

Cultivating Learning and  
Positive Change

***Family Science Night Final Report***

**September 30, 2008**



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## INTRODUCTION

Begun in 1994, Family Science Night (FSN) is a school-based family field trip to the National Air and Space Museum in Washington, DC coordinated and presented by the Universities Space Research Association (USRA). FSN is a component of the Education and Public Outreach (EPO) for NASA's EPOXI mission intended to support the goals of 1) inspiring students to pursue careers in science, technology, engineering and mathematics (STEM) related fields, and 2) engaging the general public in space exploration and discovery.

FSN is unique in that it provides an opportunity for parents and children to engage in a science education activity as a family unit with the support of their local school. FSN events are conducted after normal museum hours and include

- Time for families and educators to explore selected museum exhibits.
- A 30-40 minute space-science presentation by a scientist.
- An IMAX movie addressing astronomical and space-exploration themes.

FSN program content is targeted to 4<sup>th</sup> grade and above.

As many as ten FSN events are presented each year and up to 450 parents, students, and educators from the Washington, DC area schools attend each event. In an effort to obtain a diverse audience, 50% of the programs are reserved for schools with high proportions of minority and low-income populations. Families sign up through their child's school and are provided school-based transportation to and from the event. FSN events are free to participating families although some schools charge a small fee to cover the cost of school buses to transport families to the events.

Coordinators at each school (referred to in this report as school liaisons) select the talk content and films from a prepared menu made available to them by the event coordinator. School liaisons work in a variety of ways to promote and organize the FSN events at their schools. They organize advertisement of the events, which is done through newsletters and flyers, local television, and the Parent Teacher Organizations at their schools. Liaisons also visit classrooms to talk about the event to promote attendance and often attend the event with the families.

## STUDY DESIGN

In an effort to examine the effectiveness of Family Science Night events toward meeting EPOXI mission goals, EPO team members from the University of Maryland and Goddard Space Flight Center contracted with Magnolia Consulting, LLC, an independent evaluation consulting company, to conduct an evaluation of its FSN program. This report focuses on feedback related to the eight FSN programs offered between January and March of 2008.

The following key evaluation questions focus on the impacts of Family Science Night on student and adult participants, as well as the extent to which the program is meeting the needs of participating schools.

1. How do families and educators perceive the quality and value of the FSN events?
2. What aspects of FSN are most valued by participating families and educators?
3. How does FSN impact understanding and awareness of the study of space science?
4. How does FSN impact participant interest and support for NASA-related and other science education programs?
5. What aspects of FSN are not working well for participating families and schools?

## Methods

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Evaluators included a combination of quantitative and qualitative methods in the design to allow for an in-depth understanding of program coordination and impacts. This mixed-method approach incorporated surveys and interviews with different participant groups.

### Participant feedback surveys

Two surveys, one for adults and one for students, were created to elicit feedback from families participating in Family Science Night events. Surveys consisted of a combination of Likert-scale response items and open-ended questions. Items were designed to obtain participant feedback on the quality and value of the program, and the effect of the program on interest and engagement in space science. Open-ended questions also addressed the degree to which the program had an impact on families' intent to participate in science related activities in the future. Adult and student surveys are included as appendices A and B to this report.

Paper surveys were disseminated at the end of the evening for five of the events beginning February 19 through March 10, 2008. Attendees were requested to complete the surveys and return them by mail in a pre-addressed, stamped envelope. An online version of each survey was created and a link distributed to attendees to offer the option of completing the survey online. Seventy-three adults and 64 students completed paper surveys, while only one adult and one student completed the online version. This resulted in a total combined response of 139 participants.

### Interviews

In order to obtain school-level feedback on the FSN events, telephone interviews were conducted with school-based liaisons for the program. Questions about the program were developed to address integration of FSN into school curricula, perceptions of the event and perceived impacts on students and families.

The FSN program lead provided a list of schools who participated in the eight 2008 FSN events, and contact information for each school liaison. A sample of liaisons from across schools and districts, and across event nights was drawn, and liaisons were contacted by email with a request to participate in an interview. Eleven school liaisons were interviewed by phone and a twelfth provided feedback via email. Telephone interviews lasted approximately 20 minutes.

## Participant Characteristics

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### Survey Respondents

Adults and students from 22 different schools replied to the feedback surveys. Appendix C contains a list of schools and the number of adult and student respondent from each. The majority of adult and student respondents were white and female. Most adults were in the 40-49 year-old age range (60%), while the majority of students (67%) were 10-14 years of age (Table 1).

**Table 1.**  
*Survey Respondent Characteristics*

	Adult	Student
<b>Number of Respondents</b>	74	65
<b>Gender</b>		
Female	69%	56%
Male	31%	44%
<b>Ethnicity</b>		
Asian/Pacific Islander	10%	6%
Black	18%	16%
Hispanic	3%	8%
White	69%	64%
<b>Age</b>	Under 40: 13% 40-49: 60% 50-64: 24% 65+: 3%	Under 10: 33% 10-14: 67%

### Interview Participants

Interviewees consisted of principals, assistant principals and teachers from across 12 schools within six counties who act as school-level coordinators for the FSN events. For three of the participants, this year was the first time they had acted as school-level liaisons for the event. The remaining interview participants had coordinated FSN at their schools from three-to-fourteen years.

## FINDINGS

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This section of the report presents findings from adult and student feedback surveys supported and interviews with Family Science Night school liaisons. The section begins with setting the context of FSN by describing participant backgrounds and school involvement with the event. This is followed by adult, student and liaison program feedback and perceived program impacts. This section of the report will be followed by a section summarizing the findings as they relate to the original evaluation questions for the study, and recommendations for consideration for future FSN events. The section concludes with a summary of findings and recommendations for consideration for future events.

### Participant Past Experiences

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In an effort to gain an understanding of the background of the families attending the FSN event, adults provided information about the types of science education activities they had participated in with their families prior to FSN. Of the 74 adult respondents, 34 (46%) left this question blank and seven (9.5%) cited “none.” Of the remaining respondents, 16 (22%) specifically listed visits to such venues as museums, planetariums and aquariums. The remaining responses were varied and included such things as reading science related books and articles, watching science videos or television, attending school science nights and science fairs, and attendance at previous FSN events. (Note that responses to this and other open-ended survey questions are presented in their entirety in Appendix D). While it is not possible to know for certain why so many of the respondents left this question blank, it may be that most adults had little prior experience with *family-based* science education programs such as Family Science Night before attending this year’s events.

Adult participants were asked to rate (on a seven-point scale; 1= “not familiar”, and 7= “very familiar”) the degree to which they were familiar with other space-related or NASA education programs. As shown in Figure 1, the most frequently chosen response to this question was a rating of 1 (not familiar) chosen by 37% of respondents. Only 19% of adults rated their familiarity as a 5, 6 or 7 indicating that most adults responding to the survey had only some or little exposure to space-science education other than that experienced through participation in Family Science Night.

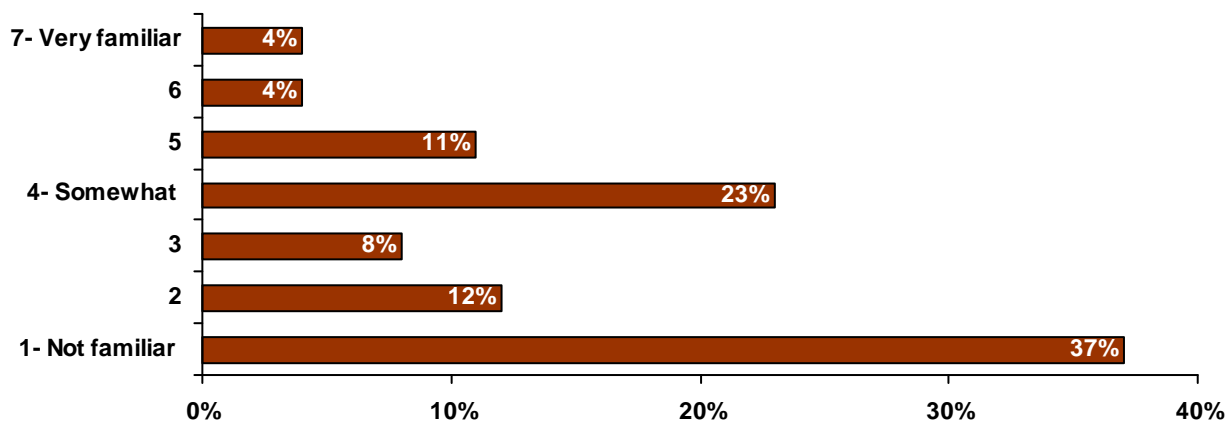


Figure 1. Adult familiarity with NASA and other space science education programs (n=73).

Interviews with school liaisons revealed that the exposure to not only space science education specifically, but also to museums in general, may be one of the most important and lasting benefits of participation in Family Science Night events. Many liaisons talked of conversations with parents and students on the bus ride home from the event, and the excitement they expressed about visiting the Air and Space Museum. Many of the families had never visited the museum, although it was perhaps a 10 minute ride from their neighborhood. The following comments from three different school liaisons are illustrative of this finding:

*Many parents have never been there and they want to come back to see the rest of the museum. This is a way to expose them to it; and they will come back. We took a poll on the bus and the majority had never been there. [Liaison interview, April 2008]*

*It would be a shame if it was discontinued because there are so many children in our area who don't have the opportunity to find out what it's like to be in a museum where they can actually see things. It's good for those families to see it's a quick car ride away or that they can take the Metro to go to the museum. It's good that the parents can go back and talk to their neighbors. [Liaison interview, April 2008]*

*I get a lot of feedback from students. They want to make sure they will get to go again next year. This may be the only experience these students have going to a museum, especially to go with their families. It gives them great memories of the Air and Space Museum. [Liaison interview, April 2008]*

Adult survey feedback revealed that for some parents who *had* been to the museum, FSN was an opportunity to share this experience with their child. As one survey respondent commented, she attended Family Science Night because of “the opportunity to go with the school community, and [because it’s] just a good opportunity to expose my child to the Air & Space Museum.”



Related to this, several liaisons emphasized that providing the event free to participating schools increases the accessibility and potential impacts of the FSN program, including the exposure to the Air and Space Museum as well as the chance to learn about space science. This appears to be especially true for the low income families targeted for participation in the events:

*What I like the most is that we are able to offer it at low cost. We see parents we don't see at parent conferences or other school events, but they're here for this. Sometimes there are parents who have had grievances with the school the entire year, but they come. Also, they don't need to speak English proficiently, so the program is not intimidating in any way. [Liaison interview, April 2008]*

Another echoed this sentiment:

*Our school is 50% minority. We get good participation from the minority students and families. For many, their older siblings have gone. Having the bus take them, for no charge, makes it accessible to these families. [Liaison interview, April 2008]*

Regarding exposing diverse populations to the world of science and museums, one liaison said, “It’s so great to get diverse, second language populations there. If it motivates one kid from my school to go into science, it’s worth it. We need to get these kids excited.”

## **School Involvement in Family Science Night**

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To better understand how Family Science Night is incorporated into the school environment, liaisons responded to a series of questions about how their schools prepare for the Family Science Night events, and the nature of any post-event follow up. Liaisons discussed teachers’ use of materials—including posters and lithos—sent to them prior to the FSN event in an effort to aid in preparing teachers and students for the event.

### Pre and Post Event Activities

As previously noted, liaisons use a variety of means to recruit students and families to attend the FSN events including visiting classrooms to “talk up” the event. They follow-up with classroom visits and reminders as the event nears. They may also spend time on the bus ride to the event talking to families about what to expect in the evening ahead.

The majority of liaisons, however, stated that there is little to no preparation involving student learning related to the topic of the talks. The exception was a single liaison who indicated that all of the classroom teachers whose students may attend did a unit on space around the time the event took place in an effort to coordinate the curriculum with the event. Another liaison, who is also a classroom teacher, said that prior to the event she had a discussion with her students about what space travel is like and what is required for it. A few of the liaisons who were not classroom teachers were unsure of what teachers at their school might be doing with students prior to the event. It is possible that more pre-event preparation happened than what they were able to report.



After the FSN events, follow-up activities in the classroom consisted mostly of informal classroom discussions. Teachers encouraged the students who went to the event to share with their classmates what they learned and what they most enjoyed. Teachers also used the discussions as a way of allowing students to ask questions about things they may not have understood and to clarify main points of the talks. One of the teachers commented that she used the shared event as a way “to make real-life connections in her classes [concerning science and the role of scientists].” One liaison from a school that has its own planetarium saw the FSN events as a nice tie-in to what they already do with 4<sup>th</sup> and 5<sup>th</sup> graders related to space science. Another group had the elementary science coordinator for the district go along with them so he could “follow-up at all the elementary schools and tie-in to his curriculum as he floats from school to school.”

A few of the liaisons indicated that the reason for not doing more in the way of preparation prior to the event is related to the lack of a connection to their curriculum. For example, one stated that “while the third grade curriculum deals with space, fifth grade stays close to Earth and its processes.” Another mentioned that while they do cover the solar system and astronomy in the fourth quarter of the school year, the talks come before they get to the unit.

While not necessarily fitting into the science curriculum, FSN is seen as a good way to raise the level of interest in space science and in science careers. As one interviewee stated,

*Our science curriculum is complete. We have a rigid curriculum and the presentation wasn't tied to the standards. But we share the materials with the teachers who could integrate them with the standards. The Family Science Night program is free-standing. We see it as a fire-lighter.*  
[Liaison interview, April 2008]

### Instructional Materials

Participating schools receive posters and lithos in advance of the FSN event to help teachers frame classroom activities related to the talk and film topics. Teachers put these materials up in their rooms and share them with other teachers in their schools. A few of the liaisons commented that teachers used the posters as discussion prompts before the event to scaffold the information in the FSN talk for their students, and then returned to the posters after the event so that students could make connections to the scientist's presentation and the film. This was a useful way to reinforce the concepts learned from the event. One liaison mentioned that the posters are useful in “getting students to think about their place in the universe.”

It was suggested that it would be useful to have an educational packet with worksheets and activities that teachers might use prior to and/or after the event to help them make learning connections for their students. This would also be helpful in matching the talk and film concepts to the state standards. Furthermore, it could be a way of helping teachers, who do not normally cover space science, gain a better understanding of related concepts, and foster ideas for reinforcing FSN topics.

## Family Science Night Event Feedback

This section presents evaluation findings related to program quality, program components, family participation, and event coordination.

### Program Quality

For this study program quality was assessed through questions on the adult and student surveys as well as through feedback from interviewees. Family Science Night was rated very highly by both students and adults who attended the event. Ninety-three percent of parents and 94% of students rated the overall program quality as *good* or *excellent* (Figure 2).

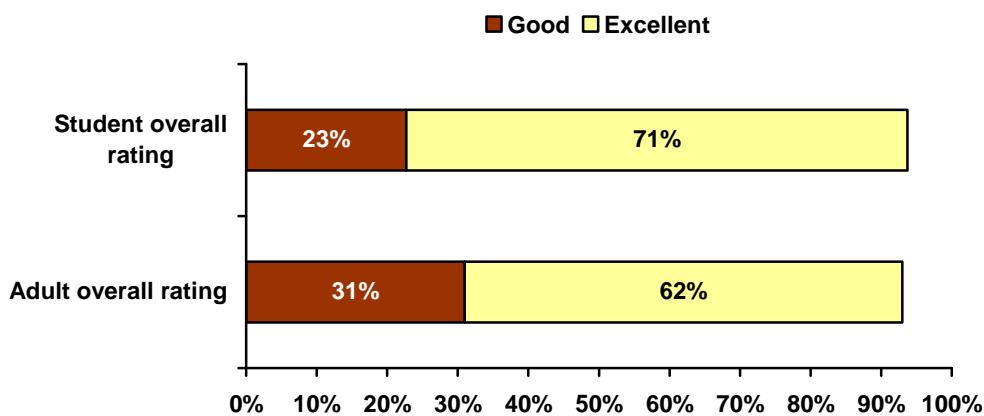


Figure 2. Parent and student ratings of the FSN events (n=139).

In addition to rating overall quality, adults were asked to rate the value and quality of four aspects of the Family Science Night program. As shown in Figure 3, adult respondents rated all aspects of the program very highly. Ninety-Eight percent of adults thought that the science education value of the program was *good* to *excellent* and 92% felt that the entertainment value was *good* to *excellent*. Program format received high ratings with 93% of respondents rating it *good* or *excellent*, and the presenters were rated *good* to *excellent* by 82% of adults.

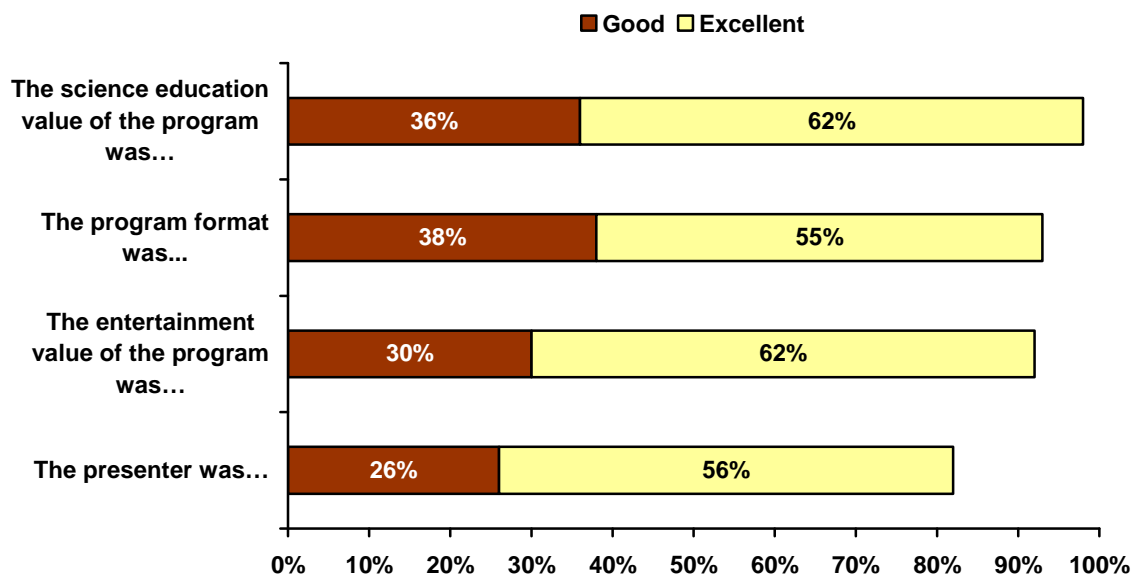


Figure 3. Adult responses to questions about program quality (n=74).

### Program Components

School liaisons were unanimous in their praise for the quality of the FSN event. Many commented that all parts of the program are engaging and interesting to the families who attend. For students, the IMAX movie was often the highlight. Liaisons commented that students especially enjoyed the 3D movie they saw this year and talked about it for days afterward. One stated, “Every one of the films has been high quality. The demographics of our school are such that most of the kids have never seen it.”

The opportunity to explore the museum after hours is a unique and valued component of the Family Science Night events. A few liaisons commented that this part of the evening is often the most challenging to supervise as students are “set free” to explore the open exhibits with their families. One declared, “Exploring the museum is more willy-nilly, when they are there with their parents. The kids are running around. Of all the activities this is the least educational.”

Despite this, the time to explore the exhibits is seen as a vital part of the evening in terms of giving families the exposure to the museum they might not otherwise get. It is viewed as a way to entice families back to explore the rest of the museum beyond the FSN event. Liaisons appreciated having more time this year for exploration of the museum than they had had in the past, since parents often commented that they wished this part of the program were longer. Several parents suggested (in unsolicited comments on the feedback survey) that the scientist’s presentation be shortened and the time allocated to additional time to explore museum exhibits. A school liaison commented,

*It would be nice to have a bit more time at the beginning for more exploration – there is so much to see. Now we get about a half hour – it would be nicer to have 15 more minutes because for many they have never been there before. [Liaison interview, April 2008]*

Liaison interviewees and several adult survey respondents provided a great deal of feedback on the scientists' presentations at the events. Parents and school liaisons identified several characteristics key to making this part of the event a success. These included

- Ensuring that the presentation is developmentally appropriate for 3<sup>rd</sup>-5<sup>th</sup> grade students.
- Actively involving the students and other audience members in the presentation.
- Using real-life examples and humor to keep students engaged and interested.
- Keeping the presentation length to no longer than 30 minutes.

A comment from one of the school liaisons typifies these suggestions:

*It's best to talk "with" the children and not "to" them. Involve them in the conversation; bring the kids up to demonstrate the distance between planets. Keep it very interactive. Just make sure the speaker is tuned into 8, 9, and 10 year olds. [Liaison interview, April 2008]*

Another stated, "Don't talk over their heads. Keep the material and presentation at the level of the students. Students want to see the 'wow'—hands-on demos, audience involvement." A third said, "They love it when the speakers do audience participation and talk at their level. They like it when the speakers use humor. It's good to get the kids involved."

One interviewee valued the connections to real-life lessons fostered by the evening's events:

*I thought [FSN] was good. It was informative. The gentleman who gave the talk was engaging and humorous. The teachers can connect the event to the scientific process. Another thing is resilience. It shows that scientists need to keep trying until they get it right; do the best you can and don't give up. We teach character education and that really fits in. [Liaison interview, April 2008]*

When speakers were less successful in adjusting the presentation to the students' level and keeping it interactive, parents and liaisons indicated that the students became disengaged and restless. One parent commented, "The scientist before the IMAX film was wonderful but his talk was at least a senior in high school to college level. These were 4<sup>th</sup> and 5<sup>th</sup> grade children." When the speaker achieved the best mix of age-appropriateness, interaction and audience engagement, the results were very positive:

*The speaker did a great job setting the stage for the movie. He gave them something to look for in the film. This speaker had flair for making it understandable to kids and tired adults. It creates a lot of positive feelings for the museum, for science and learning. It's a happy experience; what more could you ask! [Liaison interview, April 2008]*

### Family Participation

The family participation aspect of Family Science Night is clearly a strength of the program. Family Science Night offers the opportunity to foster interest and engagement in space science for children and their parents while also providing them a unique way to spend quality time together as a family. When asked about reasons for participating, one adult wrote, "Primarily to spend time together, but

the content was thoroughly engaging.” Others offered comments such as “It’s an incredibly enriching experience for families” and that the program provided a “great family learning opportunity.”

All of the school liaisons interviewed for the study concurred that by allowing families to participate together, the program offers a unique opportunity for families to learn together and to share the excitement of space science. As one liaison stated,

*Every single time, the parents are just awestruck—in a cool way. They say they wished they had known this stuff when they were growing up. They tell me it really gave them a point to have good discussions about science with their kid that they hadn’t had before. [Liaison interview, April 2008]*

Another school liaison stated, “The parent feedback is all positive. They really enjoy getting to learn with their kids and to be part of that experience.” A third talked of how parents expressed that FSN “reunited them with their students about what they were learning and inspired the parents themselves to learn more.”

Adult and student survey responses concerning the cross-generational nature of FSN support the findings that family participation is a key feature of the program. Eighty-seven percent of students *agreed* or *strongly agreed* that they can share what they learned at FSN with their family, and 74% *agreed* or *strongly agreed* that attending the program made them more excited about attending future science education programs as a family (Figure 4).

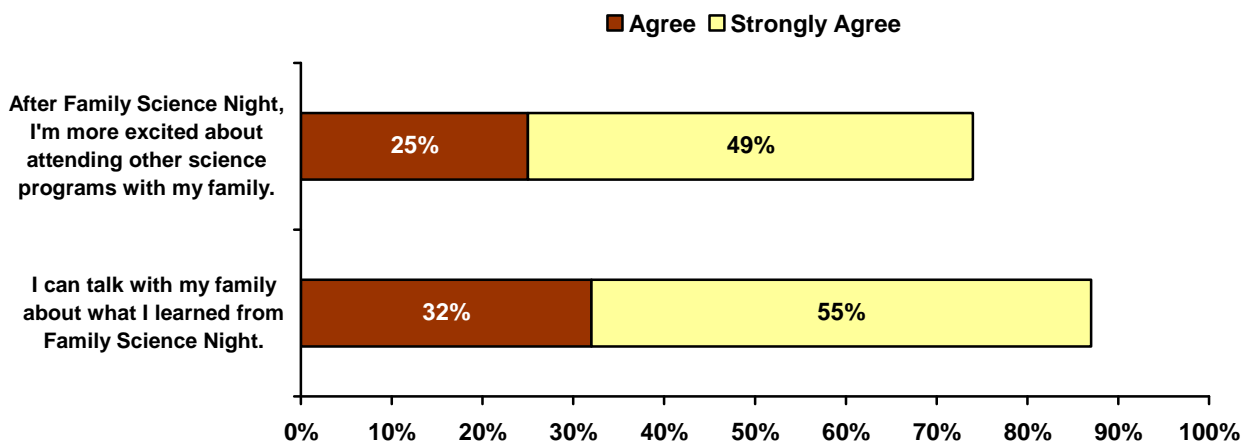


Figure 4. Student responses to questions about family participation in FSN (n=65).

Sixty-nine percent of parents responded that FSN gave them opportunities to engage in family discussions related to the program and 70% felt that it motivated them to seek other science education opportunities as a family (Figure 5).

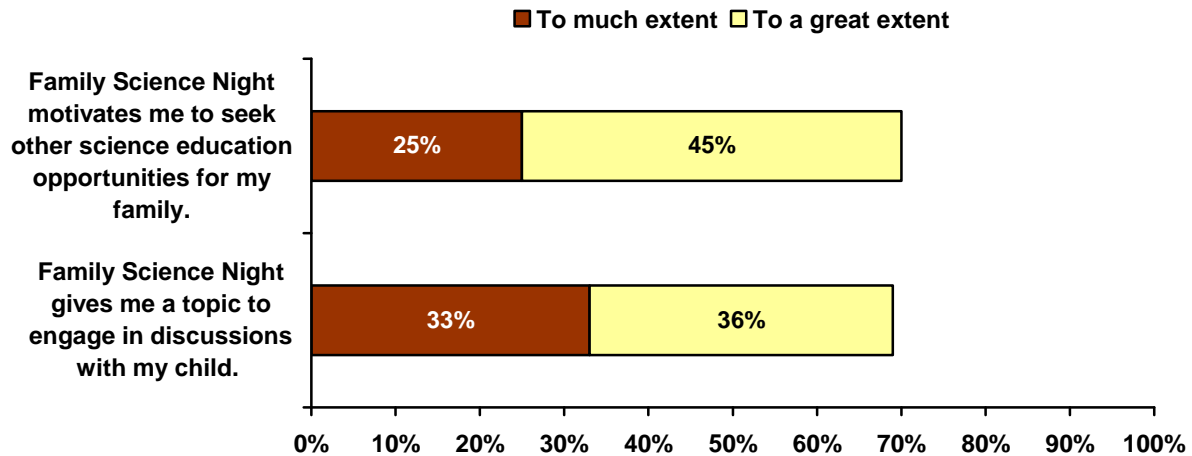


Figure 5. Adult responses to questions about family participation in FSN (n=72).

Many of the adults who responded to the feedback survey indicated that while they found the Family Science Night experience to be very positive and of high quality, they were already motivated as a family to seek out opportunities to visit science museums and participate in science related events as a family. Hence they may have rated the question about motivation to seek other science education activities lower.

### Event Coordination

When school liaisons were asked about any aspects of Family Science Night that did not work well for them, several commented on the timing of planning and preparation for the event. As typified by the following comments from two liaisons, issues revolved mostly around the lead time needed to plan for transportation and scheduling through their school districts:

*The only thing that was challenging was that this year we got the information in December; we had to apply, find out if we would get our dates, and when we finally heard, the event was only 20 days away. Our school system requires 30 days ahead to schedule field trips and it was stressful thinking we might not get everything in on time. If we knew back in November what days we would have, it would make it much easier to plan on time. [Liaison interview, April 2008]*

*Confirmation that we were “in” would be better if it could come sooner. It would help us to gather names earlier. Otherwise we are holding on to the checks to make sure it will go. This year the selection of nights was much shorter. If this is going to be the same in the future, they need to get us the information on dates as soon as possible after the first of the year. [Liaison interview, April 2008]*

A second issue that emerged in almost a third of the interviews concerned communications with event FSN coordinators. A single liaison stated that he was unclear as to the reason for the frequent updates with the event coordinator on attendee numbers prior to the event. Another stated that while she found the constant reporting “burdensome” she understood the need for it to fill the seats and keep the program going. She stated, “You have to have someone to coordinate it who is

committed to coordinating it because it is a fair amount of work. You need to make repeated efforts to recruit.” A third commented that “it is a lot of work on the part of the school if you haven’t done it before, but we have it down.” These comments suggest that while it may not be necessary to change the procedures for scheduling the event, it is helpful when schools have a clear understanding of the need for frequent communication, and perhaps help with the most efficient means of coordinating the event at their schools.

## Program Impacts

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Impacts of Family Science Night on participating students and parents were assessed through multiple items on the adult and student feedback surveys. Students responded to questions about the program’s impact on their interest, awareness, and understanding of space science. Adults shared their perceptions of the program’s impact on their children and also about how the program impacted their own interest and understanding of space science. Adults and students responded to questions about how the program impacted their intent to participate in future space science education activities. School liaisons also provided valuable feedback on the impacts of the program on students at their schools.

### Student Interest and Engagement

Interviews with school liaisons reveal that FSN events generate a tremendous amount of interest and excitement for students at their schools. Students who have attended past events are often the best spokespersons for the program, telling their peers about how much fun they will have if they attend, and sharing their experiences from past attendance. Liaisons commented that after the event, the students are eager to talk about it and to tell others about what they learned. As one stated, “The students love it. They talk about for days afterward. They even stop me in the hall to talk about it.” Another liaison echoed this sentiment:

*Kids talk about it for a couple of days afterwards – sitting in the cockpit, exploring the museum displays, how cool the movie was. I hear things like ‘it was neat when they played golf on the moon’.*  
[Liaison interview, April 2008]

Parent survey responses reveal that for many, attendance at the FSN event is driven by their child’s interest in space science, or by their own interest and desire to share the excitement of space with their children. Adults wrote things like “I’ve been a space fan since I was a kid” and “my child is interested in space” as reasons for wanting to attend the event. One student wrote offered this comment on her survey: “It’s fun, interesting and exciting to learn new things.”

For several parents, attendance at the FSN event was a way to “broaden their child’s horizons.” Many of the adults who responded to the FSN survey indicated that they already had a high degree of interest in space science or science in general and wanted to foster that same interest in their children. When asked about reasons for attending, one parent wrote that “space science is one of the most exciting human achievements.” Another parent wrote, “I am a scientist and want to expose my child to science topics as much as possible.”



When surveyed after the event, approximately sixty-seven percent of parents felt that FSN impacted their child’s understanding and interest in science and space science *to much extent* or *to a great extent* (Figure 6).

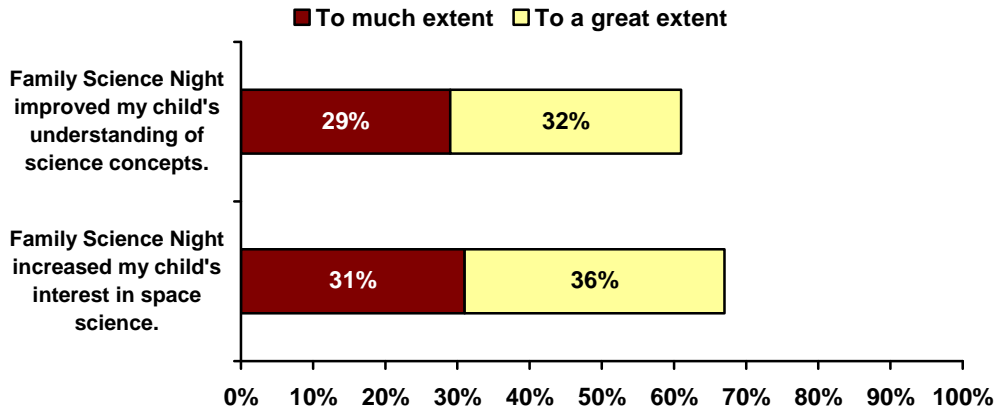


Figure 6. Adult perceptions of impacts of FSN on their children’s interest and understanding of space science (n=70).

Students themselves were even more positive about the impacts of the FSN event on their interest in and understanding of space science. Eighty-eight percent of students *agreed* or *strongly agreed* with the statement, “The program was very interesting to me,” and 80% *agreed* or *strongly agreed* that the program increased their interest in space science specifically (Figure 7). More than half of the students surveyed indicated that the FSN event increased their interest in space science careers and 68% said that it increased their interest in supporting NASA missions and space science.

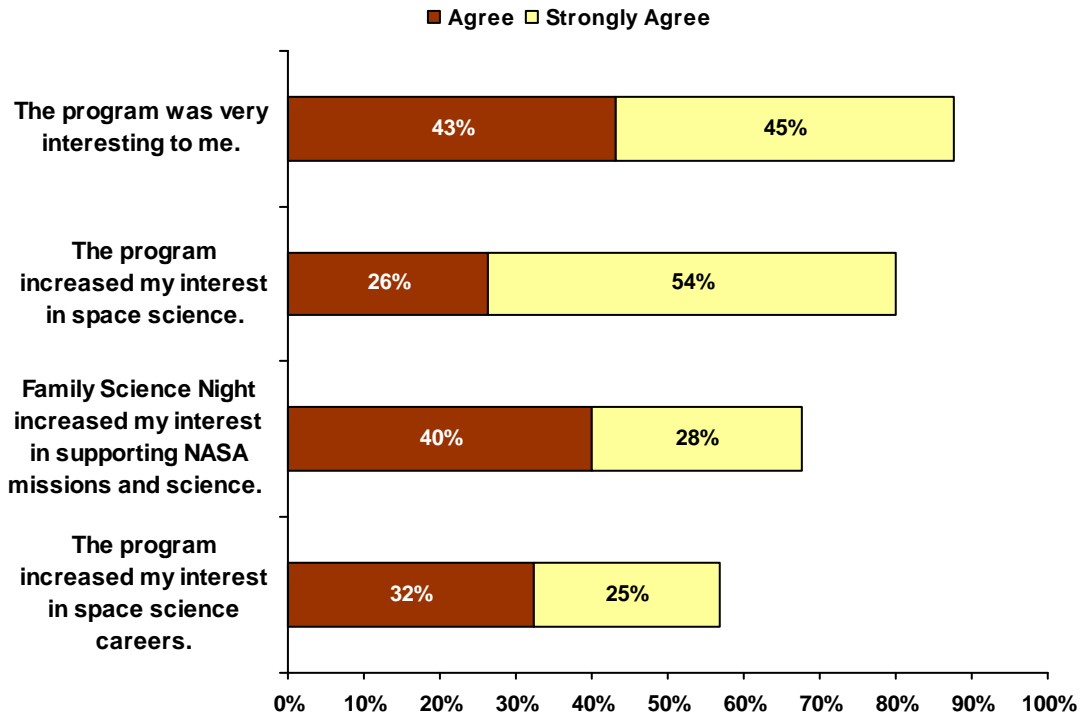


Figure 7. Student self-ratings of interest in space science, NASA and space science careers (n=65).

### Student Understanding and Awareness

Students responded to several questions regarding the impacts of Family Science Night on their understanding and awareness of space science. These survey questions included those concerned with the degree to which students were able to understand the content of the presentations, their perceptions of whether they had learned something from attending the event, and their awareness and understanding of the work of scientists and the reasons for studying science. As shown in Figure 8, students were nearly unanimous in agreeing that they learned something new from attending the event (97% of respondents). Eighty-eight percent of students felt that the material was presented in a way they were able to understand. Approximately 88% agreed or strongly agreed that FSN increased their awareness of scientists as people trying to advance human goals, and 82% agreed or strongly agreed that the program enhanced their understanding about the science content and the reasons for studying it. These findings along with feedback from school contacts and parents indicated that Family Science Night is very successful in meeting the EPOXI EPO goal of “engaging the general public in space exploration and discovery.”

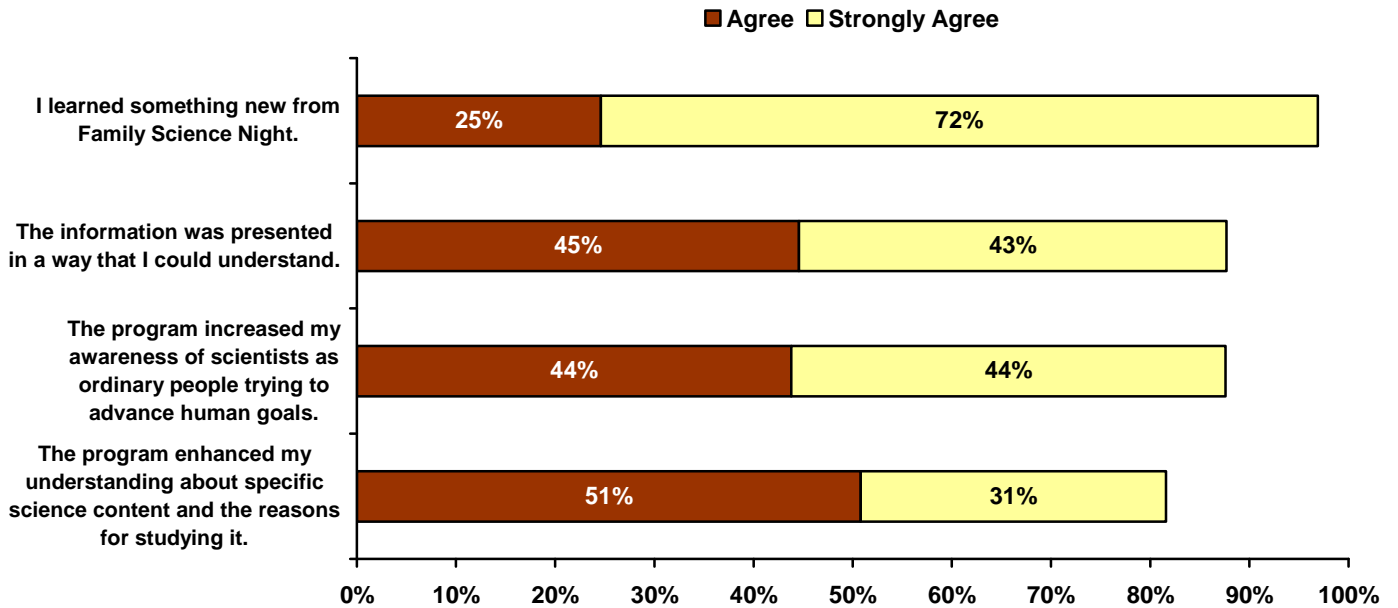


Figure 8. Student self-ratings of awareness and understanding related to the FSN event (n=65).

#### Adult Understanding and Awareness

Parents responded to questions about the impacts of Family Science Night on their own interest in and awareness of space science as well as the impact on their understanding of the work of science and the need to study it. Adults rated how much more knowledgeable they were about space science as a result of attending FSN. As shown in Figure 9, 92% indicated that they were *somewhat* to *very much* more knowledgeable about space science as a result of attending the event.

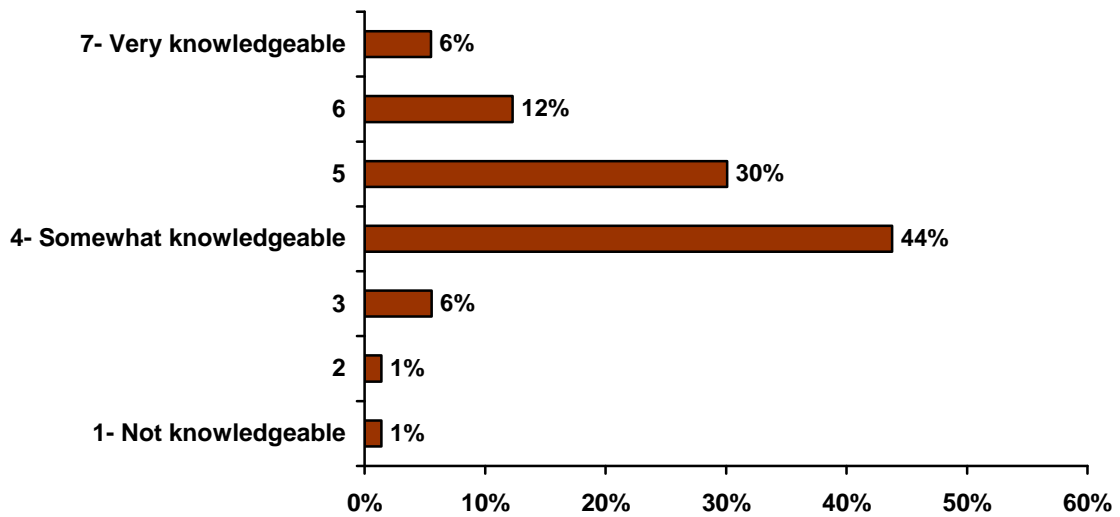


Figure 9. Impact of FSN on adult knowledge of space-related topics and issues (n=73).

Parents responded to similar questions to those on the student survey about the extent to which participation in Family Science Night increased their interest and awareness of NASA and the work of scientists. Figure 10 shows adult ratings for these survey items. As can be seen from the figure, approximately 72% of adults indicated that FSN increased their understanding and awareness about event content and the reason for studying it to *much* or *a great extent*, while 71% indicated that the program increased their understanding of the work of scientists to the same degree. Sixty-two percent indicated that FSN increased their interest in science to *much* or *a great extent*, and 58% said that FSN increased their interest in supporting NASA missions and science. The ratings regarding increase in interest in science and interest in supporting NASA may reflect lower ratings than might have been obtained had not many of the adults indicated an already high level of interest in science.

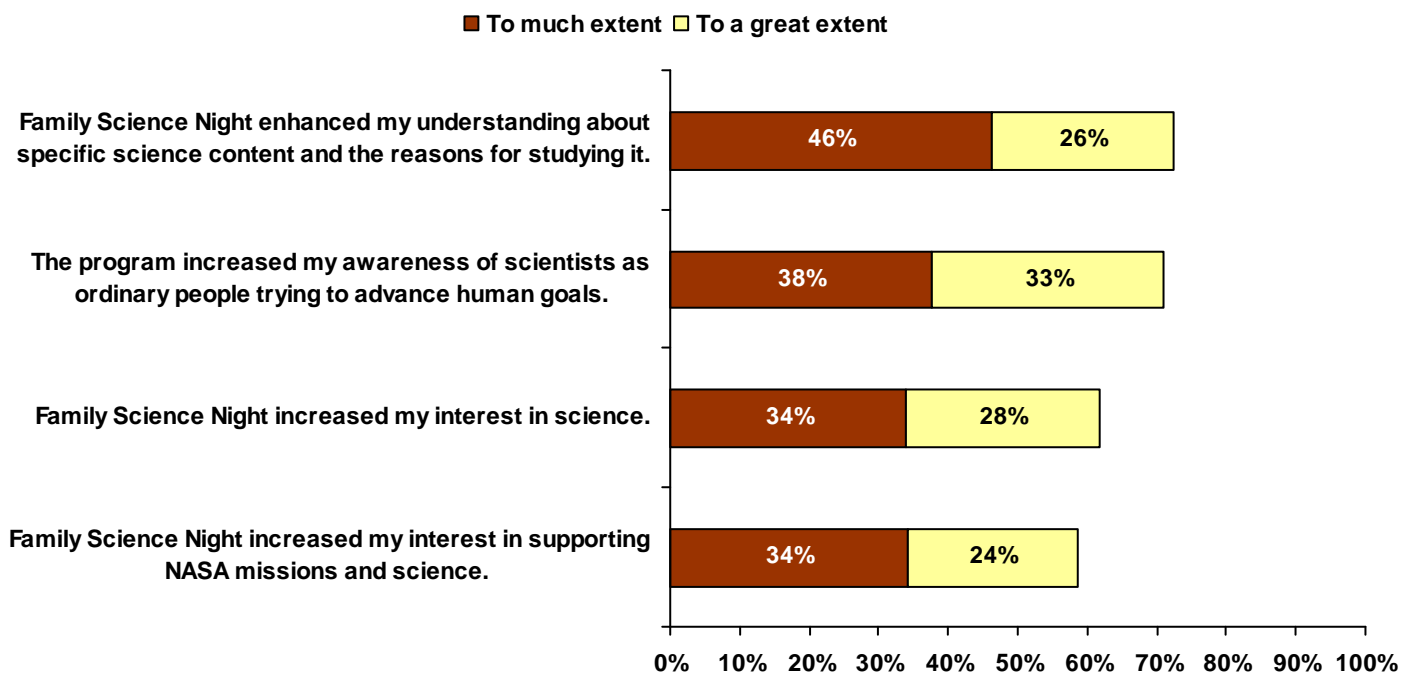


Figure 10. Parent self-ratings of awareness and understanding related to the FSN event (n=71).

### Impact on Future Science Education Experiences

A final question on both the student and adult feedback surveys asked participants about science education activities they planned on doing as a family as a result of participating in the FSN program. Table 2 presents adult and student responses to this question. Collectively, greater than half of the participants surveyed indicated an interest in observing the night sky, visiting other science centers or planetariums or watching science shows on television as a result of participation in FSN events. In addition to the choices available on the survey, respondents had the opportunity to list any other science education activities they might participate in as a result of FSN. Two adult respondents indicated that they already regularly attend museums or participate in science education activities. Others mentioned exploring possible space camps for their children, doing science experiments and activities at home, and “observing the night sky for unusual sightings.” Several students listed an intention to observe the night sky, to study stars in school and one student indicated he/she wanted to be a scientist.

**Table 2.**  
*Activities Planned by Participants after Attending FSN*

<b>Activity</b>	<b>Number of Adults (n=74)</b>	<b>Number of Students (n=65)</b>	<b>% of Total Respondents</b>
Watch TV shows about science.	48	36	60.4%
Visit a science center, planetarium, observatory, etc.	48	35	59.7%
Attempt to observe stars and comets in the night sky	38	33	51.1%
Visit other space science or general science websites	43	26	49.6%
Check out books or videos from the library on space science.	33	31	46%
Visit the EPOXI or NASA website	39	22	43.9%
Read space or other science articles, magazines, journals, etc.	27	24	36.7%

## SUMMARY AND RECOMMENDATIONS

This section of the report summarizes the findings from the feedback surveys and liaison interviews as they relate to the original evaluation questions. The summary is followed by recommendations for improving and maintaining the program.

### How do families and educators perceive the quality and value of the FSN events?

Parent and student ratings regarding the quality and value of the FSN program were extremely high. Ninety-three percent of parents and 94% children rated the program quality as *good to excellent*. Parents were nearly unanimous in rating the science education value of the program as *good to excellent*, and also rated the entertainment value and quality of the speaker very highly. Parents and students saw the event as a worthwhile way to spend time together as a family. Many participants are repeat visitors to the event, having participated with the same children or their siblings in previous years. Liaisons confirmed that many families attend the event year after year and that students are always eager to know if they can return again the following school year.

Feedback indicates that all three components of the event—the film, scientist presentation, and exploration of the museum—were equally valued by participants. Although a few liaisons indicated that the evening was long for the students and their families, they also said that there is nothing they would eliminate from the program because it is all valuable and worthwhile. Students especially enjoyed the IMAX film, and the scientist’s talk when it was presented in an engaging and participatory manner. Parents and liaisons felt that time for exploration of the museum was a very enjoyable and informative part of the evening’s events and that they would like more time for this part of the program at future events.

Participating schools are extremely supportive of the Family Science Night program. Praise for the program was strong and unanimous among those interviewed. Liaisons felt that the program was an effective means for engaging student interest in space science, and for exposing students and families to the excitement of scientific discovery.

**What aspects of FSN are most valued by participating families and educators?**

Several different aspects of Family Science Night have proved particularly valuable to program stakeholders. Liaisons saw the program as a way to expose children to the excitement of space science and to garner interest in science and science careers. They spoke of the added benefit of introducing students and their families to the world of museums, a new experience for many participants. Thus, Family Science Night is viewed as having value in and of itself as an educational event, and also as a means for opening up a new world of experience for families. Liaisons saw this as particularly important for minority and second-language students. This indicates that the program is meeting its goals of attracting a diverse audience through the schools and families in attendance.

Parents and liaisons valued the fact that FSN is offered free to participating schools. Liaisons saw this as a means of increasing accessibility, especially for those schools that have high populations of low-income students. This allows for broader participation for families who might not be able to afford program fees. This, in turn, ensures that underrepresented groups can gain access and exposure to museums and to space science education.

Liaisons and participants agreed that being able to share the FSN experience as a family was one of the greatest draws of the event. Numerous parents stated that they participated in FSN for just that reason—to spend quality time learning and exploring together with their children. Close to 90% of students and 70% of parents agreed that FSN gave them a topic for discussion as a family, indicating that family participation fostered an interest in sharing the excitement of what they had learned from the event. Liaisons reported that much of the parent feedback they received involved comments about the enjoyment of FSN as a family experience.

**How does FSN impact understanding and awareness of the study of space science?**

Students were nearly unanimous in agreeing that they learned something as a result of attending Family Science Night. They were able to understand the material that was presented to them, which increases the likelihood that they will learn something of significance from attending the event. Based on survey feedback, the program also appeared to enhance students' understanding of the nature of scientific exploration and the work of scientists. More than half of the students surveyed indicated that the event increased their interest in space-science related careers. Exposure to actual scientists in an accessible and entertaining format allowed students to see that being a scientist is an attainable goal to which they themselves might aspire. Taken together, these survey responses suggest that FSN may have an important role in increasing student awareness of potential careers in science and helping them to understand the importance of scientific discovery. Liaisons also felt



that FSN raises student interest and awareness of space science as evidenced by student excitement for sharing their experience with their classmates, commenting on particular things they learned from the movie and speaker, and their eagerness to attend future events.

Ninety-two percent of parents indicated that they were more knowledgeable about space science as a result of attending FSN, and more than two thirds indicated that the event increased their understanding of the science related to the event. Parent ratings concerning an increased understanding of the role of scientists indicate that adults gained an awareness of the process of scientific exploration and discovery as did their children. Parent ratings for this item were lower than student ratings, (71% compared to 88%), which is not surprising given the greater life experience of adult attendees.

**How does FSN impact participant interest and support for NASA-related and other science education programs?**

As a result of attending Family Science Night, greater than half of participants indicated that they would like to pursue opportunities to visit other museums and planetariums, observe the night sky, and watch videos or television shows related to space science. Liaisons agreed that exposure to the National Air and Space Museum is an important impact of attendance at FSN for many of the participating families. Liaisons also felt that parent and student eagerness to attend future FSN events is an indicator of support for the NASA-related space education aspect of the program.

The majority of students and parents felt that the event made them more excited about attending future science education programs as a family, indicating that family participation serves to reinforce interest in space science by giving families a shared understanding and awareness of it. The majority of parents and students also indicated that attendance at FSN increased their interest in supporting NASA missions and science education. Students agreed that FSN was interesting to them and that it increased their interest in space science, while parents, to a lesser extent, agreed that the program impacted their child's interest in space science.

**What aspects of FSN events are not working well for participating families and schools?**

There was very little in the way of critical feedback related to the FSN events, indicating a high degree of satisfaction with the program among its stakeholders. A few themes emerged, however, that are worth noting and can be taken into consideration when planning future events.

Comments concerning speaker presentations dealt mainly with making sure the talk content and delivery is appropriate for 3<sup>rd</sup> through 5<sup>th</sup> grade students and also ensuring that the presenter engages the audience through active participation in the presentation. Several parents and liaisons also suggested keeping the scientists' presentations to 30–40 minutes to maintain the students' attention.

Evening events are all highly valued by participants. Several parents and liaisons suggested that they would like more time to explore the museum as this is a new experience for many participants. Although exploration of the National Air and Space Museum exhibits may not tie directly to the

content in the film and presentation, it does serve to engage participants and perhaps increase their excitement toward actively participating in the other parts of the FSN event.

Finally, for liaisons, scheduling and coordinating the event is seen as labor intensive, but worth the time and effort. A few did mention the need to have dates for their school's participation finalized sooner than is currently the practice. This was critical to internal scheduling for recruitment and securing school buses for transportation to the event.

Based on the above findings, Magnolia Consulting offers the following recommendations regarding future Family Science Night events:

With respect to the overall program:

- ◆ Continue to ensure that diverse and low income families have free access to FSN events. This aspect of the program is invaluable in allowing families access to space-science education who might not otherwise be able to participate in such events.

With respect to program format:

- ◆ Continue to offer the program in the current format of exploration, presenter, and film. All aspects of the program are highly valued by participants and serve to compliment one another to capture participant interest.
- ◆ Consider adjusting the schedule to allow more time for museum exploration.
- ◆ To ensure maximum learning and participation, keep the language and content of speaker presentations at a level that is developmentally appropriate to third-through-fifth grade students. Examining state standards related to space science education for an indication of what students in these grades should know and be able to do could help to ensure that content and language is on target for the selected audience.
- ◆ The National Science Education Standards place a high degree of importance on presenting science to children in a manner that involves them in learning actively. While interactive presentations can be difficult when dealing with the large audiences attending FSN events, there are some methods that work well with large groups to keep presentations interactive, many of which are used already by FSN speakers. Presenters should continue to use methods such as demonstrations and audience volunteers as these are valued by participants and serve to keep them interested and engaged. Participants value the humor and story-telling style of some presenters. These not only serve to keep audience members engaged, but also promote the idea that scientists are accessible people.

Presenters may want to explore other techniques for engaging large audiences including things like presenting information in small chunks broken up by time for audience questions. Speakers may even provide the audience with question prompts during the presentation and then allow two minutes for audiences to discuss the question with their family member or friend. Scaffolding the talk with a handout or on screen puzzle or "quiz" can cue students into the main points of the talk and engage them in 'finding the answers.'

With respect to enhancing the educational impacts of FSN:

- ◆ Teachers value the posters and lithos sent to them prior to the event. However, teachers are interested in other materials and activities that may be useful in reinforcing the concepts presented at FSN. NASA already has in place many good educational activities and materials related to space- science education. Consider ways to increase teacher awareness of these resources through informational packets to the schools and through linking materials and activities from the existing page on the EPOXI outreach website that currently has photos from FSN events.
- ◆ Provide resources to help teachers make the connection between FSN events and state education standards.
- ◆ Although the students targeted for FSN are third-through-fifth graders, career awareness can begin even with these young students. Through informational packets for teachers and/or through a website, offer resources to teachers and students so that they might gain an understanding of space-science careers and how to best prepare for them.

With respect to event coordination:

- ◆ Consider ways of streamlining communications with school contacts involving event scheduling and planning. Related to this, make clear to school contacts the reasons and need for frequent and sustained communication between event coordinators and school liaisons.
- ◆ For school liaisons who are new to coordinating the FSN events, find ways to help them ensure the most efficient means for coordinating the event at their school. This may be as simple as providing them contact information for liaisons at other schools who have past experience with recruiting and scheduling events at their schools.
- ◆ If at all possible, determine school event dates prior to the schools' winter breaks to ensure that schools have enough time to schedule event transportation.

In conclusion, Family Science Night is an effective means of exposing children and their families to the excitement of space science and exploration. The use of varied program components including museum exploration, film, and scientist presentations keeps the evening interesting and engaging and provides a means to reinforce learning through multiple modalities. Exposure to working scientists in a format that presents them as approachable and accessible can serve to help students see themselves in a similar role and begin to sew the seeds of career awareness in even these young students. The accessibility of the program to families of low income and to diverse populations helps to ensure that the world of science and museums is there for all and not just a select group of individuals. The unique nature of FSN as a family event allows for family learning in a venue that is fun and engaging, thus contributing to NASA's EPO goal of "engaging the general public in space exploration and discovery."

## APPENDIX A

### Adult Participant Feedback Survey

Thank you for attending Family Science Night! We hope this was a worthwhile experience for you and your family. Please take a moment to share with us your feedback on Family Science Night. You can also access this survey online at <https://vovici.com/wsb.dll/s/13d56g3167d>. Your feedback is anonymous and greatly appreciated!

1. Date of Family Science Night:

- February 19, 2008
- February 21, 2008
- February 26, 2008
- February 27, 2008
- March 10, 2008

2. I am:  Female  Male

3. I am:  White  Black  Hispanic  Asian/Pacific Islander  Other

4. Age:  19-24  25-29  30-39  40-49  50-64  65+

5. What school does your child attend? \_\_\_\_\_

6. How familiar are you with other space-related or NASA education programs?

- |                          |                          |                          |                          |                              |                          |                          |                          |
|--------------------------|--------------------------|--------------------------|--------------------------|------------------------------|--------------------------|--------------------------|--------------------------|
| <b>not<br/>familiar</b>  |                          |                          |                          | <b>somewhat<br/>familiar</b> |                          |                          | <b>very<br/>familiar</b> |
| 1                        | 2                        | 3                        | 4                        | 5                            | 6                        | 7                        |                          |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

7. As a result of the Family Science Night presentation, how much more knowledgeable are you about space-related topics and issues?

- |                              |                          |                          |                          |                                   |                          |                          |                               |
|------------------------------|--------------------------|--------------------------|--------------------------|-----------------------------------|--------------------------|--------------------------|-------------------------------|
| <b>not<br/>knowledgeable</b> |                          |                          |                          | <b>somewhat<br/>knowledgeable</b> |                          |                          | <b>very<br/>knowledgeable</b> |
| 1                            | 2                        | 3                        | 4                        | 5                                 | 6                        | 7                        |                               |
| <input type="checkbox"/>     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>          | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>      |

**Please rate the quality of the following:**

- |   |                          |                          |                          |                          |                          |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
|   | <u>excellent</u>         | <u>good</u>              | <u>average</u>           | <u>fair</u>              | <u>poor</u>              |
| 8. The program format was:                          | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 9. The presenter was:                               | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 10. The science education value of the program was: | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 11. The entertainment value of the program was:     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

<b><i>The Family Science Night program...</i></b>		<u>to a great extent</u>	<u>to much extent</u>	<u>to some extent</u>	<u>to little extent</u>	<u>to no extent</u>
12.	Increased my interest in science.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13.	Increased my <i>awareness</i> of scientists as ordinary people trying to advance human goals.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14.	Increased my <i>interest</i> in supporting NASA missions and space science.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.	Enhanced my <i>understanding</i> about specific science content and reasons for studying it.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16.	Gives me a topic in which to engage in educational discussions with my child.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17.	Motivates me to seek other science education opportunities for my family.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18.	Increased my child's interest in space science.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19.	Improved my child's understanding of science concepts.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<u>excellent</u>	<u>good</u>	<u>average</u>	<u>fair</u>	<u>poor</u>
20.	Overall, the program was:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21.	What types of science education activities has your family participated in prior to Family Science Night?					
22.	Why were you interested in participating in this particular Family Science Night activity?					
23.	Please check any of the following science related activities you plan on doing with your family as a result of the Family Science Night program:					
	<input type="checkbox"/> Visit the EPOXI or NASA website					
	<input type="checkbox"/> Visit other space science or general science websites					
	<input type="checkbox"/> Read space science or other science articles, magazines, journals, etc.					
	<input type="checkbox"/> Check out books or videos from the library on space science					
	<input type="checkbox"/> Watch TV shows about science					
	<input type="checkbox"/> Visit a science center, planetarium, observatory, etc.					
	<input type="checkbox"/> Attempt to observe stars and comets in the night sky					
	<input type="checkbox"/> Other family science-related activity (please describe)					

## Appendix B

### Student Participant Feedback Survey

Thank you for attending Family Science Night at the National Air and Space Museum! We hope that this was a fun experience for you and your family. Please take a moment to share with us your feedback on Family Science Night. You can also access this survey online at <https://vovici.com/wsb.dll/s/13d56g3167d>. Your feedback is anonymous and is greatly appreciated!

1. Date of Family Science Night:

- February 19, 2008
- February 21, 2008
- February 26, 2008
- February 27, 2008
- March 10, 2008

2. I am:  Female  Male

3. I am:  White  Black  Hispanic  Asian/Pacific Islander  Other

4. Age:  under age 10  10-14  15-18  19-24

5. What school do you attend? \_\_\_\_\_

*Please rate the extent to which you agree with the following:*

	<u>Strongly</u> <u>Agree</u>	<u>Agree</u>	<u>Neither</u> <u>Agree</u> <u>nor</u> <u>Disagree</u>	<u>Disagree</u>	<u>Strongly</u> <u>Disagree</u>
6. The information was presented in a way that I could understand.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. The program was very interesting to me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. The program increased my interest in space science.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. The program increased my interest in space science careers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. I learned something new from Family Science Night.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. The program increased my <i>awareness</i> of scientists as ordinary people trying to advance human goals.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. The program increased my <i>interest</i> in supporting NASA missions and space science.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. The program enhanced my <i>understanding</i> about specific science content and reasons for studying it.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. After Family Science Night, I am more excited about attending other science education programs with my family.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

15. I can talk with my family about the things I learned from Family Science Night.
- excellent      good      average      fair      poor
16. Overall, the program was:

Please check any of the following science related activities you plan on doing with your family as a result of the Family Science Night program:

- Visit the EPOXI or NASA website
- Visit other space science or general science websites
- Read space science or other science articles, magazines, journals, etc.
- Check out books or videos from the library on space science
- Watch TV shows about science
- Visit a science center, planetarium, observatory, etc.
- Attempt to observe stars and comets in the night sky
- Other family science-related activity (please describe)



**APPENDIX C**  
**Schools Represented by Adult and Student Survey Respondents**

**Table C1.**  
***Schools Represented by Adult and Student Survey Respondents***

School	Adult	Students
Abingdon Elementary	3	0
Bannockburn Elementary	1	1
Barcroft Elementary	5	5
Bradley Hills Elementary	5	5
Burning Tree Elementary	5	7
Carderock Elementary	3	3
Charles Barrett Elementary	4	4
Claremont	7	5
George Mason Elementary	2	2
Hunters Wood Elementary	3	4
James K. Polk Elementary	3	4
John Burroughs School	2	2
MacArthur Elementary	1	1
Oakridge Elementary	2	1
Pine Spring Elementary	3	2
Sandy Spring Friends School	1	1
St. Anthony Catholic School	0	1
Westlawn Elementary	2	1
Weyanoke Elementary	0	1
William Ramsey	2	1
Wood Acres Elementary	8	6
Woodley Hills Elementary	3	5
Unspecified	9	3

## APPENDIX D

### Open-ended Responses to Adult and Student Surveys

What types of science education activities has your family participated in prior to Family Science Night?

- ◆ Regular visits to science museums like the Aquarium & Maryland Science Center; reading non-fiction books; attending special kid's activities like Einstein impersonator science talks.
- ◆ Local planetarium & science center in SC.
- ◆ Visits to Dulles A&S, DC Air & Space; nature camps, planetarium
- ◆ Museum visits, books, video programs (Mythbusters), experiments at home
- ◆ Attend this museum and other Smithsonian museums at least once a month and everything listed in number 23.
- ◆ Visit museums, visited Cape Canaveral, science fairs, science camps.
- ◆ School science nights.
- ◆ Discuss science-related topics from school and other reading.
- ◆ Go to museums regularly
- ◆ Lots of museum outings and Discovery Channel documentaries.
- ◆ Aquarium, other Smithsonian events.
- ◆ Activities with local Parks & Recreation for geology & nature.
- ◆ Not much; watch TV shows about science, occasional museum
- ◆ Sea World/Aquarium; articles about spirit on Mars
- ◆ Reading books of interest with children, science-based toys.
- ◆ We did the science night last year - the lecture was very similar.
- ◆ Kids star books, school run activities
- ◆ Last year's Family Science Night; school science fair.
- ◆ I have arranged these Family Science Nights for over 10 years.
- ◆ "Hands-on Science" extracurricular classes, aquarium & zoo visits, Air&space museum, NOVA science program, Advanced Planet
- ◆ Physics is Fun program at Univ. of Maryland
- ◆ Exposure to aircraft & space vehicles.
- ◆ Visit museums, reading books.
- ◆ School Astronomy club
- ◆ Astronomy for Girl Scouts
- ◆ We regularly go to the Air & Space, Natural History Museum, MD Science Center, Ben Franklin Institute.
- ◆ Homework!
- ◆ Programs at school
- ◆ None outside of school science fair projects.
- ◆ Family Bug Night at Smithsonian, museum visits.
- ◆ MD Science Center Jet Propulsion lab, CA, Kennedy Space Center, FL
- ◆ Smithsonian programs and outdoor education at Audubon, Discovery Creek, etc.
- ◆ None (7)

Why were you interested in participating in this particular Family Science Night activity?  
Reputation of Air & Space Museum?

- ◆ I always enjoy the IMAX movie
- ◆ My son's interest in flight and science. Air & Space is our favorite place!
- ◆ Past attendance
- ◆ To see the most recent IMAX film
- ◆ School related activity
- ◆ I am a scientist and want to expose my child to science topics as much as possible.
- ◆ NASA theme
- ◆ Increase our knowledge & goals of research
- ◆ Broaden child's horizons
- ◆ Sounded fun.
- ◆ School
- ◆ My child was interested in space.
- ◆ I've been a space fan since I was a kid.
- ◆ My daughter wanted to attend.
- ◆ Special invitation by Jeff Goldstein
- ◆ Offered by school
- ◆ Primarily to spend time together, but the subject was thoroughly engaging.
- ◆ I remember excellent "crown jewel" speech and comet presentation by Jeff G.
- ◆ We enjoyed last year's program so much.
- ◆ School activity
- ◆ Fun and free
- ◆ Busing included!
- ◆ My daughter enjoyed it last year.
- ◆ Wanted to see what it was all about. IMAX movie.
- ◆ It's an incredibly enriching experience for families.
- ◆ School field trip, new activity at a familiar museum.
- ◆ Space science is one of the most exciting human achievements.
- ◆ Wanted to know what was new in discoveries about our galaxy and universe.
- ◆ Wanted to see IMAX movie Cosmic Voyage.
- ◆ Broaden my child science knowledge.
- ◆ Because it is very interesting and it the possibility to share things with my son.
- ◆ Heard good reviews from other parents.
- ◆ Great family learning opportunity.
- ◆ I want to attend with my children and to be aware of space science.
- ◆ It was the ability to be able to attend w/ and support our school.
- ◆ Science is an interest.
- ◆ Sounded fun and interesting.
- ◆ An opportunity to go with the school community. Just a good opportunity to expose my child to the Air & Space Museum.
- ◆ Cool Family Activity
- ◆ My daughter kept begging to attend.
- ◆ Science interest for my child, Air & Space Museum is a favorite.
- ◆ Very interested in the field.

#### Miscellaneous Comments

- ◆ Too long.
- ◆ I'm a teacher; we had a fantastic time! The kids have been full of information and reaction all day. A little too long for the age group and time of night.
- ◆ Speaker (Astrophysicist) was engaging but a little lengthy in his presentation. ALL of the info he provided was presented well and easy to understand. Thank you!
- ◆ The scientist talk was a bit long and perhaps a too high a level for the kids. There was a lot I understood because I have a degree in Chemistry.
- ◆ Our HS just got a new observatory.
- ◆ Too technical for age group.
- ◆ The speaker was knowledgeable and motivated. However, his presentation was WAY TOO LONG. 30-40 minutes should be the max for this presentation. The children were getting restless & even the parents started nodding off. Also, the speaker needs to step up the quality of his visuals beyond globes & basketballs.
- ◆ In Arlington, I hear so much fuss over the curriculum and standardized testing when we have such tremendous resources here in DC. A 10-min drive or Metro ride. I'm not worried.
- ◆ The movie was great!
- ◆ The only thing that prevents it from being excellent was the length of the program. After school, an after-school activity, and a quick dinner before heading back to school to board the bus; the program simply runs too long. The kids on the bus next to us hadn't even had dinner. Their mom picked them up at after care and jumped on the bus. Although the presenter's computer was a bit slow, the presentation-wonderful. It needs to be trimmed to 45 minutes. It's simply too late for 8 and 9 year-olds to be expected to stay alert through a movie any later. Some of the parents around me nodded off as well.
- ◆ The video was great. I think the kids could really relate to it. The museum exhibits that were open in the beginning were fun & informative. While the presenter was knowledgeable, his presentation was more geared to the adults than the kids. Many of the kids were bored and lost interest quickly even though he was talking about a very interesting topic.
- ◆ Program was over the heads of an elementary student. Needs to be more basic. My only concern was the context was way over an elementary student's understanding. The opportunity to explore some of the exhibits & see the movie is good.