



NASA Space Grant Program Office Update

Dr. Carl Person and Katie Pruzan



Agenda

- NASA Education Portfolio
- Office of Education Organization Structure
- NASA Education Portfolio Architecture
- NASA Education Lines of Business
- FY 2013 Space Grant Programmatic Priority Areas
- Performance Data
- FY 2014 ARCD Approach
- Statutory Requirements for STEM Education
- FY 2013 Investments in STEM Education and Budget
- National and Regional Meetings Announcement
- Closing



NASA Education Portfolio

- NASA Education has a comprehensive portfolio serving **learners, educators, and institutions**
 - Office of Education (OE) projects serve national audiences and generally incorporate content from Mission Directorates and the Office of the Chief Technologist.
 - *OE funds and is responsible for the overall management of OE projects.*
 - Mission Directorate (MD) projects cover all education levels and are specific to the research and development programs of the sponsoring MD.
 - *MDs fund and are responsible for the overall management of their projects.*
 - Center education projects focus on Center activities, priorities, and research and development programs. Center projects may reach national or geographic-specific audiences across all educational levels.
 - *Center education projects are developed in alignment with Agency missions and education goals. Centers fund and are responsible for the overall management of their projects.*
 - Partnerships are utilized to ensure broad reach and distribution of NASA content to audiences.
 - *Examples include: Carnegie Foundation, Honeywell, Challenger Centers, McArthur Foundation, IFCO*

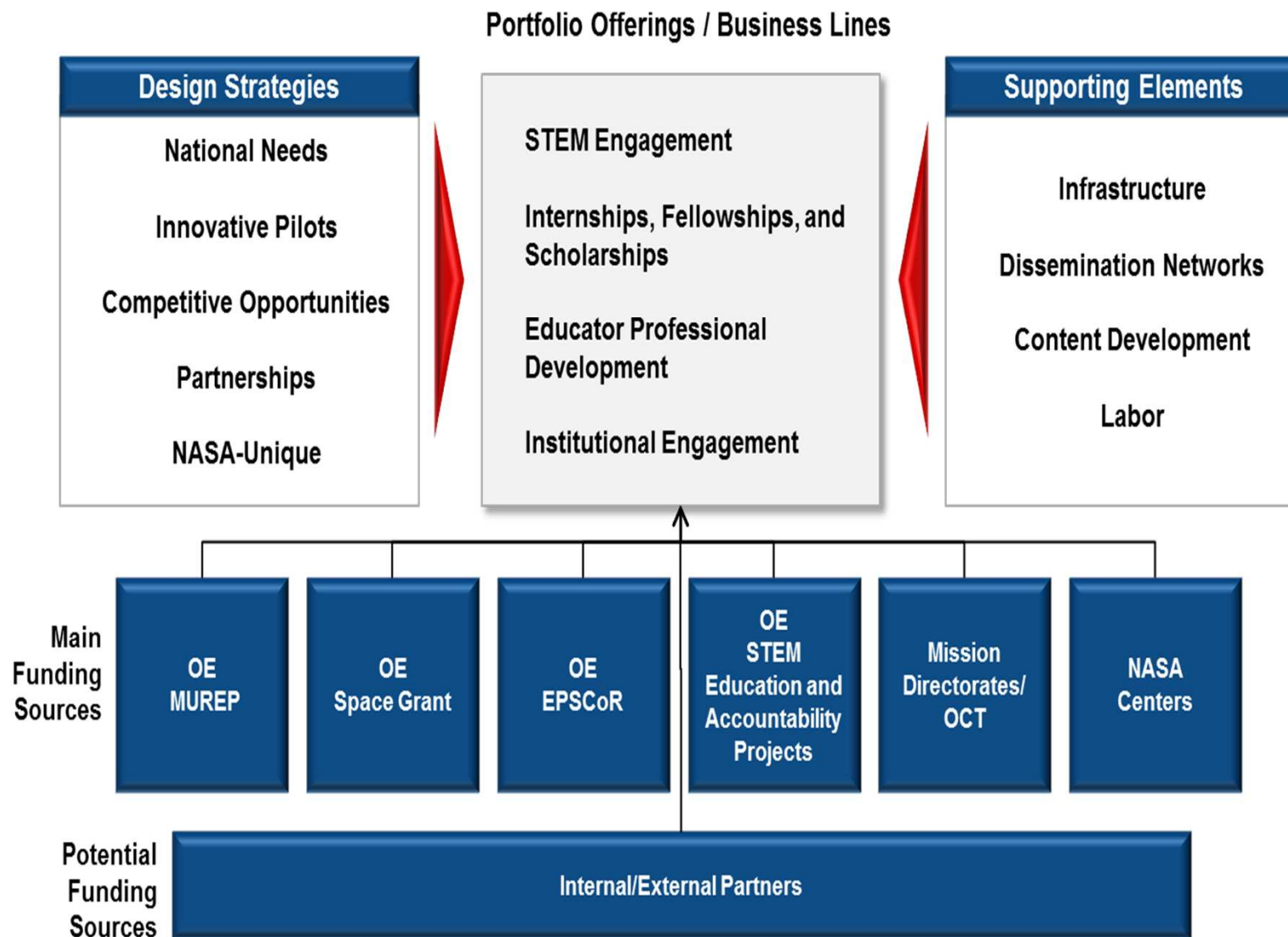


NASA Education Portfolio

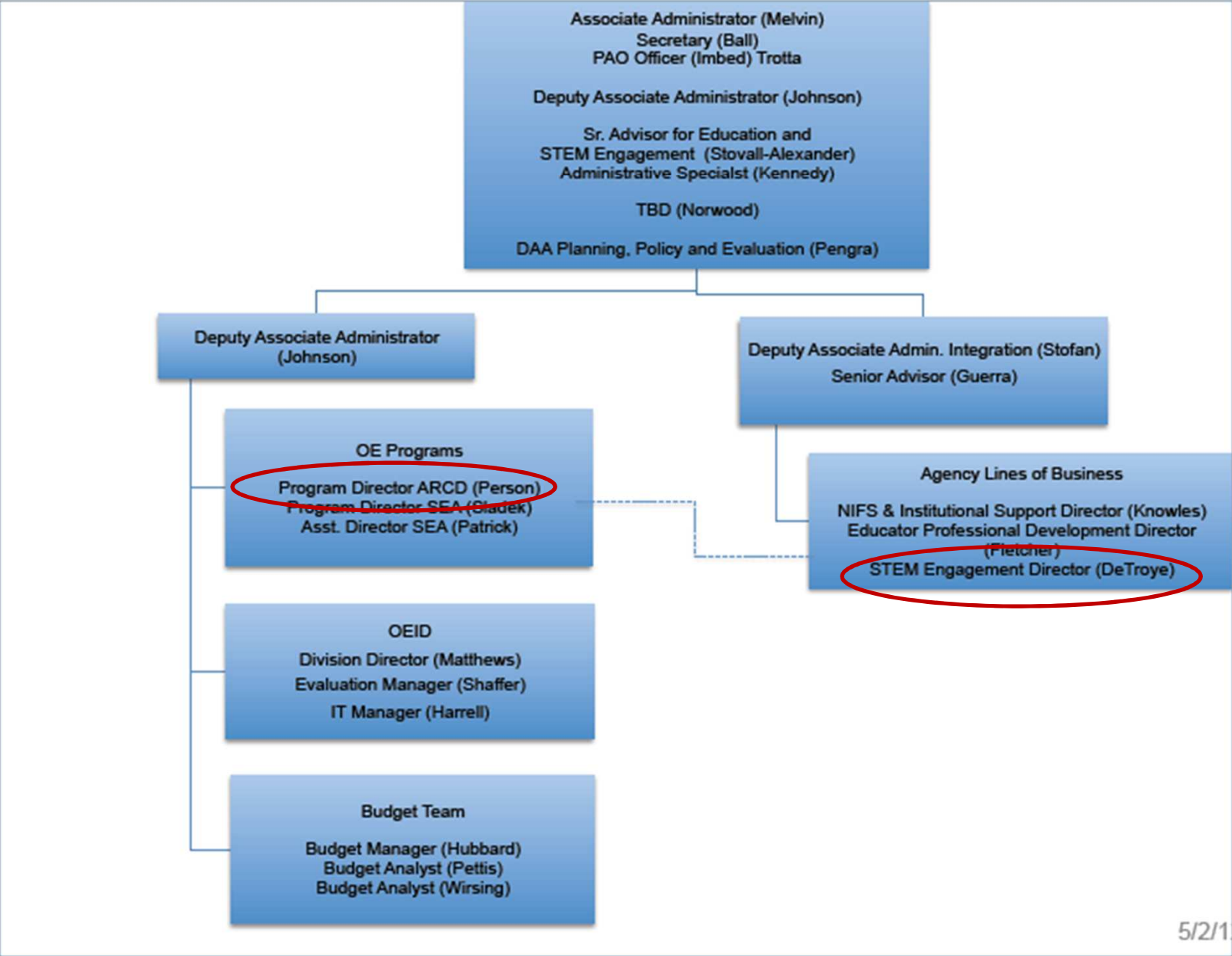
- Identify a transformative and scalable education portfolio that efficiently leverages resources with partners to inspire and captivate learners, educators and institutions.
- Establish a strategy to improve NASA's education offerings (Office of Education and mission directorates, and center programs/projects).
- Assist the Agency in establishing goals, structures, processes and evaluative techniques to implement a new sustainable and innovative STEM Education programs.



NASA Education Portfolio Architecture



Office of Education Organization Structure Roles and Acting Responsibilities





NASA Education Lines of Business

NASA Education Vision Statement

To advance high quality Science, Technology, Engineering, and Mathematics (STEM) education using NASA's unique capabilities

Recommendations from the Committee on STEM Education:

1. Use evidence-based approaches
2. Identify and share evidence-based approaches
3. Increase efficiency and coherence
4. Identify and focus on priority areas
 1. Effective K-12 STEM teacher education
 2. Engagement in STEM (PreK-12)
 3. Undergraduate STEM education
 4. Serving groups traditionally underrepresented in STEM fields



What is the NASA Internship, Fellowship, Scholarship (NIFS) Line of Business?



Goal Statement:

Leveraging NASA's unique mission activities to enhance and increase the capabilities, diversity, and size of the nation's next generation workforce needed to enable future NASA discoveries.

- NIFS is a delivery mechanism for all internship and scholarship opportunities for the agency and OE funded fellowships.
- NIFS provides administrative support and documentation for agency fellowships funded outside of Education.



What is the STEM Engagement Line of Business?

- Opportunities designed to increase learners' interest and involvement in STEM, improve their ability to participate in STEM studies and careers, and enhance their understanding of the value of STEM in their lives.
 - STEM Public Education Activities – activities designed to engage learners of all ages to increase their awareness and knowledge of, and interest in, STEM subjects using interaction with NASA-unique resources (may be part of a larger public event). Typically larger groups and shorter duration than ELO and STEM Challenges.
 - STEM Experiential Learning Opportunities – activities designed to increase the participants' involvement, knowledge, understanding/comprehension, and application of learning. Typically inquiry-based/project-based learning approaches
 - STEM Challenges – creative applications of NASA-related STEM that encourage learners to demonstrate knowledge of STEM while enhancing innovation, critical thinking, and problem solving skills



What is the STEM Engagement Line of Business?

- Intended for learners (educators, faculty, students, general public) both inside and outside formal K-16 education systems
- Capability to connect education audiences to NASA content, people, and facilities, highlighting the Agency's unique missions and research
- Integrated and complimentary activities that vary in design, delivery and depth of experience with the intent to inspire, engage, and educate diverse learners
- Flexibility to encourage both innovation and continuous improvement to:
 - Meet changing Agency goals and national priorities
 - Expand the SE portfolio based on funding levels
 - Maximize Agency Education dollars
 - Reduce overlap and eliminate redundancy

***All of which results in increased value for the
Funding Sources and NASA Education.***



What is the Educator Professional Development (EPD) Line of Business?



Goal:

To deliver NASA-related, educational content to formal and informal educators through a variety of face-to-face and online methods for the purpose of improving STEM content knowledge, instructional effectiveness, and integration of NASA resources in their learning environments leading to the increased STEM literacy of their students.



What is the Institutional Engagement (IE) Line of Business?

- Purpose of Institutional Engagement:
 - To support efforts that build and develop **capacity** for sustained STEM capabilities in topical areas of interest to NASA.
- Applies to:
 - Higher education institutions;
 - Informal education institutions with a STEM focus, such as planetariums or visitor centers;
 - National organizations dedicated to improving/enhancing STEM education.

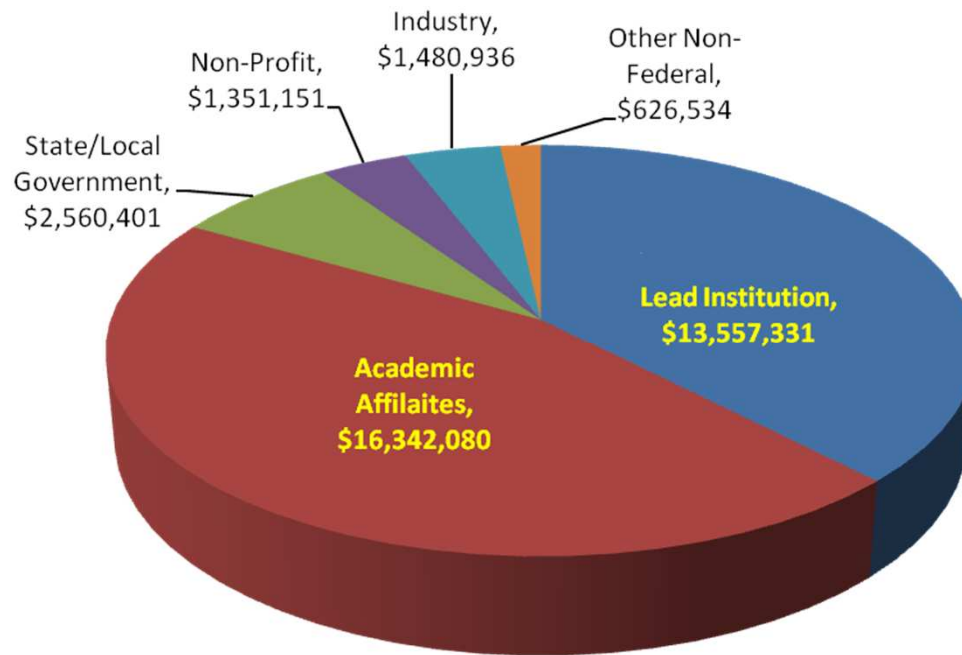


Key IE Characteristics

- Results in *systemic change* to achieve a lasting capacity.
- *Long-term* relationship / collaboration between institution and NASA.
- *Multidimensional* in scope (e.g., exhibit development with associated curriculum and professional training).
- *Differentiation* between institution and organization.



FY11 Funding Sources Summary



Total Match Funds
\$35,918,434

Funds Leveraged by NASA Funding Support
95%



STEM Engagement



STEM Engagement activities utilize NASA resources and are based on best practices in motivation, engagement, and learning in formal and informal settings.



- ✓ RockOn & RockSAT
- ✓ FIRST Competitions
- ✓ High Altitude Ballooning
- ✓ Student Rocketry
- ✓ NASA Centers
- ✓ Great Moon buggy Race

Higher Education

- ✓ 474 Student led Project Teams
- ✓ 24,236 Higher Education Students

Precollege Education

- ✓ 481 Short Duration Student-based Projects
- ✓ 380 Long Duration Student-based Projects
- ✓ 164,949 K-12 Student Participants

Informal Education

- ✓ 1,837 “Student Hands-on Activities” Supported
- ✓ 1,488 “Public at Large” Activities Supported



NASA Internships, Fellowships, & Scholarships



Our goal is to identify, cultivate, and sustain a diverse workforce that is needed to support NASA's missions while contributing to the economic growth and global competitiveness of the United States.



Directly Funded Students

- ✓ 5,651 Directly Funded Students
 - 3,393 Fellowship/Scholarship Students
 - 1,448 Higher Education Students
 - 810 Research Infrastructure Students

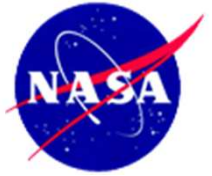
- ✓ 60.3% of Students are Male
- ✓ 39.7% of Students are Female
- ✓ 25.6% of Students are Underrepresented Minorities

Longitudinal Tracking

- ✓ 84% of students were retained in STEM fields.
- ✓ 53% of students went on to seek an advanced degree in STEM
- ✓ 4,577 Students received Significant Awards
- ✓ 4,133 Students took the next step in STEM
- ✓ 3,889 Students are still enrolled in their current degree program



Educator Professional Development



NASA Educator Professional Development provides educators with the knowledge, skills, and ability to deliver unique STEM content to learners who will ensure the economic growth and competitiveness of our nation.



Higher Education

- ✓ 4,725 Higher Education Teacher Participants
- ✓ 210 New or Revised Courses

Precollege Education

- ✓ 395 Short-Duration Educator Workshops
- ✓ 195 Long-Duration Educator Workshops
- ✓ 164,949 K-12 Student Participants
- ✓ 10,556 In-Service Educators
- ✓ 947 Pre-Service Educators
- ✓ 1,006 Informal Educators/Museum Staff

Informal Education

- ✓ 115 Short-Duration Educator Workshops
- ✓ 30 Long-Duration Educator Workshops
- ✓ 7,179 In-Service Educators
- ✓ 270 Pre-Service Educators
- ✓ 713 Informal Educators/Museum Staff



Institutional Engagement



NASA Institutional Engagement supports the advancement and development of STEM personnel, programs, and infrastructure to enable formal and informal institutions to conduct NASA-related research and/or deliver NASA-related STEM content.

Affiliate Partner Type	Number
IHE- Bachelors and/or Graduate Degree	557
IHE- Community/2-Year Institutions	115
Total Academic Affiliate Partners	672
Government (Federal/State/Local)	75
Industry	86
Museum/Science Center/Planetarium	82
Other and Other Non-Profit Organizations	99
Total Non-Academic Affiliate Partners	342
Total Affiliate Partners	1014

Diversity of Academic Affiliates is a Key Emphasis of the Program*:

- 48 Hispanic Serving Institutions
- 48 Historically Black Colleges or Universities
- 22 Tribal Colleges or Universities
- 7 Other Minority Universities

* MSIs = 19% of the total academic affiliates

Percentage of Market Share:

- 18% of Hispanic Serving Institutions
- 50% of Historically Black Colleges or Universities
- 61% of Tribal Colleges or Universities



FY 2013 Space Grant Programmatic Priority Areas



- Leveraging and Strengthening Strategic Partnerships
- Diversity and Inclusion
- Workforce Development
- Precollege Educators/Education



FY 2013 Space Grant Programmatic Priority Areas



- **Leveraging and Strengthening Strategic Partnerships:**

Space Grant would model the new Agency education approach regarding strategic partnering to enhance the reach of the state-based network. Consortia to focus on strategic partners that enhance the capacity and capabilities of the state-based NASA investment in STEM education. Shift the focus to engaging partners that bring their own resources to the table rather than partners seeking financial resources from the consortium.

- **Diversity and Inclusion:**

Move toward increased participation of MSIs and community colleges in all components of the National Space Grant program. Work to increase participation and retention of underrepresented groups in STEM disciplines.



FY 2013 Space Grant Programmatic Priority Areas



- Workforce Development:

Maintain the emphasis on hands-on student experiences – both individual and team-based – which strengthens the value-added approach of state-based opportunities.

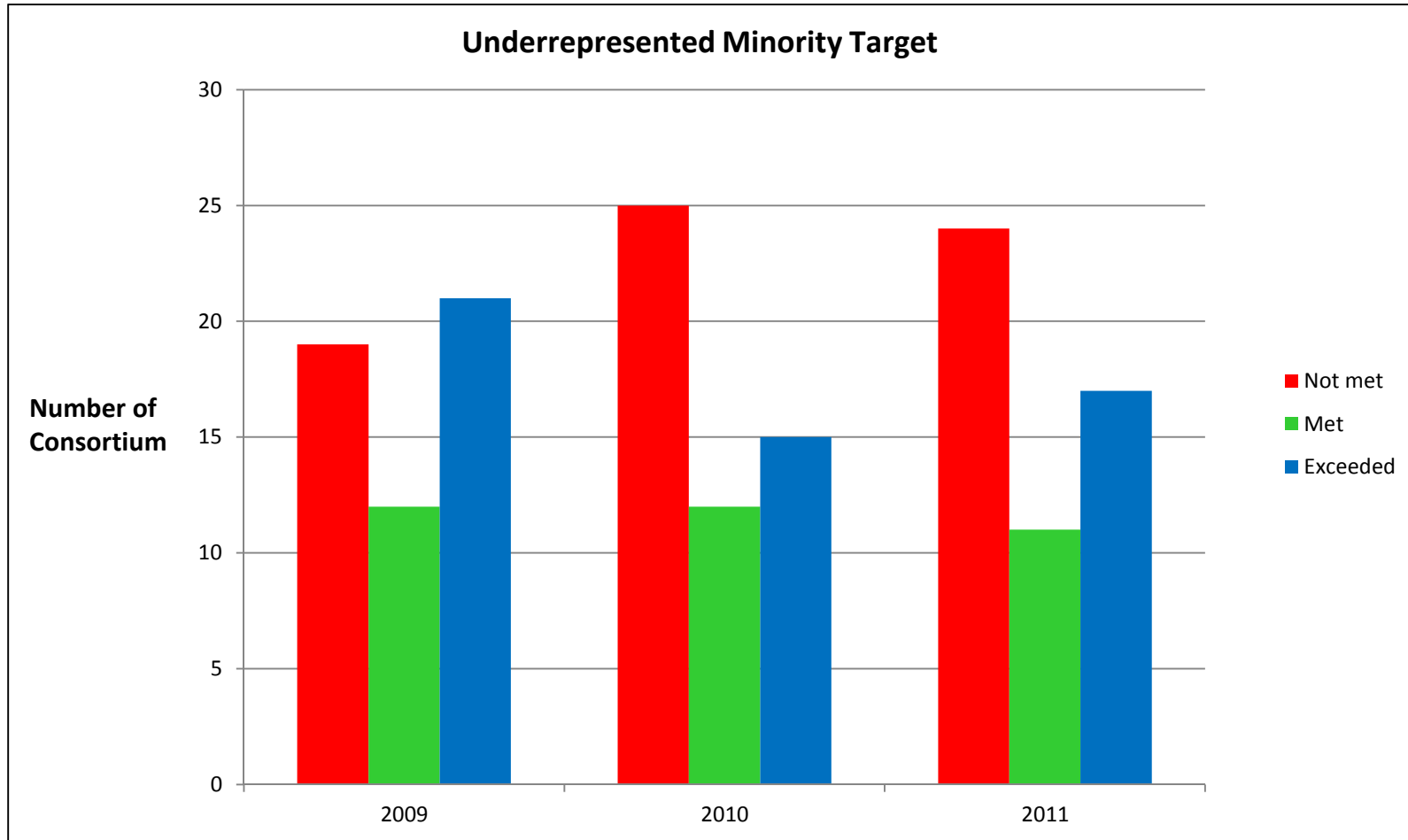
- Precollege Educators/Education:

Increase the capacity for the delivery of STEM content within the Colleges of Education. Anecdotal evidence exists to suggest there is untapped potential for Space Grant institutions to have a positive impact on precollege teacher preparation. Some Space Grant consortia are already engaged with Colleges of Education in areas including support of new and/or revised STEM courses targeted to College of Education students (i.e. STEM courses for non-STEM majors) and involvement of subject-matter experts with College of Education workshops.

Expand/Maintain emphasis to support professional development opportunities targeting middle-school educators.



Underrepresented Minority Goal

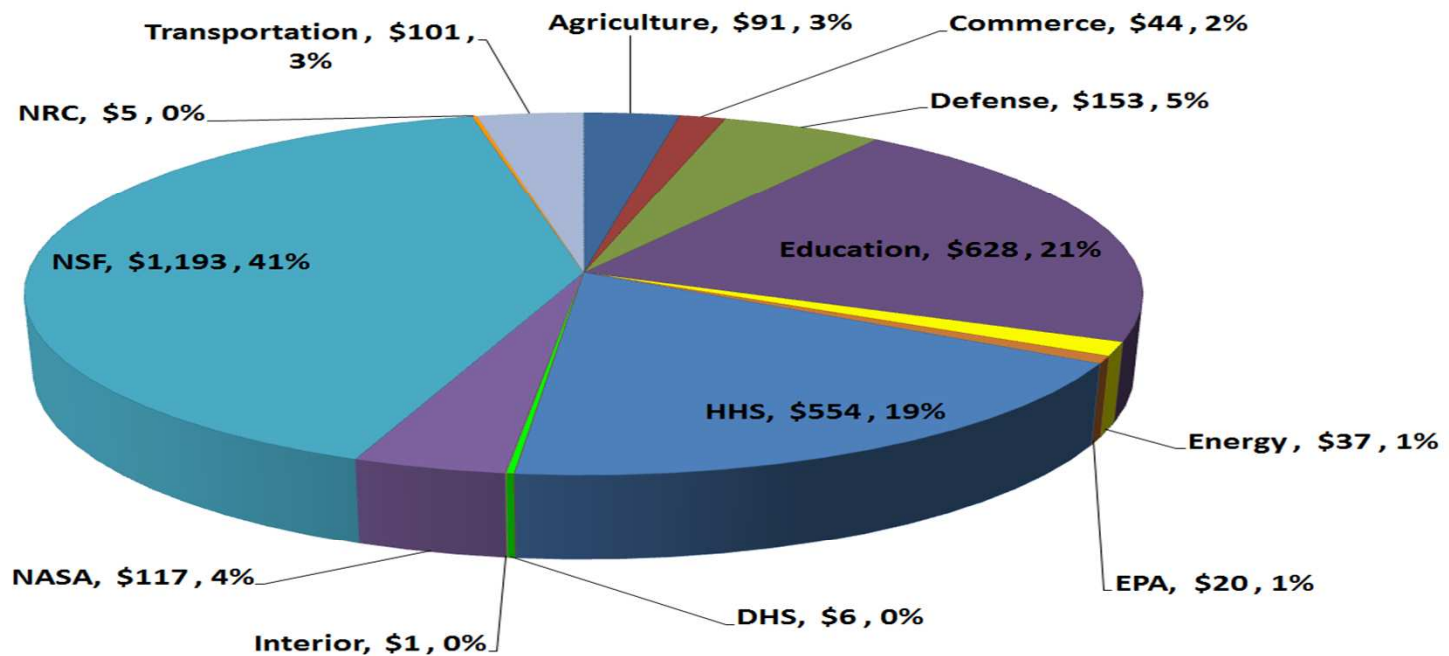




FY 2011 Federal Investments in STEM Education



Federal STEM Education Investments by Agency (\$2,951 M)



209 investments
13 agencies

*Source: Executive Office of the President, Office of Science and Technology Policy, *Preparing a 21st Century Workforce: Science, Technology, Engineering, and Mathematics Education in the 2013 Budget* (Feb 2012)



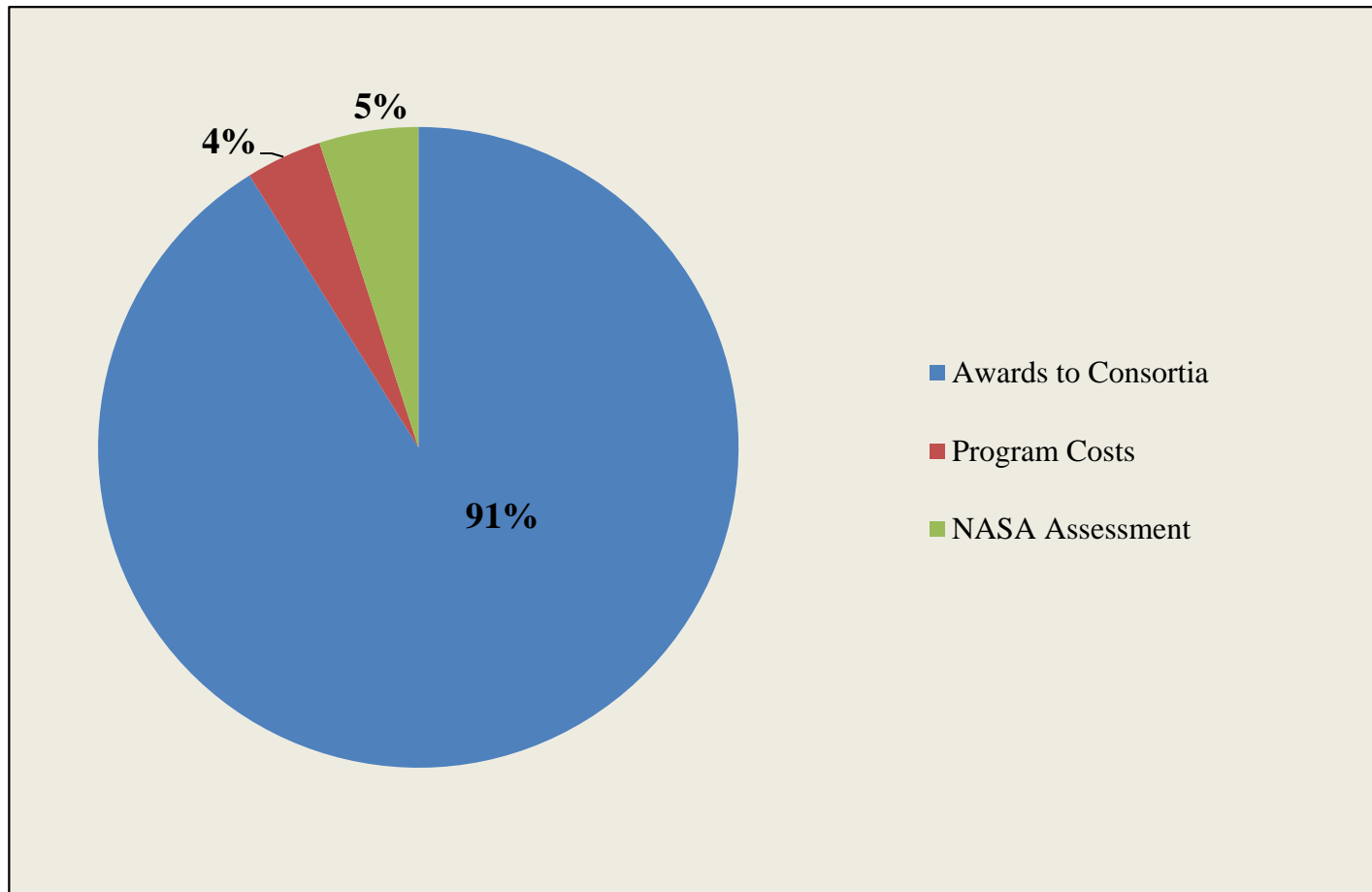
Budget



- FY 2013
 - Continuing Resolution
 - Sequestration
 - Planning Level



FY12 Budget

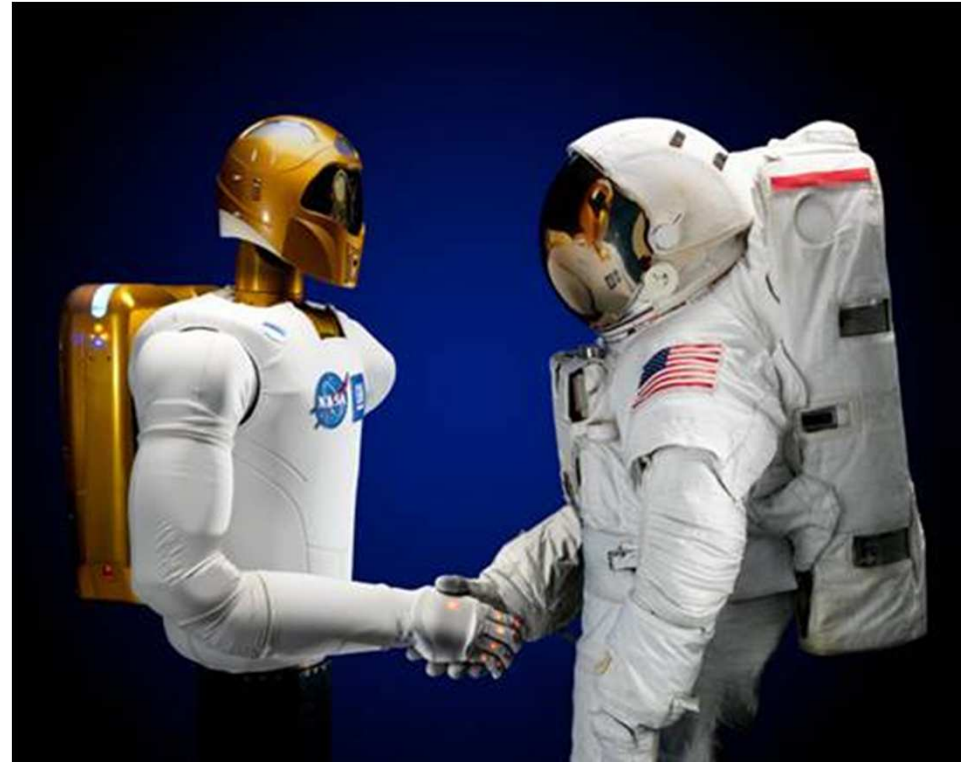




National and Regional Meetings



- National Meetings
 - Spring National Meetings remain unchanged
 - Fall National meetings to occur every **other** year (starting with Fall 2013)
- Regional Meetings
 - To occur every **other** year, when Fall National Meetings are not taking place (Starting Fall 2014)





We Remember...



- **Janice Voss**

- Jointly holds record for most times flown by a woman in space (five)



- **Sally Ride**

- First American woman in space



- **Neil Armstrong**

- First person to set foot on the moon



Thank You!