Report on:

"Sharing the Adventure with the Student: Exploring the Intersections of NASA Space Science and Education Workshop"

Held on December 2-3, 2014

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CAPS Meeting

Sept. 16, 2015

Statement of Task Key Elements

- Promote dialogue between education specialists, NASA education staff, scientists and engineers, and science content generators to maximize the effectiveness of the transfer of knowledge from the scientists to K-12 students and teachers.
  - What can NASA space science provide and what do education providers want and need?
- Focus on effectiveness and evaluation of models for transferring science content practices to students
  - How is it determined if a program has been successful?
- Hear from education specialists on how the science can be translated to education materials and directly to students, and from teachers on their experiences of space science in their classrooms.
- Discuss the connection between the SMD efforts and the implementation of the CoSTEM Strategic Plan.
- A workshop summary will be prepared by a rapporteur (Dwayne Day) but it will not present consensus conclusions or recommendations

Workshop Implementation

- A committee of 11 members was established under the oversight of the NRC Space Studies Board and the Board on Science Education.
- 2-day public workshop was held in December 2014 in Washington D.C.
- Approximately 100 participants.
  - These participants included individuals who create, execute, and evaluate K-12 education efforts.
- Workshop consisted of keynote talks, discussion panels, audience discussion, and poster session with a focus on partnerships.

- Workshop Sessions:
  1) A New Vision for K-12 Science and Engineering Education and NASA SMD Education
  2) Space Science Education Curriculum and Materials
  3) Collaboration Among NASA SMD and K-12 Districts, Schools, and Teachers
  4) Supporting Science and Engineering Teachers through Professional Development
  5) Evaluation of Education and Evaluation in Practice within NASA SMD

Summary Thoughts: (1 of 3)

- Big changes in science education are already here
  - Vision for science education clearly described in the NRC Framework for K-12 Science Education
- Curriculum development
  - A key role for NASA SMD could be in organizing curriculum materials
  - In order to do that it is essential to understand the science education described in the Framework
    - Align materials to Framework and use this as an opportunity
  - Move away from basic content elements to units, lessons, activities
    - Will help make materials accessible to teachers
  - Expand from mission-specific messages to cross-cutting concepts and core ideas
  - Move away from NASA as content provider to NASA as partner

Summary Thoughts: (2 of 3)

- Partnerships
  - Program scalability is a critical problem
    - Partnerships can help address this issue with creative solutions
    - Help scientists reach a broader audience
    - STEM associations such as NSTA, ISTE, ITEEA, ASEE and NCTM have large reach into the education communities
  - Must recognize that effective partnerships take a long time to develop
    - Requires stable funding and support
  - Partnerships must be on equal, mutual need basis
  - A key element of effective partnerships are the education professionals that connect scientists to teachers
    - Need to maintain existing partners, but assure that programs align to the standards and the Framework

Summary Thoughts: (3 of 3)

- Key role for NASA could be in professional development

- It is essential that SMD's education programs use rigorous evaluation methods