

Executive Summary

In the summer of 2012, a national survey of over 1,000 formal and informal educators was conducted to assess who were using NASA resources, what educators were looking for when using NASA resources, and what attracted them to NASA workshops and other educational opportunities. This survey was conducted by the K-12 Working Group of the NASA Science Mission Directorate (SMD) Education and Public Outreach (E/PO) Forums and distributed through NASA and national education networks.

NASA SMD created the Forums – one each for each of the SMD science divisions: Earth Science, Astrophysics, Heliophysics and Planetary Science – via cooperative agreements in 2009. SMD charged the Forums with organizing the efforts of the SMD E/PO community members into a coordinated effort that would increase the overall coherence of SMD E/PO programming, leading to more effective, sustainable, and efficient utilization of SMD science discoveries and learning experiences.

The Forum K-12 Working Group is one of three cross-Forum, audience-based working groups that further support SMD E/PO (the other two are for higher education and informal education). The working groups are charged with gathering and disseminating information about their respective audiences. Their purpose is to assist SMD in making programmatic decisions, support the work of the Forums, and help the SMD E/PO community make informed decisions in planning, implementing, and evaluating their E/PO efforts.

This survey provides data not found elsewhere that will be used by the NASA SMD E/PO Forums to tailor their programmatic efforts to best meet the professional development and resource needs of K-12 educators. The survey was designed to elicit answers to three questions that will guide future programmatic development by the NASA SMD E/PO forum members:

1. Who are the NASA resource users?
2. What NASA resources do educators find most valuable?
3. What are educators looking for in NASA-related professional development opportunities?

A synopsis of the outcomes are summarized below.

Who responded to the survey?

Responses were gathered from educators across 49 states, one territory and six countries. Respondents represented teachers from urban, suburban, and rural school districts, as well as informal educators. The median response time was 16 minutes. Complete responses were received from 1,014 educators, with 164 additional educators answering one or more questions, for a total 86% completion rate (i.e., 86% who started the survey completed it).

What professional development requirements are reported by K-12 educators?

The combined majority of educators (56%) reported being required to take between 10 to more than 15 hours of professional development annually. The professional development requirement did not specify that obtaining continuing education credits was necessary to meet the requirement. Costs to attend professional development opportunities, both regionally and nationally, were covered by grants for over a third (37%) of respondents. The rest indicated that either their school district paid for/provided professional development, or that they paid for part or all of the costs of their personal professional development themselves.

How do educators currently meet their professional education needs or requirements?

During the 2011-12 school year, educators indicated that they were more likely to participate in a STEM-related teacher professional development experience at a university or college (32%), at their school accompanied by teachers from their department/discipline (29%), at a state educational conference (23%), or at a museum or science center (22%). Nearly half (45%) reported that they had participated in an online STEM professional development experience, an increasingly common way for teachers to obtain professional development.

What do educators want from professional development opportunities?

Duration:

Educators indicated that they would be most likely to attend a full day or half-day professional development opportunity followed by a weeklong experience during the summer.

Content:

Educators ranked modeling hands-on activities (4.8/5) and learning science content (4.6/5) as the most important aspects of a valuable/successful professional development experience. Educators were most likely to attend NASA professional development when they had the opportunity to learn about ways to use NASA resources with students (9.1/10), discover the cutting-edge science work being done by NASA (8.9/10), and access NASA's imagery and science (8.9/10).

Format:

Educators prefer workshop experiences where a NASA scientist presents NASA data related to their research (74%), and where they can interact with peers who teach at a similar grade level (71%).

Recognition/Certification:

Roughly two-thirds of the educators value graduate credit, receiving a certificate of completion and/or continuing education credits as a result of their professional development experience.

How do educators learn about NASA educational resources?

The majority of respondents (80%) report typically finding out about STEM professional development opportunities through professional organizations like NSTA with about half as many finding out through teacher listserves and regional training organizations. Educators report receiving NASA educational materials from professional development opportunities including conferences, workshops and presentations. Educators are likely to share these resources with others, including their students (96%) and colleagues (85%), effectively expanding the reach of these materials to a much wider audience.

What does NASA provide that is of the greatest value to educators?

Educators indicated that NASA classroom materials are of great importance to them, specifically ranking NASA lessons and activities, NASA videos and visualizations, NASA website-based information/activities, and authentic NASA data for use in student research, between 4.4 and 4.5 on a Likert scale ranging from 1 (not useful) to 5 (very useful).

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