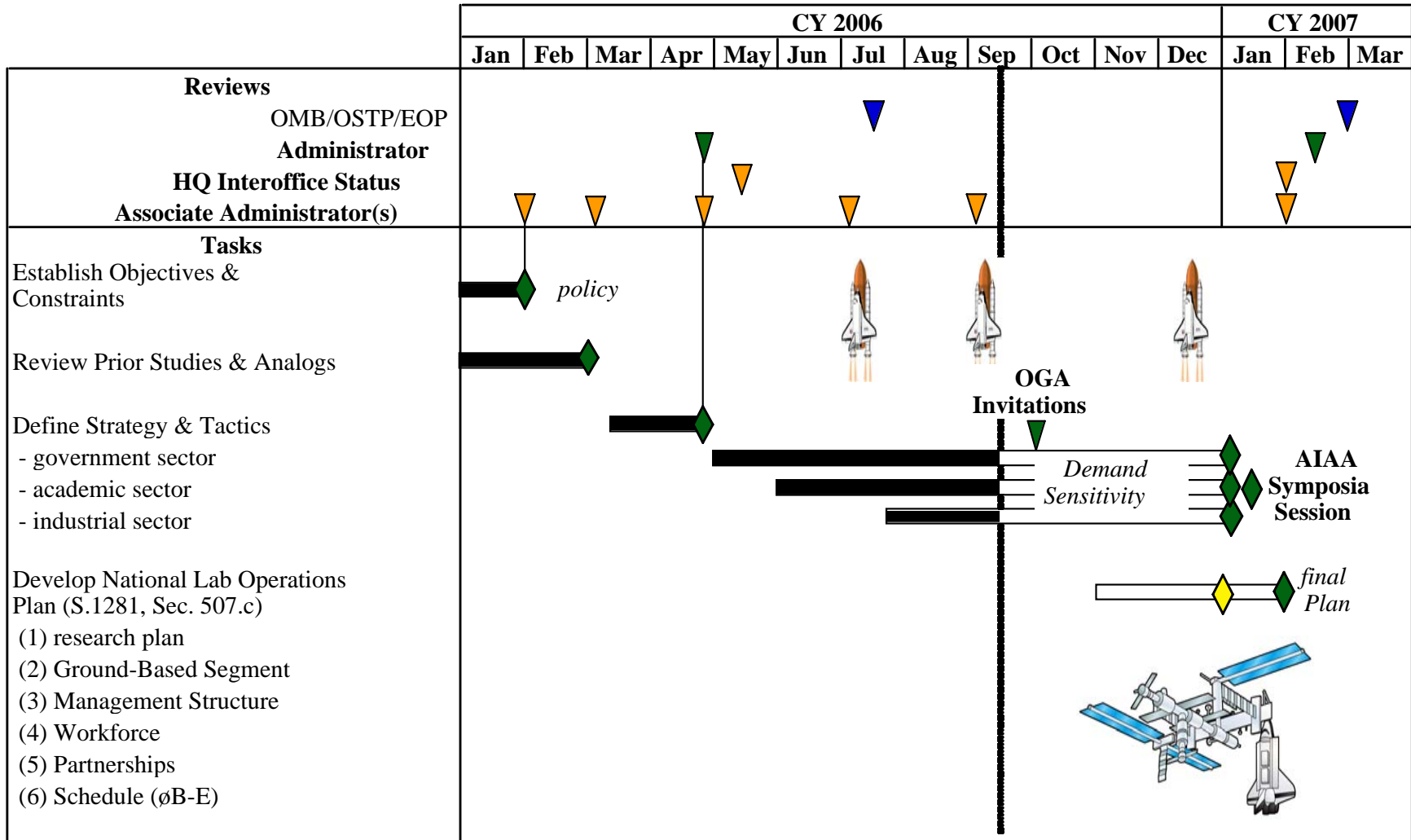
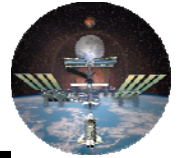
- **Get Involved! Critique Plan!**
 - Plan should address needs of your student population.
- Share the value of the concept with Key Constituents!
- Contact:

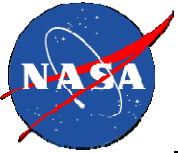
Dr. Anngienetta R. Johnson
(anngie.johnson@nasa.gov)

(202) 358-4717



STUDY SCHEDULE





ISS Event Horizon

